



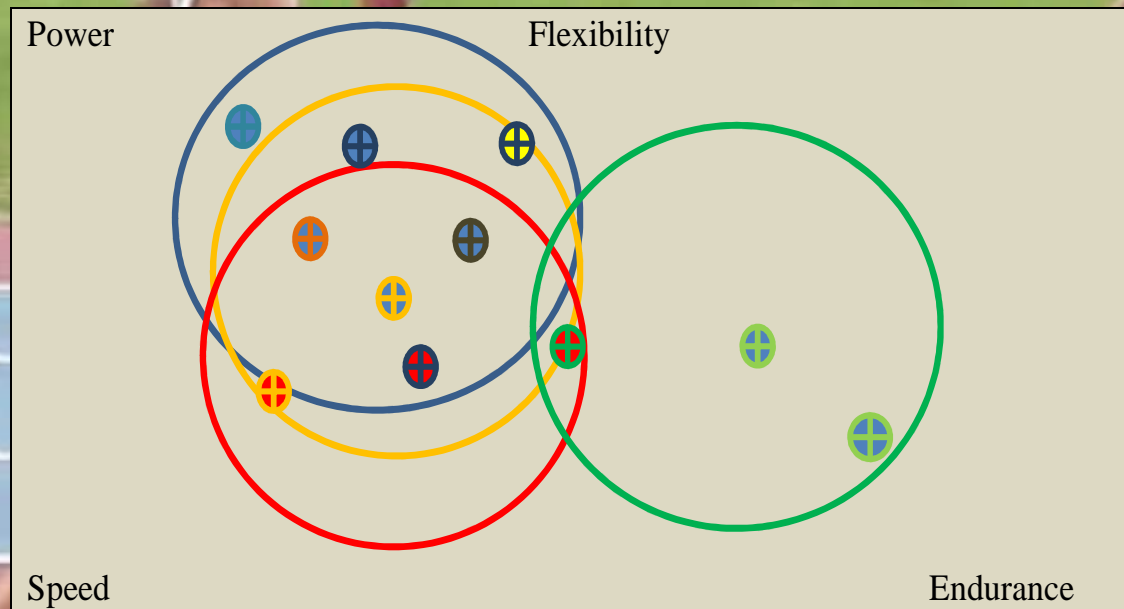
# **Identifying and Developing Talents at National Level and Models of Long Term Athlete Development**

A photograph of Alina Reh, a young woman with curly brown hair, wearing a red and blue athletic singlet. She is looking slightly to the left with a focused expression. In the background, other people are visible but out of focus. A purple rectangular box is overlaid on the top left of the image, containing her name. A grey rectangular box is overlaid on the bottom left, containing a list of her achievements.


## Alina Reh

- 2014 Silver Medalist Youth Olympic Games 3.000 m
- 2015 European Junior Champion 3. 000 + 5.000 m
- 2016 9. World Championships U20 5.000 m





2011 in regional talent scouting Alina  
Reh came in as 55th of 56 athletes  
What went wrong?

- 
- Test criteria for endurance differ a lot to all other athletic events
  - Alina Reh is a special case
    - She comes from a runners family
    - She starts running at the age of 7
    - She does a lot of basic endurance BE1



# Typical microcycles A. Reh before Silver Youth Olympics 2014 3.000 m

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
11.- 13.7.					Warm-Up Sprint-ABC, Runs: 10 x 150m ( < 23 Sek)	Warm-Up TL BA1 5 x 1030m Forest (3:30) Start all 5:30  35 Min reg DL	BE1 10 Km
14.- 20.7.	Warm-Up 15 x 300m (51 s, Start every 2 min	BE1 10 Km	Warm-Up BE2 3 x 3 x ca. 9 Min, Break 2:30 min	BE1 10 Km	Warm-Up Sprint-ABC, Sprint: 5 x 80m, 5 x 110m, 5 x 50m	Warm-Up Runs: 10 x 400 (72 s) start every 2:30 Min  35Min easy jog	BE1 10 Km
21.- 28.7.	Warm-Up GA2 4x2x1030 forest, start every 7.20 Min	free	CE 800-1000-1200- 1000-400, (2.24, 2.59, 3.37, 3.00, 65) Break 4 min+	BE1 10 Km	Warm-Up Sprint-ABC, Sprint- programm	Warm-Up Runs: 10 x 500m (92 s) Start every 3 Min	BE1 10 Km
29.-3.8.  Source: Leichtathletiktraining 8/2015		BE1 12 Km	Warm-Up Uphill: 7 x 55 s activ break 2 min	CE 500-1000 1000-500 (80,8 - 2.57 3.00 - 81,4) break 4 min+	BE1 10 Km	Warm-Up Sprint-ABC, Grass-runs	Warm-Up Runs 5 x 2.40 min start every 7.30 mi  35 Min easy jog
4.-10.8.	BE1 10 Km	BE1 10 Km	free	Warm-Up	Competition 3000 9.05,15		



# **Main training means:**

**All around training**

**General athletic developement**

**Endurance**

**Special endurance 800/1.500/3.000**

**Speed-Endurance**

**speed, hurdles**

**General and maximum power**

**Throwing strength**

**Jumping strength**

**Sprinting strength**

**Technical developement**



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4.-10.8.	BE1 10 Km	BE1 10 Km	free	Warm-Up	Competition 3000 9.05,15		



- Other runners start with a combined event training in their early youth



Konstanze Klosterhalfen one of the world best runners U20, olympic participant



# Microcycles of a female middle-distance-runner 2014/15

	Monday	Tuesday	Wednesd	Thursday	Friday	Saturday	Sunday
<b>gPP Nov 2014</b>	10 Km BE1-2 Street Gymnastics Stabi, 4 coord.. 80m	4 Km jog. Gymnast. Sprint-ABC, 2x6x150 m uphill-runs TP, 3' SP, Medball Jogging gymnastics		6 Km BE1 gymnast. Jump-ABC boundings2x4 x50 m sprints 2x150 m, Jogging gymnastic	10 Km BE1 Street	4 Km jog Gymnast. Sprint-ABC 3 coord 80m 3x1.700 m (5:50-57) jogging Stabi. + gy	5 Km BE1- DL Street gymnastics
<b>Trainig- camp Apr 2015 Morning</b>	8 Km BE1-DL (4:13/Km) Sprint-ABC Sprint: 2x4x40 m Gymn.,athl.	Jogging gymnastics Circle-Train	3 Km jog.. gymnastic Sprint-ABC, coord 15x200 uphill 2x80 m downhill	8 Km BE1- 2- DL (3:50/km) ABC, gym. bounding 10x100 m Technic	Jogging gymnasti Stabi Strength- training	3 Km jogg SprintABC gymnastic. 10x500 m (91- 93'',TP) jogging Gymnast.	12,5 Km BE1-DL (50') gymnastic
<b>afternoon</b>  Source: Leichtathletikt- raining 1/2016		Jogging, gymnastic ABC 2x4x40 m 1x4x50 m 150, 120 m Jogging	8 Km BE-DL Reg. (4:30/km) gymnastic	Basketball	Jogging Gymnastic Sprint: 2x30 m 2x40 m fl. 2x50 m f Jogging, gym.	8 Km BE-DL Reg (4:46/Km) Coord gymnastic	
<b>Comp.P Jul 2015</b>	8 Km BE-DL regenerativ	8 Km BE1-DL coord. 1x400m (62) 3x200m (29) Jog., gy., sta.		8 Km GA1-DL Coord. 4x100 m Stabi Jogging,gym.	22' Joggin Gymnastic 2 coord.	warm Up Heat 4:21 cooldown Gymnast.	Warm up Finale 4:09 min





