# SPORTS PARTICIPATION




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# FOREWORD

**Editorial - English**

Welcome to issue 42 of the ICSSPE Bulletin. The feature of this volume is Sports Participation. Various aspects of participation are presented, from how it is measured, to how it is best implemented for young people to what the differences are between groups within a population. These articles are well supported by a webliography of resources. Thank you to Editorial Board members Gretchen Ghent and Pekka Oja for their assistance with the collation of articles.

Following the success of the recent 2004 Pre-Olympic Congress in Thessaloniki, Greece, the Bulletin showcases some exciting events that occurred in the ICSSPE News section. Check upcoming Bulletin issues for more papers presented at this event which will demonstrate the extensive range of topics covered and the scope of research that is being undertaken across all fields of sport, sport science and physical education.

An exciting inclusion in this issue is an interview with former ICSSPE President, Sir Roger Bannister, in this, the 50th anniversary year of him breaking the 4 minute mile barrier.

The regular Members News section and Resources are again filled with information from around the world.

At the ICSSPE Editorial Board meeting in March this year, a decision was taken to create a Mission Statement for the Bulletin, which has been accepted as follows:
"The Bulletin of the International Council of Sport Science and Physical Education (ICSSPE) is a tri-ennial publication, produced to provide a forum for ICSSPE members and other invited contributors to share news, promote research and events, raise issues for discussion and develop internal and external links. No formal peer review of content exists. The content contained in the ICSSPE Bulletin is monitored by the Executive Office and Editorial Board, with the aim of preventing discriminatory or inappropriate comments and ICSSPE reserves the right not to publish either solicited or unsolicited papers that it deems unfit for publication. The views expressed within the publication are not necessarily those held by the ICSSPE Executive Office, unless otherwise stated.
Each issue includes:
- Editorial
- Feature themes addressed by sport science experts from around the world
- Information on regional sport science developments
- Research applications and implications - Reports from ICSSPE members on activities and events
- Reports on recent international congresses and details on upcoming events
- Listings of newly published resources and Internet sites"

Work on the ICSSPE Website continues, with the new look version slated to be launched in the coming months. This will include a forum for visitors to ask questions and seek information, while making our exsisting platforms easier to navigate. The latest addition to the website is an online resource, Sharing Good Practice. We invite you to share your stories, using the simple online submission form and encourage you to invite collegues to submit too. Women, Sport and Physical Activity is the first topic to go live, with Sport and Development and Physical Education Programs to follow soon.

As this is the last issue of the Bulletin for 2004, it will also be the last issue that Prof. em. Dr. Jan Borms is Chair of the ICSSPE Editorial Board. I would like to extend my personal thanks and heartfelt gratitude to Jan for his guidance since my arrival at ICSSPE and wish him well in his future endeavours, which I know he will enjoy and do so with his ever present smile on his face. Thank you, Jan.

*Tamie Devine*
Publications and Scientific Affairs Manager

Pictured at the recent informal Editorial Board meeting in Thessaloniki, Greece are, standing from left to right, Jon Reeser (USA), Denise Jones (South Africa), Gretchen Ghent (Canada), Christophe Mailliet (Germany), Colin Higgs (Canada), Gudrun Doll-Tepper (Germany), Herbert Haag (Germany). Seated, left to right, Darlene Kluka (USA), Jan Borms (Belgium), Tamie Devine (Germany). Missing from photo are Pekka Oja (Finland) and Bill Stier (USA).

## Editorial - French

Bienvenue dans la 42ème édition du Bulletin du CIEPSS. Notre dossier spécial est aujourd'hui consacré à la participation aux sports. De nombreux aspects de cette participation sont abordés, depuis la manière dont on la mesure, en passant par la manière dont on y amène les jeunes gens, jusqu'aux différences constatées entre les groupes d'une même population. Ces articles sont accompagnés d'une bibliographie de sources à retrouver dans l'Internet. Merci à Gretchen Ghent et Pekka Oja, membres du Comité éditorial, pour leur assistance dans la collecte des articles.

Suite au succès du récent congrès pré-olympique de Thessalonique en Grèce, le Bulletin revient dans la section ICSSPE News, sur quelques-uns des évènements particulièrement intéressants qui ont eu lieu. Vous trouverez dans les prochains bulletins d'autres articles présentés à cette occasion qui démontrent l'étendue des sujets abordés et le spectre des recherches qui sont entreprises au travers de toutes les disciplines du sport, de la science du sport et de l'éducation physique.

Un supplément particulièrement intéressant de cette édition est l'interview de l'ancien Président du CIEPSS, Sir Roger Bannister, qui fût le premier, il y a 50 ans à franchir la barre du mile en moins de quatre minutes.

Les sections Members News et Resources sont cette fois encore riches en informations provenant du monde entier.

Lors de la rencontre du comité éditorial du CIEPSS en mars de cette année, la décision fut prise de créer une charte de mission pour le Bulletin, qui a été acceptée selon les termes suivants :
« Le Bulletin du Congrès International pour l'Education Physique et la Science du Sport (CIEPSS) est une publication trimestrielle, créée pour offrir un forum aux membres du CIEPSS et aux autres contributeurs invités, afin d'échanger des informations, de promouvoir la recherche, de faire connaître des évènements, d'ouvrir des débats et de développer des liens internes et externes. Il n'existe pas de contrôle formel sur le contenu. Le contenu des propos tenus dans les Bulletins du CIEPSS est contrôlé par le Bureau Exécutif et le Comité Editorial, dans le but de prévenir les commentaires discriminatoires ou inappropriés et le CIEPSS se réserve le droit de ne pas publier les articles sollicités et non sollicités qui ne correspondent pas à notre publication. Les points de vue exprimés dans le Bulletin ne sont pas ceux du Bureau Exécutif du CIEPSS, sauf expressément mentionné.
Chaque publication comprend:
- Un éditorial
- Des articles spécialisés provenant d'experts de la science du sport du monde entier.
- Des informations sur les développements régionaux de la science du sport.
- Les applications et implications de la recherche – les rapports des membres du CIEPSS sur les activités et les évènements
- Des rapports sur les récents congrès internationaux et des détails sur les évènements à venir.
- Un Recensement de ressources nouvellement publiées et de sites Internet."

Les travaux sur le site Internet du CIEPSS sont en cours et le lancement de la nouvelle version est prévu dans les mois à venir. Elle inclura un forum qui donnera la possibilité aux visiteurs de poser des questions et de trouver de l'information, et rendra plus aisé le maniement des platte-formes déjà existantes. La dernière addition au site est un projet en ligne appelé Sharing Good Practice. Nous vous invitons à y partager vos expériences, en soumettant simplement vos idées en ligne et nous vous encourageons à inviter vos collègues à faire de même. « Les femmes, le sport et l'activité physique » est le premier thème que nous abordons, bientôt suivi de «Sport, développement et programmes d'éducation physique »

Ce Bulletin étant le dernier publié en 2004, il est également le dernier dirigé par le Prof. em. Dr. Jan Borms à la tête du comité éditorial du CIEPSS. Je souhaite exprimer un grand merci et toute ma gratitude à Jan pour m'avoir guidé depuis mon arrivée au CIEPSS et je lui souhaite le meilleur pour ses projets futurs, dont je sais qu'il profitera et qu'il mènera à bien avec son éternel sourire. Merci, Jan.

*Tamie Devine*
Directrice des Publications et des Affaires Scientifiques

**President's Message - English**

Many years of preparation have led to the highly successful Pre-Olympic Congress which was held in Thessaloniki from 6-11 August, 2004. I wish to extend my most sincere thanks to all who were involved in this remarkable international scientific event which is truly unique, bringing together experts of different scientific disciplines from all around the world. The 2004 Pre-Olympic Congress reached the highest standards of quality and offered a great opportunity for inter-/multidisciplinary exchange of ideas and findings and served as an outstanding forum for dialogue. Close to 80 countries were represented at the event, with almost 1400 abstracts received. This, coupled with the range of disciplines discussed was very impressive and I look forward to reading the report from our Greek collegues in the next issue of the Bulletin.

The Pre-Olympic Congress is traditionally supported by the IOC and UNESCO and we also express our thanks to them. We were pleased to welcome the President of FIMS and the President of the IPC to discuss the great opportunities for cooperation that lay ahead of us. This year's congress was attended by the largest delegation ever from the People's Republic of China, with more than 300 participants. We look forward to meeting these collegues again, as preparations are already in progress for the 2008 congress, which will be held in their country.

Attendants received first-hand information about the plans for the International Year for Sport and Physical Education, which was proclaimed by the United Nations. Michael Kleiner, representing Adolf Ogi, the Special Adviser for Sport for Development and Peace to UN Secretary General, Kofi Annan, shared current developments with regard to this outstanding opportunity with all participants.

All members of ICSSPE would have recently received a letter from me inviting them to make an active contribution to this International Year 2005. I would like to encourage you all to develop plans of sustainable actions on national and international levels. The important areas in which sport and physical education can make a contribution have been identified as health, education, development and peace. Please contact ICSSPE if you are planning events or projects in this context, so we can assist with promotion of these activities.

In conjunction with the Pre-Olympic Congress, ICSSPE held important meetings of the Editorial Board, the International Committee of Sport Pedagogy, the Association's Board and the Executive Board. I extend my thanks to all who have made contributions to the success of ICSSPE's work through their involvement in these committees. 2004 also brought all members of ICSSPE together in the General Assembly. Important decisions were taken with regard to the future work of ICSSPE, and we bid farewell to some of our representatives who have completed their terms of office.

New members were elected and I hope they will enjoy their new role and function in ICSSPE. We are continuing our efforts to implement ICSSPE's work plan in the areas of quality physical education, professionalisation and ethics as well as healthy living across the lifespan and the human performance/human development continuum. Our main focus will continue to emphasise service, science and advocacy and we will intensify our networking opportunities inside ICSSPE and with our external partners.

Membership in ICSSPE has never been higher than today. This clearly indicates how important it is to have such an international organisation in place, in a globalised world. We all have a great responsibility in ensuring that an inclusive approach to sport, physical education and health is practised all over the world.

It is with sadness I advise that Prof. Jan Borms will be finishing his term as Editorial Board Chair at the end of 2004. I would like to thank him wholeheartedly for his efforts over the years as he has contributed enormously to the work of ICSSPE in not only its publications program, but as an active member of the Executive Board aswell. I wish him well in his future endeavours.

Please enjoy this issue of the Bulletin and I hope you have also enjoyed watching the Olympic and Paralympic Games.

*Prof. Dr Gudrun Doll-Tepper*
ICSSPE President

**President's Message - French**

Après plusieurs années de préparation, le Congrès Pré-Olympique 2004 a finalement eu lieu avec succès du 6 au 11 août 2004, à Salonique, Grèce. Je voudrais remercier très sincèrement toutes celles et ceux qui furent impliqués dans cet manifestation scientifique internationale remarquable à tous les points de vue, qui a rassemblé des experts de différentes disciplines venus du monde entier. The Congrès Pré-Olympique 2004 a atteint les plus hauts standards de qualité et offert une opportunité d'échange d'idées et de résultats, servant ainsi de plate-forme de dialogue inter- et multi-disciplinaire. Près de 80 pays étaient représentés au Congrès, et environ 1400 résumés ont été soumis. Ces chiffres, combinés avec l'éventail des disciplines représentées, forment un tableau impressionant, et je me réjouis de pouvoir lire le rapport de nos collègues grecs dans le prochain Bulletin.

**Chiffres**
Le Congrès Pré-Olympique est traditionnellement soutenu par l'UNESCO et le CIO, et nous souhaitons également les remercier de leur aide. Nous avons aussi eu le plaisir de recevoir le Président de la FIMS, le Prof. Dr. Kai-Ming Chan, et celui du Comité Paralympique International, M. Philip Craven, afin de discuter des opportunités de coopération que nous nous devons d'explorer. Ce Congrès a également reçu la visite de la plus grande délégation chinoise à ce jour, avec plus de 300 personnes. Nous nous réjouissons de revoir ces collègues en 2008, lors du congrès qui aura lieu en Chine.

Les participants ont également pu obtenir des informations de première main sur l'Année Internationale du Sport et de l'Education Physique 2005 qui a été proclamée par les Nations Unies. Michael Kleiner, représentant M. Adolf Ogi, Conseiller Spécial pour le Sport pour le Développement et la Paix du Secrétaire-Général des Nations Unies, M. Kofi Annan, a fait part des développements récents concernant cette action unique en son genre.

Tous les membres du CIEPSS ont recu une lettre que je leur ai adressée, les invitant à contribuer activement à cette Année Internationale 2005. Je voudrais tous vous encourager à développer des plans d'action au niveau national et international. Les domaines dans lesquelles le sport peut apporter une contribution ont été identifiés comme étant la santé, l'éducation, le développement, et la paix. Nous vous demandons de contacter le CIEPSS si vous prévoyez des évènements ou actions dans ce contexte, afin que nous puissions vous soutenir dans la promotion de ceux-ci.

En conjonction avec le Congrès Pré-Olympique ont également eu lieu les réunions du Comité d'Edition, du Comité International pour la Pédagogie du Sport, du Comité des Associations et du Comité Exécutif, et je voudrais remercier toutes celles et ceux qui ont contribué au succès du CIEPSS par leur engagement au sein de ces comités. 2004 aura aussi été l'occasion pour les membres du CIEPSS de se retrouver lors de l'Assemblée Générale. Des décisions importantes ont été prises pour l'avenir du CIEPSS, et nous prenons également congé de certains collègues qui termineront leur mandat à la fin de l'année.

De nouveaux membres ont également été élus, et j'espère qu'ils apprécieront leur nouveau rôle et leur fonction au sein du CIEPSS. Nous continuons nos efforts afin d'appliquer le programme de travail du CIEPSS dans les domaines de l'éducation physique de qualité, de l'éthique et de la professionnalisation, du développement de styles de vie sains à tous les âges, et du continuum performance/développement humains. Science, service et défense d'intérêts seront à nouveau au centre de nos efforts, et nous voulons intensifier nos contacts aussi bien au sein du CIEPSS qu'avec nos partenaires extérieurs.

Jamais le CIEPSS n'a eu autant de membres. Ceci nous montre clairement combien il est important de disposer d'une telle structure internationale, dans un monde globalisé. Nous avons tous une grande responsabilité de faire en sorte qu'une approche inclusive du sport, de l'éducation physique et de la santé soit pratiquée dans le monde entier.

C'est avec tristesse que je dois vous annoncer le départ du Prof. Dr. Jan Borms, qui finira son mandat de Président du Comité d'Edition à la fin de cette année. Je voudrais le remercier de tout cœur pour ses efforts tout au long de ces années pendant lesquelles il a participé au travail du CIEPSS, non seulement dans le domaine des publications, mais aussi au sein du Comité Exécutif. Mes meilleurs vœux l'accompagnent pour l'avenir.

Je vous souhaite beaucoup de plaisir à la lecture de ce Bulletin, et j'espère que vous aurez aussi eu beaucoup de plaisir à regarder les Jeux Olympiques et Paralympiques.

*Prof. Dr. Gudrun Doll-Tepper*
ICSSPE President

**Welcome New Members**

Since May 2004, ICSSPE has received the following new membership applications which will be ratified at the 66th Executive Board Meeting in 2005.

D155-2 (ratified at the 64th Executive Board Meeting, Thessaloniki, Greece, August 2004)
W.J.H. Mulier Institute – Centre for Research on Sports in Society
THE NETHERLANDS

C165-7
The Association of Assistance to the Development of Educational Establishments of Physical Education and Sport of Russian Federation
RUSSIA

D132-2
Sports Science Laboratory of the Mongolian National Olympic Committee
MONGOLIA

D102-2
Universidad Pedagogica Experimental Libertador Maracay
VENEZUELA

D121-2
Navi Mumbai Sports Association
INDIA

D020-3
University of Calabar – Physical and Health Education Unit
NIGERIA

D46-1
National University of Science and Technology – Sports Science Dept.
ZIMBABWE

D216-1
Institute Ekvilib
SLOVENIA

B157-11
International Sport Lawyers Association
GERMANY

D057-25
Biola University – Dept. of Physical Education
USA

# ICSSPE NEWS

**The Philip Noel Baker Research Award**

The Philip Noel Baker Research Award is awarded annually, according to regulations set by the Executive Board of ICSSPE, to scientists who have substantially contributed to sport science at a high international level. The former Research Committee of ICSSPE established this Award on the occasion of the 80th birthday of the Council's first President, Lord Philip Noel Baker, Laureate of the Nobel Prize for Peace. It has enjoyed considerable prestige throughout the world, and among its recipients are leading scientific authorities.
Proposals for the Award are made to the Executive Board of ICSSPE by the President's Committee, of nominees demonstrating a background and distinguished service in sport science and a remarkable and continuous active service in the organisation of sport science events at the international level connected to the Council. The Award is then ratified by the Executive Board of the Council.

The winner of the 2003 Philip Noel Baker Research Award is Prof. Dr. Anthony Parker who received the honorary prize in recognition of his remarkable contribution as Congress Chair of the 2000 Pre-Olympic Congress, and outstanding services in furthering cooperation between sports medicine, sport science and physical education. Tony was awarded his certificate on the occasion of the Closing Ceremony of the 2004 Pre-Olympic Congress in Thessaloniki, and is pictured above with ICSSPE President Prof. Dr. Gudrun Doll-Tepper.

**ICSSPE Executive Meetings**

Prior to the 2004 Pre-Olympic Congress in Thessaloniki, Greece, ICSSPE held its 65th Executive Board, 6th Associations' Board meetings, 21st General Assembly, as well as the Editorial Board and International Committee of Sport Pedagogy (ICSP) meetings at the Congress venue. During this time, Prof. Dr. Gudrun Doll-Tepper was re-elected as President of ICSSPE, explaining "I am very pleased with the confidence that has been shown for me. In the past years we have managed to bring together the key international sport science players, many large sport federations and respected sport institutes from all continents. An important future task within ICSSPE is to develop mutual understanding between member organisations. In addition the organisation is already planning activities for the 2005 International Year for Sport and Physical Education. Not only will ICSSPE focus on themes of sport for all, physical education and elite sport but also on the problem of non-communicable diseases as a consequence of physical inactivity."
To support Prof. Dr. Doll-Tepper, Vice-Presidents Prof. Dr. Margaret Talbot from Great Britain, Prof. Dr. Anthony Parker from Australia and Prof. Dr. Colin Higgs from Canada were also re-elected to their positions. The ICSSPE Executive Board, effective January 1st, 2005, includes:
Dr. Richard Bailey, United Kingdom
Dr. Heather Sheridan, United States
Mr. Lauri Tarasti, Finland (re-elected)
Mrs. Susi-Käthi Jost, Switzerland (re-elected)
Prof. Dr. Wolf-Dietrich Brettschneider, Germany
Prof. Dr. Thierry Terret, France
Dr. Kansheng Shi, China
Prof. Dr. Wlodzimiercz Starosta, Poland
Prof. Dr. Victor Matsudo, Brazil (re-elected)
Prof. Dr. Karen DePauw, United States
Prof. Dr. Joseph Maguire, United Kingdom
Prof. Dr. Lateef Amusa, South Africa
Dr. Michael McNamee, United Kingdom
Prof. Dr. Alicja Rutkowska-Kucharskas, Poland
Dr. Zsólt Rádak, Hungary
Dr. Graham Costin, Australia
Prof. Dr. Darlene Kluka, United States

ICSSPE acknowledges the support and contributions of those Board members who have completed their terms and looks forward to continued cooperation with them. Prof. Dr. Gudrun Doll-Tepper was fortunate enough to be able to present Pierre de Hillerin and Prof. Dr. Roland Naul with certificates of appreciation in Thessaloniki, while acknowledging Dr. Essam Badawy, Prof. Dr. Bruce Kidd and Prof. Dr. Ommo Grupe for their contribution. Certificates will be presented at a later date. Honorary membership was awarded to Dr. Ken Hardman and Prof. Dr. Jin Jichun in recognition of their service to the organisation. Minutes of the proceedings of the 21st General Assembly will be sent to all ICSSPE Members in due time.

**ICSSPE Development Awards**

On the occasion of the 2004 Pre-Olympic Congress in Thessaloniki, ICSSPE announced awards to be presented to young researchers who were presenting at the Congress. Called the ICSSPE Development Awards, 10 prizes of US$1000 each were awarded to researchers under the age of 35 who were attending the Congress from a developing country. A team of jurors, lead by ICSSPE Vice President Prof. Dr. Tony Parker, made the tough selection from 24 nominations and awarded prizes to the following during the closing ceremony of the Pre-Olympic Congress:

Hayri Ertan, Turkey
Flavia Borges, Brazil
Anquanette Peens, South Africa
Daniel Galvao, Brazil
Ionela Niculescu, Romania
Ying-Hua Hung, Chinese Taipei/Taiwan
Yi Yang, China
Xinhao Xu, China
Louise Jansen van Rensburg, South Africa
Glaucia Braggion, Brazil

A copy of each of their abstracts follows.

ICSSP would like to acknowledge the assistance and support of all jurors: Tony Parker, David Bishop, Jan Borms, Darlene Kluka, Sue Capel, Denise Jones, Herbert Haag, Hans Hoeppelar, Edward Ojuka, Costas Laparidis, Carole Ogelsby, Paul Singh and Wim Hollander.

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ARCHERY SKILL INDEXES: ESTIMATION OF ARCHERS' PERFORMANCE LEVEL BY USING FOREARM SURFACE EMG DATA

**Ertan Hayri[1], Soylu Abdullah Ruhi[2], Korkusuz Feza[1]**

[1]Physical Education and Sports Department, Middle East Technical University, 06531 TURKEY

[2]Biophysics Department, Hacettepe University, TURKEY

**Poster Presentation**

*Please note that the full text article will be published in a forthcoming issue of the Journal of Electromyography and Kinesiology.*

**Introduction**

Estimation of archers' performance level by using forearm surface EMG data may be a method in evaluation of the experience in archery. The aim of the current study was to create some archery skill indexes that could be used in estimation of archers' performance levels by using forearm surface EMG data.

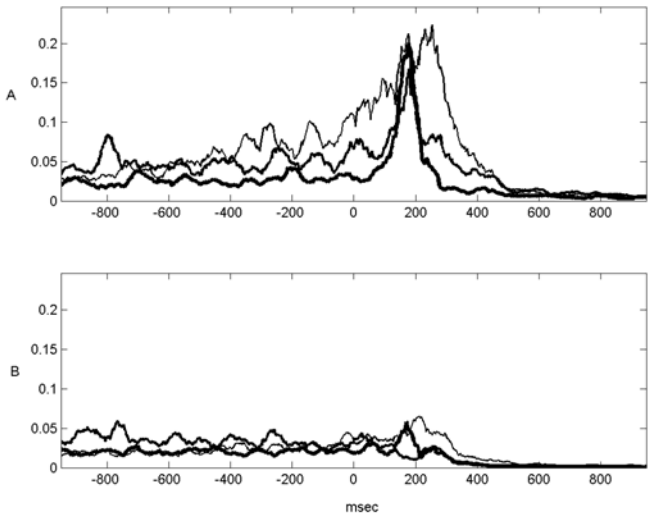
**Methods**

Three groups, (i) elite (n = 7, FITA score=1303.4 ± 26.2), (ii) beginners (n = 6, FITA score = 1152 ± 9.0) and (iii) non-archers (n = 10, assumed FITA score = 250 ± 0), were involved in the study. Electromyographic (EMG) activity of the M. flexor digitorum superficialis and the M. extensor digitorum were quantified. Two-second periods –1 s before and 1 s after the fall of the clicker – were used to obtain averaged and rectified EMG data. The averaged and rectified EMG data were filtered by averaging finite impulse response filter with 80 ms time window and then normalised. EMG amplitudes were normalised with respect to Maximum Voluntary Contraction.

**Results**

To estimate FITA scores from EMG data, the following skill indexes that based on mean area under some parts of processed EMG waveforms was offered for archery: Pre-clicker Archery Skill Index (PreCASI), Post-clicker Archery Skill Index (PostCASI), Archery Skill Index (ASI) and Post-clicker Archery Skill Index 2 (PostCASI2). The correlations between rank of FITA scores and natural logarithms of archery skill indexes were significant for log (PreCASI): $r = -0.66$, $p < 0.0008$; for log (PostCASI): $r = -0.70$, $p < 0.0003$; for log (ASI): $r = -0.74$, $p < 0.0001$; log (PostCASI2): $r = -0.63$, $p < 0.002$.

Figure 2: Previous figure's EMG data are regrouped (MVC% vs. msec). (A) M. extensor digitorum, (B) M. flexor digitorum superficialis. Bold, medium and thin lines correspond to elite, beginner and non-archers respectively. Clicker falls at zero.




**Discussion / Conclusions**

It is concluded that archery skill indexes may be used for a) evaluation of archers' progress, b) selection of talented archers and c) improvement of archers' progress. Naturally, future researches will determine the application of archery skill indexes into practice.

**References**

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## ANTHROPOMETRIC AND METABOLIC PROFILE OF 13 YEAR-OLD ADOLESCENTS IN DIFFERENT LEVELS OF SEXUAL MATURATION

**Flávia S. Borges, Sandra M. Matsudo, Victor K. Matsudo and Marcela T. Ferreira.**
CELAFISCS - Ilhabela Longitudnal Study, São Caetano do Sul, Brazil

**Poster Presentation**

**Introduction**

there is little information about physical fitness level in adolescents during puberty at the same chronological age but at different sexual maturation levels.

Purpose: to analyze anthropometric and metabolic variables of physical fitness among adolescents in puberty at same chronological age (13 years old), in different sexual maturation stages.

**Methods**

sample consisted of 79 males 13 years old (13.48 ± 0.28 y) from the Ilhabela public school. Ilhabela is an island of low socio economic status in Sao Paulo coast of Brazil. This group is part of the Longitudinal Project of Growth, Development and Physical Fitness developed by CELAFISCS since 1978. The maturation level was established through the self-assessment of Tanner stages [1], considering pubic hair and genital development. A trained physician classified axillary hairs in three stages: I (pre-puber), II (puberty), and III (post-puber). All of them were in puberty according to Tanner pubic hair and genital stages (II, III and IV). The anthropometric variables measured were: body weight (BW), body height (BH), body adiposity determined through the mean of seven skinfolds. Aerobic power ($VO_{2max}$) was determined by a submaximal cycle ergometer test using Astrand Nomogram. Values were expressed in relative ($ml.kg.min^{-1}$)

and absolute terms ($l.min^{-1}$). Results were analyzed by One Way ANOVA, post-hoc Scheffé, and delta percent (%□). Level of significance adopted was $p<.05$.

**Results**

Physical fitness values in mean (x) and standard deviation (s) according to sexual maturation stages are summarized in the table as follows:

| PHYSICAL FITNESS | AXILARY HAIR | | | PUBIC HAIR | | | GENITAL | | |
|---|---|---|---|---|---|---|---|---|---|
| | I N =19 | II n =14 | III n =46 | II n =15 | III n =19 | IV n =31 | II n =7 | III n =29 | IV n =32 |
| BODY WEIGHT (kg) | 47.6 | 46.4 | 42.5 | 36.7[ab]* | 46.2* | 45.6* | 46.1 | 42.4 | 45.3 |
| x | 9.6 | 6.5 | 10.6 | 4.2 | 13.4 | 8.4 | 18.2 | 8.0 | 7.9 |
| s | | | | | | | | | |
| BODY HEIGHT (cm) | 158.5 | 156.9 | 153.6 | 148.5 | 155.9 | 156.5 | 153.3 | 153.0 | 157.5 |
| x | 9.6 | 7.0 | 8.7 | [ab]* | * | * | 8.5 | 8.7 | 8.5 |
| s | | | | 5.3 | 8.5 | 8.7 | | | |
| ADIPOSITY (mm) | 8.4 | 9.1 | 8.2 | 6.7 | 10.0 | 8.4 | 10.6 | 8.0 | 8.3 |
| x | 3.2 | 4.6 | 5.5 | 1.9 | 7.3 | 4.4 | 11.3 | 3.6 | 3.7 |
| s | | | | | | | | | |
| $VO_2$ ($l.min^{-1}$.) | 1.8 | 2 | 1.9 | 1.7 | 1.9 | 1.9 | 2 | 1.9 | 1.9 |
| x | 0.4 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 |
| s | | | | | | | | | |
| $VO_2$($ml.kg.min^{-1}$) | 43.3 | 41 | 46.4 | 43.3 | 44.5 | 41.9 | 50.1 | 44.9 | 42.5 |
| x | 13.2 | 10 | 11.2 | 13.2 | 13.0 | 11.8 | 10.7 | 12.2 | 11.0 |
| s | | | | | | | | | |

*p <.05 - significant differences: a - II x III; b – II x IV.

