Coaching Children and Young Athletes – Preserving and Encouraging Children to Engage in Sport

Challenges and Solutions

Bilateral German-Israeli Symposium
Tel Aviv, 2016, November 22nd-23rd
German Standing in Elite Sport: Always worse!? 


<table>
<thead>
<tr>
<th>Year</th>
<th>BRD</th>
<th>GDR</th>
<th>GER</th>
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<td>2012</td>
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</tbody>
</table>
CHALLENGES
CHALLENGES

- [1] Early Recruiting
- [2] Binding in Sport
- [4] Supporting in School

SOLUTIONS

- [1] Early Screening
- [2] Forming the Personality
- [3] Educating the Athlete
- [4] Counseling the Athlete
Challenge # 1 – Early Recruiting & Training Initiation

Rowing – A (n = 42)
Rowing – C (n = 170)

Weightlifting – A (n = 9)
Weightlifting – C (n = 49)

Boxing – A (n = 26)
Boxing – C (n = 52)

Tabletennis – A (n = 14)
Tabletennis – C (n = 71)

Trampoline – A (n = 23)
Trampoline – C (n = 24)

Basketball – A (n = 28)
Basketball – C (n = 175)

Judo – A (n = 13)
Judo – C (n = 22)

Icehockey – A (n = 9)
Icehockey – C (n = 79)

(Guellich et al., 2006)
Challenge #1 – Early Recruiting & Training Initiation

**Developmental Model of Sport Participation (DMSP); Cotè, Baker & Abernethy, 2007**

- **Leisure sport**
  - High amount of Deliberate Play
  - Low amount of Deliberate Practice
- **Elite sport**
  - High amount of Deliberate Practice in 1 sport
  - Low amount of Deliberate Play
- **Specializing years**
  - Deliberate Practice and Play
  - Reduction of engagement in different sports
- **Sampling Years**
  - High amount of Deliberate Play
  - Low amount of Deliberate Practice
  - Sampling of different sports

**Early Specialization and Investment**
- High amount of Deliberate Practice in 1 sport
- Low amount of Deliberate Play
- Reduction of engagement in different sports

- **Peak Performance by early specialization**

**Drop out**

6-11 Years

12-17 Years

> 18
Challenge # 1 –
Early Recruiting & Training Initiation

Youth development structure in German football
(conducted by the German Football Association, DFB)

Step 4 Top-level football
(18 YEARS PLUS)

Step 3 Elite promotion
(15-20 YEARS)

Step 2 Talent development
(11-18 YEARS)

Step 1 Basic training
(3-10 YEARS)

350 Province team players

e.g. U12 (top 4% out of ≈ 150,000 club players):
≈ 5000 players at 366 DFB competence centers
≈ 800 players at 51 youth academies

(simplified after DFB, 2014)
CHALLENGES

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Challenge # 2 – Binding of the Youngsters

Motivating

Commitment

Professional

Beginning

Counseling

Sampling Years
(7-12 yrs)

Specializing Years
(13-15 yrs)

Investment Years
(16-17 yrs)

Maintenance & Perfection Years
(≥ 18 yrs)

• Coach as Friend
• Local success

• Coach as Instructor
• First national success

• Coach as Advisor
• International success

(Developmental Model of Sport Participation (DMSP); Cotè et al., 1994)
Challenge # 2 – Binding of the Youngsters

(Lames et al., 2009)
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Challenge # 3 – Motivating for Training

Conzelmann et al.; 2014 in press
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SOLUTIONS
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Solution #1
Early Talent Screening and Talent Orientation
## German Motor Test 6-18 plus 3 Tests

<table>
<thead>
<tr>
<th>Motor Tests</th>
<th>Motor Abilities</th>
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<tbody>
<tr>
<td>6-Min-Run</td>
<td>Aerobic Endurance</td>
</tr>
<tr>
<td>Standing Long Jump</td>
<td>Speed Strength</td>
</tr>
<tr>
<td>Push-Ups (40 s)</td>
<td>Strength Endurance</td>
</tr>
<tr>
<td>Sit-ups (40 s)</td>
<td>Strength Endurance</td>
</tr>
<tr>
<td>20 m Sprint</td>
<td>Running Speed</td>
</tr>
<tr>
<td>Balancing (30/45/60 mm bar)</td>
<td>Coordination</td>
</tr>
<tr>
<td>Sideward Jumping (15 s)</td>
<td>Coordination</td>
</tr>
<tr>
<td>Bend and Reach</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Ball Throw (80 g)</td>
<td>Coordination/Speed</td>
</tr>
<tr>
<td>Complex Reaction Run (Buzzer-Test)</td>
<td>Strength/Technique</td>
</tr>
<tr>
<td>Handgrip Strength Test</td>
<td>Perception &amp; Coordination/Speed</td>
</tr>
</tbody>
</table>

Motor Tasks and Motor Abilities (according to Bös et al., 2009)
The Talent Screening combines Talent Development and Health Promotion
(Hohmann, Hohmann, Scheuring & Zapp, 2015)
Movement-Check
2010-2017

Talent-Check
Best 15 percent

Winners Ceremony

Health Promotion

Talent Development

10,000 Children
(2010 – 2016)

1,000 Children
(2010 – 2016)

(Hohmann, Hohmann, Scheuring & Zapp, 2015)
Solution #1
Early Talent Screening and Talent Orientation

Body Height
Body Weight
Body Mass Index

Fulda Movement-Check 2010-2017

Step 2: Talent-Check

Madeleine Keck
Solution #1
Early Talent Screening and Talent Orientation

Base Population
2010-2013

Target Population
2016

7-/8-/9-years
(U9)