40 % of later top athletes in Germany practiced in athletics before the age of 15

- Most of this people competed in combined events
  - Konstanze Klosterhalfen, EC U20 1.500 m
  - Gesa Krause European Champion 2016 steeple chase
    - pentathlon for runners
    - (sprint, hurdles, longjump, javelin, 2000 m)
  - Many successful throwers have been good sprinters, heptathlets or decathlets in their youth age
    - David Storl World Champion 2011 and 20013 in shot put
    - decathlon

# David Storl, 2 x WC shot put



(Lehmann, 2012)

Storl, David  
Junioren-Gala

Junioren-Weltrekord

22,34 m  
Mannheim 13.06.09

3. Versuch  
6,00 kg

IAT



# Long Time Developement Motor Learning Techniques for Combined Events (var. Korobkow)

1. Year of train.	2. Year of train	3. Year of train.	4. Year of train.	5. Year of train.
-------------------	------------------	-------------------	-------------------	-------------------

Sprint/quickness				
------------------	--	--	--	--

Spezial event				
---------------	--	--	--	--

	Hurdle sprint			
--	---------------	--	--	--

	javelin			
--	---------	--	--	--

	(pole vault)			
--	--------------	--	--	--

	longjump			
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	highjump			
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	(Discus throw)			
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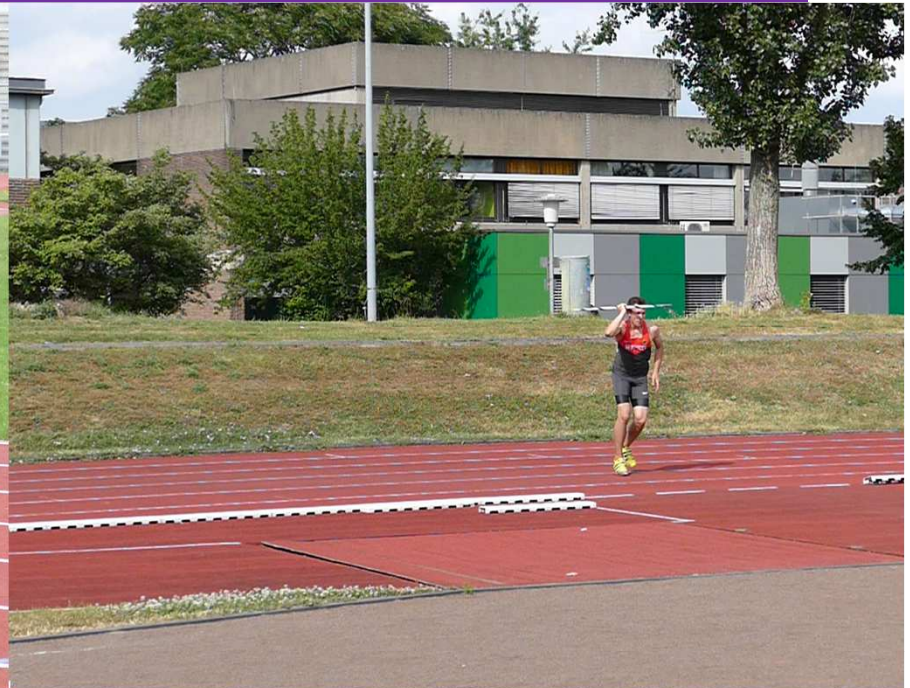
	Shot put			
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Killing et al., 2015, Jugendleichtathletik - Mehrkampf				
--	--	--	--	--

	Speed endurance
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# Technique-examples 1





# Technique-examples 2





The background image is a pixelated, low-resolution depiction of a person in a red shirt running on a track. The person is in the middle of a stride, with their right leg forward and arms pumping. The track is reddish-brown with white lane markings. In the background, there is a green field and some structures. A purple rectangular box is overlaid on the upper part of the image, containing white text.

learning all these techniques and  
using it in competition developes

- special kind of endurance and concentration
- to handle success and disappointment
- high and consistent motivation





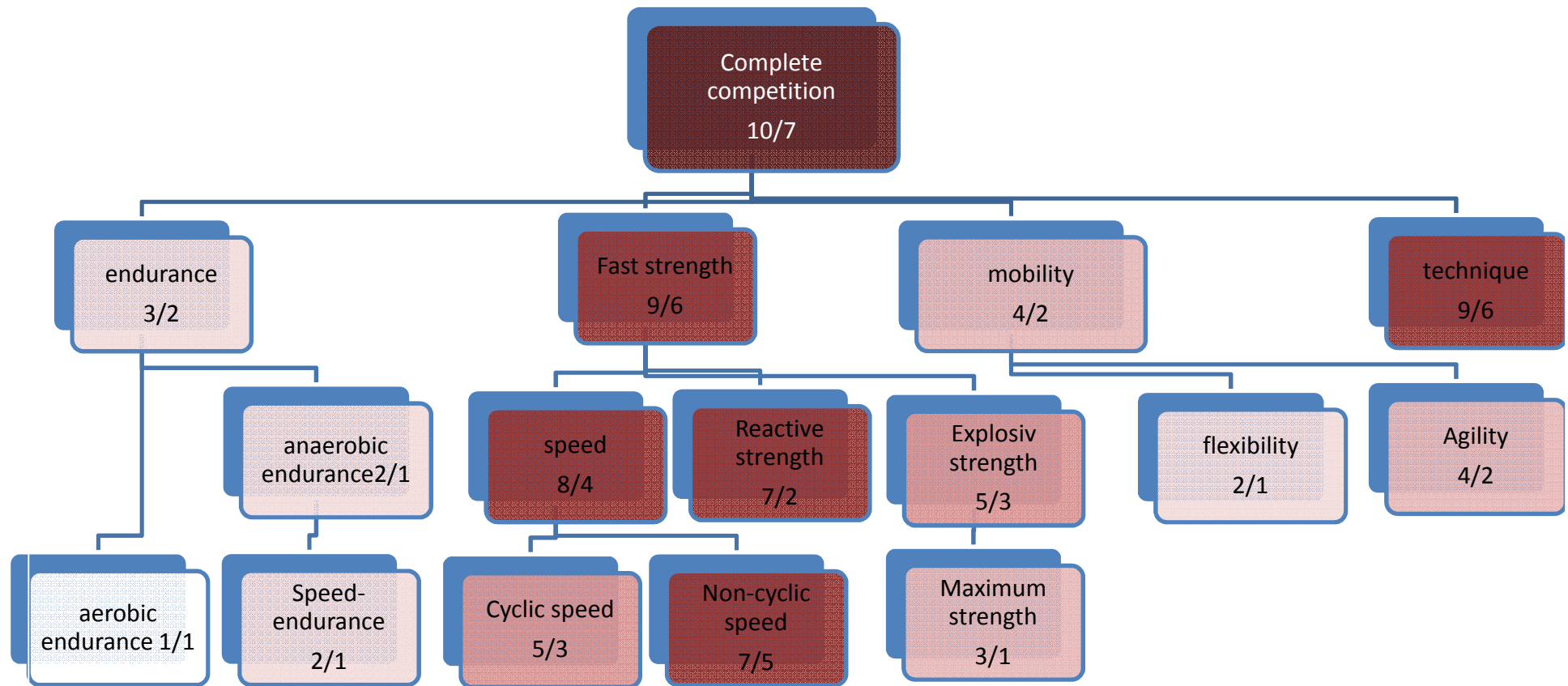
**But ....**

To do only the events/techniques of the combined events, does not fulfil all requests to become a long time good athlete