According to pubic hair stages, data showed significant increase in BW from stage II to III (25.9%) and from stage II to IV (24.4%); in BH from stage II to III (5%), and from II to IV (5.4%). Data of adiposity and aerobic power did not show any significant differences among the stages of sexual maturation (pubic hair, genital and axillary's hair development).

**Discussion**

previous studies have shown that there is an increase of lean mass in relation to fat mass during the puberty in male adolescents [2]. Thus, its explains there were not differences in the adiposity, although it happened in body weight and height. Former studies using data of this specific population of Ilhabela adolescents, showed a stability of functional maturation of aerobic power in this sample at the age of 13 years, confirming the results of this study [3].

**Conclusion**

analyzing the different maturational stages through axillary hair and genital development, there were differences on body height and weight but no significant differences in adiposity or aerobic power were found. Data suggest during puberty is possible to find differences in physical fitness level among adolescents at a same chronological age but in different sexual maturation stages. Thus, it reinforces the idea that to have a better

diagnosis and prognosis of the fitness level, and exercise prescription of adolescents, professionals need to consider also their sexual maturation development.

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# THE EFFECT OF DIFFERENT INTERVENTION PROGRAMMES ON THE SELF-CONCEPT AND MOTOR ABILITY OF 7-9 YEAR OLD DCD CHILDREN

**Peens, Anquanette, A.** [1] **, Pienaar, Anita, A.E.** [1]**, Nienaber, Alida, A.W.** [2]
[1]Potchefstroom University for Christian Higher Education, Health Sciences, School for Biokinetics, Recreation and Sport Science, Potchefstroom, South Africa
[2]Potchefstroom University for Christian Higher Education, Psychology, School for Psycho-social Behavioural Sciences, Potchefstroom, South Africa
**Oral Presentation**

## Introduction
[1] stated that the self-concept of children will be influenced by motor problems such as Developmental Coordination Disorder (DCD). Children's feelings about themselves might, however, be enhanced through achievement-related experiences in the physical domain, and motor skill intervention [2][3]. The aim of this study was therefore to determine the most effective method in enhancing motor ability and self-concept of 7-9 year old DCD children.

## Methods
Teachers at 9 different schools identified 201 possible DCD candidates. An evaluation with the Movement Assesment Battery for Children [4] identified 68 with DCD (42 boys and 26 girls 7-9 years). Self-concept and anxiety was determined by the Tennessee Self-Concept Scale (Child Form) [5] and Child Anxiety Scale [6] respectively. They were randomly grouped into four experimental groups [Motor intervention (MG), based on task-specific- kineasthetic training and sensory integration treatment, Self-concept (SG) enhancing intervention, Psycho-motor intervention (P-MG, combination of SG and MG) and control group (CG) receiving no intervention]. The method of paring was used to randomly allocate children with the same age, gender and race in each group. A four group pretest-posttest, retest design was followed, and a repeated measures ANOVA followed by a Bonfferoni correction (Statistica for Windows) were applied to analyze the results.

## Results
After completion of the intervention programmes, no significant improvement was found in the SG group, while the MG, P-MG and CG groups improved significantly ($p<0.01$). The mean total improvement of the MG and P-MG groups were, however, higher compared to the CG. After the retention period the MG and CG groups improved further ($p<0.01$), while the P-MG showed no further improvement. Anxiety improved significantly ($p<0.05$) in the SG, while the total self-concept of the P-MG improved significantly ($p<0.05$).

## Discussion
The motor proficiency and self-concept of DCD children seems to benefit from intervention, but it was found that both should be addressed for optimal benefits to the DCD child. Results also indicated that the period of intervention was too short to have a lasting effect on both aspects. The intense nature of the self-concept and motor intervention programmes as well as the complexity of the problems of the DCD child, may suggest that a longer duration of such programmes and/or that they should be conducted in succession to each other might be a better option to address the problems of young children with DCD.

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## MULTIPLE SETS ARE SUPERIOR TO SINGLE SETS FOR ENHANCING MUSCLE FUNCTION IN OLDER ADULTS

**D.A. Galvão, D.R. Taaffe.**
The University of Queensland, School of Human Movement Studies, Brisbane, Australia.

**Oral Presentation**

**Introduction**

Resistance training is a safe and effective method to enhance muscle strength in older adults; however, it is unclear if the amount of training undertaken alters the training response. The present study compared two regimens with different training volumes on muscle function in older adults aged 65-78 years.

**Methods**

Twenty-eight untrained men and women were randomly assigned to either a single-set (SS, n = 12) or 3-set (MS, n = 16) group for 20 weeks. Subjects trained twice per week and performed the chest press, seated row, triceps extension, biceps curl, leg press, leg curl and leg extension exercises using machine weights with intensity set at 8 repetitions maximums (8-RM). Muscle strength was evaluated by 1-RM, and isokinetic (2.11rads.$s^{-1}$) and isometric strength was assessed using a Cybex dynamometer. Muscle endurance was measured using 70% of 1-RM for the leg press and chest press exercises. Body composition was assessed by dual x-ray absorptiometry (DXA).

**Results**

The 3-set group had a greater ($P < 0.05$) improvement in upper body (MS, 35 ± 12%; SS, 19 ± 21%; mean ± SD) and lower body (MS, 30 ± 12.7%; SS, 19.5 ± 8%) strength compared to the single-set group (Figure 1). In addition, isometric knee extensor strength was greater ($P < 0.05$) following the 3-set regimen (MS; 20 ± 16%; SS, 6.2 ± 17.7%). Lower and upper body muscle endurance (Figure 2) was also greater ($P < 0.05$) for the 3-set (leg press 60 ± 76%, chest press 44 ± 43%) than the single-set (leg press 10 ± 42%, chest press 10 ± 34%) group. Both groups improved isokinetic peak torque ($P < 0.05$) with no difference between exercise regimens. Lean mass increased in the 3-set group (~1 kg, $P < 0.05$) and fat mass decreased (~1 kg, $P < 0.05$), but not in the single-set group.

Figure 1- Percent change in upper and lower body muscle strength following 20 weeks training. Strength increased
($P < 0.05$) for both exercise groups for the upper and lower body. * Significant difference from 1-SET ($P < 0.05$).

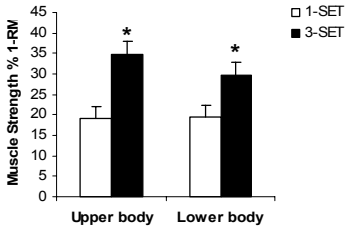
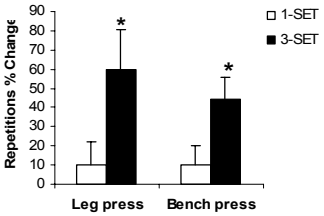



Figure 2- Percent change in the number of repetitions of 70% of 1-RM for the leg press and chest press exercises following 20 weeks training. * Significant difference from 1-SET ($P < 0.05$).




**Discussion/ Conclusions**

These results suggest that 20-week program of resistance exercise that incorporates a 3-set regimen is more effective for eliciting improvements in muscle strength and muscle endurance in older adults than a single-set regimen. Therefore, multi-set protocols should be incorporated when maximal strength gains are the primary goal of the exercise regimen. However, single-set programs also result in substantial improvements in strength, albeit not to the same level as that for multiple sets, and are recommended when exercise time is limited.

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ON THE IMPROVING OF PARAMETER FOR EFFICIENCY EVALUATION IN VOLLEYBALL GAME

**Niculescu Mugur[1], Ionita Silviu[1], Iorga-Siman Ion [1], Niculescu Ionela[1]**

[1]University of Pitesti, Romania

**Poster Presentation**

**Introduction**

In this paper, we propose an improved method (formula) providing a synthetic index for evaluation of both the individual player and the entire team. The method for evaluating of players' efficiency consists in the game's monitoring by experts and an appropriate statistic technique. According to Official Volleyball Statistics Rules [1], several sort of typical actions matter in the game's statistics: the attacks, the assists, the serves, the digs, and the blocks. During the game, few designed observers count and classify the actions outcomes in three categories: (a)-a kill, (b)-the ball stays in play, and (c)-an error. A great deal of information should be marked in the box score. One of the main reasons to improve the method is to reduce as possible as the effort for events

acquisition in the match. In order to do this, our goal was to develop a more suitable formula dealing with statistic data.

**Methods**

A synthetic play's efficiency index was defined [2] as $I= (a^2+b)/ [(a+c)^2+b]$. We propose a corrected formula by a coefficient $N=(a+b+c)/\Delta t$ as follows: $I=(a^2+Nb)/[(a+c)^2+Nb]$. The terms a, b and c are numbers of actions in each categories above defined while N is the number of ball is touching in a certain period. The term b denotes the category with a high degree of uncertainty, but it also denotes a spectacular game. As the matter a fact, weighting factor N increases the flexibility of method. This non-linear relationship is more realistic than any other because of time parameter $\Delta t$, which is very important in games. In this manner becomes possible to evaluate the play and/or the efficiency of any player in the significant phases of the match.

**Results**

First, we have an interesting interpretation of the proposed formula that exhibits the worst case (the result is zero) and the happy case (the result is one). In Table 1, few possible scenarios are presented. Second, the effect of parameter $\Delta t$ on player efficiency is discussed. Theoretically, there is a nonlinear efficiency decreasing versus time for a given game's
statistics (a, b, c). In the extended paper, we present a set of analyses based on matches' statistics in training and competition.

Table 1. Different cases of efficiency evaluation.

| No of kills (a) | No of errors (c) | No of balls staying in play (b) | Efficiency parameter (I) | Interpretation |
|---|---|---|---|---|
| Zero | Nonzero | Zero | Zero | Actions error |
| Zero | Zero | Nonzero | One | Actions in spectacle |
| Zero | Nonzero | Nonzero | Between zero and one | Action with no kill |
| Nonzero | Zero | Zero | One | Actions kill |
| Nonzero | Zero | Nonzero | One | Actions kill and spectacle |
| Nonzero | Nonzero | Zero | $[a/(a+c)]^2$ | "0 Attack" is missed |
| Nonzero | Nonzero | Nonzero | Between zero and one | Game homogenous |

**Discussion / Conclusions**

The proposed method brings certain advantages:

1. Replaces many other statistic parameters (like hitting percentage and different ratios) by a synthetic one based on only three observed events. The proposed formula is useful in any kind of action (attack, serve, block, etc.).
2. The explicit time in formula allows making remarkable real time analyzes regarding the players/team efficiency. This provides a real improved technical and tactical assistance in training and competition.

3. Based on the proposed united parameter for games efficiency we aim to develop a complex knowledge based system dedicated to volleyball (but not only) games.

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## LEADERSHIP AND EFFECTIVENESS OF SPORTS FACILITIES MANAGEMENT IN TAIWANESE UNIVERSITY OFFICES OF PHYSICAL EDUCATION

**Ying-Hua Hung[1], Annette E. Craven[2], Suh-Ting Lin[3], Jui-Yu Chien[1]**
[1] National Huwei University of Science & Technology, Office of Physical Education, Taipei Cinese Taipei, R.O.C.
[2] University of the Incarnate Word, School of Business, Texas, USA
[3] Tamkang University, Office of Physical Education, Taipei Cinese Taipei, R.O.C.

**Oral Presentation**

**Introduction**

Effective leadership behaviors appear especially when the organization, through change, innovates new procedures. The Offices of Physical Education of Cinese Taipeiese universities face social environment changes, which include government reforms in higher education and being given more responsibility after moving their administration from the second-level to the first-level in school. The purpose of this study was to examine the relationship of leadership style and effectiveness of sports facilities management in Offices of Physical Education of Cinese Taipeiese universities.

**Methods**

The potential participants included 57 directors and 285 followers (5 followers for each director) who managed or supervised in Offices of Physical Education of 57 Cinese Taipeiese universities. A quantitative survey methodology was used in this study. This was accomplished using the Multifactor Leadership Questionnaire (MLQ Form 5X) [1], and the Sports Facilities Management Questionnaire (SFMQ) [2]. The Spearman rank correlation was used to test the relationship between leadership styles and effectiveness of sports facilities management.

**Results**

There was a significant positive correlation between transformational leadership (MLQ-5X rater form) and effectiveness of sports facilities management ($r_s = .22$, $p < .05$). The significant positive correlation was also found between transactional leadership (MLQ-5X rater form) and effectiveness of sports facilities management ($r_s = .28$, $p < .01$). Laissez-faire leadership style (MLQ-5X rater form) had a significant negative correlation with sports facilities management ($r_s = -.24$, $p < .05$).

**Discussion / Conclusions**

Transactional leadership behaviors are immediately effective for short-term goals and transformational leadership behaviors have long-term positive effects. Most effective leaders combined both leadership behaviors in different amounts and in different situations. However, transactional leadership shows positive leadership behaviors within the organization "… in the absence of clear goals, clear policies, long-term objectives, and stable outside environment" (Bass, 1985). Motivations such as praise and reward were necessary for followers when the Offices of Physical Education were facing initial change in Cinese Taipei.

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## INFLUENCES OF ACUPOINT IONTOPHORESIS ON MYOCARDIAL PKC EXPRESSION AFTER ENDURANCE TRAINING

**Yang Yi[1], Li Zhanghua[2], Yang Pengfei[1], Wang Fengmei[3], Feng Xiaofeng[1].**

[1]Wuhan Institute of Physical Education, Department of Health Care and Rehabilitation, Wuhan, China

[2]Huazhong University of Science and Technology, Tongji Medical College, Wuhan, China

[3]Wuhan University of Technology, Department of Physical Education, Wuhan, China

**Oral Presentation**

**Introduction**

Acupoint Iontophoresis is an organic combination of Chinese traditional medicine and modern physical method that used upon acupoints [1]. According to previous research, pure electric stimulation on acupoint in endurance training can increase the movable platform fatigue time and exhausting time of rats [2-4]. In order to observe the effect of acupoint iontophoresis on endurance training rats, we designed this experiment. We examined myocardial PKC expression (Protein kinase C, which is protective towards cardiac muscle) as an evaluation window, at the protein and mRNA levels, so as to find out if there is any possible molecular mechanism to explain rats' longer exhausting time during experiment.

**Method**

36 SD rats were randomly divided into 5 groups. They were control group (4); endurance training group (ET,8); endurance training and dosing group (ED,8); endurance training and acupoint iontophoresis group (EAI,8); endurance training, dosing and acupoint iontophoresis group (EDAI,8). Each group (except the control group) received training on animal platform 6 days a week, with an increasing load during the whole 8 weeks. Tissue from the left ventricle was taken at the end of the process, then observed PKC protein and mRNA expression via immunohistochemistry and RT-PCR respectively. SAS 6.12 was used to analyse data; ANOVA was used for statistical analysis and a p value$< 0.05$ was accepted as the level of significance.

**Result**

PKC can be seen on the cell membrane and in the cell nucleus after endurance training, while it mainly exists in plasma in the control group. Both PKC protein and mRNA expression are higher in ET group, ED group or EAI group than in the control group ($P<0.05$), especially in EDAI group ($P<0.01$).

**Conclusion**

**1** Endurance training can activate PKC to transfer, increase its protein and mRNA expression, but the effects are not so strong as dosing and acupoint iontophoresis; when dosing cooperate with acupiont iontophoresis, stimulative function seems better than one method used alone.

**2** Since heart function is the main restricted factor in endurance event, activating PKC may be one of the main mechanisms that acupoint iontophoresis protects the cardiac muscle and prevents sports fatigue.

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## EFFECTS OF STRENGTH, ENDURANCE AND COMBINED TRAINING ON STRENGTH DEVELOPMENT AND MYOSIN HEAVY CHAIN CONTENT IN MAN

**Xinhao Xu[1] , Ian M. MacLean[2], Gordon Bell[2], Charles T. Putman[2]**
[1]Shanghai Institute of Sports Science, Shanghai, P.R. China
[2] Exercise Biochemistry Laboratory, Faculty of Physical Education, University of Alberta, Canada

**Oral Presentation**

**Introduction**
Although previous studies have reported that the effects of strength, endurance and combined training on muscle fiber distributions and fiber cross-sectional area by using ATPase histochemical staining, few studies have compared the effect of endurance training and combined training on muscle myosin heavy chain content in humans by using immunohistochemical staining[1]. Hence, the purpose of this study was to investigate the effect of strength, endurance and combined strength and endurance training on immunohistochemically delineated fiber type transitions, MHC content and fiber cross-sectional areas (CSA) of the lateral aspect of the right vastus lateralis muscle.

**Methods**
Forty male and female volunteers were randomly assigned separately by gender into one of four groups: resistance training only, endurance training only, concurrent resistance and endurance training, and a control group. Training was performed 3 times a week for the S and E groups and 6 days a week on alternate days for the SE group. Physiological testing was performed prior to and after 6 and 12 weeks of training. The needle biopsy technique was used to take samples of skeletal muscle from the lateral aspect of the right vastus lateralis muscle. Three monoclonal antibodies directed against adult type MHC isoforms were employed analyze fiber type percentage[2] and SDS-PAGE were employed to analyses myosin heavy chain isoform[3]. Separate three-way repeated measures of analysis of variance was performed for dependent variables of fiber type percentage, composition of MHC isoforms content and concentrations of MHC protein isoforms with independent factors of group, sex and time.

**Results**
Immunohistochemical analyses of muscle biopsies demonstrated a decrease in the percentage of type IID/A mixed fibers after 6 and 12 weeks of training in the S group and after 12 weeks of training in the SE group ($P < 0.05$). The percentage of type I/IIA mixed fibers increased after 6 and 12 weeks of strength training ($P < 0.05$). MHC electrophoresis showed that the proportion of MHCIId/x isoform content decreased with all three training regimes after 12 weeks ($P < 0.05$). An increase in the proportion of MHCIIa content was found in the SE group ($P < 0.05$). The CSA of type I and type IIA fibers increased after 12 weeks of strength training ($p<0.05$). In the SE group, the type IIA fibers were the only fibers to display an increase in CSA ($P < 0.05$).

**Discussion / Conclusions**

It was concluded that single mode and combined mode training can elicit differential adaptations in skeletal muscle MHC content and CSA and that combining strength and endurance training may reduce the hypertrophic response associated with strength training only.

**References**

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## DOES LISTENING TO MUSIC DURING WARM-UP IMPROVE 30-MIN TIME TRIAL PERFORMANCE?

**Jansen van Rensburg Louise[1], Kroff Jacolene[1], Terblanche Elmarie[1]**
[1]Department of Medical Physiology, University of Stellenbosch, Tygerberg, South Africa

**Poster Presentation**

**Introduction**

During competitive events, it is not uncommon to see top athletes listening to their favourite music through headphones while warming up. The question is whether listening to music only helps the athlete to focus and relax, or does it actually have an impact on their performance? The primary aim of this study was to investigate whether listening to music (of subject's choice) during warm-up would influence cyclists' time trial (TT) performance in a controlled environment and secondary whether the lack of visual feedback affects performance.

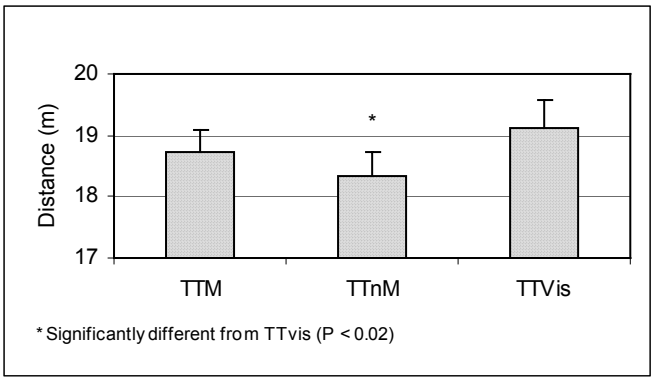
**Methods**

Fourteen competitive female cyclists (age 33 ± SD 7 yrs, maximal oxygen uptake 52.3 ± SD 6.3 ml/kg/min, peak power output 268 ± SD 35 W) performed three 30-min TT's on their own bikes mounted on an air-braked Kingcycle ergometer. The first two TT's were either done with ($TT_M$) or without ($TT_{nM}$) listening to music during an 8-min warm-up (in random order); only elapsed time was given as feedback during the 30 min. The third TT was done without music but with continuous visual feedback ($TT_{Vis}$) of pedal cadence, power output, HR and elapsed time. Blood lactate concentration [La] was measured at rest, at 10-, 20-, and 30 min during all TT's. ANOVA for repeated measures was used to compare the outcome variables between the 3 TT's. Multiple comparisons were done using the Bonferroni correction factor. $P < 0.02$ was considered as statistically significant.

**Results**

No significant differences were found in any of the outcome variables between $TT_{nM}$ and $TT_M$, although the cyclists completed a slightly longer distance during $TT_M$ than during $TT_{nM}$ (18.2 ± 0.4 km vs 17.9 ± 0.4 km, $P = 0.06$) (Graph 1). The cyclists performed significantly better during $TT_{Vis}$ (18.6 ± 0.5 km) compared to $TT_{nM}$, but there was no significant difference between $TT_{Vis}$ and $TT_M$ ($P = 0.18$). Blood [La] was significantly lower for both $TT_{nM}$ and $TT_M$ when compared to $TT_{Vis}$ at 10- and 20-min ($P < 0.02$).

Graph 1. Mean distance between time trials




**Discussion/Conclusions**

We conclude that listening to music in a controlled environment during warm-up do not significantly improve performance during a 30-min TT performance in well-trained competitive cyclists. Considering that the cyclists performed best when they received visual feedback during the TT, suggests that the cyclists may have had difficulty to pace themselves during the TT's when they received no visual feedback. Visual feedback therefore served as better motivation than listening to music during warm-up.

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RELATIONSHIP AMONG PHYSICAL ACTIVITY ENERGY EXPENDITURE AND CALORIE INTAKE AMONG FIRE BRIGADE WORKERS.

**Braggion Glaucia F., Matsudo Sandra M.M., Matsudo Victor K.R., Araújo Timóteo L.**
Physical Fitness Research Center from São Caetano do Sul – CELAFISCS - Brazil. E-mail: glaucia@celafiscs.com.br

**Poster Presentation**

**Introduction**

Petrobras is a private and public joint stock company and RECAP is the petroleum refinery of Petrobras in São Paulo - Brazil. Some employees in RECAP accumulate functions in the fire brigade that requires high demands of physical fitness and energy balance and its influence in anthropometric characteristics may be a limitant factor for this function. Purpose - To describe the relationship between daily Energy Net (difference between total calorie intake and physical activity energy expenditure) anthropometric variables, and type of physical activity among fire brigade workers in a petroleum company.

**Methods**

Sample consisted of 53 male workers from 19 to 51 years old (x: 39.8 $\pm$ 7.3) and height 172.9 $\pm$ 7.3 cm. It was measured body weight, adiposity (by mean of 7 skinfolds) and body mass index (BMI). Daily energy expenditure during an usual week was determined through the International Physical Activity Questionnaire (IPAQ V.8 – short), self-reported, considering total time (minutes) of vigorous, and moderate physical activities, and walking [1]. To estimate physical activity energy expenditure (PAEE) it was used the criteria of 8 METS/minute for vigorous physical activities, 4 METS/minute for moderate, and 3.3 METS/minute for walking. Total calorie intake (TCI), % of fat, carbohydrate (CHO) and protein intake was obtained by interview and analised from a usual daily food intake and the estimation was obtained through software Virtual Nutri. Energy Net (EN) was calculated. Statystical analysis used was Pearson coefficient and the level of significance was $p<0.05$.

**Results**
TCI was composed by 31.8% from lipid, 45.0% from CHO, and 22.9% from protein, indicating an inadequate distribution of macronutient. It was calculated the correlation among vigorous, moderate physical activity and walking with weight (0.23; 0.08 and –0.03), BMI (0.01, -0.08 and –0.01), and adiposity (0.07, 0.09 and 0.03) respectively.

Table 1 Mean (x), standard deviation (SD) and correlation coefficient (r) of PAEE, EN, type of physical activity (PA) and anthropometric variables.

| | PAEE (kcal/day) | PAEE (kcal/wk) | EN (kcal/day) | Vigorous (kcal/wk) | Moderate (kcal/wk) | Walking (kcal/wk) | TCI (kcal/day) | Weight (kg) | BMI ($kg/m^2$) | Adiposity (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| x | 216.2 | 1513.6 | 2580.6 | 356.3 | 575.5 | 572.8 | 2786.8 | 78.9 | 26.8 | 15.6 |
| SD | 107.6 | 753.0 | 678.9 | 472.5 | 404.4 | 276.7 | 658.9 | 12.7 | 4.7 | 6.6 |
| r (EN) | -0.26 | - | - | -0.21 | -0.15 | -0.13 | 0.99* | 0.02 | 0.10 | -0.08 |

* $p<0.05$

**Discussion/Conclusion**
Weekly PAEE was 1513.6 kcal, similar to the recommendation of 1500 kcal/week to be considered physically active [3]. In a previous study [2], a reduction in level of physical activity did not induce a compensatory reduction of TEI and lead a significantly positive EN, most of which was stored as fat. In this study, TEI was most related to EN than PAEE and there were not influences in anthropometric variables. Conclusion: The association between EN and TCI was high and significant. There was no significant association between EN and type of PA (vigorous, moderate and walking) and anthropometric variables. The stronger relationship occurred between EN x TCI than EN x PAEE. Negative values of correlation between type of PA and EN request further studies.

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# FEATURE: SPORTS PARTICIPATION

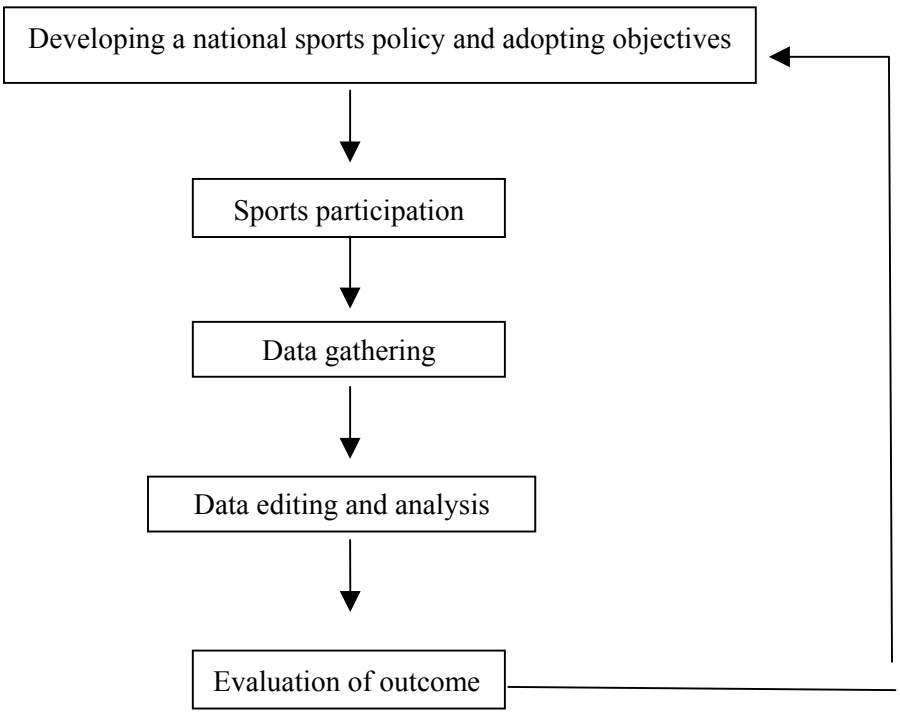
## Methodology for measuring sports participation

*Brian Wicklin*

### 1. Introduction

The aim of this paper is to outline the best practice methods for gathering and disseminating statistics of sports participation (prevalence rates). The proposed guidelines are based mainly on the research experience in Sweden, and have been inspired by surveys carried out in other countries, e.g. Great Britain, Canada, Australia and New Zealand. The data capture is designed to provide information for monitoring progress in sports practicers and in evaluating the outcome of policies pursued from time to time. A profile of the sporting population is helpful for programming activities and for decision making about investments and provision of facilities for sports practices.