11-, 12-, 13-, 14-years Olds (U12-U15)

Youth Elite

16-/17-/18-years Olds (U19)

Juniors Pool

>20-years Olds

Elite

Target Population
2024

Stage 1: Talent Screening & Talent Orientation

Stage 2: Talent Selection Talent Transfer

Stage 3: Talent Confirmation

Youth Elite Pool

Validation – Step 1

Validation – Step 2

Validation – Step 3
Solution #1: Early Talent Screening and Talent Orientation

Validation – Step 1

Base Population 2010-2013 → Target Population 2016

Movement Check 7-/8-/9-years Olds → Cadre Evaluation 11-/12-/13-years Olds

Talent Pool → Youth Elite

Stage 1: Talent Screening & Talent Orientation
Linear and Nonlinear Classification

- **Discriminant Analysis** (Cross-Validation – 11 Variables – Weighted: 39.5 Percent)
- Self-Organizing Kohonen Feature Map („Leave-one-out“-Procedure)
- Multilayer Perceptron (Holdout: 10 percent)
Solution # 1
Early Talent Screening and Talent Orientation

Linear and nonlinear Classification

- Diskriminant Analysis (Cross-Validation)
- **Self-organizing Kohonen Feature Map** („Leave-one-out“-Method)
- Multilayer Perceptron (Holdout: 10 percent)

Ritter (1990)
Solution # 1
Early Talent Screening and Talent Orientation

Kohonen Feature Map Analysis
Leave-One-Out – 11 Variables – Weighted: 28.87 Percent

All N = 284 Cases
Solution # 1
Early Talent Screening and Talent Orientation

Multilayer Perceptron Analysis
(Training 75 % – Test 15 % – Holdout 10 %)
11 Variables – Weighted: **44.66** Percent

Prospective Talent Prognosis N = 284 Cadre Athletes from Age U9 to the Age of U12-U15
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Solution # 2
Forming the Personality

(Hohmann, Voigt & Singh, 2013)
Solution # 2
Forming the Personality

Coach

Talent

Role as "Supporter"
- Logistical investment
- Financial investment
- Time investment

Top-athlete

School

Role as "Mediator"

Parents

Club

Role as "Official"

(Hohmann, Voigt & Singh, 2015)
Coach-Athlete-Relationship between Monitoring and Self-regulation

**Coach:** Monitoring, education, development

**Children**
Early forming & sport binding

**Pre-pubertal youngsters**
Creation of meaning & Self interest in training and competition

**Puberty as cross-road**
Elite sport as option & Decision making

**Athlete:** Self control, decision making

**Elite sport gate**
Peak performance training (Volition, Professionalisation)

*(Hohmann, Voigt & Singh, 2013)*
ENVIRONMENT
- Training facilities
- Local community

INTRAPERSONAL CATEGORIES

Volitional Components
- Longterm-Focus
- Internal locus of control
- Commitment & Load susceptibility
- Competitiveness

Personal Dispositions
- Talent, Giftedness, Luck
- Personal traits

INTERPERSONAL C.
- Coach-Attachment
- External Relations
- Feedback

TRAINING
- Coach-Quality
- Technique (Tactics)
- Training load

LIFESTYLE
- Unidimensional

(Johnson, Castillo, Sacks, Cavazos, Edmonds & Tenenbaum, 2008)
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Solution # 3
Educating the Athlete

Diversification: Transfer of Abilities, Optimization of Resources

Early Specialization: Technical Optimization, No waste of Resources

(Hohmann, Singh & Voigt, 2013; 2014; 2015)


(Mono-structure“ | Soccer: „Multi-structure“

„Specialized (one-sided) talent“ | Player Schweinsteiger: „Multi-Talent“

(Diversity of) Situation constraints

(Diversity of) Training contents

(Diversity of) Personal Dispositions

„High Specialization“

(Diversity of) demands

(Diversity of) dispositions

(Diversity of) solutions

(Diversity of) tasks

Lower „Training diversification“ | Higher „Training specification“

(Hohmann, Singh & Voigt, 2013; 2014)
Solution # 3
Educating the Athlete

„Mono-structure“ | Soccer: „Multi-structure“  

„Special (one-sided) Talent“ | „Multi-Talent“

(Diversity of) Situation constraints

Diversity of dispositions

High Diversification

(Diversity of) Personal Dispositions

Diversity of demands

(Diversity of) Situation constraints

Diversity of solutions

(Diversity of) Training contents

Diversity of tasks

Diversity of adaptation

Diversity of load & stress

Somewhat more „Training diversification“ | Somewhat less „Training specification“

(Hohmann, Singh & Voigt, 2013; 2014)
Solution #3
Educating the Athlete

Initial performance (up to 12 years)

- Average players
- Football abstainers
- Poly-sportive players
- Poly-sportive club players
- Specialized club players

Adult level of soccer performance

- Level 1
- Level 2
- Level 3
- Level 4

Initial performance (up to 12 years) factors:
- x1.5
- x1.4
- x2.1
- x2.0
- x−3.4 (Antitype)

(Zibung & Conzelmann, 2012)
Challenges

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Solutions

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Transactional leadership
(Burns, 1978)

Needs and motives are rewarded by the leader ("Contract")

Performans aims and rules are fulfilled by the athletes

Meaning and relevance of the common aims and ideals ("Mission")

Reliance, respect, loyalty and admirance is felt towards the leader (measurable)

Consequences
1) Higher sport performance
2) better willingness
3) better interpersonal relations
4) lower fluctuation
5) higher athlete satisfaction
6) more creativity
7) higher rate of goal achievement

Transformational leadership

Development of coach behavior

Solution # 4
Counseling the Athlete