**Because ...**

- They are one-sided in a special way!
- They all prefer the fast strength of the legs

# Conditional requests of decathlon and heptathlon





A young woman with blonde hair, wearing a red long-sleeved shirt and blue leggings, is performing a sit-up on a black mat. She is wearing white socks and silver sneakers. Her legs are bent and raised in the air. In the background, another person in a red shirt is partially visible, also on a mat. The setting appears to be a gym or sports hall with a wooden floor and a wooden bench in the background.

It needs more than combined event training, to produce a serious base

... for a long time careers

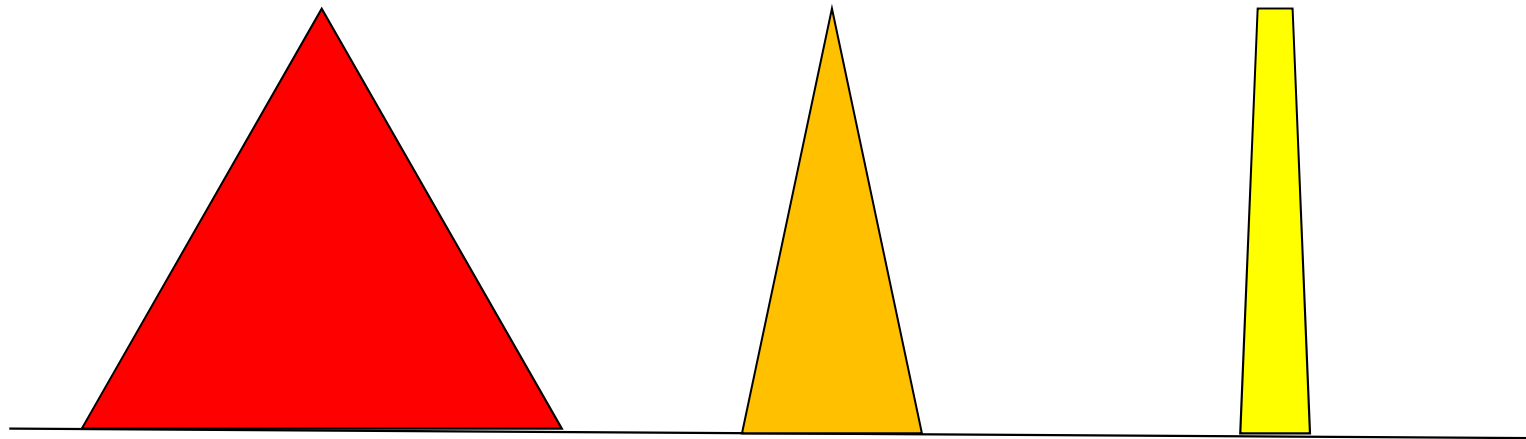
# Experiences by former athletes

- „I specified early, but it wasn't necessary. To say the truth, I got healthy problems by it and changed the coach. He started with a lot of new exercises, so I got a new stable platform“.

- „Luckily I made a wide range of motor experiences, I did different sports till 15 and in athletics I started with a multi event training till I found my final event“.

A survey with 2.400 former Top athletes confirms, that 60 % did different sports till the age of 14-16 years, then they concentrated to their final sport!  
Source: Leistungssport 2008


# Different Talent-Scouting models



Wide pyramide	Small pyramide	Elevator
Everywhere possible Spread Know-How Running, sprint	Middle position Jumps, hurdles	Special facilities and Know-How- pole, hammer,

Source: Killing, Adams, Ribbecke, Leistungssport 2008





# 60 % of later top athletes practiced in their early youth different sports

- games like football
  - Martin Buss, WC 2001 in highjump
- individual sports like acrobatics
  - Lot of German female pole vaulters
  - Martina Strutz Silver WC 2011 4,80 m
- Typical for young sportsmen in Germany to do different sports
  - Falk Wendrich (2. WC U20 2012 HJ)
    - First ballett and swimming
    - Later athletics , soccer and badminton
  - Niklas Kaul, WC U18 2015, EC U20 2016 decathlon
    - 2 times handball-training + 1 competition each weekend till 15 years
    - plus 2 times athletics

# Niklas Kaul, 83,94 m Javelin









# Training schedule U18 N. Kaul 2014/15 PP

Period	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Gen PP	<b>Warm-up (10 min jogging, gymnastics)</b> <b>60'Stabilisation-circle</b>  <b>2*5*10 ball-throws (600g) left and right</b>	<b>Warm-up</b> <b>60 min Pole-vault</b>  <b>8*300m 48-50" 3' P; 5' SP</b>	<b>Free</b>	<b>30 min Basketball</b> <b>30 min hurdle-sprint</b>  <b>30 min shot put</b> <b>20' Stabilitation</b>	<b>Warm-up</b> <b>30 min Highjump o. longjum</b>  <b>45min circletrain.</b> <b>20 min endurance run</b>	<b>Warm-up</b> <b>20 min acrobatics</b> <b>20 min hurdles-co.</b>  <b>30 min discus</b> <b>3* 1000m 3:20min 3' P; 3:10-</b>	<b>Every two weeks:</b> <b>60 min javelin (25 throws)</b>  <b>Next week: free</b>
Sp. PP	<b>Warm-up</b> <b>20 min hurdl. coordination</b> <b>30 min small boundings</b> <b>20 min endurance run</b>	<b>Warm-Up</b> <b>60 min polevault</b>  <b>Runs:</b> <b>5*120m 13,5-14,0 s 5' P;</b>	<b>Free</b>	<b>30 min Football</b>  <b>30 min hurdles</b> <b>30 min shot put</b> <b>20 min Stabilisation</b>	<b>Warm-up</b> <b>30 min Highjump o. longjum.</b>  <b>45 min Medball</b> <b>20 min endurance</b>	<b>Warm-up</b> <b>20 min acrobatics</b> <b>20 min hurdle-coordina.</b> <b>30 min discus</b> <b>3*1000 m 2:55-3:05m 3' P;</b>	<b>Every two weeks:</b> <b>60 min javelin (25 throws)</b>  <b>Next week: free</b>