**Data gathering for sports participation seen from the statistician's point of view**




A word of warning is in order; sports and exercise are interesting and appealing since they are considered to have a positive influence on lifestyles and well-being of individuals. Therefore, one should be careful in anticipating a causal link between the physical attributes of sports to health status because no one knows the exact relationship between these two measures of well-being. Absolute proof is elusive. The known relationship reflects only a mere correlation between the number of people engaged in sporting activities and healthy people, and vice versa.

If statistics in relation to sports are to be developed in the decades ahead, it is also important to discuss the issues involved by the statistical central offices and key users. For purposes of achieving uniformity, it is important that the terms and concepts are defined concisely. Finally, more communication and better collaboration between researchers will influence the methodology of data gathering and in this process, improve reliability and comparability of data.

## 2. Definitions and explanations of sporting activities and participation

*The words participation and involvement are used synonymously although they do not always convey the same precise meaning as in the dictionary. The words performers, participants and practicers are used in a similar way throughout this paper.*

The dictionary definition of the sports concept indicates that it can be stretched and extended to cover almost all forms of recreational activities. The most practical way to define sports activities is in a physical sense, i.e. to include all leisure time sports activities associated with active physical exercise in training and playing (displayed in charts 1and 2) and to exclude all leisure time sports related activities pursued casually for passive recreation e.g. amusement and social enjoyment (displayed in chart 3).

| Chart 1 Type of sports indoors | Chart 2 Type of sports outdoors | Chart 3 Type of sports for recreation social enjoyment |
|---|---|---|
| Archery | Archery | Air based e.g. parachuting, hang gliding and flying |
| Athletics (track and field) | Athletics (track and field) | Billiards and snooker |
| Badminton | Baseball and softball | Boating and yachting |
| Billiard/snooker/pool | Bobsleigh | Boule (amusement) |
| Basketball | Bowling | Caravanning |
| Boxing | Boule | Camping |
| Curling | Canoeing | Card games |
| Dance | Cricket | Casinos, lotteries and wagering |
| Equestrian | Croquet | Chess |
| Fencing | Cycling | Ceding to shops, visiting friends |
| Floor hockey | Ceding, cross | Dancing |
| Gymnastics/aerobics/fitness | Diving | Darts |
| Handball | Equestrian | Dog racing and dog care |
| Ice hockey | Fishing and angling | Doing a hobby |
| Ice skating | Flying gliding/Parachuting | Field studies e.g. bird watching, nature studies |
| Judo | Golf | Fishing and angling |
| Karate | Gymnastics/aerobics/fitness | Going to cinemas, concerts, theatre, circus |
| Martial arts of different styles | Hockey | Home related physical activities e.g. gardening, lawn mowing, renovating |
| Roller hockey | Horse riding, trekking | Horse racing and horse care |
| Roller skating | Hunting | Hunting |
| Netball | Ice hockey | Model car racing and flying model planes |
| Shooting | Ice skating | Music and drama |
| Skateboard | Running jogging off-track | Motor based activities e.g. riding motorcycles, mopeds etc. |
| Soccer (football) | Mini-golf | Outings e.g. seaside, countryside, parks |
| Squash | Modern Pantaloon | Playing amusement machines |
| Swimming | Motor sports e.g. racing, rallying | Sightseeing |
| Table tennis | Mountaineering, rock climbing | Swimming outdoors e.g. in rivers, lakes and sea |
| Tennis | Mountain biking | Table tennis (amusement) |
| Volleyball | Orienteering | Visiting amusement venues |
| Wall climbing, artificial | Polo | Visiting historic sites, fairs and exhibitions |
| Water polo | Roller skating | Voluntary work |
| Weightlifting | Rowing | |
| Wrestling | Rugby | |
| Sports for disabled... | Sailing, yachting | |
| Company sports... | Shooting | |
| Other (country specific) | Volley ball on beach | |
| | Skiing; | |
| | - Cross country | |
| | - Downhill snowboarding | |
| | Soccer (football) | |
| | Surfing | |
| | Swimming | |
| | Skateboarding | |

| | | |
|---|---|---|
| | Tennis<br>Triathlon<br>Tug-of-war<br>Walking for exercise<br>Water skiing<br>Wind surfing<br>Sports for disabled…<br>Company sports…<br>Other(country specific) | Walking to shops, visiting friends<br>Watching any form of sports<br>Other (country specific) |

Note: Some of the activities overlap. The principal difference between activities listed in chart 1-2 and 3 centres around a conflicting need for defining sports in terms of physical exercise in training and physical exercise for recreation and social enjoyment.

Nowadays many sports are pursued both indoors and outdoors and some sports are very seasonal. Some demand high standards of physical endurance whilst some combine high levels of skills. A closer look at sports listed in chart 1 and 2 reveal how difficult it is to achieve consensus between games combining skills and games demanding physical endurance. Hence, sports listed in chart 1 and 2 and the proposed division of sports into indoor and outdoor types is not as farfetched as it might sound initially, but offers the best alternative for surveying sports participation. It should be pointed out, however, that the scope and definition of sporting activities and participation rates will always be subject to technicalities and adjustments that require clarifications with footnotes.

Data capture for organised participation in federation, company and/or disabled sports is best obtained from the administrative filing systems of the national federations (see section 9 for details).

Sports participation for youngsters attending school should defined only in terms of after school hours. Involvement in physical education, which is regulated through the curriculum and pursued during school hours is best reported separately. In a similar manner, compulsory physical exercise and sports specific training during work hours for persons in the armed services, police, fire brigade etc., is best reported separately.

## 3. Definitions and explanations of sports participation

The indicator of sports participation is defined as the proportion of the population who participate in sports during a specified time period. It is expressed as a frequency (percentage): The number of participants in the population divided by the total size of the population (participants plus non-participants) multiplied by 100. The percentages can be calculated for different population groups e.g. males and females, age specific groups, educational and occupational level etc. However, it is not appropriate to calculate the frequency of participation for the total population as the simple arithmetic average of different population groups without weighting the specific frequencies to reflect the total composition of the population if the results are to be valid.

For the calculation of frequencies, 2 numbers are required: A numerator (number of participants) and a denominator (number of persons from which the participants are derived i.e. participants and non-participants). The population for which participation is determined is reflected in the denominator. It goes without saying that if the numerator and denominator refer to a specific sub-group of the population according to sex, age, socio-economic characteristics (educational level, income level, ethnicity etc.) the participation should also refer to to that sub-group. In each case the number of participants in the sub-group of the population should be divided by the number in the population of that sub-group (participants and non-participants in the sub-group) and multiplied by 100 to calculate sub-group specific frequencies of participation.

The interesting sub-groups of the population are the following;
*Socio-economic*
- Occupational status corresponding to white collar workers, blue collar and intermediate level employees. Other relevant sub-groups are farmers, students and pensioners, and people with a disability,
- Educational standards corresponding to lower secondary (compulsory school), upper secondary (high school) and postsecondary (university etc.) levels,
- Other desirable groupings are by health status (normal, injured, with a disability etc.), employment status (full-time, part-time, un-employed etc.) and working hours (daytime, non-regular hours, week-ends etc.).

*Age*
Adhering to international statistical standards, the ideal age groups should be: 7-12, 13-15, 16-19, 20-24, 25-29, 30-34, 35-44, 45-64, 65-74 and 75 and over.

*Gender*
The gender differences in sports participation are highlighted in Nordic countries because of the ever increasing number of women participants in sports. And, of course, facts about women and men in sports are important for developing programmes with the aim of widening user satisfaction.

**4. Classification of sports participants**
Any population can be divided into 2 main categories - participants and non-participants.

- Non participant at a given time period (people with *sedentary* lifestyles) is equal to the total of ex- practicers and non- practicers
- Participant at a given time period (people with *non-sedentary* lifestyles) is equal to the total of occasional and regular practicers

A convenient way to illustrate the relationship between the various categories is shown below.

| | **Current status of particiaption** | | |
|---|---|---|---|
| | *Regular* | *Occassional* | *Non-participant* |
| **Previous status** | | | |
| *Regular* | Continuers | Triers | Ex-participant |
| *Occassional* | Triers | Continuers | Ex-participant |
| *Non-participant* | Triers | Triers | Continuers (non-triers) |

The frequency rates must be specific;

- never or none at all (non-participant/ex-participant)
- less than once a month, at least once a month (occassional)
- at least once a week (regular)

Involvement can be defined in terms of duration for at least 20 minutes rather than metabolic rate and calories. In addition, sports participation can be recorded in terms of hours and minutes spent per week.

**5. Data display for analysis and evaluation**

The data should display the percentages as well as absolute figures about sports involvement in total as well as corresponding to each of the selected population sub-groups.

% who never participate,
% who participate occasionally,
% who participate regularly, and thereof; monthly, weekly etc.
% who are competitive players,
% who are elite players,
% who are leaders, managers and/or coaches of sports club,
% who are members of sports clubs,
% who watch arena sports for entertainment,
% who watch sports on TV regularly and/or very often.

The leading indicators for evaluation should provide answers to the following questions:
Is the trend in sports participation upwards?
Is sports participation widespread?
What are the leading sports?
What are the gender differences in sports participation?
Are there sufficient sports clubs?
Are there sufficient leader led activities for youngsters through sports clubs?
Are there sufficient leader lead activities for adults through sports clubs?
Are there sufficient facilities for sports participation?
Is the trend in club membership upwards?
How best should desirable trends be strengthened?

## 6. Data gathering

For determining participation, the individual has to be contacted for obtaining answers to the questions posed. To do this, a questionnaire has to be developed. The questionnaire is the tool for data gathering. The questions must be well defined and motivate respondents to give accurate replies. The public are well aware about factors leading to their leisure time involvement in adopting sporting habits; hence the importance that has to be given to drafting of questionnaires. And to quote a famous saying "speaking the respondents' language yields the most valid results". The focus is on involvement and the following core questions should be included:

1. Have you ever participated in indoor/outdoor sporting activities (see chart 1-2)?

Yes No Non-participant/ex-participant

2. Have you participated in sports for recreation and amusement (see chart 3)?

Yes No Non-participant/ex-participant

3. Have you participated in such activities with duration of at least 20 minutes during the past 12 months?

Yes No Non-participant/ex-participant

4. How often have you participated in such activities?

Regularly; Occasionally;
At least once a week At least once a month, or similar

5. Sports activities (listed in chart 1, 2 and 3 below, or similar);

*Organised and supervised by:* *Individual involvement:*
Sports clubs Company Sports clubs alone, or together with companions Sports for disabled

Respondent attributes are:
Age, gender, nationality and marital status
Children aged 7 - 15 living at home
Residential address
Municipality and county
Socio-economic characteristics

The most suitable method of gathering answers to questionnaires will vary from country to country and the best adopted method in each case will depend on the statistical infra-structure status.

It is highly desirable that interviews be carried out on a face to face basis. They are more appropriate than postal questionnaires in surveys of this type. Interviews should be done at home or at work places. Telephone interviews should be used only when it is difficult to conduct a personal interview.

Questions about behaviour, attitudes and opinions should be avoided in questionnaires because they are of the self-esteemed type. They would require in depth involvement of psychologists and specialists in behavioural sciences.

It is desirable that parents answer the questionnaires for the two youngest groups whilst self-declared answers are to be requested from the older groups. For youngsters aged 7-15 (16 - 19), the questionnaire should include links to parental participation and parental socio-economic status.

**7. Sampling technique**

It is not always possible to gather information from all individuals in the population. Therefore, it is necessary to select a sample of the population, or sub-group thereof, about which participation is being assessed. The usefulness of the figures obtained through a sample survey is directly depended on the representativeness of the population that is surveyed. The appropriate method of choosing a sample is probability sampling, in which the individuals in the population has a known and specific probability of inclusion in the selected sample. This requires prior knowledge of the individuals (identification numbers in the population registers) and required number of respondents to be selected in the random samling procedure. Random sampling is a scientific procedure that provides a known probability for each individual in the population to be included in the sample and a valid way to estimate participation rates in the population. The disadvantage is that it is expensive and time consuming to search for individuals if a relevant register of the population is not readily available.

The prime goal of the sampling method is to achieve a representative sample of a cross-section of the population in order to obtain accurate estimates. The best method of sampling will vary from country to country according to adopted traditions of sample surveying. Therefore, the sampling technique and profile of the survey will depend on the anticipated response quality of survey data. Presentation should be made in collaboration with specialist organisations. The offices of national statistics are best suited for this type of selection and should be actively involved in the sampling process.

The most important factor in establishing the reliability or precision of the estimated participation is the size of the sample. In broard terms one could say that the larger the sample size, the more reliable is the estimated participation, provided of course that it is a random sample and the responses are at a high level. Furthermore, where sub-groups of the population are involved the reliability of the estimate will be dependant on the size of the sub-group sample. In a smaller sample the chances are that the estimated participation will be substantially different from the “true” participation. The experiences from Sweden indicate that the sample size should revolve around an anticipated precision of estimators corresponding to the size of a random sample of about 6 000 to 8 000 individuals. Naturally, the sample size should be increased when extending the reach of the survey for detailed coverage e.g. from popular to newly emerging sports, from total to age specific groups, from national to geographical regions etc. As a guide, the reliability of estimates in random sampling is proportional to the square root of the sample size and there are tables to establish the size of the sample depending on the precision required. As mentioned before, the offices of national statistics are best suited for this type of selection.

To monitor changes over time and to ensure comparability, repeated surveys are necessary using the same techniques (questionnaire, interviews and protocols for processing and presentation). However, each new survey should select a new random sample to that used earlier.

**8. Data editing and analysis**

In the analysis phase, it is important to edit the data for consistency and check completeness of responses and missing answers.

All surveys suffer from varying degrees of non-response even under ideal conditions. Methods of prevention, detection and treatment of non-response and their impact on results should be highlighted. Likewise, information about major sources of error e.g. coverage shortcomings, processing and measurement, should be provided for a better understanding of the survey data quality.

Sample surveys, as explained above, are designed basically to gather information for describing sports participation and do not reveal any information about the behavioural patterns of the participants. For some respondents, the memory of past events and their sincerity and willingness to give answers can be far from one hundred per cent. Participants who practise sport once a week are well motivated and normally should have a very high level of motivation in answering survey questionnaires compared to occasional practicers.

**9. Practicers of sports organised by the national sports federations- data collection**

In most countries the national federations keep records of registered sports practicers e.g. issued player licenses, insurance registration against injuries etc. The register data are essentially designed for administrative use, and statistics gathered from these sources are a by-product of the filing system. Collection, processing and releasing data from this source is time consuming. Nevertheless, it is an important source of information about indicators of sports practicers' organsised at different competitive levels. The essential data that can be compiled (Swedish experience) are listed in chart 4.

**Chart 4 Data from federation sports**

Federation sports are listed in chart 1 and 2. Type of information required are the numbers involved.

1. Clubs
2. National competitions for team sports
3. Teams competing in national competitions
4. Players competing in national competitions for teams
5. National competitions for individual sports
6. Players competing in national competitions for individual sports
7. International competitions at home and abroad for sports clubs
8. International competitions at home and abroad for national squads
9. Players by professional status e.g. ranked by performance standards;
   - 9.1 Elite players
   - 9.2 Thereof; professional
   - 9.3. Tournament players e.g. licence holders

10. Facilities for training and competitions
11. Availability of facilities;
    11.1 Ratio of players to facilities
    11.2. Ratio of Teams to facilities
12. Paying spectators (attendance) during the year/season e.g. tickets sold
13. Paying spectators per game (average for the year/season)
14. Courses for coaches and supervisors
15. Sports magazines and publications about competitions/resuits[4]
16. TV-coverage excluding newscasts e.g. number of minutes/hours per year/season
17. World Championship gold, silver and bronze medals
18. European Championships gold, silver and bronze medals
19. Olympic gold, silver and bronze medals

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National Culture and Recreation Statistical Unit of the Australian Bureau of Statistics. *Guidelines*
*and development of the framework for gathering data on sports industry.*

Editors Note: The author, Brian Wicklin, owner of the consulting company, VECA Research and Consulting, has been a leading figure in the promotion of "internationally useful and comparable data on sports" through his activities with the International Statistical Institute's Sports Statistics Committee and the work of COMPASS (http://w3.uniroma1.it/compass/index.htm ). COMPASS is a project that seeks to coodinate, standardize and monitor sports statistics in Europe. Their website has further information on methodologies utilised to carry out sports participation surveys.

Brian Wicklin
Mob: +46 70 6073896
Email: brian@statveca.com

**Of Money, Time and Taste: Explaining the link between social class and sports involvement**

*Thomas C. Wilson, USA*

## SPORTS INVOLVEMENT AND SOCIAL CLASS

Studies in the sociology of sport document a linkage between social class and sports involvement. Empirical studies have repeatedly shown that various social class indicators are positive predictors of sport involvement, and that members of the upper classes are more likely to be both sports participants and sports spectators (Bourdieu 1984; Eitzen and Sage, 1991:304; Coakley, 1998; Nixon and Frey, 1996; Leonard, 1998; Erikson, 1996).

There are two explanations for this linkage between social class and sports. The first stresses economic capital. Sports involvement either as a participant or a spectator typically requires both money and leisure time, and the upper classes have more of both (Bourdieu, 1978; Eitzen, 1996; Nixon and Frey, 1996; Coakley, 1998). The second explanation stresses the concept of cultural capital as developed by the French sociologist Pierre Bourdieu. According to Bourdieu (1978, 1984; see also Collins, 1979; Holt, 1997, 1998), all cultural consumption including sports consumption requires the appropriate preferences, tastes, skills, and knowledge, all of which he terms cultural capital. Cultural capital is gained from one's socialization, one's upbringing and education. Importantly, cultural capital varies by social class, that is, the cultural capital typical of members of the upper classes differs from that of the lower classes. Furthermore, class-based differences in cultural capital serve as markers and legitimators of social class differences in other areas, including economic capital. Most sports are consistent with the cultural capital of the upper classes, either because they exemplify virtues that the upper classes hold dear, or because like art, music, and pure academics, they are pursued as ends in themselves rather than for instrumental purposes (Bourdieu, 1978; Lamont, 1992:121).

One could evaluate these two explanations by assessing the separate effects of cultural capital and economic capital on involvement and participation in sports (Holt, 1997). However, whereas a number of studies have focused on the linkage between social class indicators and sports involvement, only two prior studies have explicitly focused on an assessment of cultural and economic capitals' respective independent effects on involvement in sports. Using data from the 1992 General Social Survey of Canada, White and Wilson (1999) analyzed spectatorship at amateur and professional sporting events. They operationally defined economic capital as respondent's household income, and cultural capital as respondent's education. Results of their analysis showed that both income and education were directly and independently related to attendance at sporting events. I used the same methodology in an analysis of the 1993 General Social Survey of the U.S. population (Wilson, 2002). I found that both income and education are directly and independently related both to attendance at sporting events, and to participation in sports.

The results of these two studies support the conclusion that both economic and cultural capitals promote sports involvement and participation. But both studies are open to criticism concerning the use of respondent's education as a measure of cultural capital. Bourdieu's concept of cultural capital has been operationalized in various ways, including educational attainment but also including high culture knowledge and participation ( Lamont and Lareau, 1988 ). Holt (1997) contends that Bourdieu's concept has a twofold meaning: an "abstracted virtual form" consisting of general dispositions, tastes, knowledge and the like, accumulated primarily through social class background; and a "field-specific" form, exemplified by specific tastes in art, food, music, and the like. Educational attainment is an arguably appropriate, though at best an imperfect, and indirect measure of cultural capital in the first, general, sense. But it is by no means an appropriate indicator of specific, upper-class preferences and tastes. Cultural capital in this second, more-specific, sense clearly seems to be far better reflected by indicators of high cultural participation. Neither of the studies linking cultural capital to sports involvement reviewed above have operationalized cultural capital in this way.

In the following study I replicate my earlier research (Wilson, 2002), with an important methodological refinement. Rather than operationalizing cultural capital in terms of respondent's education as an indirect reflection of their general upper-class dispositions and tastes born of social background, I operationalize cultural capital in terms of respondents' involvement in the arts, as a direct reflection of their specific, upper-class tastes and preferences. My hypothesis is that both economic capital (respondent's household income) and cultural capital (respondent's involvement in the arts) independently increase respondent's involvement in sport as both a participant and as a spectator.

## DATA AND METHODS

The following analysis is again based on the data for a representative sample of Americans contained in the 1993 NORC General Social Survey (Davis and Smith, 2002). The sampling procedure employed by NORC insures that findings for the sample can be generalized to the nation's population as a whole. In the survey, respondents indicated whether they had engaged in each of a list of leisure-time activities during the previous year. Two of the activities pertained to sports involvement: participation in any sport and attendance at any sports event. Three activities pertained to the arts: visiting a museum or gallery, attending a ballet or dance performance, and attending a classical music or opera performance.

Involvement in these activities is shown in table 1. Three patterns are apparent. First, Americans' sports involvement exceeds their arts involvement. Among men and women alike, sports participation and attendance are more common than any of the three arts-related activities. Second, men are somewhat more involved in sports than women are. A little less than two-thirds of men and roughly half of women are sports participants, and the same holds true with respect to sports spectatorship. Third, women are somewhat more involved in the arts than men. Gallery attendance is roughly 40% for men and women alike, but attendance at music and dance performances is greater for women than for men.

**TABLE 1. Frequency of Sports Involvement and Arts Involvement within Previous Year, among Men and Women[1] , 1993 GSS, N=1458.**

| | MEN N=646 | WOMEN N= 812 |
|---|---|---|
| Participate in any sports activity such as softball, basketball, swimming, golf, bowling, skiing, or tennis. | 63.9% | 52.3% |
| Attend an amateur or professional sports event. | 61.6% | 49.3% |
| Visit an art museum or gallery. | 38.6% | 42.3% |
| Go to a live ballet or dance performance, not including school performances. | 13.0% | 25.3% |
| Go to a classical music or opera performance, not including school performances. | 13.3% | 17.6% |
| [1] All differences between men and women are significant, $p < .001$. | | |

In the following analysis, I assess the impact of both economic and cultural capital on the sports involvement indicators in table 1. As in previous studies, (White and Wilson , 1999; Wilson, 2002), I operationalize economic capital with respondent's household income. But unlike these past studies, I operationalize cultural capital not with respondent's education, but instead with respondent's involvement in the arts. Specifically, my cultural capital measure is based on arts activities shown in table 1, and is a dichotomous variables, scored 1 for respondents involved in one or more arts activities, and 0 for all other respondents. According to this measure, 43.2% of men and 51.3% of women were involved in at least one arts activity.

The analytic strategy in the following analysis is Multiple Classification Analysis (MCA). Separate analyses will be conducted for men and women.

## RESULTS

### Sports Participation

Table 2 tests whether cultural capital and economic capital each promote sports participation. Model 1 presents the bivariate relationships between income and sports participation, and between arts involvement and sports participation. For men and women alike, people who are more affluent are more likely to take part in sports. The most affluent category, with household incomes of over $60,000, are roughly twice as likely to participate in sports compared to people in least-affluent households with incomes of under $20,000. And, for both men and women, those involved in the arts are more likely to report sports participation. Among men, 79.3% of those involved in the arts also participate in sports, compared to a sports participation rate of only 57.2% among other men. Among women, the sports participation rate is 63.8% among the arts-involved, compared to 39.9% among other women.

**TABLE 2. Frequency of Sports Participation by Economic Capital (Income) and Cultural Capital (Arts Involvement)[1], 1993 GSS, N=1458.**

| | Men (N=646) | | | Women (N=812) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) % | (1) | (2) | (3) % |
| Economic Capital: | | | | | | |
| Income: ≤ 20,000 | 42.0 | 45.3 | 50.0 | 33.6 | 36.6 | 40.5 |
| $20-39,999 | 64.7 | 65.9 | 63.8 | 57.3 | 56.6 | 54.8 |
| $40-59,999 | 75.6 | 74.6 | 70.6 | 64.2 | 62.2 | 60.2 |
| $60+ | 80.8 | 75.2 | 76.4 | 75.6 | 71.7 | 68.0 |
| eta / beta | .304* | .248* | .200* | .318* | .267* | .206* |
| | | | | | | |
| Cultural Capital: | | | | | | |
| Arts Involvement | | | | | | |
| Yes | 79.3 | 76.0 | 72.1 | 63.8 | 59.2 | 57.6 |
| No | 57.2 | 54.7 | 57.7 | 39.9 | 44.8 | 46.6 |
| eta / beta | .280* | .219* | .149* | .239* | .144* | .110* |
| | | | | | | |

[1] Model 1: bivariate income-sports and arts-sports relationships.
Model 2: income-sports relationship net of arts involvement; arts-sports relationship net of income.
Model 3: income-sports relationship net of arts involvement, age, race, city size; arts-sports relationship net of income, age, race, city size.
* $p \leq .001$

Table 2's model 2 presents a multivariate analysis of economic and cultural capitals' independent effects. That is, the impact of income on sports participation is statistically adjusted for arts involvement, and the impact of arts involvement on sports participation is adjusted for income. Among both men and women, model 2 beta coefficients are smaller than comparable eta coefficients in model 1, indicating that the relationships of income or arts involvement with sports participation are each somewhat attenuated when the other is controlled. However, just as in model 1, among both men and women, income remains significantly and directly related to sports participation. This means that more-affluent people are more likely to participate in sports regardless of their level of involvement in the arts, presumably because they find sports more affordable. And again, arts involvement remains related to greater sports participation among both of the sexes. This means that regardless of income, people who are involved in the arts are more likely to be participants in sports. This strongly implies that sports participation is to some extend a reflection of cultural capital associated with the upper social classes, distinct from the economic resources of the upper classes.

Model 3 repeats the analysis, this time with additional statistical controls for age, race, and community size, all of which have been found to be associated with sports involvement in prior studies (Lamont, 1992:121; White and Wilson, 1999 ; Wilson, 2002) Age is at respondent's last birthday. Race is a dichotomy coded for white versus other. Community size is coded 4= largest 12 SMAs, 3= other SMA, 2= other urban, 1= rural. Model 3 beta coefficients are consistently smaller than their counterparts in model 2, indicating that the relationships of income and arts involvement with sports participation are further attenuated with the additional demographic controls. However, for both men and women they remain statistically significant and robust. These results mean that to a large extent, the apparent effects of economic and cultural capital on sports participation are independent of any tendencies for these capitals to be correlated with age, race, or city size.

In all, table 2 confirms the hypothesis that both cultural capital, indicated in this study by art involvement, and economic capital each independently promotes sports participation.

**Sports Attendance**

Table 3 repeats the analysis with respondent's attendance at sports events as the dependent variable. Results are nearly identical to those already presented for sports participation. Table 3's model 1 present bivariate relationships that show for both among men and women that more-affluent people are more likely to attend sports events, and that people who are involved in the arts are more likely to attend sporting events.

**TABLE 3. Frequency of Sports Attendance by Economic Capital (Income) and Cultural Capital (Arts Involvement)[1], 1993 GSS, N=1458.**

| | Men (N=646) | Women (N=812) |
|---|---|---|
| | (1) (2) (3) % | (1) (2) (3) % |
| Economic Capital: | | |
| Income: ≤ 20,000 | 40.2 43.3 45.9 | 33.0 37.1 39.4 |
| $20-39,999 | 62.7 63.8 62.7 | 51.0 50.1 48.7 |
| $40-59,999 | 72.3 71.4 69.2 | 58.4 55.8 54.2 |
| $60+ | 78.5 73.4 73.8 | 74.8 69.5 68.2 |
| eta / beta | .293* .242* .213* | .300* .230* .201* |
| | | |
| Cultural Capital: | | |
| Arts Involvement | | |
| Yes | 76.1 72.8 70.6 | 62.6 58.7 58.2 |
| No | 50.7 53.2 54.9 | 34.8 38.9 39.6 |
| eta / beta | .259* .199* .160* | .278* .197* .185* |
| | | |

[1] Model 1: bivariate income-sports and arts-sports relationships.
Model 2: income-sports relationship net of arts involvement; arts-sports relationship net of income.
Model 3: income-sports relationship net of arts involvement, age, race, city size; arts-sports relationship net of income, age, race, city size.
* $p \leq .001$

Table 3's model 2 shows that income and arts involvement each influence sports attendance independent of one another. Among both men and women, those involved in the arts are more likely to go to sporting events regardless of any tendency they may have to be more affluent, and more-affluent people are more likely to attend regardless of their involvement in the arts. Comparing model 2 beta coefficients with comparable eta coefficients in model 1, the respective influence of income and of education is each attenuated somewhat when the other is controlled, but without exception they remain significant and strong. Model 3 in table 3 adds the demographic controls, and the influences of income and art involvement are further attenuated (as indicated by lower beta coefficients in model 3 compared to their counterparts in model 2). But for men and women alike the influences remain significant and robust.

In summary, table 3's analysis leads to the same conclusion: the hypothesis that both cultural capital and economic capital each independently promotes sports involvement is confirmed.

## DISCUSSION

Sociology of sport findings have shown that members of the upper social classes are involved in sport more than their counterparts at the lower end of the social hierarchy. Theoretically, this tendency can be attributed to class-based differences in economic capital, which makes sports and the leisure time they require more affordable for the upper classes. Alternatively, the upper classes' greater sports involvement may be attributed to their cultural capital, that is, to the tastes and preferences that are gained through the sort of socialization that is typically experienced by those in high social positions.

Two prior studies have tested these explanations, finding that both economic and cultural capitals promote sports involvement. But these studies are arguably inconclusive, having taken only an indirect and therefore inadequate approach to measuring cultural capital in terms of respondents' educational attainment. In an effort to improve on these prior studies, in this study I have operationalized upper-class cultural capital in terms of respondent's involvement in high-cultural arts activities. Employing this methodological refinement, the analysis presented here has found unambiguous support for the roles of both economic and cultural capitals. Among both men and women alike, economic capital and cultural capital each promote attendance at sporting events and participation in sports, each does so independent of the other, and each does so independent of selected demographic variables as well. These findings replicate the findings of the two prior studies, and together with them strongly support the conclusion that both cultural and economic capital promote sports involvement. In the words of this study's title, class-based differences in sports involvement are explained by class-based differences not only in money and leisure time but also in taste.

This conclusion holds an implication for the structure of social inequality. In his discussion of cultural capital, Pierre Bourdieu has argued that class differences in taste are means of reproducing status-based social networks and that membership in these networks may provide access to material and symbolic goods (Bourdieu, 1984; see also Collins, 1979, and Douglas and Isherwood, 1979). That is, taste functions as a means of ritual identification in the construction of social relations. Simply put, those with high-cultural tastes prefer interacting with each other, and research has documented that similarity in taste does in fact influence one's choice of friends and associates (Lamont, et al, 1996). There is every reason to believe that tastes in sports also functions in this way (Eitzen and Sage, 1991). So, if tastes in sports are linked not only to economic capital but particularly to class-based differences in cultural capital, the strong implication is that, just as with any class-based taste difference, sports tastes function to reinforce and reproduce the existing structure of social inequality.

The second implication pertains to the emergence of the cultural "omnivore". Several studies suggest that highbrow snobbery centered around upper-class cultural pursuits has been replaced as a marker of high status by more eclectic tastes characteristic of what has been called the cultural "omnivore" (Peterson and Kern, 1996; Erikson, 1996; Lamont, 1992). Findings of this and previous studies showing that those richest in high-cultural capital are generally more involved in sports are consistent with the

"cultural omnivore" thesis. And these findings give the lie to two popular stereotypes. The first is of the all-consumed sports enthusiast, the "sports nut" if you will, who is single-mindedly dedicated to his or her favorite sport or sports, has little interest in other pursuits, and typically disdains the arts for their pretentious nature perceived on account of their association with the upper classes. On the other hand, there is the stereotype of the highbrow cultural snob, the patron of the arts, the lover of opera, ballet, and symphony, who has no interest in sports and perhaps disdains them for their association with "common" tastes and people. The findings of this study cast doubt on the accuracy of those stereotypes, and suggest instead that very often the patron of the arts and the sports enthusiast are one in the same person.

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Thomas C. Wilson
Department of Sociology
Florida Atlantic University, USA

**Youth Sports Leaders' Advice on Facilitating Participation in Sport: People, resources and attractors**

*Ann MacPhail[1], David Kirk[2] and Diann Eley[3]*
*[1]University of Limerick, Ireland, [2]Loughborough University, UK, [3]University of South Queensland, Australia*

**Introduction**

This paper presents further results from a study that asked 14-18 year olds to address the issue of what can be done to help young people participate in sport (MacPhail, Kirk & Eley, 2003). Our concern in this paper continues to be that without directly seeking and addressing issues pertinent to young people, it is perhaps too ambitious to claim that programmes solely developed at a government level will inspire more young people to play more sport. We believe that it is only by talking with young people that informed decisions can be made on how to entice young people into being, and continuing to be, involved in sport.

Our earlier paper (MacPhail et al., 2003) focused on young people's responses related to climate and conditions to the question 'What can be done to help young people participate in sport?' Climate referred to the social environment in which participation takes place and included the social aspects of sport, encouragement and inclusivity. Conditions referred to the structures and processes that need to be in place to make young people's participation in sport possible, such as school and club provision, pathways between sites and levels of participation, the provision of organised events and promotion. While the young people's emphasis on climate and conditions did not surprise us, it reinforced the notion that young people are only likely to be attracted to and remain in sport if the sites in which they can practice it cater for their individual abilities and interests.

Our focus in this paper is to report and discuss young people's views on how people, resources and attractors to sport can facilitate young people's involvement in sport.

## Methodology

Seven one-day sport leadership workshops were offered on the same day in April 2000. The workshops were designed to allow the young people to explore the contribution they can make to sporting provision as volunteers in their local communities. A total of 608 people aged between 14 and 18 years participated in the workshops, 279 males and 329 females. All participants were in full time education.

Nominal Group Technique (NGT) is one interview technique where participants work in the presence of each other but write ideas independently rather than stating them verbally. The NGT approach is designed to receive input from all group members, not just a few vocal members. The appropriateness of NGT in eliciting information from school-aged participants and a detailed description of what the NGT entails is reported in MacPhail (2001).

Within each of the one-day sport leadership workshops numerous groups of up to 12 individuals were formed for the collection of data. The sessions used the NGT to provide valid and meaningful responses from all 608 participants to the question; 'What can be done to help young people participate in sport?'
More information regarding the research context and participants is detailed along with related issues in using Nominal Group Technique, i.e., the collection of data, organisation of the group session, piloting of the question and the training of group facilitators, in MacPhail et al. (2003).

## Data analysis

A grounded theory approach was taken to the analysis of the data (Glaser, 1978). Just over 1,000 statements were recorded. Numerous statements were repeated across groups and across venues. These were grouped and a label attached that described the main content of the statement, such as for example 'incentives', 'funding' and 'role models'. On the basis of this first level of analysis, each of the authors then re-coded the data independently and compared their results. Labels were modified in light of these comparisons to more accurately describe groups of statements and new subgroupings were developed where appropriate. The process was repeated until consistency in coding was achieved.
Groups of statements were formed when the researchers considered there were sufficient numbers of statements to saturate a category (Glaser, 1978). Some groups of statements and some major categories contained more statements than others, providing a measure of the strength of young people's views on particular issues. Nineteen groups of statements were generated by the sessions in response to the core question 'What can be done to help young people participate in sport?' These groups of statements indicated five major categories. The two categories that accumulated the highest number of responses were those related to 'Conditions' and 'Climate' and have been discussed in a previous paper (MacPhail et al., 2003).

In the next section of this paper we report and discuss the remaining three categories which related to 'People', 'Resources' and 'Attractors' and the most prominent group of related statements for these categories. That is, under the category of 'People' we discuss coaches and role models, under 'Resources' we discuss finance and facilities and under 'Attractors' we discuss incentives. The category of people refers to individuals and groups these young people consider play a key part in assisting with youth sport, in this case teachers, coaches, parents and role models. Resources refer to the material infrastructure of youth sport and included facilities, equipment, funding and transport. Attractors refer to the incentives, benefits, enjoyment and feelings of being motivated that draw young people to sport.

**Young people's views on facilitating sport participation**

**(1) People**

The young leaders' statements identified four groups of people who they believe have a key role to play in facilitating young people's involvement in sport. As we might have expected of young people who are currently in full-time education, teachers formed a prominent group of facilitators of youth sport. Encouragement for their sport participation was what these young people most want from their parents, an issue that is also widely advocated in the literature (eg. Cote and Hay, 2002; Anderson and Wold, 1992; Lamb, 1985; Morton and Docherty, 1980). However, the two most prominent groups that were identified as having a key role to play in facilitating young people's involvement in sport were coaches and role models.

Coaches

Mason (1995) noted coaches as influencing children's involvement in sport. The participants' statements mentioned coaches more often than teachers, perhaps reflecting the wording of the focus question and young people's identification of coaching with sport. The young people frequently emphasised a need for quality coaching. They stated a preference for coaches who were qualified and knowledgeable about their sport, and also approachable, friendly, enthusiastic and professional. These statements implied that the quality of coaching experienced by the participants was variable, an issue also raised by the young people in Kremer, Trew and Ogle's (1997) study. The statements also included a concern for the provision of specialised coaching, perhaps implying that there are currently too few coaches to support the transition from general to more specialised training.

Role models

The participants expressed enthusiasm and support for role models to promote youth sport. The role models they mentioned included sports personalities, high profile celebrities and local celebrities and older students. It was suggested that role models should make appearances at sports days and celebrities visit schools.

These statements imply that young people identify with high profile sports people and would be encouraged to participate in sport if there was some form of personality presence. One individual suggested that young people themselves could act as role models for participation in sport if there was coverage of young people in sport in the media, especially television. This comment conveyed a perception shared by others that there is a lack of media coverage of youth sport events.

However, Mason (1995) reported that children were able to name their favourite sports stars and 'some wished that they could be like them one day' (p.47).

**(2) Resources**

The provision of resources has been identified as a local rather than national responsibility (English Sports Council, 1997; Department of National Heritage, 1995). The young people recognised that creating the right conditions for participation and involving key people appropriately had implications for resources. Their responses identified four resources that they viewed as necessary pre-requisites for participation in youth sport. The four resources were equipment, transport, finance and facilities. Two reoccurring equipment themes were the need for more equipment, specifically in schools, clubs and the community and for equipment to be of a high quality. In relation to transport, young people felt that free or subsidised travel to and from facilities would increase the accessibility of sport venues. In July 2001 the Government's Social Exclusion Unit launched a major consultation on transport and social exclusion, aware that a lack of transport not only cuts people off from work but also from sport, exercise and leisure. However, it was the issues of finance and facilities that attracted the largest support for having a key role to play in facilitating young people's involvement in sport.

Finance

Lowering the cost of participation, including access to sports centres, hiring of equipment, membership fees for clubs and coaching, was an obvious concern of young people. Some statements proposed that financial assistance should be available for travel, facilities and equipment. The young people believed facilities would be more accessible if costs of admission and membership could be reduced or made free of charge. All of these statements conveyed the respondents' awareness of the financial barriers to sport participation. Sponsorship was frequently mentioned as a possible solution to making involvement in sport more affordable. Sponsored sport events were suggested, as was the possibility that sponsorship could cover the costs of building more facilities and acquiring more equipment.

The socioeconomic status of parents has been shown to be a key determinant of young people's involvement in sport (Collins, 1999; Kirk et al., 1997a & b; Mason, 1995). Information gathered by Rowe (1992) on the four sports of swimming, gymnastics, football and tennis suggested that distribution of young people in these four sports was biased towards the higher socioeconomic groups. Performance measures produced for Sport England (2000) on the use of local authority sports centres and swimming pools showed social groups D and E to be significantly under-represented. These studies confirm the importance and seriousness of young people's statements about finance as a major potential barrier to youth sport participation, particularly for young people from less privileged socio-economic groups.

**Facilities**

Similar to the pattern of suggestions made in relation to equipment, the need for better (indoor, outdoor and updated) facilities and more facilities was clearly the main concern of the respondents. Accessibility to facilities was also a frequently made comment and related to the issue of the cost of admission to facilities already mentioned. Some statements made reference to the quality of provision offered in facilities, including a safe and well-equipped environment.

The location of facilities was another important issue with an awareness of the need for facilities in areas where participation in sport is reported to be low. The message here is that facilities, their location and environment, can be a barrier to participation in sport. More and improved facilities for disabled access and Centres of Excellence were requested, highlighting young peoples' awareness of specialised populations within sport that require to be accommodated.
Kremer et al.'s (1997) study also acknowledged the importance of facilities to youth sport participation. However, the point also was made that sustaining participation requires partnerships and people, not just facilities. The need for this important combination of people, partnerships and facilities is clearly in evidence in the respondents' statements about people and conditions reported earlier.

**(3) Attractors**

Attractors are actions or emotions that make a person want to do an activity or task. The statements made by the young people suggested the idea of an attractor as something that would induce feelings or desires to participate in sport. Four types of attractors were identified - benefits, enjoyment, internal motivation and incentives. Many of the young people's responses reflected the benefits gained from physical activity, such as health and fitness and other benefits were cited as being motivators to physical activity that revolved around perceptions of the self such as positive values and morals. It is perhaps not surprising that enjoyment was well represented as an attractor to sport, with numerous responses by the young people emphasising the need to make sport fun. The literature is replete with evidence to show that enjoyment or fun is an important attractor to youth sport (Australian Sports Commission, 1991; Mason, 1995; Scanlan, Carpenter, Schmidt, Simmons and Keeler, 1993). Internal motivation was represented most obviously by responses from the young people that referred to confidence, motivation, commitment and achievement. The notion of incentives was, in the minds of the young people, identified as having the key role to play in facilitating young people's involvement in sport.

Incentives

Most young people do not need incentives or to be coerced into playing and the activity of play itself is their reward. Many of the statements made that referred to targets, aims and achievement reflect the intrinsic nature to these sorts of incentives. However, organised sports also have a powerful extrinsic element that can act as incentives to motivation. The statements by young people about provision of awards, trophies and prizes suggest that extrinsic incentives are also important. An overemphasis on extrinsic incentives has been shown by researchers to be de-motivating to young people. A reliance on intrinsic factors is more important for sport participants across various age groups. However studies (eg. Vallerand, Deci and Ryan, 1988) has also shown that the two may interact in many ways and that not all extrinsic incentives lead to a decrease in motivation. For example, praise and verbal feedback were found to convey positive competence information and increase motivation.

Other incentives cited by the young people included competition, both in terms of making sport competitive, making participation more important than competition and giving rewards for participation and not just for winning. These responses perhaps reflect this interaction of intrinsic and extrinsic incentives by calling for both an opportunity to demonstrate competence and obtain reward via competition as well as simply via participation. Finally there were responses calling for the creation of more qualifications in sport and perhaps a warning not to disregard sport as less academic. This suggests that these young leaders want sport to be more than just an activity to participate in. They can see the rewards that might be gained by going further in sport and wish to take advantage of the opportunities and incentives offered by it.

**Discussion**

Not only did young people report coaches more often than role models, teachers and parents as influencing children's involvement in sport but they were also critical about the quality of coaching that was necessary for retaining young people in sport. Such awareness of the variable levels of quality of coaching, and the importance of high quality coaching, is currently being addressed nationally in the UK (Sports Coach UK, 2002; UK Sport, 1999).

Young people's support for role models promoting youth sport has been addressed at a national level. The Sporting Ambassadors initiative emerged from 'England the Sporting Nation' (English Sports Council, 1997). The programme introduces some of the UK's most successful sport personalities to school-aged pupils, inspiring young people to take part in sport and promote the lifelong benefits of being involved in physical activity. Youngsters from ethnic backgrounds and those living in disadvantaged areas are targeted through the programme. In discussing physical activity and young people from black and minority ethnic groups, the Health Education Authority (1997) suggest that a possible reason for low participation levels amongst such a population are due to a lack of black and minority ethnic role models.

Mason (1995) reported that 'The range and amount of opportunity available to children were generally determined by the range of local facilities and by the family's ability to provide finance and transport for their children's sport' (p.44). Young people were clearly aware of the financial barriers to sport participation and suggested lowering the cost of participating in sport or providing financial assistance as a possible means of retaining young people's involvement in sport. Young people were aware of sponsorship as a means of making sport more affordable and this may be a reflection on the marked increase of marketing companies becoming involved in the promotion of sport. Better facilities, more facilities, the locality and accessibility of facilities were suggested by young people as potential barriers to participation in sport.

Young people called for an interaction of intrinsic and extrinsic incentives in their involvement in sport. While requesting that sport accommodates competition, they also asked that participation be prompted more than competition and that rewards are only targeted at those who are more competent performers.

Undertaking sport-related qualifications were noted as incentives to remaining involved in sport. Secondary schools throughout the UK currently offer students the opportunity to complete Junior and Community Sports Leader Awards. Junior Sports Leader Awards are aimed at those aged 14+ and are designed to develop skills in sports leadership. Community Sports Leader Awards are aimed at those aged 16+ and are designed to develop skills in leading groups in safe sporting and recreational activity. The awards are co-ordinated by the British Sports Trust on behalf of the Central Council of Physical Recreation.

**Conclusion**

The reality of many government initiatives and programmes is that they have to set targets and all too often this deteriorates to favouring the number of young people involved in sport over the quality of experience and opportunities available to them. This paper sends a clear message that in order to maintain and reach the 'quota' of young people that government initiatives are striving to report are active in sport within the UK, it is imperative that we not only ask young people what they like and dislike but also how their sporting experiences can be enhanced.

One of the most likely options to increase the quality of sporting experiences of young people reported by the young people in this study was a call for an interaction of intrinsic and extrinsic incentives in their involvement in sport. Training to become sport leaders encourages young people to learn new skills that they can build on and use (internal incentive) while the qualification that recognises their efforts can be seen as an external incentive. With more people trained as sport leaders, communities are able to call upon a sizable group of people to deliver sport and recreation programmes with young people themselves informing, and being involved in, the campaign to increase participation and young people's experiences in a sporting context.

This paper has extended further the results from a study that supports the notion of listening to the voices of young people in relation to sport and physical recreation. It is clearly evident from this study that young people, when asked for informed opinions, are capable of voicing relevant and realistic concerns and needs. Asking young people what they believe can be done to facilitate their involvement in sport and striving to address the issues raised in relation to this increases the likelihood of retaining, and perhaps achieving a higher satisfaction rate of, young people's involvement in sport.

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Ann MacPhail
Department of Physical Education and Sport Sciences
University of Limerick
Ireland
E-mail: Ann.MacPhail@ul.ie
Tel: +353-61-234155

## Statistics and Sport: Analysing the Sports System

*Arch. Bruno Rossi Mori, Italy*

### Statistics and Sports: three main fields

Spectators, athletes, trainers, coaches, and decision makers require customized statistics. Statisticians are asked to provide different information for different uses. In order to allow good comparisons between different sources, some common references and standards are required. There are three main sports statistics fields. In each of them, skilled users look for specific statistical information that is compiled using trustworthy methodologies.

1. Events' Results and Audience - for spectators first and for sports staff and trainers
2. Athletes' Training and Performances - for athletes and sports staff
3. The Sports System (social demand and services' supply) - for all decision makers and, as far the facilities' basic information is concerned, the average citizen

Performances and Results (1 & 2) are widely studied, i.e. in USA, where fans and athletes appreciate the breadth of scoring and events results information provided by the media. Sports statisticians may link to the American Statistical Association. Reference name: Donald Guthrie (formerly professor at Los Angeles UCLA, dguthrie@ucla.edu), current chairman of the Sports Statistics Committee within the International Statistical Institute (ISI).

Athletes' training, testing and talent scouting are interesting topics for sports organisations dealing with training, such as the Institute of Applied Training Science, Leipzig (Germany), from which harmonisation in data management is promoted (ref. Hartmut Sandner).

The present article focuses on the third topic: **the monitoring of the Sports System.**

### What does **"Sports System"** Mean for Statistical Purposes?

A possible definition of Sports System is presented here: "the set of all participants and of all services in sport". It had been officially adopted in Italy twenty years ago (Uni 8616/1984) and has a good practical impact. This definition seems to be acceptable also in other countries.

Sport activities may be seen as "products" of the sports system, where citizens-participants demand sporting opportunites, while sport organisations and others provide services.

The core concept of "sports system" is the definition of "sports", which can be rather indistinct.Through the years, many scientists in many countries were (and are still) dealing with questions such as: "what is sport?" or "which activities are to be considered as sports?" How may practical solutions arise, when shared operational tools are needed for statistical purposes? The need for a statistical definition of sports is the first priority.

### **"Sport",** A Possible Definition

A European definition of "sport" was mentioned. For those who are not accustomed to it, a short introduction follows.

The European Sports Charter (1992) provides a definition of sport. It is important because it was approved by the Sport Ministers of all the States which signed the European Cultural Convention within the Council of Europe: after 1989 it included about 50 signatures, including the whole of Eastern Europe. Therefore the Sports Charter has a good international authority. It says (art.2):

: “Sport” means all forms of physical activity which, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competitions at all levels (for a better analysis, see table 1).
According to this definition all forms of physical activity should be monitored.
Please note that the relationship of sport activities with the participant who plays them and the involved services may be also affected by some aspects, such as casual or organised participation (organisation), competitions at all levels (some kind of quality), and of course quantity. As we will see, the Compass action promotes recognition of those three aspects.

If it is possible to monitor , which main elements of the sports system are to be monitored?
In theory there are many elements (see table 2), but, in practice, the start up set may be:

- Participants (sample surveys and registers),
- Sport facilities (local registers),
- Sport clubs (local registers),

in comparison to the whole population…

- Population (censuses and registers).

A “Monitoring Center of the Sport System” produces an information service for supporting decisions about sports of:

- Participants and citizens in general (who are playing sports or would like to do it),
- Sport staff and decision makers (those who provide opportunities to play sports or make decisions on what sports are offered).

Both factual information (from registers, censuses…) and statistics (from sample surveys) are needed:

- Citizens need mainly factual information on services’ supply offered locally,
- Sport staff and administrators need also statistical analyses about athletes, participants and spectators, evaluations on the balance and/or demand of services plus the monitoring of trends.

The information services may be oriented both to the citizens and to the decision makers, and therefore should satisfy both stated needs.
In Europe Local Sports Monitoring Centres (“observatoires”) based on local registers (and databases) and on-line information services have been established. There are working groups in Portugal, Spain, France, UK and Italy.
Since the core of the “sports system” are sports activities, the focus is on the monitoring of Participation in Sports. The topic was already addressed once in *Perspectives, vol. 4, 2002, pp.81-94,* therefore the following few lines summarize the description of the European LEG on Culture and of Compass.

*1. Definition of "Sport" from the "Sports Charter" (Council of Europe, 1992)*

**"Sport" means**
all forms of physical activity
**which,**
**through** casual or organised participation**,**
**aim at**
**expressing or improving** physical fitness and mental well-being**,**
**forming**
social relationships
**or obtaining results in** competitions at all levels

2. The Main Elements of the Sports System

**Population - People interested in sports - Spectators**
**Participants**
**(DEMAND)**
Sport activities - Events
**(SUPPLY)**
Opportunities / Sport services
**(Users-Customers)** **Organisations / Sport clubs and other**
**Resources (human, material, economic):**
- **Sport staff (human resources)**
- **Sport facilities, natural sites, equipments (material resources)**
- **Economic resources**

A Better Monitoring of Participation in Sports is the ongoing approach in Europe, aimed at improving sport policies within the cultural policies at national and local level.

- The Leadership Group for Cultural Statistics (LEG) implemented within the European Union (1999 report) some basic principles established by UNESCO in the '80 (Framework for Cultural Statistics - FCS)
- The Compass action in sport was welcomed by the CDDS (Committee for the Development of Sport) within the Council of Europe (1996), while at the same time the LEG group for Cultural Statistics decided not to deal with sport in the first steps, and appreciated the fact that Compass was doing it. The Compass working group edited a book (1999), opened a website (www.sportcompass.net.) and was recognised as *ad hoc* working group of the International Association for Sports Information IASI (2002).

What is the "Compass" action in the sport field?

- It seeks the Coordinated Monitoring of Participation in Sports.
- It promotes harmonisation of survey approaces across European countries to enable international comparisons and to facilitate the sharing of international

experience of 'what works' to encourage greater levels of participation in sport and physical recreation
- It makes accessible shared statistical criteria and comparable data through the website
- It was promoted in 1996 by the Italian Olympic Committee, by UK Sport and Sport England. Several key-contacts, who are managing surveys in ten European countries, are now cooperating
- The measurements concern the sport field described by the "Council of Europe" definition, as intended in every country.
- Compass is based upon national surveys, promoted by public bodies.
- For the breakdown of the overall participation data, three main components are considered by the partner countries: quantity, quality and organisation of activities.
- A certain level of methodological accuracy is needed for being included in the "cross-national tables", but every relevant survey is being reported in "national" pages.
- A common "Analytical Framework" was agreed among the partners; it enables meaningful structural comparisons across surveys that had some methodological differences
- The surveys acknowledged by Compass recognise participation in single sports through their names. For more detailed comparisons a shared reference list of sports is now being established.

Monitoring Other More Free Physical Activities?

In order to monitor health issues, some countries developed surveys measuring the energy expenditure in working or leisure time. The main attempt to provide a reference tool for investigating "movement for health" is the International Physical Activity Questionnaire (IPAQ), which was released under the auspices of the World Health Organisation - WHO.

Some similarity has been found between the two different approaches. Let's consider first the leisure-time physical activities (including sports, see table 3) measured with the IPAQ questionnaire. Please note that in Italy just about 40% of the population declares a great deal or only some leisure-time physical activity. That figure corresponds significantly to Italian people which – as a result of a large national official survey (Istat Multipurpose Survey 2000, table 4) - declares participation in sport and physical activities once a week or more (41,3%).

This comparability has not yet been proved reliable in the same way also for other countries, but the trend of table 3 is similar to the trend emphasized by Compass. It may encourage further attempts for using a combination of the two methods for a better understanding of the whole.

The IPAQ approach is good for investigating movement in general for a healthy life, while the Compass approach is oriented at classifying the single sports practices, also in order (as we said) to support a better planning of services. Services for sport activities may be even "multipurpose" but must support each different discipline as it is.

In that perspective, a tool needed by statisticians dealing with sports is a shared list of those human activities which are considered as sports, to be used both as a common reference for cross-national comparisons and as a basis for local monitoring centers.

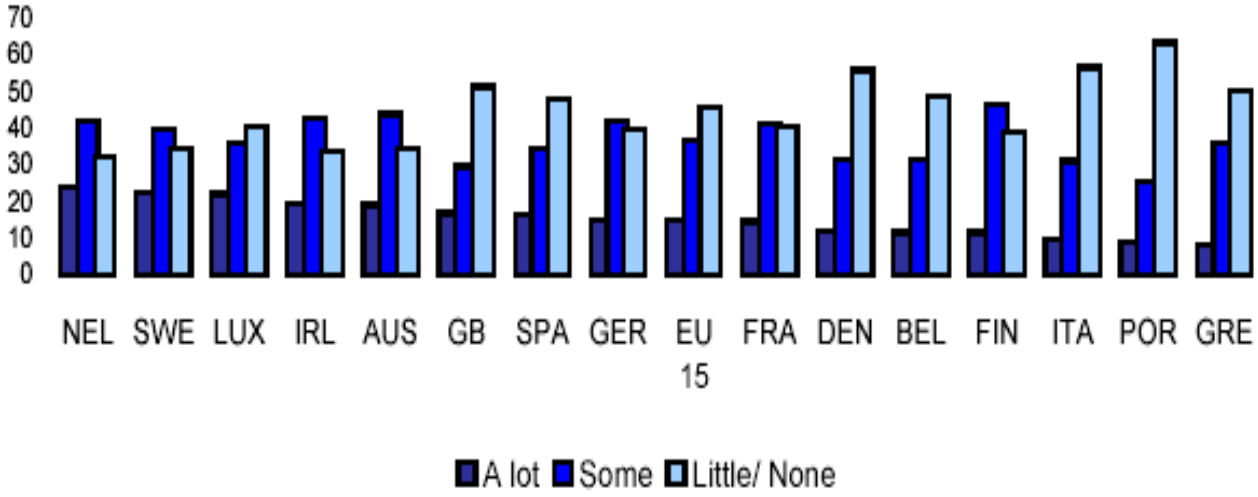
About the List of Sports

Why is it so important for statistical comparisons to convene a shared reference list of sports?