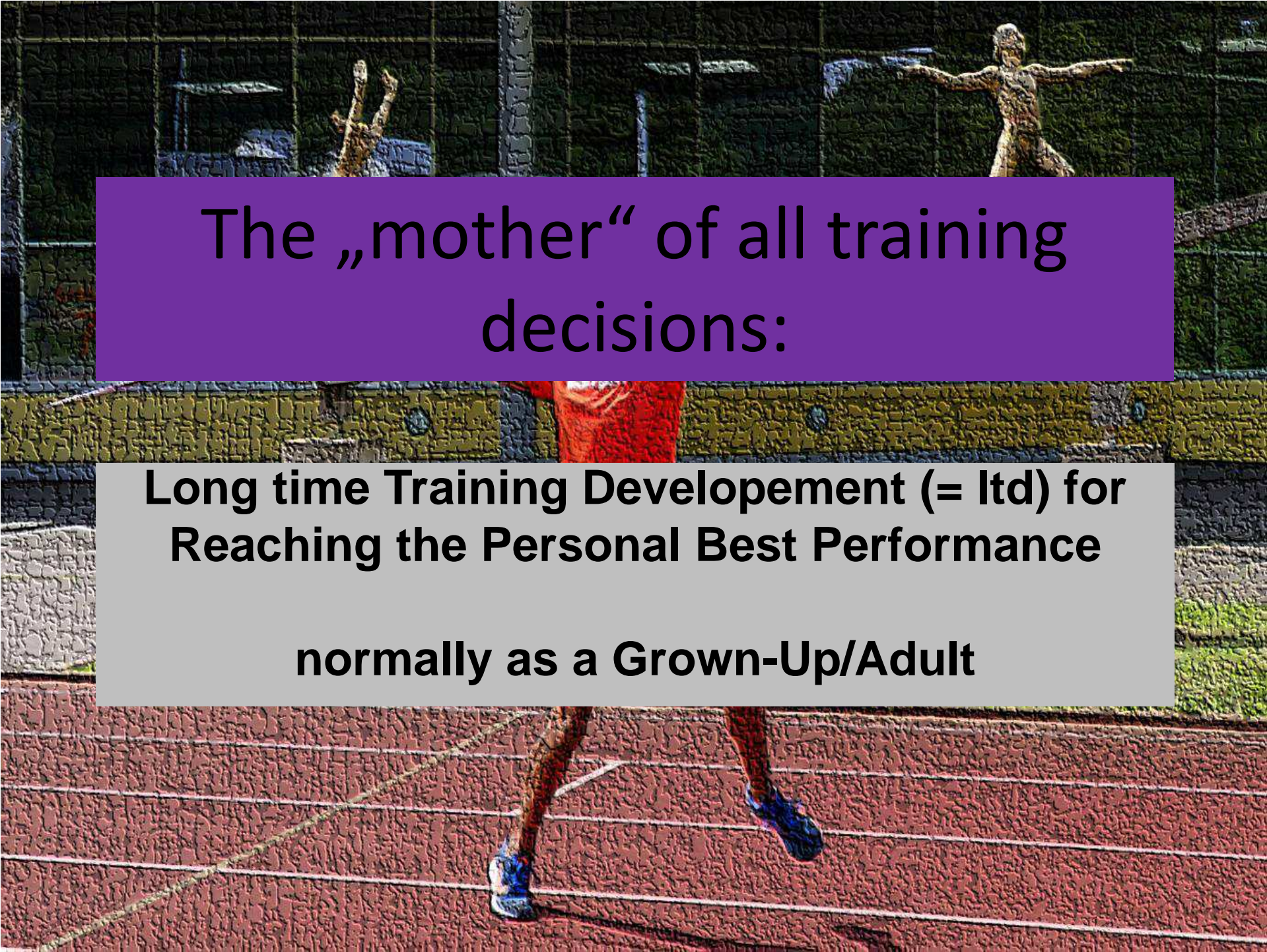
# Training schedule U18 N. Kaul 2015

## Competition period week

Monday	Tuesday	Wednes	Thursday	Friday	Saturday	Sunday
<b>Warm-up</b> <b>30 min</b> <b>highjump</b>  <b>30 min</b> <b>discus</b> <b>20 min</b> <b>endurance</b>	<b>Warm-Up</b> <b>60 min polevault</b>  <b>Runs: 60, 80,</b> <b>120m</b> <b>5' P;</b> <b>6,8s; 9,5s; 13,5s</b>	<b>free</b>	<b>Compe-</b> <b>tition pole-</b> <b>vault 4,60m</b> <b>(PB)</b>	<b>Warm-Up</b> <b>hurdles</b> <b>5*1.hurdle</b> <b>3*3. hurdle</b>  <b>30 min shot</b> <b>put</b>	<b>travel</b> <b>20 min jogging</b> <b>gymnastics</b> <b>Stabilisation</b>	<b>Competition</b> <b>javelin</b> <b>83,94m (NR</b> <b>U18)</b>





The background of the slide is a mosaic. The top section shows two figures in dynamic poses, possibly representing athletes in ancient art. The middle section shows a figure in a red garment. The bottom section shows a close-up of a person's legs running on a red track with white lane markings.

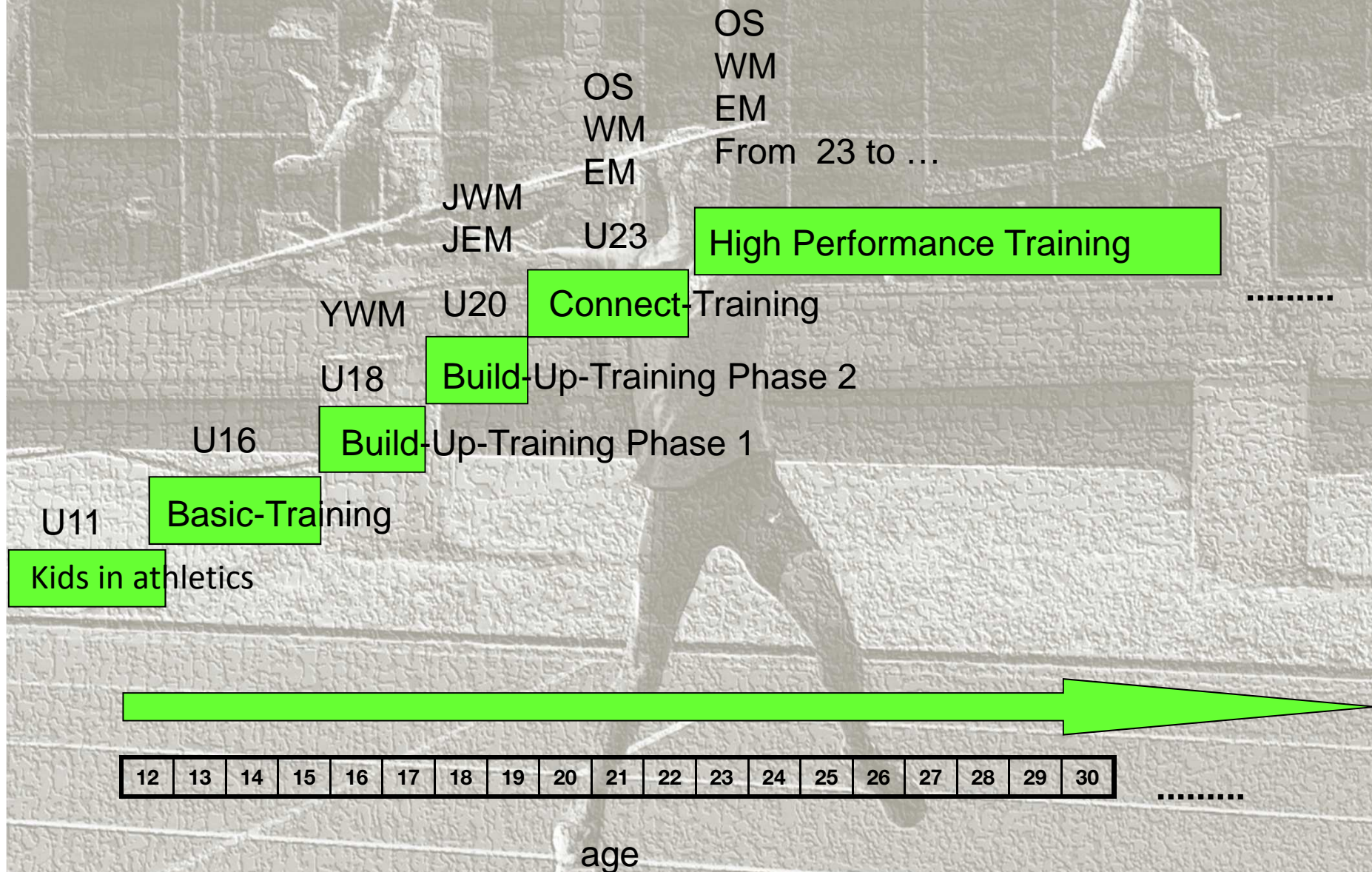
The „mother“ of all training decisions:

**Long time Training Developement (= ltd) for  
Reaching the Personal Best Performance**

**normally as a Grown-Up/Adult**



# Long time training development



# Long time training phases

- Kids-in-athletics - 11 years
- Basictraining 11-15 years
- Build-Uptraining 15-19 years
- Connecttraining 19-22 years
- High Performance Training 22- years
- Life-Time-Sport 35 - years



# Principles of periodisation:

## **By age:**

rising volume of training

Higher intensity and specificity of training

## **In the training year/macro-cycle:**

Start with high amount of general training (gPP 1.p.)

Change to high amount of basic specific training (gPP 2. p.)

Change to middle amount of specific intensive training (sPP)

Finish with small amount of specific, intensive training (CP)



# Training sessions per week basic to build-up training

- Normal school
  - 2-4 times per week
  - 1-2 sessions general training
  - 1-2 sessions technique developement

- Sport school
  - 6-8 times per week
  - 4-5 sessions general training
  - 2-3 sessions technique developement
  - 0 session specific strength, endurance, ...



## Training volume by age

Age	Units / Week	Minutes / Training-Unit	Train.-weeks / year	Training-Units / year	Hours/year
-14	3-4	60-100	40	120-150	150-250
15-17	4-6	90-120	44	160-240	240-360
18-19	5-7	90-120	46	230-300	300-500
20-22	7-8	90-150	48	275-330	400-700
23 +	7-10	90-150	48	300-350	600-800

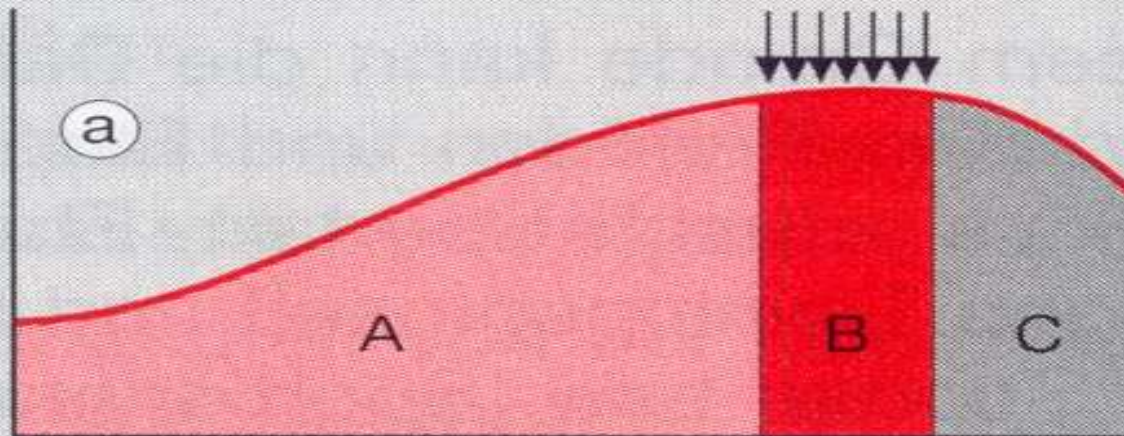


# General Training schedule combined events

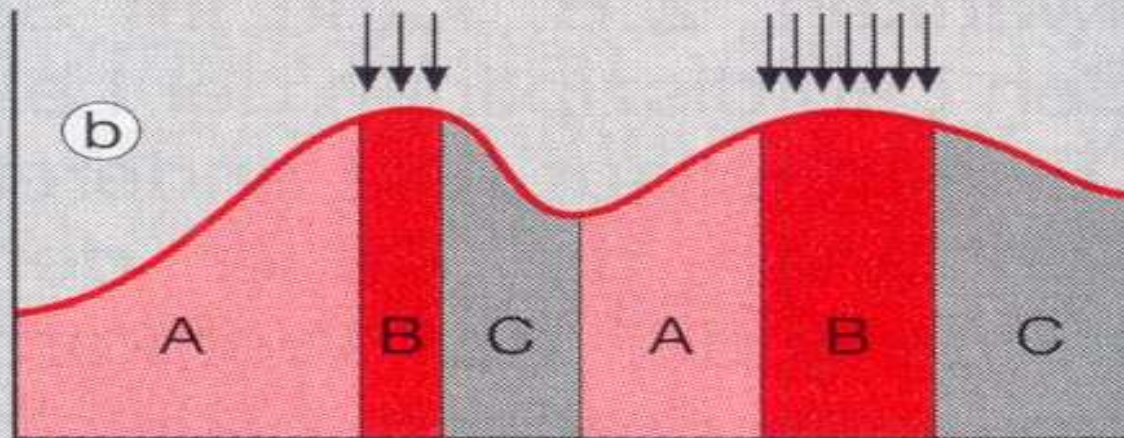
Period	U16	U18	U20	U23
gPP 1	6 TE Gen. athletics 2 TE Endurance 1 TE Speed 3 TE Techn, Train.	7 TE Gen. athletics 3 TE Endurance 1 TE Speed 4 TE Techn, Train.	9 TE Gen. athletics 4 TE Endurance 1 TE Speed 4 TE Techn, Train. 2 TE Gen. Powertr.	10 TE Gen. athletics 4 TE Endurance 2 TE Speed 4 TE Techn, Train. 4 TE Gen. Powertr.
gPP 2	4 TE Gen. athletics 1 TE Endurance 2 TE Sprint/hurdle. 5 TE Techn. Train	4 TE Gen. athletics 2 TE Endurance 2 TE Sprint/hurdle. 6 TE Techn. Train 2 TE Gen. Powertr.	5 TE Gen. athletics 3 TE End/Speeden. 3 TE Sprint/hurdle. 6 TE Techn, Train. 3 TE Gen. Powertr.	5 TE Gen. athletic 4 TE End/Speeden 3 TE Sprint/hurdle. 8 TE Techn, Train. 5 TE Gen. Powertr
sPP	3 TE Gen Athletics 1 TE Endurance 2 TE Sprint/hurdle. 7 TE Techn. Train.	3 TE Gen. athletics 2 TE Endurance 2 TE Sprint/hurdle. 7 TE Techn. Train 2 TE Gen. Powertr.	4 TE Gen. athletics 3 TE End./Speeden 2 TE Sprint/hurdle. 8 TE Techn. Train 2 TE Gen. Powertr. 1 TE Fast Powertr.	4 TE Gen. athletic 3 TE End./Speede 3 TE Sprint/hurdle. 8 TE Techn. Train 3 TE Gen. Powertr 4 TE Fast Powertr
CP	1 TE Gen Athletics 2 TE Sprint/hurdle. 3 TE Techn. Train.  Competition	1 TE Gen. athletics 1 TE Speed-End. 1 TE Sprint/hurdle. 3 TE Techn. Train  Competition	1 TE Gen. athletics 1 TE Speed-End. 1 TE Sprint/hurdle. 3 TE Techn. Train  Competition	1 TE Gen. athletic 1 TE Speed-End. 1 TE Sprint/hurdle. 3 TE Techn. Train 1 TE Powertr. Competition