- The answers from questionnaires about sports must be processed in clusters, therefore the names of single activities mentioned in questionnaires are essential (the possible advantage of showing a pre-coded prompt-card is being discussed within the Compass group, but prompt-cards refer to sport names too. .
- For comparing different surveys those clusters must be comparable.
- For naming their activities, individuals responding to surveys use a lot of free or different terms, which must be post-coordinated by the survey managers: a reference list is needed.
- The reference must be international, while every country has domestic peculiarities which must find an harmonised and coordinated framework.
- The basic international clustering of sport activities may be based upon the world organisation of sports, i. e. the International Sports Federations' system. Competitions are just a part of the whole, but their names are widely used, also for non-competitive participation, provided that free physical activities be given a different approach.
- For filing sport results, IOC and ISFs assumed that one single "sport" may include one or several "disciplines", and disciplines may include one or several events.
- An international list of controlled names of "sports" is most important as a common reference.

## 3. Leisure-time physical activities in Europe

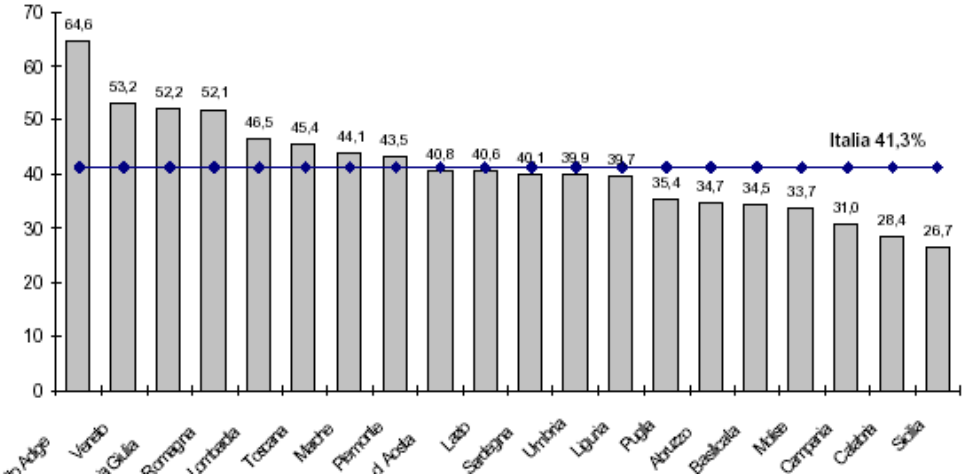
from the Eurobarometer 2002 survey (IPAQ questionnaire)




## 4. Participation in sports and physical activities once a week or more

from the Italian 2000 multipurpose survey

Figura 1.3 - Persone di 3 anni e più che praticano sport o attività fisica una o più volte a settimana per regione - Anno 2000 *(per 100 persone di 3 anni e più della stessa regione)*



How does the Compass working group prepare a proposal for the International Reference List of Sports?
A first provisional Compass International List of Sports for statistical purposes (CILS-02) was set up in 2002, adapting the Classification Scheme of the International Olympic Committee – IOC (which was designed for filing results of sports events).
CILS-02 contains 87 sport names, originating from 5 clusters:

- Sports recognised by IOC (71) as
  - Olympic Summer Sports (cluster n. 1: 28 sports)
  - Olympic Winter Sports (n. 2: 7)
  - "Discontinued" Olympic and Non-Olympic Sports (n. 3: 36)
- Sports for Disabled (n. 4: temporarily seen as 1)
- Other sports recognised by the General Assembly of the International Sports Federations (n. 5: 15)

It is now circulating among the Compass partners for comparisons with the national lists, for validation and implementation. "National" sports will be added.

Rather than publishing the provisional list, an example of "swimming" is provided here, with tables that illustrate the use of this tool in Italy. Please note that IOC adopted "Aquatic Sports" as the name of a sport which includes four disciplines: swimming, synchronized swimming, diving and waterpolo.
Table 5 has been set up in Italy and shows the group of Aquatic and Underwater Sports, that has three families. Groups and families of activities are important because statisticians often need to group answers in clusters. A question is: will this be an international standard? No, because in each country figures have different numerical meaning or emphasis and may lead to different clustering (f.i. France adopted a different grouping).

What may be the standard reference are the "sport" names which have been used in the intermediate column. This column is necessary to assemble the names of "activities" provided by the citizens in the questionnaires (Table 5, right column. Syncronyzed swimming is not there, because it was not mentioned by Italian respondents). The CILS-02 codes of the central column correspond to the number of the above clusters.

In Table 6 some Italian data are shown, according with the framework of Table 5. Please note that each questionnaire recorded the ranking order of the mentioned activities, therefore it may be known whether each one is considered as the most important or a secondary one. This distinction proves to be useful for different listings.
Table 7 shows just the top of a classification done with the same criteria ("aquatic sports" as defined above are seen as the second sport in Italy). The data reports the total participants in that sport (principal and secondary practice) and may be used to investigate the "demand" which apply to the facilities' system. The Italian survey gives accurate measures for at least 25 sports.
As already said, this approach may be a tool for local monitoring centers and a reference for cross-national comparisons.

Table 5. Aquatic and Underwater Sports
Names of activities quoted in the Italian questionnaires fitted in Sports, Families and Groups for statistical purposes. Coded Sports are derived from the CILS-02 Compass list

| Groups | Families | Provisional Compass CILS-02 Code | Sports (and assimilated) | Names of activities seen as "sports" from the Italian questionnaires (in Italian) |
|---|---|---|---|---|
| Aquatic and Underwater Sports | Aquatic Sports / Swimming | 1.AQ | Aquatic Sports / Swimming | Nuoto |
| | | | | Pallanuoto |
| | | | | Tuffi |
| | | | | Nuoto Sincronizzato |
| | | 3.LS | Lifesaving | Salvamento |
| | Underwater Sports | 3.UW | Underwater Sports | Attività Subacquee |
| | | | | Nuoto Pinnato |
| | | | | Orientamento Subacqueo |
| | | | | Pesca Subacquea |
| | Other Activities in Water | - | Aqua-gym | Acqua-Gym |

Table 6. Aquatic Sports
Italian figures (year 2000) compatible with the International Compass list CILS-02

**Italy: Participants in Disciplines within Aquatic Sports ***

| Ages | Disciplines | As first sport | As other sport | Total |
|---|---|---|---|---|
| 6-15 | Swimming | 645.000 | 305.000 | 949.000 |
| | Waterpolo-Diving- Syncronised Sw. | 11.000 | 1.000 | 13.000 |
| | **Total** | **656.000** | **306.000** | **962.000** |
| 16-74 | Swimming | 1.397.000 | 922.000 | 2.318.000 |
| | Waterpolo-Diving- Syncronised Sw. | 13.000 | 4.000 | 18.000 |
| | **Total** | **1.410.000** | **926.000** | **2.336.000** |
| All ages (> 3 years) | Swimming | 2.200.000 | 1.247.000 | 3.447.000 |
| | Waterpolo-Diving- Syncronised Sw. | 25.000 | 6.000 | 30.000 |
| | **Total** | **2.225.000** | **1.252.000** | **3.477.000** |

* Rounded values. Totals may be not accurate.

Table 7. Main Sports in Italy
Figures compatible with the Compass International List of Sports CILS-02 and therefore comparable with similar figures from other countries

| | **SPORTS** *AND SYNONIMES* DISCIPLINES | OTHER CONNECTED ACTIVITIES | 1. Total of **"activity units"** (= apparent users) | 2.Indic. **"activities among 100.000 inhab."** |
|---|---|---|---|---|
| 1. | **FOOTBALL** | | **4.363.000** | **7.548** |
| | FOOTBALL<br>FUTSAL (Five a side) | | | |
| 2. | **AQUATIC SPORTS** | | **3.480.000** | **6.021** |
| | SWIMMING<br>SYNCRONISED SWIMMING<br>WATERPOLO<br>DIVING | | | |
| | | ***Other activities in water*** | | |
| | | AQUA_GYM | 95.000 | 165 |

Some Perspectives

- The IASI-ICSSPE environment may positively endorse statistical work on sports participation in the world and increase the access to relevant findings.
- A cooperative link may be established between IASI-ICSSPE, I.O.C. (from which IASI is also recognised), the International Sports Statistics Committee within the ISI (whose session will be held in Sydney on April 2005) and UNESCO.
- Two next specialised experts' meetings: "Measurement of sports participation and physical activity" at the ISI session in Sydney, and "Sport Statistics - Standards and Services" in the IASI Congress in Beijing (May 2005) may be a turning point for focusing on this issue.
- A specialised network of contacts within the IASI framework could be developed among the involved people working in this field (from Universities, Statistical Institutes, Sports Organisations and Governmental Institutions).
- Reference standards may be thus defined by experts and agreed at international level by sports bodies (i.e. IOC), statistical bodies (i.e. ISI) and governmental bodies (i.e. UN-UNESCO).
- A first consensus could be achieved with the IASI-Compass International Reference List of Sports for statistical purposes.

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Arch. Bruno Rossi Mori, Italy
CONI Servizi SpA
Osservatòri Statistici per lo Sport
bruno.rossimori@coni.it

**The Promotion of Physical and Sport Activities for Students in Hong Kong.**

*Siu Yin Cheung, Hong Kong Baptist University, Hong Kong, China*

**Introduction**

Physical activity is considered as one of the ten leading indicators of public health. (U.S. Department of Health and Human Services, 2000). The Surgeon General's report on physical activity and health concluded that moderate physical activity could reduce substantially the risk of developing illnesses such as heart disease, diabetes, colon cancer, high blood pressure, breast cancer and lower back pain (National Center for Chronic Disease Prevention and Health Promotion, 1996). However, in 1997, 85 percent of adults did not engage regularly in moderate physical activity (U.S. Department of Health and Human Services, 2000). A similar situation has been found in Hong Kong, with the Hong Kong Sports Development Board (HKSDB 2000) reporting that only an average of 44% of the adult (15 years and older) population participated in at least one physical activity in 2000. This was lower than 54% in 1998 and 45% in 1999. The Hong Kong Department of Health (2002) also supported the proven benefits of regular physical activity, while physical inactivity was common in Hong Kong. HKSDB (2002, March, 8) pointed out that a long-term strategy was needed to encourage more people to take part in physical activity.

According to Hong Kong in Figures 2004, the number of primary school and secondary school students is 468,800 and 471,100 respectively in 2003. This represents about 14% of the total population in Hong Kong (Government of the Hong Kong Special Administrative Region, 2004). In order to promote a physically active lifestyle, education is an important means, thus improving the health status of youth and enhancing active life style, which are some of the objectives of education reform. The Hong Kong Special Administrative Region Government, the National Sports Federations, the Hong Kong schools sports federation and schools have been working closely together to design different programs to encourage students to take part in physical and sport activities and to develop the sport culture within the young generation.

**School Physical Education Program**

A Physical Education Program in school is very important to educate students on concepts and skills in physical and sports activities. Under the recent education reform, the curriculum has been changed from the more "Sport-oriented" one to the "Life-long learning and whole-person development". Health education is included in Physical education. The development of generic skills (collaboration, communication, creativity, critical thinking, information technology, numeracy, problem-solving, self-management and study.) and the development of positive values and attitudes are emphasized in the new physical education curriculum. According to the Hong Kong (China) Education Commission, 1999, physical education is one of the key learning area in the total curriculum and is a compulsory program in both primary and secondary schools. The overall aims of the physical education curriculum are to help students to:

1). Develop motor skills and acquire necessary knowledge in physical and sport activities for cultivating positive values and attitudes for the development of an active and healthy lifestyle;
2). Develop an active lifestyle and acquire good health, physical fitness and body coordination; and
3). Promote the qualities of desirable moral behaviours, cooperation in communal life, ability in making decisions, and the appreciation of aesthetic movements.

(Curriculum Development Council, November, 2000, p.6).

The time allocated for physical education is 5-8% of the total curriculum. This represents about two classes per week or per cycle (usually six days per cycle) and the content of the physical education should include athletics, ball games, gymnastics, swimming & aquatics sports, dances, activities for general physical fitness, outdoor activities and others. (Curriculum Development Council, 2002).

In order to ensure the quality of the physical education program in schools, all P.E. teachers must receive professional training and they are recommended to attend refresher courses and seminars. In addition, yearly summer courses are arranged to enrich teachers' knowledge in sports and physical education.

Moreover, students are encouraged to take part in co-curriculum activities and learn more about sports skills. There are different inter-schools and intra-school physical and sport programs organized to promote active life-style for students. Some of them are listed in this paper, under School Sports Program.

**Quality Education Fund**

In October 1997, the Chief Executive announced in his Policy Address the establishment of the Quality Education Fund (QEF) to finance projects for the promotion of quality education in Hong Kong. Formally established on 2 January 1998 with an allocation of $5 billion, the QEF provides an effective channel for worthwhile projects from the school education sector to be funded. Sport is one of the eligible program for support, thus many programs have been supported by this fund to promote physical and sport activities in schools. The programs includ the following:

1). Improvement of school sport facilities e.g. building of training venue for field events in school;
2). Improvement of sport equipments e.g. weight training equipment at the fitness room;

3).Organization of training courses for teachers and students e.g. sports aerobics training courses for teachers and student soccer programs;
4). Oversea training for student athletes e.g. athletics training program in mainland China.
The QEF has significant impacts on the promotion of physical and sport activities for students in Hong Kong.

**Hong Kong Schools Sports Federation**
Hong Kong Schools Sports Federation (The Federation) was formally inaugurated on 1 September 1997. The Federation organizes inter-school and international sports programs and competitions for secondary and primary schools. There are 20 sports for secondary schools sports programs: Athletics, Badminton, Basketball, Cross-Country, Fencing, Girls Football, Football, Gymnastics, Handball, Hockey, Life Saving, Netball, Rugby, Softball, Squash, Swimming, Table Tennis, Tennis, Volleyball, and Beach Volleyball.

For primary schools, there are 12 Sports: Athletics, Badminton, Basketball, Fencing, Football, 5-a-side Football, Games, Gymnastics, Handball, Swimming, Table Tennis, and Volleyball.

In order to encourage and reward student athletes for good performance, the Federation has presented the "Outstanding School Athlete Awards" for three years. Feedback from this program is very good and the commercial sector is also supportive of this program. Furthermore, the Federation has also organized summer elementary referee training and refresher courses in different sports, such as basketball, handball, volleyball and athletics to educate teachers and students aged above 17. The Federation takes an active part in the promotion of sport program for students in Hong Kong.

**School Sports Program**
With the new sport structure in Hong Kong, the School Sports program has been organized by the Leisure and Cultural Service Department, with support from the Education and Manpower Bureau, and the National Sports Associations since 2001. The aims of the program are to promote school sports, to provide more opportunities for students to participate in physical and sport activities, to improve the standard of sport, to train more student sport leaders, to encourage students to have active life–style and to develop sport culture in Hong Kong. This program consists of the following:
1) Sport education program,
2) Easy sport program,
3) Out reach coaching program,
4) Sport captain program, and
5) Joint schools sports training program. There are 28 sports events in this program and some of them are athletic, social dance, gymnastics (rhythmic gymnastics and artistic gymnastics), lion dance, canoeing, basketball, volleyball, and wind surfing.

Sport Education Program

The purpose of the sport education program is to provide opportunities for students, teachers, and parents to gain knowledge in sports and acquire sports related information. This program consists of sports talks, demonstrations and guided tours to sport facilities. The sports talk is an educational program in which university students who are majors in Physical Education and Recreation Management from the Hong Kong Baptist University and students in the Physical Education and Sports Science program of the Chinese University of Hong Kong, provide lecture to students. They present in sports and health; sports and injury; sports and nutrition; benefits of sport; sports and stress management; and sports and multiple intelligence in primary and secondary schools. During the lectures, students are encouraged to ask questions and this program can enhance the students' knowledge and interest in physical and sport activities.

In the sport demonstration program, sport stars and members of the different national sports teams visit schools and deliver sport demonstration to students. Students can learn more about different sports and can have opportunities to try them.

In addition, students also can visit different sports facilities, such the Sports Institute, Water Sports Center, and the Hong Kong Stadium through the guided tour to sport facilities program. This program can assist students to understand more about sports and sports facilities in the community.

Easy sport program

The main purpose of this program is to attract children to sport through developing their sense of sport efficacy. There are 18 modified sports with modified equipment for primary school students. The training program is from 4 to 16 hours and training manuals are available for teachers, sport captains and parents. In addition, a badging scheme, testing sessions and organized competitions are arranged at the end of the program.

Out reach coaching program

The purpose of this program is to provide opportunities for students to learn new sports that are not provided by schools during regular physical education lessons. There are 16 sports in this program and coaches from the national sport associations will be assigned to schools to conduct the courses. Moreover, public sport facilities are arranged for schools to organize this program.

Sport captain program

The purpose of the sport captain program is to provide school-based leadership development programs in sport and to promote volunteerism in sports. Sport administration, sport referee and sport instructor courses are provided to secondary school students, parents and teachers. After completion of training, participants are encouraged to serve in schools and at sports events. Supervisors of schools are posted to provide support to the participants, and Gold; Silver; and Bronze certifications will be awarded to the participants according to their total number of service hours.

Joint schools sports training program
The purpose of the joint schools sports training program is to enable students to continue to participate in sports and improve their skill level of the particular sport with the support from the national sport associations (NSA). There are five sports in this program. Students need to pass the assessment set by the NSA concerned, and the courses are conducted by coaches from the NSA.

The school sport program is well received by schools and has attracted many students. Over 956 schools have participated in this program between 2001and 2004. The number of programs has been increased from 1333 in 2001-2002 to 5412 in 2003-2004. The number of students participating in this program in 2001-2002 and 2003-2004 was 250,315 and 406,987 respectively.

**Feedback from Students**
It is essential to understand the needs of students when promoting physical and sport activities. A number of studies have been conducted to gather feedback from students. A brief summary of the results is listed below.

Cheung et al. (2002) conducted a survey to understand the expectation of physical education for secondary school students. The total number of students was 6377 (M = 3146, F = 3204). The students were divided into three groups according to their age (13 or under = 2049, 14 - 15 = 2610, 16 or above = 1649). The student's perception of P. E. Objectives (Soudan and Everett, 1981) was administered and the results identified the top 5 objectives of physical education to be: "Keep in good health and physical condition", "developing sportsmanship", "developing skills in various sports", "getting regular exercise" and "learning activities which could be continued outside of school".

The second section of the questionnaire was to investigate students' attitudes towards teacher behavior and program content in school physical education (Luke and Cope, 1994). For the comment on Physical Education Program, the statement: "students should always be able to choose the activities which they like" was ranked the top by students in Hong Kong. Similar opinion was found in the research by Luke and Cope (1994) in Canada. Teachers should provide opportunity for students to give comments on the physical activities that are undertaken in school. In addition, they should have their skills broadened through a variety of games and drills. (Avery and Lumpkin, 1987)

The statement: "In my physical classes, my attitude should be included as part of my mark" was ranked second in the study. Teachers should consider this suggestion. In Hong Kong, one aim of the present education reform is to encourage teachers to introduce different assessment methods in physical education, such as using student portfolios for physical education as an assessment method.

Most students did not agree to the statement of: "in my physical classes, I am given enough time to practice the skills I am taught". Educators are recommended to consider this opinion, and increase the physical activity time and space in school.

Students stated that sport tactics, sport officiating and exercise physiology were their most favorite theoretical topics in physical education. Teachers should consider including these topics in their education program.

In this study, 3292 (68.5%) students reported that they participate in school-based activities and table 1 shows the rank order of the types of physical and sport activities that students like most.

Table 1.
*Rank Order of the School-Based Physical and Sport Activities*

| Rank | Item | n |
|---|---|---|
| 1 | Athletics | 1788 (54.3%) |
| 2 | Basketball | 1461 (44.4%) |
| 3 | Badminton | 1050 (31.9%) |
| 4 | Volleyball | 948 (28.8%) |
| 5 | Table Tennis | 860 (26.1%) |
| 6 | Soccer | 776 (23.6%) |
| 7 | Swimming | 694 (21.1%) |
| 8 | Dance | 401 (12.2%) |
| 9 | Gymnastics | 334 (10.1%) |
| 10 | Tennis | 221 (6.7%) |

The participation motives in school-based physical and sport activities for students in Hong Kong are listed in table 2.

Table 2
***Rank Order of the Participation Motives in School-Based Physical and Sport Activities***

| Rank | Motive | n |
|---|---|---|
| 1 | Have fun | 1862 (56.6%) |
| 2 | Occupy leisure time | 1391 (42.3%) |
| 3 | Develop leadership | 1159 (35.2%) |
| 4 | Improve self confidence | 1042 (31.6%) |
| 5 | Develop skills in various sports | 1042 (31.6%) |
| 6 | Achieve success | 768 (23.3%) |
| 7 | Keep fit | 576 (17.5%) |
| 8 | Make more new friends | 427 (13.0%) |

The result of the study also showed that 2690 (56.0%) students participate in non-school-based activities and the information of the activities and the participation motives are listed in table 3 and table 4.

Table 3.
*Rank Order of the Non-School-Based Physical and Sport Activities*

| Rank | Item | n |
|---|---|---|
| 1 | Badminton | 1111 (41.3%) |
| 2 | Swimming | 1071 (39.8%) |
| 3 | Basketball | 1009 (37.5%) |
| 4 | Athletics | 732 (27.28%) |
| 5 | Table tennis | 701 (26.1%) |
| 6 | Soccer | 663 (24.6%) |
| 7 | Volleyball | 431 (16.0%) |
| 8 | Tennis | 314 (11.7%) |
| 9 | Dance | 295 (11.0%) |
| 10 | Squash | 260 (9.7%) |

Table 4.
*Rank Order of the Participation Motives in Non-School-Based Physical and Sport Activities*

| Rank | Motive | n |
|---|---|---|
| 1 | Have fun | 1657 (61.6%) |
| 2 | Occupy leisure time | 1260 (46.8%) |
| 3 | Improve self confidence | 1131 (42.0%) |
| 4 | Develop skills in various sports | 1117 (41.5%) |
| 5 | Develop leadership | 1103 (41.0%) |
| 6 | Achieve success | 760 (28.3%) |
| 7 | Keep fit | 585 (21.7%) |
| 8 | Make more new friends | 419 (15.6%) |

Teachers and coaches should match the interest of students and design programs with fun elements to encourage them to continue participating in physical and sport activities. Moreover, students commented that sufficient space, good changing room facilities, adequate sport equipment, a comfortable environment, and tidiness of the equipment and facilities are the most important factors for physical education programs. This information should be considered when organizing physical and sport programs for students.

In addition, Cheung (2003) conducted an action research to gather feedback from students on physical education reform. The result of the project is available at the web site http://www.hkbu.edu.hk/~pereform. The total number of students participating in this project was 1120 (primary school students = 263, secondary school students = 857). About 73.5% of students supported that physical education class should not be only physical skills oriented, but that other skills should be included. At the same time, self management skills, communication skills, problem solving skills, study skills and collaboration skills were the top five generic skills that students had developed during the present P.E. curriculum reform.

Furthermore, positive values and attitudes towards physical education had also been recorded from the students. More than 68% of students rated their satisfaction and enjoyment in Physical Education were above average. Table 5 and table 6 show students' satisfaction and enjoyment in physical education.

Table 5.
*Students' Satisfaction in P.E.*

| Satisfaction | Frequency | Percentage |
|---|---|---|
| 1 (low satisfaction) | 23 | 2.1 |
| 2 | 16 | 1.5 |
| 3 | 26 | 2.4 |
| 4 | 50 | 4.6 |
| 5 | 226 | 20.8 |
| 6 | 167 | 15.4 |
| 7 | 182 | 16.7 |
| 8 | 194 | 17.8 |
| 9 | 91 | 8.4 |
| 10 (high satisfaction) | 111 | 10.2 |
| Total | 1087 | 100.0 |

Table 6.
*Students' Enjoyment in P.E.*

| Enjoyment | Frequency | Percentage |
|---|---|---|
| 1 (Miserable) | 42 | 3.9 |
| 2 | 19 | 1.8 |
| 3 | 41 | 3.8 |
| 4 | 56 | 5.2 |
| 5 | 181 | 16.7 |
| 6 | 140 | 12.9 |
| 7 | 146 | 13.5 |
| 8 | 178 | 16.4 |
| 9 | 90 | 8.3 |
| 10 (Enjoyable) | 189 | 17.5 |
| Total | 1083 | 100.0 |

Students reported that they like P.E. class because it was fun, and they were happy. Thus, enjoyment and fun are essential elements for P. E. lesson. By observation, the P.E. teachers in this study were very hard working and responsible. With their efforts in the physical education reform, their students had positive development in physical skills, generic skills, and attitude toward P.E.

**Conclusion**

An active life style is important for our students and it is essential to educate them during childhood. The Government, the national sports federation, the schools sports federation, teachers, coaches, parents, and researchers should work closely together to encourage students to take part in physical and sport activities and to develop a sporting culture in the young generation.

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Dr. Siu Yin CHEUNG
Physical Education Department,
Hong Kong Baptist University,
Waterloo Road, Kowloon Tong,
Hong Kong, China.
Tel: (852) 3411-5637
Fax: (852) 3411-5757
E-mail: cheungsy@hkbu.edu.hk

# CURRENT ISSUES

## Elite sport inspires: Former ICSPE* President Bannister on relations between Physical Education, Sport and Science

*Detlef Dumon, Germany*

Sir Roger Bannister was ICSPE President from 1977 until 1982. The famous former athlete and medical doctor celebrated his 75th birthday and the 50th anniversary of his famous mile run in 2004, when he was the first to break the 4minute barrier. ICSSPE visited Sir Bannister in his lovely home in Oxford, United Kingdom late this summer.

- **Sir Bannister, to which extend did your experience with Physical Education and elite sport events influence your decision to become a runner?**
  At age 9 I ran in school boy races, but these races where sprints and my performance was only average. I then got really involved, when I was at my secondary school and I showed a talent for cross-country running and aged 11, 12 and 13 I won the 2 mile cross country race, so that was the first time it was clear that I had some higher ability. I never ran a mile at school, but I would win half miles and quarter miles. And then at the age of 15 my father took me to the White City Stadium and I saw Arne Anderson and Sydney Wooderson...The time was only 4'10"' or 4'09", but it was a very exciting race and Wooderson challenged Arne Andersen and was defeated, but nevertheless it was a very exciting race. And then I think it was that that let me to feel that when I would get up to Oxford I would take up athletics seriously. Well, there is an argument that the elite sport inspires, like I was inspired by watching Arne Anderson and Sydney Wooderson to take part in the first place. Any of the champions you will find, 90 percent of them, that there is that kind of trigger seeing something, hearing about somebody who has become a

champion. But of course, it's very expensive to support elite sport. If you want to win medals you have to do it.

At school, those were the days in which there were competitive sports. There has been a move in physical education in Britain at any rate to play down the importance of competitive sport which is thought not to encourage the highest principles of sport of sharing and generousity and fair play. This has happened in the last twenty years and only just now is it been re-introduced as a honourable way of handling sports. Children are competitive and somebody in life will overtake them and the sooner you learn you can't always win, the better, it's an important lesson in life which athletics teaches**...**

I am now more in favour of sport for all...The participation rate is still low, only 25%, it drops off quickly as people reach 21 and during marriage and family committments and we have a nation that is increasingly becoming obese. And children take less physical activity. And they eat more too. But it is the physical activity component that is medically serious. I believe that there should be teachers in all schools who have had special courses and training in physical education. I don't believe that you can really do it without special training now.

- **Sport also has an educational, a social and political dimension. Where do you see the border between sport as a tool for social and economical development and the abuse of sport for social, political or economical benefits?**

  Well, the main abuse of course, if you like, was East Germany. It was the biggest distortion of values cynically and corruptly, concealed, through not telling the truth to the rest of the world, until the Berlin Wall fell and the documents fell into neutral hands which reveal exactly the scale of the cheating. That's the biggest example in the last fifty years. You don't have to be nationally dominant ... Sport is not a form of war carried on by other means which was something Orwell said. I mean, obviously we look at various Olympics as a country, and if we get thirty medals, as we did this time, we are very pleased. I'm sure Germany got more than 30. I don't know how they count them. They can't count a whole football team getting eleven medals, there must be one medal per sport. There are these arguments as to whether there is a national temperament and maybe the German national temperament is such that it wants to be succesful. But we, possibly, are prepared to measure life in terms other than we need more medals. I, as an athlete, obviously I wanted to win. Sport is about not always winning. Sport is about having upsets and failures and trying again and there is the interaction of people and there will be scandals at every Games when medals go to the wrong place or when judges got it wrong especially in these difficult to judge events. Sport is no better or worse than any other activity which involves human beings. Human beings are failable and human beings cheat. We are not dealing with any remarkable here. It's just life.

- **How big is the influence of sport science on sport compared to that of economy, media and politics? Is it possible for sport science to gain influence and stay independent at the same time?**
  Well, it is down the list. A country's existance and survival depends on its economy and you have to produce something, even if it's only tourism in order to keep the whole regime running but once you have a viable economy and of course, at least one third of the countries in the world have no viable economy – no sport. So it is a luxury, but for any Western democracy it is a luxury that we can afford and it therefore has become a necessity for us to promote it. And not only for its own health and happiness and social involvement and awards, but because it is necessary for us to be healthy in what is now a sedentary world. There is no labour now as there was a hundred years ago, so that we have to replace the physical activity which took place in our work with something quite separate in our recreation.
  These are obviously complex political issues, and sooner or later the IOC – Rogge has said he won't let sport grow anymore within the Olympics and if anyone wants another sport they have got to throw something out. And obviously there are some traditional events in the Olympics which are much more complicated and expensive to organise. Like equestrian events, possibly sailing and so on. These are the high cost sports and you don't get countries like China or countries that haven't the backround of tradition in these sports doing frightfully well at them. I don't have any particular view, what I would say is that now sport is professional and you have to find the money to pay the athletes to train four hours a day to have a chance at medals. Now the money you spend on, in our case the top athletes 16.000 a year, to live unless they happen to get, which some of them, many of them do, in glamour events, they get sponsorship from shoe firms or whatever, so they don't need any government aid. But those who do need some money that could otherwise be spent more widely in sport for all. So these arguments, which have gone on for 20 years and they will go on going on.

- **What would happen if the number of World Records during Olympic Games decreases?**
  We have already seen that. There was a recession in the world records and annual best performance of the events that were most improved by steroids, I mean all events probably were, the shotputters and discus throwers and the women's 800m. What happened was that all the annual best performances as random testing came in, fell off and then there is the natural escalation of performance because of more people coming into the sport and better methods and longer training and they are beginning to catch up. I don't believe that everybody, I believe that people have, experienced athletes, have taken them in the past when they could get away with it, but I think that it's becoming more and more difficult, as we've seen, the Greeks who were taking it were rejected and the Hungarian heavy athletes and so on. So I don't see that this is a problem. That is the way of human nature, it's going to get difficult. They have now stored all the urines and if they discover anything in their testing for human growth hormones, then we'll know about it. ... I think that an individual athlete, his career, his reputation is ruined when he is caught cheating in this way. It's the end of his life or image.

There is a book written by someone called Reitner, he is an Australian, he took drugs and then said he'd taken drugs and couldn't live with himself so he blew the whole story open. Now with Rogge I don't think there is a problem but it could have been a problem when Samaranch said I think people should be allowed to take anything they want provided that there is no proof that it kills them or that it is bad for them, but now, I think, with Pound and WADA everybody is, as we say in England, singing from the same hymn sheet. So I don't think that it is now a problem.

- **Is the impression correct that parts of the research results in sport science are kept secret for the benefit of well paying sport teams?**

Every world scientist, his first obligation is to the truth and then to the publication of the truth and nobody's reputation in science is advanced if he doesn't publish. There are good papers and there are bad papers but I don't think we need to worry about that. I don't think there is any secrecy.

- **Sir Bannister, most of the sport scientists who know you, also know about your earlier success as an athlete. When people address to you, do they want to talk to the first man running the mile under four minutes or to the medical doctor, researcher and former president of ICSSPE?**

  Yes, most people are interested in the 4 minute mile, some in the medical doctor. Basically if you asked a dozen sports journalists in this country what ICSPE was, they wouldn't know. It is doing good work. It is not promoting it's own profile, it's not its policy, at least it wasn't in my days, nor is it now, is it? We used to promote our profile in order that the IOC gave us money, which they did. And early on the United Nations, we undertook to act as the go between for contracted research, having worked out with the IOC, or the United Nations or UNESCO some principles of progress, and in order to achieve this progress we said that this is what should be done.

- **What were your reasons to engage voluntarly in a non-governmental organisation such as the International Council for Sport and Physical Education?**

  I was asked to do it. Philip Noel Baker the previous chairman has been a lifelong friend. I believed in the work he was trying to do and so I accepted the appointment.

- **Though a multidisciplinary approach seems to be necessary for developments in sport, science and physical education, it is often very challenging to bring the different players together**

1. Well, obviously is multi-disciplinary. You have to have a combination of physiologists and anatomists, psychologists and so on. Biochemists, physicists, if you like, engineers and all of them play a part in the kind of development in sport. That was what ICSPE was supposed to do. I agree with you, that was a problem and that was the great strength of ICSPE to try to bring them together. I mean ICSSPE is international but you also have the same problem of getting people together within the same country.

- **During an interview you gave in January 1996 we can read that you have seen your task as one of trying to keep yourself completely above any involvement in partisan movements, and to keep the Council itself from taking a stance on any particular politically charged issue. - Where do you see the tasks for sport science in the current developments in the different areas of sport, such as sport for all, elite sport etc. and physical education?**
  I still would take that stance. I mean, you can get head high in the sky pontificating about political issues apartheid and so on, were the big issues. But it's not the area in which ICSSPE should be seen. It's not an organisation that wants to publicise itself in contrast to the IAAF and the Olympics. They want to publicise themselves because they want to bring in money in advertising and television revenues. So it is quite different. And actually the Sports Council in England wasn't concerned with political issues. We have ministers and the ministers are politicians and it is their job to pontificate. We wanted to persuade the IOC that its functions were not completed if it just ran the Olympics every four years and so both for the IOC and the IAAF and other national bodies, we were arguing that they put some of their money you get instead or in addition to a fine museum in Lausanne, spread it around telling the Africans what they need. I don't change from that at all.

- **The United Nations has declared 2005 to be the International Year for Sport and Physical Education. What should be the common focus of all key players world-wide to make this a successfull year and to strengthen sport and physical education on the local level?**
  United Nations was the last year against AIDS, or something, the next year is sport.. The question is, how much more money United Nations is going to give to ICSSPE and to promote this year of sport.

* As of 1 January 1983 the name of the organisation changed from "International Council of Sport and Physical Education" (ICSPE) to "International Council of Sport Science and Physical Education“ (ICSSPE).

Detlef Dumon
Communications Manager
ICSSPE
Hanns Braun Strasse
Friesenhaus II
14053 Berlin
ph: +49 30 36418850
fax: +49 30 805 63 68
email: ddumon@icsspe.org

# THE STUDY OF CORRELATION BETWEEN SEASONS AND MERIDIAN POINT BIO-ENERGY OF CHI-KUNG PRACTITIONERS

*Chien Min Cheng[1], Shin Tho Huang [2], Si Chen Lee [3]*
[1]National Kaohsiung University of Applied Sciences, Taiwan
[2] National College of Physical Education and Sports, Taiwan
[3] National Taiwan University, Taiwan

## Introduction

Traditional Chinese medicine and health maintenance theories have indicated a close relationship between time periods and seasons, but there has not been enough support of of these theories through modern sciences. The exercise of oriental preventative medicines has accumulated over the years and together with the involvement of western medical sciences, big breakthrough have been made in this area. The fundamental relationship between these two bodily structures, nonetheless, remains to be proven by empirical investigations. This current paper aims to examine the conditional change in bio-energy as a function of seasons.

The concept of time selection is deeply embedded in Chinese culture, especially in the fields of Chinese medicine, acupuncture, and Chi Kung (same as Chi Kong and Qigong). Chi Kung is an interdisciplinary method for health promotion that includes physical, mental, and breathing training; it is similar to yoga or meditation as known by the western world (Jeng, 1999). The existence of "Chi" (same as Qi, means inner air) has been confirmed by medical engineering and clinical studies (Tsuei, 1996). Chi Kung, which has lasted for thousands of years from ancient China, is traditionally viewed as an exercise used to improve health and extend life. It is a summary of our ancestor's experience in combating an unfriendly environment and disease by self-regulating the body through their own consciousness. This turns out to be a very special method for mind-body training. In 1978, Mainland China initiated a full-scale scientific research on Qigong. Since then, researchers from both Mainland China and Taiwan have done in-depth studies on important topics such as the physiological changes during Qigong practice, health conditions of Qigong practitioners, the properties of external Qi and the action of external Qi. The results indicate that during Qigong practice there are significant changes in one's brain alpha wave, facial and palmar temperature. There also appears to be low frequency vibration amplitude of acupuncture points and chemical transmitters in the blood.

It is also found that when applied to conduct auxiliary treatments for certain disorders such as hemodialysis, Qigong could greatly improve the quality of life of the patients (Tsai *et al*., 1995). The practice of Qigong to a high level would generate a kind of special ability named exceptional function of human body (EFHB). EFHB contains two opposite phenomena, i.e., extra sensory perception (ESP) and psychokinesis (PK). Because of ESP, the mind becomes extremely sensitive; it can detect information coming from sources other than the ordinary five senses. As for PK, it allows a master to manipulate the screen emerging in the visual field of a patient's brain. It also exerts a force on external objects, i.e., moving, bending or transporting them around. In the past 18 years, EFHB research in Mainland China has achieved enormous progress. Researchers have proved the existence of several unimaginable phenomena such as character recognition by fingers, exceptional writing, breaking the space barrier, and

mental bioengineering (Lee, 1997, Lee & Shih, 1997; Huang, 2001). Chi Kung is "energy" with the conduct of light messages, having the same quality that reveals its "precision" according to ancient Chinese medicine. Theoretically, we have proven the effect of capability for curing diseases relevant to the "power" of Chi Kung. It is worthy to conduct more investigations.

As a unique subcategory of traditional Chinese Chi Kung, Shiang Kung was made public by Zue-sheng Tien in 1988. There are many studies about Shiang Kung practice in Mainland China and Taiwan (Cheng, 1997, 1998, 2000, 2001 and 2002). Scientists in Mainland China and the Soviet Union have identified the meridian system as the bio-energy system that exists in the human body. The system is characteristic of lower resistance, higher electric potential and lightering liner, similar to that of LPSC (Chang, 1999; Chen, 1996; Su, 1997). For this article, bio-energy analyses was carried out by employing Ryodoraku as the theoretical base for the study, which was proposed by Yoshio Nakatani (Tseng, 2000).

**Subjects**

Sixty-seven university students were divided with two groups:
Spring-Summer group [SS]
male (n=16), average age 22.12yrs, average height 169cm, average weight 62.3 kg
female (n=18), 21.16yrs, 159.58cm, 52.41kg; and
Autumn-Winter group [AW]
Male (n=22), 22.9yrs, 172cm, 68.13kg
female (n=11), 22.0yrs, 156.11cm, 46.22 kg,
While participating in the study, the students were registered at National Kaohsiung University of Applied Sciences in Taiwan during 2001.

**Practicing programs**

Both SS and AW groups, over a period of 14 weeks, participated in Shiang Kung practice at elementary and intermediate levels. The first 10 weeks were allocated for elementary level practice, while the last four were intermediate. Audio-visual assisted instruction was provided to facilitate their practice, with individualized instruction also emphasized.

**Research instrument**

The research instrument was the Detecting System of Channel and Acupuncture Points and Bio-energy (DSCAPB), which has been produced in Taiwan. The production of the equipment is attributed to the expertise of an engineer named Chang-Yuan Tseng. The design is based on the principles of the theories on Ryodoraku by Yoshio Nakatani (Tseng, 2000).

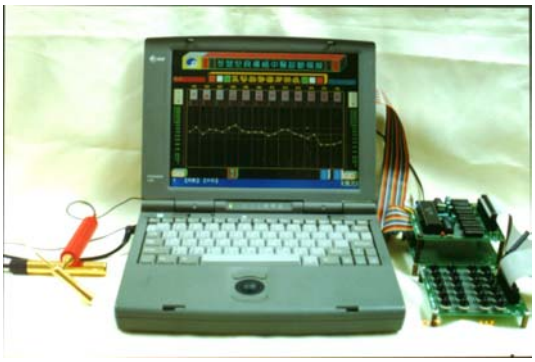

**Figure 1. 24 points bio-energy value curved line DSCAPB**

**Figure 2. Analysis system of**

**Methods and procedure**

For each subject, the 24 channel and acupuncture points were measured using the DSCAPB (Figures 1, 2, 3, 4 and 5), with the attained values treated as the index indicating changes in bio-energy. These indexes also indicate the effectiveness of Shiang Kung practice. Subjects who participated in this experiment were measured twice, arranged to facilitate bio-energy analysis. About two hours before the measurement process, they were requested to avoid acute exercise. They then took rest for at least 15 to 20 minutes before they were further measured at the other acupuncture points. All the points were thoroughly evaluated. Based on the theoretical notions from previous studies, the current research employed the surface resistance measurement method to measure the participants' bio-energy change. This method combines together an A/D interface, a microcomputer, and artificial intelligence technology. It enabled us to automatically calculate, analyze, and judge the conditional change of bio-energy values, which was a reflection of the meridian phenomena. Overall, the participants were measured twice, with pre- and post-experiment measurements of their bio-energy being carried out. The experiment lasted for one year, and the measurement outcomes before and after the experiment were taken as the data for statistical analysis.


**Figure 3. 24 meridian points in both hands and feet**

**Figure 4. meridian points measure on hands on feet**

**Figure 5. meridian points measure**

## Statistical analysis

The data were analyzed using an independent t-test. For all statistical analyses, a p value of 0.05 was accepted as the level of statistical significance. The statistical package of SAS 6.12 and Microsoft Excel were selected as the tools.

## Results

The results are shown in tables 1 to 13, as follows:

Table 1 SS Group24 points average bio-energy of hands and feet pre measurement

| Sex | Points | Bio-energy (□A) | Points | Bio-energy (□A) |
|---|---|---|---|---|
| F | LH | 58.74 | RH | 52.99 |
| F | LF | 42.58 | RF | 40.62 |

| | | | | |
|---|---|---|---|---|
| M | LH | 62.12 | RH | 57.97 |
| M | LF | 53.72 | RF | 38.90 |

Note: LH= left hand; RH= right hand; LF= left foot; RF= right foot

Table 2 AW Group24 points average bio-energy of hands and feet pre measurement

| Sex | Points | Bio-energy (□A) | Points | Bio-energy (□A) |
|---|---|---|---|---|
| F | LH | 37.21 | RH | 42.02 |
| F | LF | 36.22 | RF | 31.54 |
| M | LH | 61.45 | RH | 57.95 |
| M | LF | 50.06 | RF | 45.85 |

Note: LH= left hand; RH= right hand; LF= left foot; RF= right foot

Table 3 SS Group24 points average bio-energy of hands and feet post measurement

| Sex | Points | Bio-energy (□A) | Points | Bio-energy (□A) |
|---|---|---|---|---|
| F | LH | 70.75 | RH | 62.26 |
| F | LF | 41.86 | RF | 38.86 |
| M | LH | 6.19 | RH | 59.09 |
| M | LF | 56.32 | RF | 47.29 |

Note: LH= left hand; RH= right hand; LF= left foot; RF= right foot

Table 4 AW Group24 points average bio-energy of hands and feet post measurement

| Sex | Points | Bio-energy (□A) | Points | Bio-energy (□A) |
|---|---|---|---|---|
| F | LH | 45.20 | RH | 42.18 |
| F | LF | 38.89 | RF | 32.72 |
| M | LH | 70.37 | RH | 69.63 |
| M | LF | 57.84 | RF | 47.62 |

Note: LH= left hand; RH= right hand; LF= left foot; RF= right foot

Table 1 and 2 show the SS and AW group 24 points bio-energy of pre measurement original data; table 3 and 4 reveal the SS and AW group 24 points bio-energy of post measurement original data.

Table 5 and table 6 show the t-test of point bio-energy of gender between SS and AW group in LF1. There was significant difference in the point bio-energy between genders in AW group ($p<.05$), but the SS group was not ($p>.05$).

Table 5 t-test of gender point bio-energy of SS group in LF1

| Sex | N | Mean(□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 18 | 51.94 | 21.99 | | |
| | | | | -1.1854 | 0.2453 |
| Male | 16 | 61.81 | 26.05 | | |

p >.05

Table 7 the t-test of gender point bio-energy of AW group in LF1

| Sex | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 11 | 58.45 | 19.87 | | |
| | | | | -2.6611 | 0.0122* |
| Male | 22 | 81.13 | 24.46 | | |

*p <.05

Table 7 and table 8 show the t-test of point bio-energy of gender between SS and AW group in LF3. There was significant difference in the point bio-energy between genders in both SS and AW groups ($p<.05$).

Table 7 t-test of gender point bio-energy of SS group in LF3

| Sex | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 18 | 31.94 | 23.72 | | |
| | | | | -2.9290 | 0.0066* |
| Male | 16 | 59.31 | 29.94 | | |

*p <.05

Table 8 t-test of gender point bio-energy of AW group in LF3

| Sex | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 11 | 21.36 | 9.62 | | |
| | | | | -3.1480 | 0.0037* |
| Male | 22 | 35.31 | 15.71 | | |

*p <.05

Table 9 and table 10 reveal the t-test point bio-energy of gender between SS and AW group in LF4. There were no significant difference in the point bio-energy between genders in both SS and AW groups (p>.05).

Table 9 t-test of gender point bio-energy of SS group in LF4

| Sex | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 18 | 46.38 | 22.73 | | |
| | | | | -0.7016 | 0.4888 |
| Male | 16 | 52.87 | 30.13 | | |

p >.05

Table 10 t-test of gender point bio-energy of AW group in LF4

| Sex | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| Female | 11 | 66.00 | 16.59 | | |
| | | | | -0.4458 | 0.6590 |
| Male | 22 | 69.45 | 27.75 | | |

p>.05

Table 11, table 12 and table 13 present the t-test of point bio-energy of gender between SS and AW group in LF1, LF3 and LF4. There were significant difference in the point bio-energy between SS and AW groups (p>.05).

Table 11 the t-test of point bio-energy in LF1 between seasons

| Group | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| SS | 34 | 56.58 | 24.14 | | |
| | | | | -2.81 | 0.006* |
| AW | 33 | 73.57 | 25.17 | | |

*p <.05

Table 12 the t-test of point bio-energy in LF3 between seasons

| Group | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| SS | 34 | 44.82 | 29.82 | | |
| | | | | 2.45 | 0.017* |
| AW | 33 | 30.66 | 15.35 | | |

*p<.05

Table 13 the t-test of point bio-energy in LF4 between seasons

| Group | N | Mean (□A) | SD | t Value | p Value |
|---|---|---|---|---|---|
| SS | 34 | 49.44 | 26.26 | | |
| | | | | -3.04 | 0.0034* |
| AW | 33 | 68.30 | 24.38 | | |

*p <.05

The results of an independent t-test will identify the effects between the two seasons. The main findings were as follows:

(1) there was significant difference in LF1 (SP, Spleen Pancreas meridians) and LF3 (KI, Kidney meridians) between two seasons;
(2) there was significant difference in LF1 for the autumn-winter group and there was significant difference in LF3 between genders; and
(3) there was significant difference in LF1, LF3, LF4 (BL, Bladder meridians) between two seasons.

**Discussion / Conclusions**

This article reveals that the human bio-energy of points can be changed by the seasons, because the major factor is the outdoor temperature. It may affect the skin resistance of the human body under the circumstance and conditions (Cheng, 2002; Cheng and Huang, 2003). The second reason is the subjects' Chi Kung practicing. In this study, the bio-energy of LF1 (SP, Spleen Pancreas meridians), LF3 (KI, Kidney meridians) and LF4 (BL, Bladder meridians) changed between seasons; and there were significant difference in LF3 between genders. The change of meridians bio-energy value likewise suggests the correlations between seasons and their influence on joint health. Implications related to health preservation and traditional Chinese medicine can be drawn.

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# PARTNERS AND EVENTS

**Upcoming Events**

Don't forget to check the SIRC Conference calendar at:
http://www.sirc.ca/online_resources/calendar.cfm
This resource is updated weekly and includes sport science events world wide.

Following is a list of events under ICSSPE Patronage and/or planned by members of ICSSPE:

**DISCOVERY VITALITY FITNESS CONVENTION – Collaboration in Sport: Preparing Sport Scientists and practitioners for the future**
6–9 October 2004, Johannesburg, South Africa
Thematic areas: Sport Physiology; Health and Fitness; Sport Science; Coaching and Performance; Medicine and Rehabilitation; Nutrition and Biochemistry; Pedagogy and Physical Education; Sport Psychology; Sport History and Philosophy; Sociology of Sport; Sport Management and Sport Law.
Web: http://general.rau.ac.za/rausport/Sportsdepartment/Conference/ssc.htm

**Sports Medicine Australia Annual Conference**
7-9 October, 2004, Alice Springs, Australia
Tel: 61 2 6230 4650
Fax: 61 2 6230 5908
Email: smanat@sma.org.au
Web: http://www.sma.org.au/

**15th EUPEA Forum Conference**
15-17 October, 2004, Ljubljana, Slovenia
Web: www.eupea.go.to

**FIM Congress**
18-23 October, 2004, Paris, France
Email: Secdir@fim.ch

**Motor Control 2004**
22-24 October, 2004, Katowice – Wisła (Hotel Golebiewski)
Theme: Research perspectives in motor control
Contact: Grzegorz Juras
Department of Motor Behavior
Academy of Physical Education
72 Mikolowska Street
40-065 Katowice, Poland
phone: ++ 48 32 2075141
fax: ++ 48 32 2516868
email: juras@awf.katowice.pl
{HYPERLINK TO http://www.golebiewski.pl}

**I International Congress on Physical Education and the II Symposium on Infant Psycho Motor Skills - Physical Education and Sports for All, a right of the people**
5-9 November, 2004, Matanzas, Cuba
Hosted by the Cuban National Institute for Sports, Physical Education and Recreation (INDER), the National Division for Physical Education, and Health Promotion and CUBADEPORTES, S.A.
Objectives: To expose and exchange advanced pedagogical experiences, pedagogical methods and mastery courses in the Physical Education field.
Dr. Gladys Becquer Díaz
E-mail: varadero@inder.co.cu
Tel: +53 7 577054 or +53 7 2047230

**International Conference on Women and Sports**
18-19 November, 2004, Kathmandu, Nepal
The main goals of the program are to:
1. Expose Nepali women to the broader international arena of women in Sports;
2. Promote the importance of sports as a means for bridging cross-cultural differences and conflict and engendering attitudes which enhance cooperation, peace and development;
3. Provide an opportunity to learn more and discuss about common issues, particularly women in sports and their participation in decision marking level;
4. Expose others to the development needs of Nepal, particularly those relating to young women.

Contact: Sita Pandey
President
Women in Sports/ Nepal
Kathmandu, Nepal
G.P. O. 3442
Kathmandu, Nepal
Tel: 977-1-424 0020
Fax: 977-1-424 0020
Web: womensports.org.np

**4th International Conference on Movement and Health**
21-22 November, 2004
Contact: The Faculty of Physical Culture
Palacky University
Olomouc, Czech Republic

***Email: machacm@ftknw.upol.cz***

**International Conference of Physical Education and Sport: Education through Sport**
25-26 November, 2004, Pitesti, Romania
Hosted by the Ministry of Education and Research, The University of Pitesti, Faculty of Physical Education and Sport and the Research Centre of Human Performance.
Themes: Physical Education, Elite Sport, Free time and Sport for All, Management of Sport, Adapted Sport and Physical Therapy and Diversity.
Contact: Faculty of Physical Education and Sport
Str. Gh. Doja, nr. 41, Pitesti 0300 Romania
Ph/fax: +40 248 222899
Email: fefspitesti@yahoo.com or viorelnastase@yahoo.com

**4th Deutscher Sportoekonomie-Kongress Perspektiven des Sportmarketing**
2-4 December, 2004, Koeln, Germany
Contact: Deutsche Sporthochschule Koeln
Carl-Diem-Weg 6
50933 Koeln
Germany
Telephone: +49 221 4982 6480
Fax: +49 221 4982 8140
E-mail: info@Deutscher-Sportoekonomie-Kongress.de
Web: www.Deutscher-Sportoekonomie-Kongress.de

**International Forum on Sport and Development**
13-15 February, 2005, Bad Boll, Germany
Co-organized by Evangelische Akademie Bad Boll and the International Council of Sport Science and Physical Education (ICSSPE)
Aims to: engage representatives from different areas of sport, science, education, politics and economy, also global acting human rights and non-government-organisations (NGOs) who would usually not come together; and to continue the discussion process established by the United Nations development conference in Magglingen, Switzerland, 2003, for stronger ties within sport in the global development program. The main themes of Economy, Culture and Ethics will support the second Magglingen Conference, planned for December 2005.
icsspe@icsspe.org

**55th Session of the International Statistical Institute (**
5-12 April, 2005, Sydney, Australia
Hosted by the governing body for statisticians, the International Statistical Institute plans to include sports statistics on the agenda at their 55th session.
Contact: Brian Wicklin
Statistical Bureau VECA of Sweden
Mob: +46 70 607 38 96
Email: brian@statveca.com
Web: http://www.tourhosts.com.au/isi2005

**12th IASI World Congress**
19-21 May, 2005, Beijing, China
The International Association for Sports Information (IASI) will host their 12th World Congress and submissions for contribution to the program of the Congress are invited. Proposals will be considered for oral or poster presentations. Contributions should be in the context of one of the five major themes of the Congress: * Information Services for Olympic Games and International Competitions * Sport Archives and Digitalization * Sport Statistics, Standards & Services * Sport Information for Elite Athlete Development * Future Needs of Sport Information
For details on each of these themes and for a copy of the Call for Papers Submission Form, please visit the Congress website.
Cindy Slater, Chair
IASI Congress Program Committee
US Olympic Committee
One Olympic Plaza
Colorado Springs, CO 80909
USA
Telephone: +1 719-866-4622
Fax: +1 719-632-5352
Web: http://www.iasicongress2005.org/

**International Children's Games Symposium: Promoting rights, welfare and life chances**
7-9 July, 2005, Coventry, UK
Contact: Celia Brackenridge Ltd.
Coalheughead Cottage
Harburn
By West Calder
West Lothian
Scotland EH55 8RT
Email: celia.brackenridge@btopenworld.com
Web: www.childrens-games2005.org.uk

**Right To Play Round Table**
*Kathleen Doherny, Canada*

**Government leaders, sports ministers and development experts propose 'Sport for Development' Working Group at Athens Roundtable organized by International NGO Right To Play**

International NGO Right To Play hosted a Roundtable Forum in Athens during the Olympic Games to underscore the increasingly important role sport is playing in the fight against HIV/AIDS and as a tool for conflict resolution and peace.

Best practice examples of 'Sport for Development' programs were highlighted from Sierra Leone, Israel, Jordan, Russia, the European Union, the Palestinian Territories, Mozambique and elsewhere. A key theme of the dialogue centered on how to further engage governments from the northern and southern hemispheres to commit increased financial and non-financial resources to these initiatives.

The most significant outcome of the Athens Roundtable came when Prime Minister of Norway Kjell Magne Bondevik called for the establishment of an international Working Group led by Member States. Prime Minister Bondevik proposed an expert panel to identify best practices and make specific policy recommendations on how best to incorporate sport for development into national policy frameworks and international development assistance programs.

Ministers of Sport and representatives from the European Commission, Sierra Leone, Mozambique, Canada, Russia and the United Nations Agencies have expressed their interest in participating in this working group and to bringing other Member States to the Working Group prior to its launch.

The United Nations, through Roundtable keynote speaker Adolf Ogi, Special Adviser to the United Nations Secretary General, Sport for Development and Peace, agreed to host the inaugural meeting of the Working Group in May 2005. This Working Group is an important next step to continue the work of the UN Inter-Agency Taskforce on Sport for Development and Peace that resulted from a similar Roundtable at the Salt Lake City Games in 2002.