## Simple or double periodisation

shape



shape

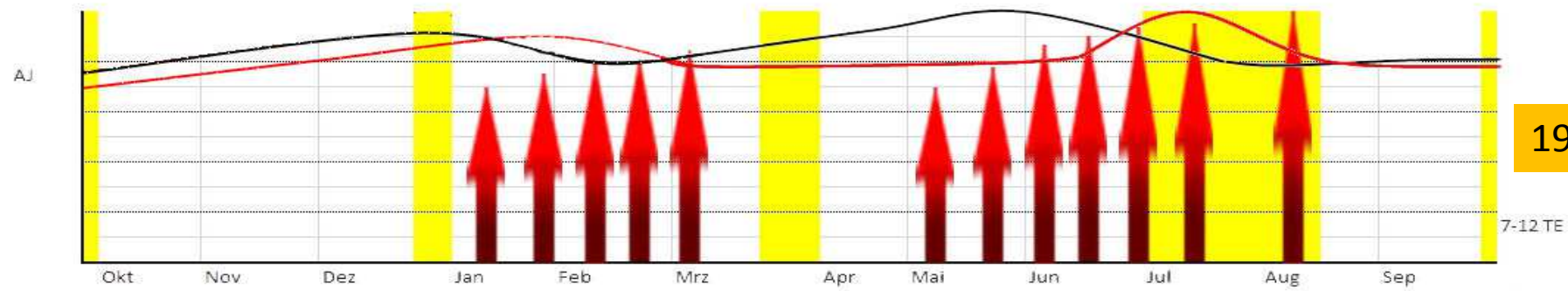




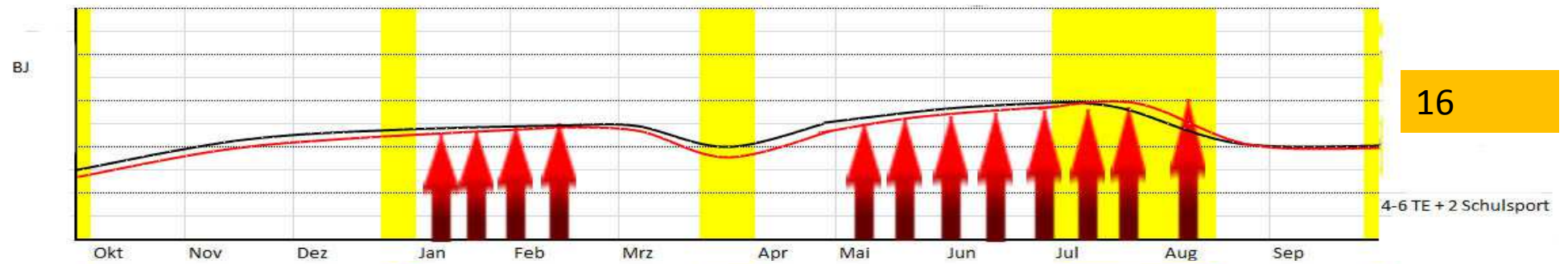
# Periodic structure of the training year

MAC	Periods	MEC	weeks	Topics in Training
<b>1. MAC</b>	1. gPP 1. part	1.	8	General preparation training
	1. gPP 2. part	2.	6	Event orientated built up training
	1. sPP	3.	6	Specific preparation training
	1. CP	4.	4	indoor-competition-series
<b>2. MAC</b>	2. gPP	5.	6	General built up training
	2. sPP	6.	6	Specific preparation training
	2. CP 1. part	7.	6	Outdoor competition series
	UWV	8.	4	Preparing the main competition
	2. CP 2. part	9.	3	Outdoor competition series with main comp.
	RP	10.	3	active Regeneration

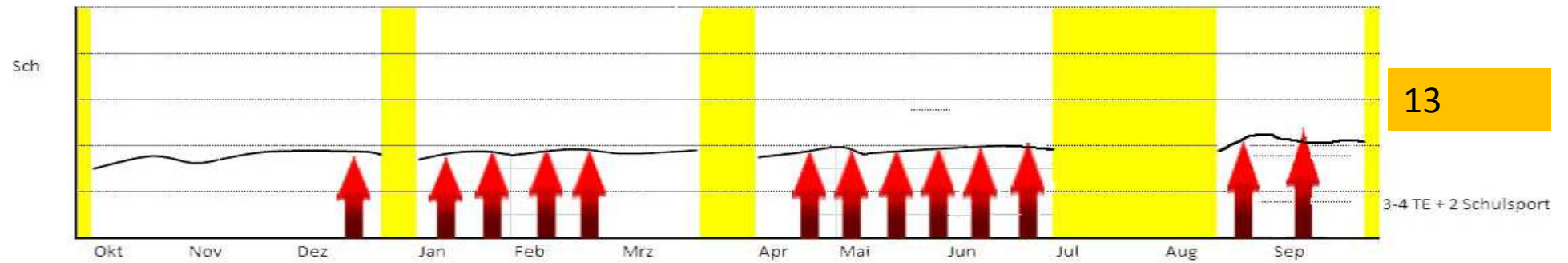
**MAZ = Macrocycle, MEZ = Mesocycle, MIZ = Mikrocycle (week); PP = Preparationperiode, g = general, s = specific, CP = Competitionperiod, UWV = direct preparing for the main competition (unmittelbare Wettkampf-Vorbereitung), RP = Regenerationperiod**