**Roundtable Participants**

Participants at the Roundtable included: Mr. Kjell Magne Bondevik, Prime Minister of Norway; Ms. Viviane Reding, European Commissioner for Education and Culture; Mr. Shimon Peres, Former Prime Minister of Israel, Founder of the Peres Centre for Peace; Her Royal Highness Princess Haya Bint Al Hussein of Jordan; His Royal Highness The Prince of Orange of the Netherlands; The Honorable Stephen Owen, Minister of State (Sports) of Canada; Dr Dennis Bright, Minister of Youth and Sport, Sierra Leone; Mr. Joel Libombo, Minister of Youth and Sports, Mozambique; Mr. Vyacheslav Fetisov, Chairman State Committee on Physical Culture and Sport, Russian Federation; Mr. Walter Fust, Director-General, Swiss Agency for Development and Cooperation; Ms. Dora Bakoyannis, the Mayor of Athens; Mr. George Orfanos (Deputy Minister of Culture, Greece); Dr. Thomas Bach, Vice-President, the International Olympic Committee
Mr. Adolf Ogi, Special Adviser to the UN Secretary-General on Sport for Development and Peace; Ms. Carol Bellamy, Executive Director, UNICEF; Ms. Wendy Chamberlin, Deputy High Commissioner, UNHCR; Mr. Shashi Tharoor, UN Under-Secretary-General for Communications and Public Information; Mr. Eric Falt, Director of Communications and Public Information, UNEP; Mr. Stavros Lambrinidis, Ambassador Director of the International Olympic Truce Foundation and International Olympic Truce Centre; Ms. Eveline Herfkens, Director, UNMDG Campaign; and Donna de Varona, First President of the Women's Sport Foundation.


Kathleen Doheny
Associate Director, Communications
Right To Play
Ph: +1 416 498-1922 x 204
Fax: +1 416 498-1942
Web: www.righttoplay.com
Email: kdoheny@righttoplay.com

# MEMBER'S NEWS

**Developing Sport in Bhutan**
*Colin Higgs, Canada*

During the Summer, Dr. Colin Higgs, ICCSPE Vice-President (Scientific Services) visited Bhutan to work with the country's National Sports Council and Ministry of Education in the development of plans for physical education curriculum and teaching reform, and coach education. In addition, Dr. Higgs developed contact with the disability sport community to assist them in developing sport opportunities for people with disabilities.
Where is Bhutan you might ask? "that's a question I had to ask myself once I was approached about working with the Bhutanese." said Dr. Higgs, "It's a beautiful small kingdom in the Eastern Himalayas that borders on Chinese Tibet to the North, and India to the West and South."
Since visits to Bhutan are strictly limited by the government to about 6000 international visitors per year, getting permission to enter the country took some time to arrange. During his visit Dr. Higgs met with government officials to discuss their development plans, with students and teachers in the schools to gain a first hand appreciation of the challenges they faced, and with the National Olympic Committee to discuss options for coach education.
Closed to the outside world for many years, Bhutan is slowly allowing western developments to enter, and is acutely aware that western influence, while bringing major benefits, brings with it some socially undesirable consequences that could impact negatively on the youth of the country. The government is determined to be pro-active in using sport and physical education as a development tool that will enhance physical well-being and preserve the country's unique culture, especially among the youth.
The highlight of my trip was the visits to the Schools, and the opportunity to watch the national sport of archery carried out in both traditional and modern Olympic form. "Every small village has its archery range, and teams from different communities engage in day long competitions – shooting at targets about the size of a dinner plate from a range of more than 150 meters." The shooting is carried out with the watching team trying to distract the shooting team by shouting and taunting them said Dr. Higgs. "My Bhutanese colleague declined to translate what was being said" he explained, "but I was told that it involved unflattering remarks about the shooters parentage!" Also a highlight of the trip was the unique Bhutanese architecture and the legal requirement that every Bhutanese national wear their national dress.
By the end of the visit, Dr. Higgs had completed a report to the Minster of Education and Youth outlining his recommendations for a youth development program using sport and physical education. "The next step is for the Bhutanese Government to approve the plan, and then I will start the process of applying to CIDA (Canadian International Development Agency) for funding to implement that plan" said Dr. Higgs. When asked if he would be returning to Bhutan Dr. Higgs replied, "I can't wait to get back. It is the most beautiful and interesting country I have ever visited, and there is considerable need for youth development. It's said that the mythical Shangri-La was modeled after Bhutan – and I'm inclined to believe that, even with the difficulty of struggling through very serious jet-lag, trying to sleep through the all-night barking of the county's innumerable

dogs, and living with oxygen deprivation brought on by having a guesthouse room at 10,000 feet above sea level."


**International Sport and Culture Association**

Forum Cultural Mundial

A new international website, the Forum Cultural Mundial (World Cultural Forum), is set to become a major resource for the promotion of a wide range of cultural issues in both Latin America and beyond. The aim of the site is to promote action and debate while viewing culture as a fundamental part of contemporary life.

The online forum is just one of the lasting benefits of the World Cultural Forum event, which took place from 26 June to 4 July in Brazil with ISCA President Anders Bülow in attendance. As well as a broad discussion resource, the site is also intended as a comprehensive information bank, identifying the current state of culture across the world and supporting new cultural initiatives. The website includes a so-called 'virtual forum' with six online debating rooms designed for inclusive discussion on a number of key issues.

ISCA member organisation SESC, São Paulo, has been heavily involved in the organisation of the forum. ISCA welcomes and applauds the arrival of this much-needed resource from our Latin American friends.

The website, which is available in Spanish, French and English, can be found at:
www.forumculturalmundial.org

Conference - the Contribution of Sport to Inter-Cultural Dialogue
ISCA will be strongly represented at a major Council of Europe conference entitled "The Contribution of Sport to Inter-cultural Dialogue", which is due to be held on 9-10 September 2004 in the Turkish capital, Istanbul.

With 2004 marking the 50th anniversary of the European Cultural Convention, the Council of Europe is seeking to underline the importance of promoting intercultural dialogue in Europe and beyond. The conference will highlight the successful integration of immigrants through sport, as well as identify actions necessary to allow others to follow these successful examples.

ISCA Secretary General Mogens Kirkeby will address the conference on the subject of 'Short stays of people in other areas for leisure sport purposes'.

The general sports website of the Council of Europe can be viewed at:
www.coe.int/T/E/Cultural_Co-operation/Sport/

New EU Commission Initiatives
The European Commission is proposing a number of new education, cultural and youth programmes starting in 2007. The aims of the Culture 2007 programme include the promotion of trans-national mobility and the encouragement of intercultural dialogue. A little over 400 million euros will be devoted to the programme.

In addition, a budget of 915 million euros has been allocated to the EU's 'Youth in Action' programme, which is aimed at young people in both member states and third countries. 'Youth in Action' will group together a variety of initiatives such as youth exchanges, voluntary programmes, and 'Youth for the World' – a project aimed at developing partnerships with non-EU countries.

Further information on the projects can be viewed at:
http://europa.eu.int/comm/dgs/education_culture/newprog/index_en.html

International Academy - Sport for All
The new International Academy of Sport for All (IASFA) continues to develop. Most recently, ISCA has chosen to enter into a partnership with an online platform known as Groupcare, which will allow participants from around the world to access a host of online educational facilities. More information on the initiative, which is being developed in partnership with the European Year of Education through Sport, will be provided in the next issue of the ISCA magazine CultureSports. The IAFSA website is currently under development at: www.iasfa.net

International Students
This month sees the start of another International Youth Leader Education programme. Taking place at the Academy of Physical Education in Ollerup, Denmark, the programme will be hosting a large group of international students from both Europe and other nations including Brazil, Peru, Columbia and Afghanistan. ISCA would like to extend a warm welcome to all participants.

Future Meetings within ISCA
The ISCA Executive Committee is to meet on 12-14 November 2004, with the location yet to be decided. The European Continental Committee is to meet on 26-28 November and will be hosted by INATEL of Portugal. On 30 October, the ISCA Badminton Committee will be meeting at Copenhagen's DGI-byen, which will also host the IASFA Steering Group meeting on 3-5 September.

New Faces in Copenhagen
We would like to extend a heartfelt welcome to Jacob Schouenborg, the new Secretary General of the Nordic Youth Association (NSU), who has recently joined us at the ISCA Secretariat. Jacob's appointment is the result of a new partnership between ISCA and the NSU, in which much of the organisation's administrative work will be centered in Copenhagen. Although the two organisations will remain distinctly separate, he will also be involved in working with ISCA, in particular the IASFA project, and some office resources will be shared.  Jacob may be contacted by e-mail at: js@isca-web.org

**International Summer School for Young Researchers**
**Academy of Physical Education (AWF), Warsaw, Poland**
*Dr Jan Gajewski, Poland*

The 2nd "International Summer School for Young Researchers 2004" was organised June 12 - 19, 2004, in AWF's Water Sports Centre in Pi□kna Góra (Mazurian Lake District). The aim of the School was to bring together a group of Ph.D. students from various foreign universities (and their Polish collegues), giving them the opportunity to exchange knowledge and carry out scientific, recreational and cultural tasks.
The lectures (in total 16 hours) and seminars were delivered by:

- Prof. Walter Tokarski (Sociology - German Sport University Cologne),
- Prof. Mark Lake (Biomechanics - John Moores University Liverpool, United Kingdom)
- Prof. Nikolai Volkov (Exercise science - Russian State University of Physical Education, Moscow)
- Prof. Antoni K. Gajewski (Epidemiology - AWF Warsaw, Poland).
- Prof. Romuald Stupnicki (Biometry - AWF Warsaw, Poland)
- Prof. Roman M.Kalina (Combat sports - AWF Warsaw, Poland)

Representatives from 11 universities participated in the School:

- Academy of Physical Education in Kaunas, Lithuania
- Beijing Sport University, China
- German Sport University Cologne, Germany
- John Moores University Liverpool, United Kingdom
- Józef Piłsudski Academy of Physical Education in Warsaw, Poland
- National and Kapostridian University of Athens, Greece
- Palacky University Olomouc, Czech Republic
- Presidente Antonio Carlos University in Belo Horizonte, Brazil
- Russian State University of Physical Education, Moscow
- Semmelweis University Budapest, Hungary
- University of Guadalajara, Mexico.

Along with lectures and seminars, the participants took part in regular courses of windsurfing, sailing and kayaking. There were also meetings and discussions regarding contemporary social and political issues. The participants took part in a one-day sightseeing tour, so had the opportunity to familiarize with the Mazurian Lake District, its history and cuisine.

The participants prepared also their own presentations (short reports and posters). The final versions of the presentations were discussed and modified during the seminars and both the lectures and reports will be published.
Positive feedback from participants has encouraged organisers to plan the next edition of the School.



Dr Jan Gajewski
and Tomasz Skiba
International Co-ordinator
The J¢zef Pilsudski Academy of Physical Education
00-968 Warsaw 45
Marymoncka 34
phone: (+48 22) 834 04 31, ext.335
fax: (+48 22) 865 12 20
e-mail: t.skiba@awf.edu.pl

**International Sociology of Sport Association**
*Steve Jackson, New Zealand*

The International Sociology of Sport Association was well represented at the recent pre-Olympic Congress in Thessaloniki, Greece. Including poster sessions there were approximately 100 sociology of sport related presentations. Feature symposiums included: (1) Mass media and the Olympics (2) Subcultures and sport: Social relations and identities (3) Rethinking the Olympics in the new millennium and, (4) Health, gender, sport and society.

Even prior to the conference, ISSA was very active with Executive and Extended Board meetings as well as an IRSS (International Review for the Sociology of Sport) Editorial Board meeting. The Executive and Extended Board meetings addressed a number of important issues including: a redevelopment of the ISSA www page, future conference planning, proposed young scholar awards and research collaboration.

IRSS Editor, Professor Peter Donnelly, reported that the journal is doing extremely well and that Sage Publishers are very pleased with its continued success. Plans are underway for various forms of recognition and celebration of IRSS' 40th anniversary in 2005.

ISSA hosted a reception at the congress which provides a great opportunity for existing and new members to meet and socialize. This function set the stage for 6 days of academic and social activities with what many have described as a near record attendance at a pre-Olympic Congress.

Planning is already well underway for ISSA's next World Congress of Sociology of Sport which will be held in Buenos Aires, Argentia, November 30 – December 3, 2005. In addition, planning has begun for ISSA's participation in the 2006 World Congress of Sociology which will be held in Durban, South Africa. All ISSA members are being encouraged to register for Research Council #27 given that sessions at the World Congress is based on membership.

ISSA would like to thank the pre-Olympic Congress organizers for hosting a wonderful and rewarding academic, cultural and social event.

Dr. Steve Jackson
General Secretary
International Sociology of Sport Association
University of Otago
School of Physical Education
Email: sjackson@pooka.otago.ac.nz

**Qatar Sports Academy**
*Marwan Bouraad, Qatar*

The Qatar Sports Academy, named ASPIRE and launched in September 2004, is a recent addition to the ICSSPE membership.

The Academy aims to identify the best young sporting talent from the region and around the world and integrate sport specific training with an intensive, comprehensive academic and social education, giving the athletes all the support they need to succeed. With state-of-the-art facilities and world-class sports programmes, it will turn hopefuls into winners at the highest levels of international competition and generate a sports culture in Qatar.

All of ASPIRE's departments work together to create the perfect environment for the student. As they strive towards the same goals, their harmonious, progressive interaction gives the students exactly the sort of atmosphere and support they need to thrive.

The four departments are Sports, QESA, IT, and Marketing. Individually, they play vital roles within the structure of ASPIRE, as explained below. But together, collaboration is the name of the game, with each department complementing the next for the overall benefit of ASPIRE.

Sports

We understand what it takes to become a great athlete. We know how to nurture and encourage talent, how to infuse athletes with confidence and independence. We apply our expertise in all the relevant areas, from physical training to mental and dietary fitness.

Indeed, the Sports Department is about a lot more than just sporting prowess. Physiology, physiotherapy, medicine, rehabilitation, nutrition, biomechanics, research, and talent scouting - these are vital components in our complete sporting facility. All of which leads to world-class, comprehensive training for every individual.

Football and athletics will lead the way when the Academy opens in September 2004. As the Academy grows, these sports will be followed by swimming, shooting and judo in September 2005. Further expansion into fencing, handball, gymnastics, and other sports will follow in the coming years.

QESA

No education is complete without intellectual development. ASPIRE will develop the minds of its students as well as their sporting abilities.

Under the auspices of QESA – the Quality Management, Education, and Social Affairs Department, students will receive the most complete education possible. QESA will ensure high quality across all learning disciplines, maintaining the balance between academic and sports education, ensuring the happiness of the students, and providing them with career management and sports psychology support. Ensuring that when they leave our grounds, they are equipped to deal with whatever lies ahead of them.

IT

Our Information Technology department will help raise the bar on ASPIRE's core mission of sports excellence. Offering support to athletes, management, staff, parents and sponsors through the latest technology, it will aim primarily to foster innovation and creativity in the field of Sports IT. Through this innovation, the department will be of service not only to our athletes, but to the sports industry as a whole.

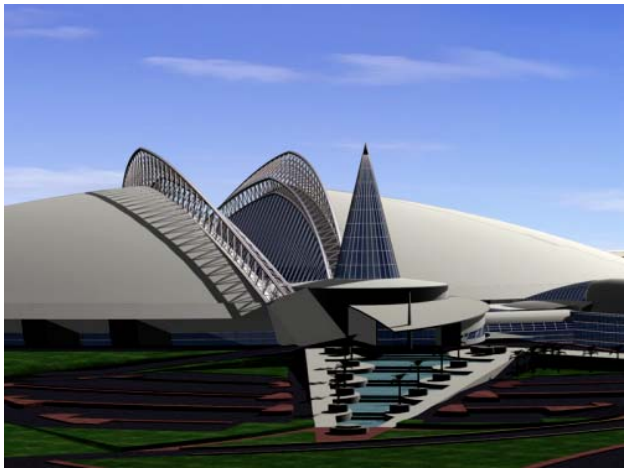
The World's First Comprehensive Athletes Database System, for example, will be a major contribution to the world of sports. Developed in-house, this system will collect data on athletes and combine it with all sorts of advanced interfaces and systems to provide in-depth analyses on each and every athlete. Making it the first and only tool of its kind in the world.

ASPIRE students and faculty will have the latest technology tools at their disposal to help foster sporting, academic and social education. The facilities will also boast video conferencing in all the classrooms and meeting rooms, as well as high-speed video conferencing to link ASPIRE to other organisations around the world.

Sharing information between ASPIRE, its students, and the parents will be at the heart of our efforts. Much of our data will be accessible to staff, students, their parents, and sponsors through this website, as well as through our exclusive portal.

## FACILITIES

The international-standard training facilities listed below are complemented by the latest top-notch sport methodology, as well as outstanding medical, biomechanical and social services. Its covered sports dome, designed by renowned French Architect Roger Taillibert, will be the largest in the world when it opens in the first quarter of 2005.



Indoor facilities (inside Dome):

- State-of-the-art sports science labs with High Altitude Labs, Movement Analysis Labs, Power-Analysis Labs, Physiological Labs, Sports Equipment Labs, a Mechanical and Electronic Workshop, and more
- State-of-the-art fitness halls
- State-of-the-art Physiotherapy/Medical Centre
- 1 Football pitch (official size)
- 1 small Football field
- 1 Athletics track (200m) with other facilities (long-jump, pole-vault, throwing, etc)
- 1 Olympic Swimming and Diving pool
- 1 Gymnastics hall
- 1 Sports Games hall
- 13 Table-Tennis courts
- 3 Contact Sports mats (Judo, Teakwondo)
- 8 Fencing strips
- 2 Squash courts

Outside Facilities:

- 7 Football pitches (2 artificial, 5 natural grass)
- 1 Goal-Keeper training area
- 1 Fitness court
- 1 Running track
- 2 Tennis courts

## MANAGEMENT

### Dr. Thomas Flock: Director

Thomas Flock has been the General Manager of ASPIRE since the early days of July 2003. He started his sports career as a high-performance athlete with a personal best of 10.4sec/100metres. During his university studies of Sport Sciences, Pedagogy, and English, he coached athletics. He finished his Ph.D in Sports Sciences in Cologne, Germany. Between 1993 and 2003 he developed the Olympic Center of Munich into one of the world's leading elite sports institutions. During his directorship, the athletes won more than 80 Olympic medals. He co-founded and managed the marketing company representing all Olympic Centers in Germany and lectured at Munich University. He is the publisher of several books on elite sports.

### Dr. Andreas Bleicher: Sports Manager

With a Diploma and a Doctorate with Honors in Sport Science from the German Sport University, Dr. Andreas Bleicher started his career as a lecturer at the German Sport University. He went to be Director of the Olympic Training Center in Cologne, Bonn and Leverkusen, as well as directing the German Coach Academy, the highest institution for coaches education in Germany. He was also an official member of the Advisory Council for the Development of Elite Sport in the German Sports Confederation. Dr. Bleicher joined ASPIRE with the ideal elite sports experience to develop elite athletes.

### Dr. Dieter Hackfort: Dean

Professor for Sport and Exercise Psychology, Dr Hachfort received his doctoral degree in 1983 from the German Sports University. In 1986 he was a Visiting Professor at the Center for Behavioral Medicine and Health Psychology at the University of South Florida in Tampa, and received tenure at the University of Heidelberg. In 1991 he became Head of the Department for Sports Science at the University of Munich, and since 1986 he has served as a counselor for professional performers and athletes of various sports at the Olympic Centers in Germany.

His research has been published in 25 books and edited volumes, and in more than 150 contributions in national and international journals. In 1984 he received an award (Carl-Diem-Plaque) from the German Sports Federation for the best research in the social sciences; in 2001 he received the Honor Award of the International Society of Sport Psychology (ISSP) in recognition of significant contributions to national and international sport psychology through leadership, research, and personal service. He was appointed Honorary Professor of Wuhan Institute of Physical Education, China in 1999.

### Mr. Soubhi Abdulkarim: IT Manager

Soubhi Abdulkarim holds a Bachelor of Science degree in IT technologies from the University of Phoenix, and Portland State University, USA in addition to many advanced training certificates in engineering and management. He has worked in the field of technology since 1981, playing key roles in developing and implementing new technologies in the marketplace as a Senior Architect at Intel Corporation, such as AGP, USB, and DVD. Furthermore, he holds patents in his name in the field of PC power management, as well as many other awards for his contribution to the advancement of computer technologies. It is with those credentials that Mr. Abdulkarim builds a state-of-the-art IT infrastructure at ASPIRE.

Dr Thomas Flock
Director
Qatar Sports Academy
Ph: +97 44681926
Fax: +9744697346
Email: thomas@qatarsports.net
Marwan Bouraad
Relay Sports & Event Marketing
Ph: +971 50 6443474.

# RESOURCES

**Watching the Web: A Webliography of Sports Participation Resources and Statistics**
*Gretchen Ghent, Canada*

Participation in sports and physical education is a topic of current interest with its implications for obesity, physical fitness, health and gender equality and opportunity. Many recent academic books have been published in the latter topic and the periodical literature has copious research on the former topics. The statistics on participation is a field that is ready for improvement.

Reliable, comparable and comprehensive sports participation statistics are a rarity due to the complex and expensive nature of statistics gathering and the differing standards of national statistical organizations. In the last decade efforts in Europe have realized some agreement on standardized sports participation statistics gathering for a number of nations. The work of COMPASS members and the Sport Statistics Section of the International Statistical Institute have brought about this change in Europe. National statisticians from countries outside of Europe have attended COMPASS workshops and meetings. It is hoped that in the near future there could be worldwide agreement on terminology, what and how sports participation statistics are gathered and recorded. This would achieve the ultimate goal of sports participation statistics becoming truly comparable nation by nation, sport by sport, or worldwide.

The work of COMPASS is outlined on their website http://www.sportcompass.net/
There are a number of websites, both from government sources or for-profit companies that outline or list the various national or regional sports participation statistics based on a sampling method. These are listed in the next section. The second section lists some of the specific sports participation reports that are freely available, or, if there is a cost this is listed. The third section describes other recommended sources of information.

## Websites

Australia. National Sport Information Centre. Topics in Sport - Statistics
http://www.ausport.gov.au/info/topics/statistics.asp

- Links are provided to many sports participation reports including *Participation in exercise, recreation and sport 2002, (ERASS*) that was developed by the

State/Territory Departments of Sport and Recreation through the Standing Committee on Recreation and Sport (SCORS)

COMPASS: (International Committee for Sports Statistics)
A Project seeking the Co-ordinated Monitoring of Participation in Sports in Europe.
http://www.sportcompass.net/

Singapore. Ministry of Community Development and Sports. Statistics - Sports
http://app.mcds.gov.sg/web/sport_reason.asp?szMod=topstatistics

PE Central (http://www.pecentral.org/ )

- Use the search engine on this website to find information on best practices in physical education participation and other resources.

UK. Office of National Statistics
See the following website for many publications on sports participation
http://www.statistics.gov.uk/cci/nscl.asp?ID=7863

**Specific Publications in Online Format**

*The Supersstudy™ of Sports Participation*
Hartsdale, NY: American Sports Data, Inc. 2004.
3 vols (Vol.1, 295p. Fitness; Vol. 2 365p. Recreational; Vol. 3, 312p. Outdoors)
Each volume $295 USD or the 3 vol set, $700
http://www.americansportsdata.com/ss_participation1.asp

- These statistics are a result of a national consumer mail survey of 25,000 adults and children conducted in January 2004 that monitors 103 sports and activities, with tracking data included from 1987 to date. Attitudinal, demographic and behavioral aspects are measured including the number of days per year, years of participation, venue, cross-participation and core market profiles.

**Sport Participation in Canada, 1998 Report**
Report prepared by the Culture Statistics Program, Culture, Tourism and Centre for Education Statistics of Statistics Canada, 2000, 77 p. (General Social Survey series Cat no. CH24-1/2000-1E-1N, ISBN 0662296052)
Available gratis in PDF format at:
http://www.pch.gc.ca/progs/sc/info-fact/1998-psc-spc/Index_e.cfm

*Participation in Sport and Physical Activities, Australia, 2002,*
Canberra, Australian Bureau of Statistics, Pub no. 4177.0, $22 for full report
See this website for a summary:

http://www.abs.gov.au/Ausstats/abs@.nsf/0/9fd67668ee42a738ca2568a9001393ac?OpenDocument

*1981/82 – 2002/03 NCAA Sports Sponsorship and Participation Rates Report.*
Indianapolis: National Collegiate Athletic Association, 2004. 235p.
http://www.ncaa.org/

Sport England publications

*Adults with a Disability and Sport: National Survey 2000-2001: Main report*
2002, 90p. (SE/2161/6/02) ISBN 1860781764
http://www.sportengland.org/adult_disability_full_report.pdf

*Driving Up Participation: the Challenge for Sport*
April 2004134p. PDF format
This report is a collection of academic review papers commissioned by Sport England to provide background information and context for the Framework for Sport in England. It covers levels of participation and club membership across regions and social groups. The papers include social and demographic trends that are likely to impact on sport over the next twenty years. The report examines possible targets for increasing the levels of diversity of participation in sport.(Abstract from ASTIS website)
http://www.sportengland.org/driving_up_participation_full_review.pdf

*Sports Participation and Ethnicity in England: National Survey 1999/2000, Headline findings*, Oct 2000. 41p. (SE/1073)
http://www.sportengland.org/ethnic_survey.pdf

Women's Participation in Sport: Fact Sheet
2002, 19p. (SE/2207/P/9/02)
http://www.sportengland.org/womens_participation_factsheet.pdf

*Statistical Abstract of the United States. 2003*
Section 26. Arts, Entertainment, and Recreation.
Washington, D.C., US Census Bureau, 2004
http://www.census.gov/prod/2004pubs/03statab/arts.pdf
See these and other tables, e.g.

- Table 1239 Participation in Various Leisure Activities, 2002
- Table 1247 Participation in Selected Sports Activities 2002
- Table 1249 Participation in High School Athletic Programs by Sex 1972-2002
- Table 1251 Participants in Wildlife related Activities 2001

**TAFISA World 2001: the Global Almanac on Sport for All**
Tokyo: Sasakawa Sports Foundation, 2001
Publisher's website: http://www.ssf.or.jp/

- For each country listed see Section 6 that has information on the latest sport participation survey.

A Parent's Guide to Youth Sports Participation (pub by the Iowa Boys High School Athletic Association, 1997)
http://www.drake.edu/ecd/pdf/ParentsGuideSports.pdf

- Available fulltext on the Drake University Institute for Character Development website.

## Other Sources of Information

Google http://www.google.com
This metasearch engine (along with Teoma, http://www.teoma.com/) provide very good access to interesting reports, data and websites on sports participation. Use the key phrases:

- sport participation
- athletic participation
- soccer participation (and any specific sport )

**Databases**
*SPORTDiscus*, the international sport database,(http://www.sirc.ca) has a substantial number of references on the topic of participation. The descriptor, participation can be "and'd" with many other qualifying descriptors to find information on specific aspects. For instance use the following subject descriptors:

- participation and girl (found over 524 records)
- participation and woman (over 1714 records)
- participation and middle age (over 142 records)
- participation and aged (over 450 records)
- participation and adult (over 544 records)
- participation and child (over 1373 records)
- participation and statistics (over 813)
- participation and germany (over 122)

*PsycINFO*, the international database for psychology, (http://www.apa.org/ ) uses the term *athletic participation*. A recent search found 1346 records.

*Sociological Abstracts*, the international database for sociology (http://www.csa.com/csa/factsheets/socioabs.shtml ) has over 900 citations on the topic of sports participation.