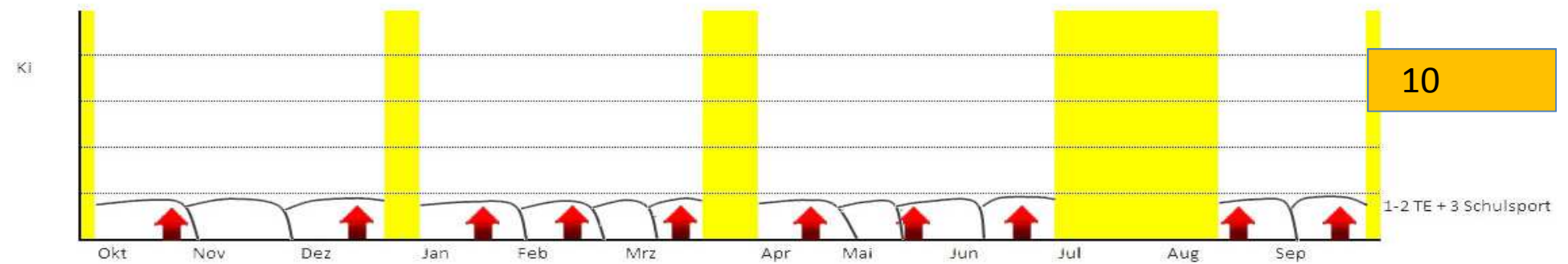
19 J.



16



13



10





Our training philosophy  
for Ltd:

„Preparation training“



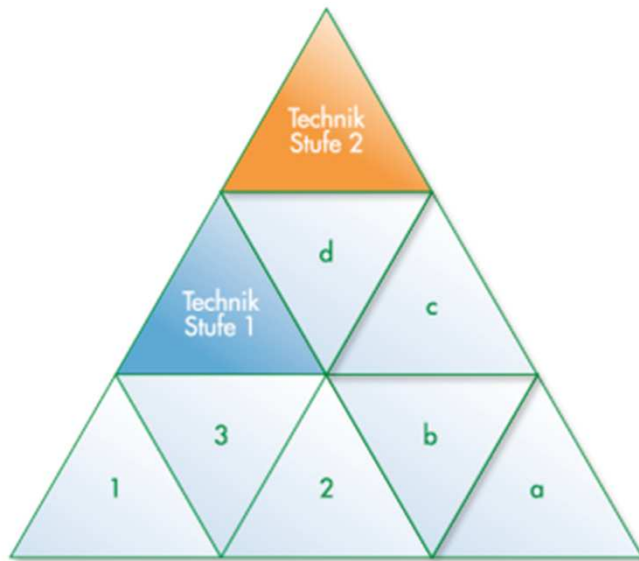


**YOUTH TRAINING ...**

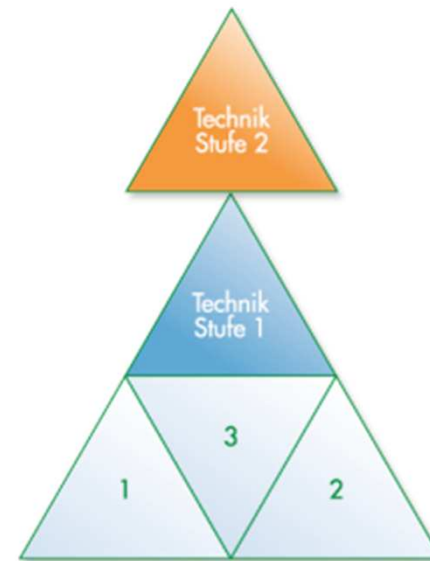
... is preparation training,  
not competition training!