**Non-Profit Associations**
National Alliance for Youth Sports (http://www.nays.org/ )
Womenssports Foundation UK http://www.wsf.org.uk/
Women's Sports Foundation http://www.womenssportsfoundation.org/

**For-profit companies**
Sporting Goods Manufactures Association http://www.sgma.com/

Gretchen Ghent
Librarian Emeritus
VP for North America & Publications Officer for the International Association for Sport Information,Chair, North American Sport Library Network, and Member, Editorial Board, ICSSPE
C/o The University of Calgary Law Library
2500 University Dr. NW, Calgary, Alberta, Canada T2N 1N4
Tel: 403-220-6907

FAX: 403-282-6837
Email: gghent@ucalgary.ca

**Sport Abbreviations, Acronyms and Initialisms: Resources to Decipher This Contemporary Shorthand Language**

*Gretchen Ghent, Canada*

## Introduction

Sport science periodical articles, books, newspaper articles, databases and websites all employ the use of abbreviations and acronyms. With the website addresses (URLs) and conventions now found on the Internet, another new and abundant source of acronyms and abbreviations exists. Many style manuals recommend that a writer's first use of an acronym must list the long name followed by the acronym in round brackets (APA Publication Manual, section 3.20-3.29). Often this writing style and custom is not followed and a researcher needs to refer to a dictionary, manual or other reference source that may explain the abbreviation. There are even some websites where the translation of an organization's acronym is not easily found and the user must search the website carefully to find the full name.

For many decades sources produced by major publishers have attempted to keep track of abbreviations, acronyms and initialisms that represent organizations, institutes, projects, surveys, tests, periodical titles and other protocols. A number of comprehensive and/or specialized sources and directories are available in book form or in online fulltext format. Today some of the metasearch engines can be employed to find many of the better-known abbreviations and acronyms.

In this article there will be a brief discussion of strengths and weakness of print and online sources followed by bibliographic or webliographic information on the resources mentioned in the narrative.

## The Nature of Available General Resources

The Union of International Associations (UIA) is a leader in the field of information on international organizations. The UIA, based in Brussels since its inception in 1910, publishes the *Yearbook of International Associations* now in 5 volumes, (40th edition, 2004). In the main volumes (1A and 1B), in a single alphabetic sequence are the main descriptive entries on international organizations with the acronyms interspersed in the proper alphabetic sequence (cross-references). While this work is published annually it is noted that it may take a few years for a new international organization to be added as the UIA's editorial board makes decisions about inclusion. This *Yearbook* is also available online for those subscribing institutions.

Another source for organization acronyms is *World Guide to Abbreviations of Organizations,* produced by Gale Research. This source has more listings than the *Yearbook of International Associations* for it includes national, governmental and local organizations also.

**Specialized Resources**
In the medical field there are a number of medical acronym and abbreviations dictionaries. Two of the most up-to-date sources are the *Dictionary of Medical Acronyms and Abbreviations* edited by Jablonski and *Stedman's Abbreviations, Acronyms & Symbols*. In the latter source symbols are included and range from genetic symbols, primes, checks, dots, roots plus professional titles and degrees and associations. The former source lists acronyms and abbreviations occurring with reasonable frequency in the literature of the medical and health care professions. This source is available for purchase in print or online format.

*Acronyms, Initialisms & Abbreviations Dictionary (AIAD)* and *International Acronyms, Initialisms & Abbreviations Dictionary (IAIAD)* are also comprehensive sources for they draw data from commercial, legal, scientific fields plus other sources including the *International Research Centers Directory*, the *Europa Yearbooks* series (political handbooks) and the CBD Research directories.

**Abbreviations and Acronyms on the World Wide Web**
Many of the internet-based online dictionaries or lists containing acronyms and abbreviations cover military, space and computer technology terms (e.g. US. Dept of Defense *Dictionary of Military and Associated Terms* or *UNIX Acronym List*) with few lists covering other topics.

A search for the acronym ***ioc*** on Google, the metasearch engine (http://www.google.com/) will find the International Olympic Committee as well as the International Ornithological Congress, the Intergovernmental Oceanographic Commission and the International Ozone Commission. Other sport related acronyms, e.g. ISEA (International Sports Engineering Society) also have many non-sport usages and a researcher must scan the information on a number of Google pages before the sport organization is found. However, use of the metasearch engines Google or Teoma (http://www.teoma.com/ ) can be the quickest way for the busy researcher to find a website that translates most acronyms, abbreviations or Initialisms. There is also the online database called AcronymFinder (http://www.AcronymFinder.com/ ) that has access to over 355,000 abbreviations, acronyms and Initialisms (the International Olympic Committee was ranked first of the over 40 listings found when searching for ***ioc*** in this source).

Other websites provide a source for sport-related organizations, for example; Scholarly Sport Sites: Associations section (http://www.ucalgary.ca/library/ssportsite/assoc.html) where acronyms are included after each organization's title.

Conclusion
Depending on the needs of the researcher, searching the metasearch engines is a quick way to find most acronyms, however the print sources, while less comprehensive for sport sciences does provide more information on the source. If only one print source were to be purchased either the *AIAD* or the *IAIAD* are recommended.

**Annotated Bibliography of Sources**

**Yearbook of International Organizations**

- Recent editions carry the subtitle: Guide to Global Civil Societies
- Munich: K.G. Saur Verlag & Co. (http://www.saur.de/) for the Union of International Associations (http://www.uia.org/ )
- Annual, Latest edition available, 40th ed. 2003/2004, 5 volumes
- Cost: print edition approx. $2900 USD (2428 EUR); One year online subscription: $2700 USD (2243 EUR); CD ROM edition approximately the same as the online edition. Vols 1A &1B can be purchased for $ (682 EUR)
- **Description**: Contains information on over 40,000 international organizations giving the founding date, aims, finance, activities, publications, member countries, consultative status and NGO relations (non-governmental organizations). Some entries for complex organizations, e.g. ICSSPE, run a half page. The first two volumes of this set lists the organizations with acronyms interspersed alphabetically. The other volumes include: Volume 2, International Organization Participation: Country Directory of Secretariats and Membership; Volume 3 the Global Action Networks: Classified Directory by Subject and Region, Vol 4, International Organizations Bibliography and Resources; Vol. 5 Statistics, Visualizations and Patterns.

**Acronyms, Initialisms & Abbreviations Dictionary (AIAD)**
**International Acronyms, Initialisms & Abbreviations Dictionary (IAIAD)**
**Reverse International Acronyms, Initialisms & Abbreviations Dictionary (RIAIAD)**

- Detroit, Mich: Gale Research Co. (http://www.galegroup.com)
- Latest editions,
    - AIAS, 34th Nov 2004, 3 vols, ca 3343 pages, Cost: $895 USD
    - RIAIAD, 5th Edition, November 2000, 1,400 pages, Cost: $250 USD
    - IAIAD, 5th Edition, November 2000, 1,400 pages, Cost: $260 USD
- **Description**: AIAD covers acronyms and abbreviations mainly from the United States with a strong representation from Canada and the UK. IAIAD covers over 150,000 items from international sources in many languages. The scope of both publications includes everything from automotive to weaponry, that is, the humanities, social sciences, science, medicine and technology. IAIAD draws also from acronym dictionaries from other countries including specialized directories on the military, commercial, legal, scientific fields and sources including the International Research Centers Directory, The Europa Yearbooks (political handbooks) and the CBD Research directories.

**World Guide to Abbreviations of Organizations**

- London/NY: Blackie Academic & Professional, Distributed by Gale Research
- Latest edition 11th Edition 1997 (forthcoming, 12th ed, March 2005), 1149 pages
- Cost: $190 USD
- **Description**: Lists abbreviations for over 68,000 international, national, governmental and individual organizations. The 11th edition emphasized updates of the Eastern Europe, British and Australian sources. Covers all disciplines and

especially mentions recreation, medicine, science and technology. Formerly called Buttress's World Guide to Abbreviations of Organizations.

American Psychological Association
***Publication Manual*,** 4th edition, Washington, D.C: APA, 1994. http://www.apa.org/
In sections 3.20 to 3.29 the use of abbreviations in papers is outlined

Jablonski, Stanley.
***Dictionary of Medical Acronyms and Abbreviations***, 4th ed.
Philadelphia: Hanley & Belfus, 2001.
440 pages, Cost: $USD 20 in print format: $USD 20 in online format

Mattia, Fioretta Benedetto.
***Elsevier's Dictionary of Acronyms, Initialisms, Abbreviations and Symbols***, 2nd ed. revised
Amsterdam/London: Elsevier, 2003
744 pages, Cost: USD $175 (http://www.elsevier.com/ )

- **Description**: Contains approximately 30,000 acronyms, initialisms, abbreviations and symbols covering approximately 2,000 subject fields and subfields in the sciences, medicine, technology from US, European community, Japanese and international programs/projects/initiatives from the year 2000 to 2010 as well as World Bank programs.

***Stedman's Abbreviations, Acronyms & Symbols***, 3rd. ed.
Baltimore, Md: Lippincott Williams & Wilkins, 2003
1050 pages, Cost: $ USD $39 print format, $USD 43 for CD format of 3rd ed. 2004, http://www.lww.com/

**Brief Bibliographic Information on Other Sources Mentioned**

AcronymFinder (http://www.AcronymFinder.com/ )

***Europa World Year Book*** *(Europa World Online)*
Annual, in print or online, http://www.europaworld.com/

- Has detailed surveys over 250 countries and territories and 1650 international organizations.

***Research Centers Directory*,** 32th ed., 2004 (Sept)
Detroit: Gale Research ( http://www.galegroup.com/ ), Cost: USD $690

- Covers over 14,000 university based and other nonprofit research facilities in the US and Canada.

***International Research Centers Directory***, 18th Edition, 2004 (Nov)
Detroit: Gale Research ( http://www.galegroup.com/ ), Cost: USD $605

- Covers over 9,700 non-US research organizations in approximately 145 countries.

- Note: The publication, *New Research Centers* is, an inter-edition update accompanies the subscription to these directories and usually includes over 800 new research centers.

***Periodical Title Abbreviations***, 15th ed. 2004 (Dec) 2 vols.
Detroit: Gale Research, USD $275 ( http://www.galegroup.com/ ),

- Has over 145,000 different abbreviations for various periodical title abbreviations found in the literature.

CBD Research Directories (http://www.cbdresearch.com/ ) including

- ***Directory of European Professional & Learned Societies,*** 6th ed. 2004, GBP 148
- ***Directory of British Associations,*** 16th ed, 2002, GBP 180

Gretchen Ghent
Librarian Emeritus
VP for North America and Publications Officer, International Association for Sport Information
Chair, North American Sport Library Network
C/o The University of Calgary Law Library
2500 University Dr. NW, Calgary, Alberta, Canada T2N 1N4
Tel: 403-220-6907 FAX: 403-282-6837
Email: gghent@ucalgary.ca

**Selected Talent Identification Resources**
*Darlene A. Kluka, USA*

Balyi, I., Hamilton, A. (2004). Long-term athlete development: Trainability in childhood and adolescence. *Olympic Coach, 16*(1), 4-9.

Bloom, B. S. (1985). *Developing talent in the young.* New York, NY: Ballentine.

Borms, J. (1996). *Early identification of athletic talent.* Keynote address to the International Pre-Olympic Scientific Congress, Dallas, USA.

Brown, J. (2001). *Sports talent: How to identify and develop outstanding athletes.* Champaign, IL: Human Kinetics.

Carter, J. E. L. (1985). Morphological factors limiting human performance, in *Limits of Human Performance* (eds D. Clarke and H. M. Eckert) pp. 106-117. American Academy of Physical Education Papers No. 18, Champaign, IL: Human Kinetics.

Durand-Bush, N. & Samela, J. H. (2001). The development of talent in sport, in *A Handbook of Research on Sports Psychology,* 2nd ed (Singer, R., Hausenblas, C., & Jannelle, C. J., eds.). New York, NY: Macmillan.

Kluka, D. (2003). Talent identification: What makes a volleyball champion and can it be predicted? *Volleyball USA, 31*(1), 36-38.

Kluka, D. (2003). Performance-based, long-term athlete development and assessment. *Volleyball USA, 31*(2), 34-39.

Matsudo, V., Rivet, R. E. & Pereira, M. (1987). Standard score assessment on physique and performance of Brazilian athletes in a six tiered competitive sports model. *Journal of Sports Sciences,* 5, 49-53.

Reeser, J. & Bahr, R. (Eds.). *Handbook of sports medicine and science: Volleyball*. London, UK: Blackwell Sciences, Ltd.

Reilly, T. & Williams, A. M. (Eds.). (2003). 2nd ed. *Science and soccer.* London, UK: Routledge.

Rutten, A. & Ziemainz, H. (in progress). Looking to the future: Analysis of talent identification and development systems in different countries.

Spitzer, G. (2000). *Doping in der DDR: Ein historischer Uberblick zu einer konspirativen Praxis.* Koln, Germany: Bundesinstitut fur Sportwissenschaft.

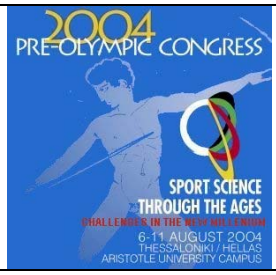
Starkes, J. L., & Ericsson, K. A. (2003). *Expert performance in sports: Advances in research in sport expertise.* Champaign, IL: Human Kinetics.

Vickers, J. (2003). *Decision training: A new approach to coaching.* Calgary: CABC.

Williams, A. M., Davids, K. & Williams, J. G. (1999). *Visual perception and action in sport.* London, UK: E & FN Spon.

Darlene A. Kluka, Ph. D.
USA Volleyball Sports Medicine & Performance Commission
Grambling State University of Louisiana
ICSSPE President's Committee
(darlene.kluka@usav.org)

International Association for Sports Information
**Pre-Olympic Congress, Thessaloniki, Greece**
**August 6-11, 2004**




# IASI Cyber Café Information Guide

## Sport History & Philosophy

## ----------Databases----------

**America: History and Life (AHL) & Historical Abstracts (HA)**
http://www.abc-clio.com
AHL is the database for US and Canadian history covering articles, books and dissertations on topics from prehistoric times to the present. HA indexes periodical articles, books and dissertations with topics from the year 1450 to the present for countries outside North America. ABC-CLIO scans over 1700 journals published worldwide with over 20,000 abstracts added annually to HA and 16,000 to AHL. Fulltext links for AHL/HA are available to articles and books reviews from JSTOR (fulltext journal service), ProjectMUSE, History Cooperative, H-Net, Oxford University Press online journals. Sport history topics are well represented in this source, although both indexes are many months behind in indexing current journals.

**Philosopher's Index**
http://www.philinfo.org/
Updated quarterly this online database indexes over 550 journals from 40 countries and includes books, anthologies and periodical articles from 1940 to date. Topics include a full range of social sciences and humanities subject areas with emphasis on ethics, aesthetics, social and political philosophy. The search term, sport can be combined (and'd) with value, ethics, moralism, ideology, paternalism, competition and many other terms to find specific citations.

**SPORTDiscus**

Updated monthly, SPORTDiscus contains over 650,000 records (from 1830 to date), to periodical articles, books, book chapters and essays, conference papers, reports, videotapes and URLs to fulltext documents/sources. Subject coverage includes all aspects of sports sciences, physical education, health and recreation. Each record is assigned a level of difficulty: A) advanced (scientific research), (I) intermediate (based on scientific research but easier to understand), and (B) basic (popular and easy to read).

The University of Oregon, Kinesiology Publications records from 1949 to date are included along with the sociology of sport records from the discontinued SIRLS database, other projects, and from the major indexing partner, the Australia National Sport Information Centre, 1987 to date. Other databases incorporated into the SPORTDiscus database include:

- ***Héraclès***, the French database produced by the INSEP in Paris, http://www.sportdoc.unicaen.fr/heracles/
- the *Catalogue du Musee Olympique*, Lausanne, Switzerland http://www.olympic.org/uk/passion/studies/index_uk.asp
- **Amateur Athletic Foundation of Los Angeles** online catalogue http://www.aafla.org/
- *Atlantes*, the Spanish language sport database
- For SPORTDiscus subscription information see http://www.sirc.ca/products/sportdiscus.cfm
- http://www.sirc.ca/products/sportdiscus.cfm

**Searching Tips:**
Many sport history and philosophy subject descriptors are used in SPORTDiscus. See the SIRCThesaurus (included with the subscription to SPORTDiscus) for the many descriptors under the major subjects, e.g.

- HISTORY and note the narrower terms (NT), ANTIQUITY, MIDDLE AGES, THIRD REICH, PRE-HISTORY, RENAISSANCE, and the related terms e.g. PRIMITIVE SOCIETY.
- Also note the use of time period designations that focus a search to a more specific date range, e.g. 1800H or 1900H, the century designation, or 1890D or 1840D for a decade.
- PHILOSOPHY, and note the narrower terms (NT) AESTHETICS, HUMANISIM, IDEALISM,

- ETHICS, with narrower terms, HONESTY, VALUES, and related terms, INTEGRITY, MORAL DEVELOPMENT

For other search protocols see the Basic Search Guide to SPORTDiscus on EBSCOHost at: http://www.iasi.org/guides/index.html

## ----------Selected Bibliographies----------


- Arbena, Joseph. *An annotated bibliography of Latin American sport: pre-conquest to the present*. NY: Greenwood Press, 1989
- Cox, Richard William. *British sport: a bibliography to 2000*. London/Portland: Frank Cass, 2003. 3 vols
- Crowther, Nigel B. Studies in Greek athletics, Pt 1 and 2, *Classical World*, v78, No5, May/June 1985, pp.497-558 and v79, no2, Nov/Dec 1985, pp.73-135
- Henderson, Robert W. *Early American sport: a checklist of books by American and foreign authors published in America prior to 1860*…3rd ed. Rev. Rutherford: Fairleigh Dickinson University Press, 1977
- Miller, Stephen G. *Arete: Greek Sports from Ancient Sources*. 2nd and expanded ed. Berkeley, Calif: University of California Press, 1991.
- Remley, Mary L. *Women in sport: an annotated bibliography and resource guide, 1900-1990*. Boston: G.K. Hall, 1991
- Scanlon, Thomas F. *Greek and Roman athletics: a bibliography*. Chicago: Ares, 1984


## ----------Selected Web Resources----------

Ancient Olympic Games Virtual Museum (Dartmouth College)
http://minbar.cs.dartmouth.edu/greecom/olympics/
Amateur Athletic Foundation of Los Angeles Virtual Library, http://www.aafla.org/
British Society of Sports History World Wide Web Service and Sports History Gateway
http://www2.umist.ac.uk/sport/index2.html
Centre d'Estudis Olímpics i de l'Esport, Universitat Autònoma de Barcelona
http://olympicstudies.uab.es/eng/index.html
Olympic Studies, University of Technology, Sydney http://www.business.uts.edu.au/olympic/
Resource Guide in Philosophy of Sport (Learning and Teaching Support Network, UK),
http://www.hlst.ltsn.ac.uk/resources/philosophy.html
Resource Guide in Sports History (Learning and Teaching Support Network, UK),
http://www.hlst.ltsn.ac.uk/resources/sports_history.html
The Sporting News: The Vault http://www.sportingnews.com/archives/map.html
Todd-McLean Physical Culture Collection http://www.edb.utexas.edu/todd-mclean/index.htm

## ----------Key Organizations----------

**Australian Society for Sports History (ASSH)** http://www.sporthistory.org/
**British Philosophy of Sport Association** http://www.philosophyofsport.org.uk/
**British Society of Sports History (BSSH)** http://www2.umist.ac.uk/sport/index2.html
**European Committee for Sport History / Comité Europeo de Historia del Deporte (CESH)**
http://www.cesh.info/
**International Association for the Philosophy of Sport (IAPS)** http://www.iaps.net/
**International Society for the History of Physical Education and Sport (ISHPES)**
http://www2.umist.ac.uk/sport/ishpes.html
**International Society of Olympic Historians** http://www.olykamp.org/isoh/
**North American Society for Sport History (NASSH)** http://nassh.org/
**Societe Francais d'histoire du sport** (no website )

## ----------Key Serials----------

**European Sports History Review** (Frank Cass Publishers)
**International Journal of the History of Sport** (Frank Cass Publishers)
**Journal of Olympic History** (International Society of Olympic Historians)
**Journal of Sport History** (North American Society for Sport History)
**Journal of the Philosophy of Sport** (Human Kinetics Publishers)
**Nikephoros: Zeitschrift fur Sport und Kultur im Altertum** (Weidmannsche Verlagsbuchhandlung GmbH)
**Nine: a Journal of Baseball History and Social Policy Perspectives** (University of Nebraska Press)
**Olympika: the International Journal of Olympic Studies** (University of Western Ontario. Centre for Olympic Studies)
**Sport History Review** (Human Kinetics Publishers)
**Sporting Traditions** (Australian Society for Sport History)
**Sport in History** (formerly The Sports Historian) (British Society for Sports History)
**Stadion** (E.J. Brill)



## IASI Cyber Café Information Guide

# Sport Sociology

**Core Resources**

## ----------Databases----------

### SPORTDiscus

Updated monthly, SPORTDiscus contains over 650,000 records (from 1830 to date), to periodical articles, books, book chapters and essays, conference papers, reports, videotapes and URLs to fulltext documents/sources. Subject coverage includes all aspects of sports sciences, physical education, health and recreation. Each record is assigned a level of difficulty: A) advanced (scientific research), (I) intermediate (based on scientific research but easier to understand), and (B) basic (popular and easy to read).

The University of Oregon, Kinesiology Publications records from 1949 to date are included along with the sociology of sport records from the discontinued SIRLS database, other projects, and from the major indexing partner, the Australia National Sport Information Centre, 1987 to date. Other databases incorporated into the SPORTDiscus database include:

- ***Héracl*ès**, the French database produced by the INSEP in Paris, http://www.sportdoc.unicaen.fr/heracles/
- the *Catalogue du Musee Olympique*, Lausanne, Switzerland http://www.olympic.org/uk/passion/studies/index_uk.asp
- Amateur Athletic Foundation of Los Angeles online catalogue http://www.aafla.org/
- *Atlantes*, the Spanish language sport database

For SPORTDiscus subscription information see http://www.sirc.ca/products/sportdiscus.cfm

**Searching Tips:**
Sport sociology subject descriptors are well represented in SPORTDiscus. See the SIRCThesaurus (included with the subscription to SPORTDiscus) for the many descriptors under the word(s)

- SOCIAL (SOCIAL INTERACTION, SOCIAL LOAFING, SOCIAL ISOLATION, SOCIAL CHANGE, SOCIAL CLASS, SOCIAL STRATIFICATION) or
- DISCRIMINATION, ETHNIC GROUP, ALIENATION, SOCIOCULTURAL FACTOR, MINORITY GROUP, PREJUDICE, VALUES, RESPONSIBILITY, LIFESTYLE, VERBAL COMMUNICATION, MEDIA COVERAGE, RACIAL RELATIONS, SOCIALLY DISADVANTAGED, et al.

Free text searching (searching for unique words anywhere in the record) can be used to find tests not listed in the SIRCThesaurus, e.g. Athletic Life Experiences Survey.
For other search protocols see the Basic Search Guide to SPORTDiscus on EBSCOHost at: http://www.iasi.org/guides/index.html

## Héraclès

Website: http://www.sportdoc.unicaen.fr/heracles/

A database of mainly French language sport and sport sciences sources, Héraclès has 14 contributors to the database with the INSEP Library the major indexing partner. The database contains over 100,000 records with an annual input of approximately 5,000 records. Topics include sport sciences, physical education, et al. The database focuses on national and international periodical articles (from approx 800 periodical titles), conference proceedings and AV material in French.

## SPOLIT / SPOFOR / SPOMEDIA

http://www.bisp-datenbanken.de/index.html

Produced by BISp, the Bundesinstitut for Sportwissenschaft (Federal Institute of Sport Science) this mainly German language sport sciences database is freely available via the BISp website. This database has over 140,000 advanced-level records (40,000 on sports medicine) from 1970 to date. Includes citations to periodical articles, books, dissertations, and conference papers. Approximately 85% of the records are in German or English. The database is updated monthly.

## Sportlit

http://www.sasc.org.za/

Produced by the South African Sports Commission's Documentation Centre, this freely available online database contains over 22,000 records, from 1997 to date of mainly periodical articles. Also includes books, information booklets, and video material. Topics include sports sciences, physical education and recreation

## CSA Sociological Abstracts

http://www.csa.com/csa/factsheets/socioabs.shtml

Updated monthly, SA indexes and abstracts the international literature in sociology and related disciplines. Draws from over 1,700 serials, and also provides abstracts to books, book chapter, dissertations, and conference papers. The database has over 600,000 records (as of May 2003) with 2500 records added each month.

# ----------Web Resources----------

**Australian Sports Commission. Sport Information: Topics** http://www.ausport.gov.au/info/topics.htm
See topics, e.g. Children in sport, Indigenous Sport, Violence in sport, Women in sport
**Feminist Majority Foundation. Gateway – Sports** http://www.feminist.org/gateway/feministgateway-results.asp?category1=sports
**Gender Equity in Sports (U. of Iowa)** http://bailiwick.lib.uiowa.edu/ge/
**Gender, Sport and Society Forum** http://www.gssf.co.nr/
**Resource Guide in Leisure in Comparative Sport Studies (Learning and Teaching Support Network UK)** http://www.hlst.ltsn.ac.uk/resources/comparative.html
**Resource Guide in Leisure in Society (Learning and Teaching Support Network UK)** http://www.hlst.ltsn.ac.uk/resources/leisure_society.html
**Scholarly Sport Sites: a Subject Directory** http://www.ucalgary.ca/library/ssportsite/
**SIRC: Online Resources** http://www.sirc.ca/online_resources/sportquest_resources.cfm
**SocioSite: Leisure – Recreation – Sport** http://www2.fmg.uva.nl/sociosite/topics/leisure.html
**SocioSite: Culture – Sport** http://www2.fmg.uva.nl/sociosite/topics/culture.html

# ----------Key Organizations----------

**Asociacion Espanola de Investigacion Social Aplicada al Deporte (AEISAD)** http://www.udl.es/rectorat/vi/aeisad/index.htm
**Australian and New Zealand Association for Leisure Studies (ANZALS)** http://www.staff.vu.edu.au/anzals/
**Canadian Association for Leisure Studies** http://www.eas.ualberta.ca/elj/cals/home.htm
**European Association for Sociology of Sport (EASS)** http://www.univie.ac.at/eass/
**International Committee For Fair Play / Comité International pour le Fair Play** http://www.fairplayinternational.org/
**International Sociology of Sport Association (ISSA/AISS)** http://u2.u-strasbg.fr/issa/

**International Sport and Culture Association (ISCA**) http://www.isca-web.org/

**International Working Group on Women and Sport / Groupe de Travail International sur les Femmes et le Sport IWG/GTI)** http://www.iwg-gti.org/
**Japan Society of Sport Sociology** http://sport.kyokyo-u.ac.jp/jsss/jsssehp.htm
**Korean Society for the Sociology of Sport,** http://www.ksss.org/
**Leisure Studies Association (UK)** http://www.leisure-studies-association.info/LSAWEB/Index.html
**National Association of Women and Girls in Sport** http://www.aahperd.org/nagws/template.cfm
**North American Society for the Sociology of Sport / Societe Nord-Americaine de Sociologie du Sport (NASSS)** http://www.nasss.org/

**Research Committee on Sociology of Sport (Section RC27 of the International Sociological Association** http://www.ucm.es/info/isa/rc27.htm
**Société Sociologie du Sport de langue francaise** http://www.3slf.fr.fm/
**Women's Sports Foundation (NY)** http://www.womenssportsfoundation.org/
**WomenSport International (WSI)** http://www.sportsbiz.bz/womensportinternational/
**World Leisure and Recreation Association (WRLA)** http://www.worldleisure.org/

## ----------Key Serials----------

**Annals of Leisure Research** (ANZALS)
**Culture, Sport, Society** (Frank Cass)
**Football Studies** (International Society of Football Scholars)
**International Review for the Sociology of Sport** (Sage Publications)
**Japan Journal of Sport Sociology** (Japan Society for Sport Sociology)
**Journal of Sport and Social Issues** (Sage Publications)
**Leisure/Loisir, Journal of the Canadian Association for Leisure Studies** (CALS)
**Leisure Sciences** (Taylor and Francis)
**Leisure Studies** (Taylor and Francis)
**Loisir et société/Society and Leisure** (Presses de l'Université du Québec)
**Nanjing ti yu xue yuan xue bao: She hui ke xue ban** (Journal of Nanjing Institute of Physical Education; Social science.
**Psychology and Sociology of Sport** (AMS Press)
**Soccer and Society** (Frank Cass)
**SOSOL: Sociology of Sport Online** http://physed.otago.ac.nz/sosol/contents.htm
**Sociology of Sport Journal** (Human Kinetics)
**Women in Sport and Physical Activity Journal** (NAGWS)
**World Leisure Journal** (WLRA)