# COMPARISM PREPARATION- AND COMPETITION TRAINING

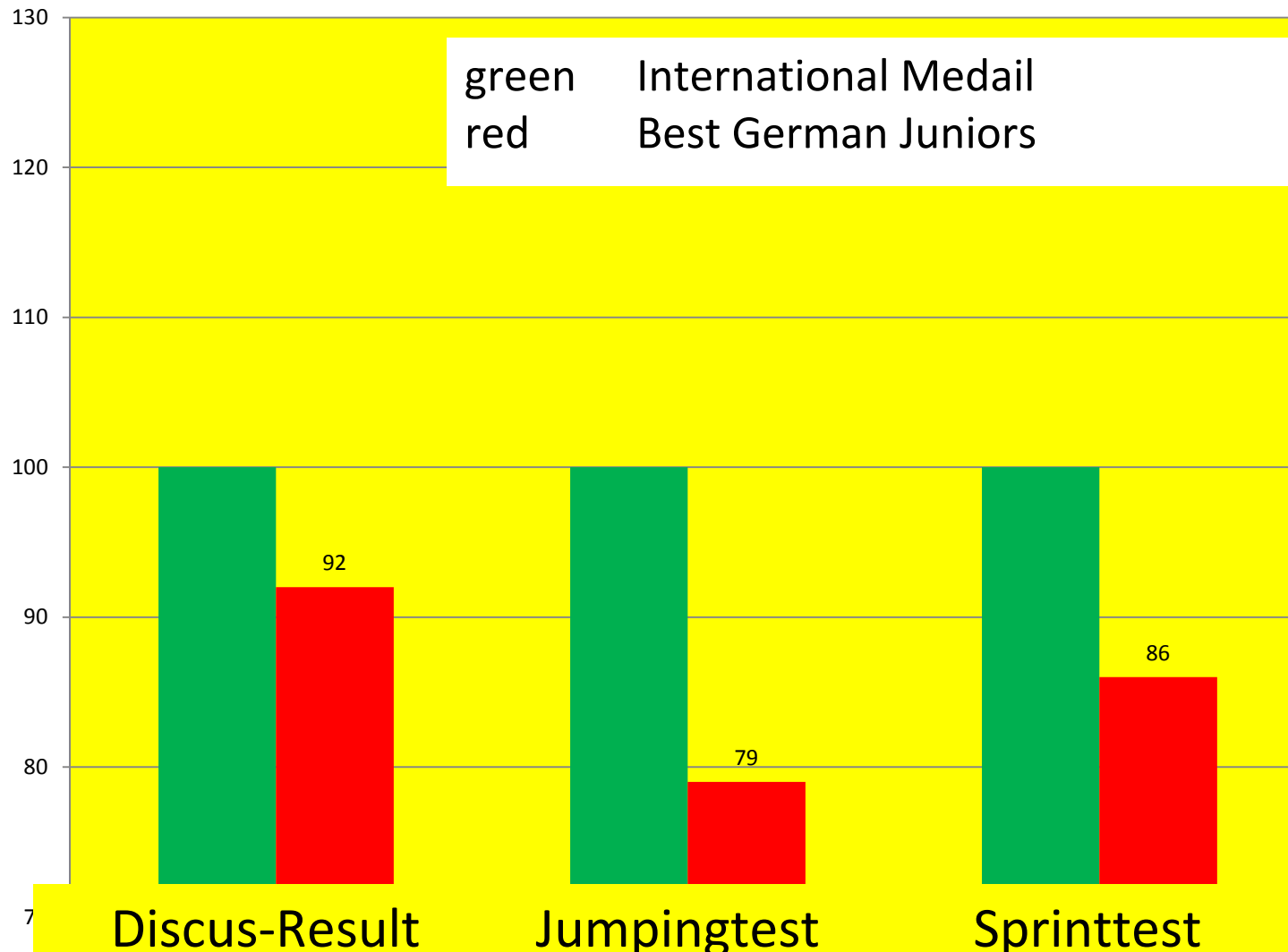


preparation Training builds a **stabile**  
Base



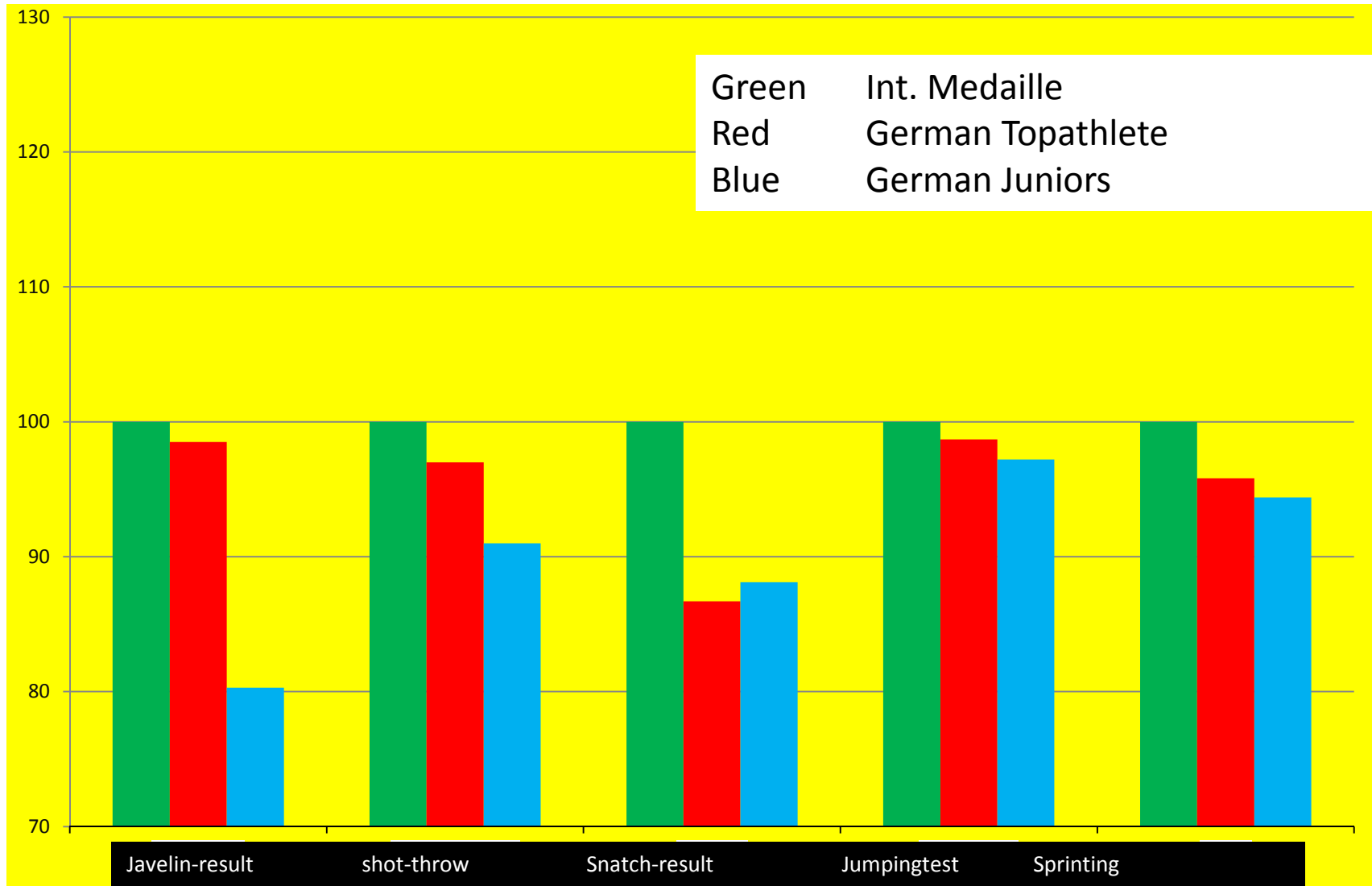
competition Training has a  
weak **instabile** Base

# German Women's discus-throwers 2000-2010 without good preparation



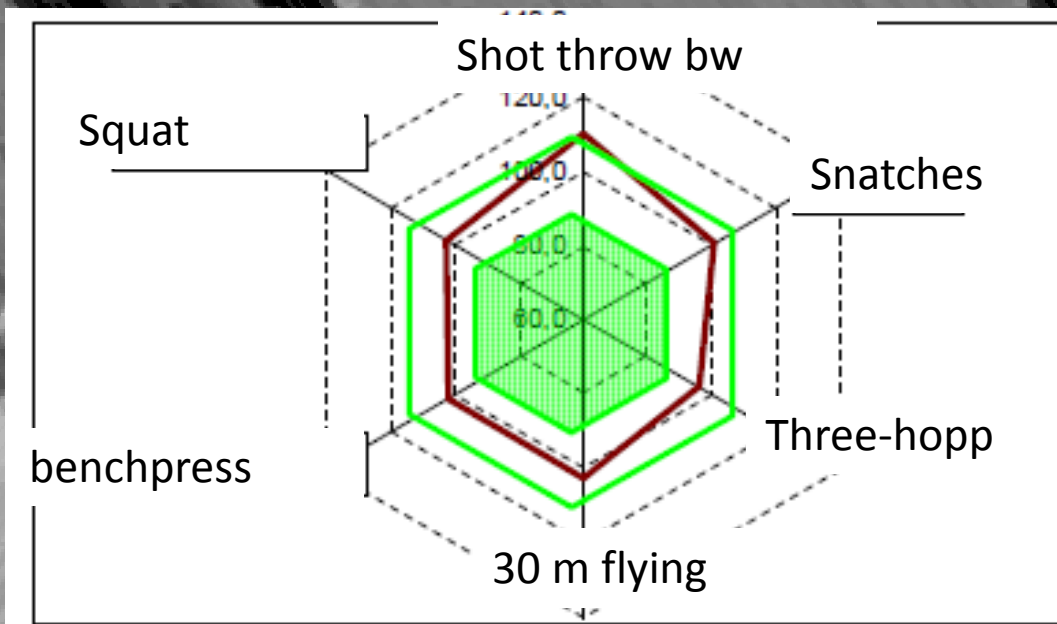


# Javelin throwers with a good preparation



# Training Control in the Throwers System

	Shot throw bw.	snatch	Three-Hopp	30 m flying	Bench-press	Deep squat
Real	22,30	125,6	9,67	3,02	200,0	210,0
Real in %	110,3	101,1	95,7	102,6	103,0	102,7
Aim	20,20	124,2	10,10	3,10	196,0	204,5



Source: IAT Leipzig



# A good athlete needs more than the combined event techniques:

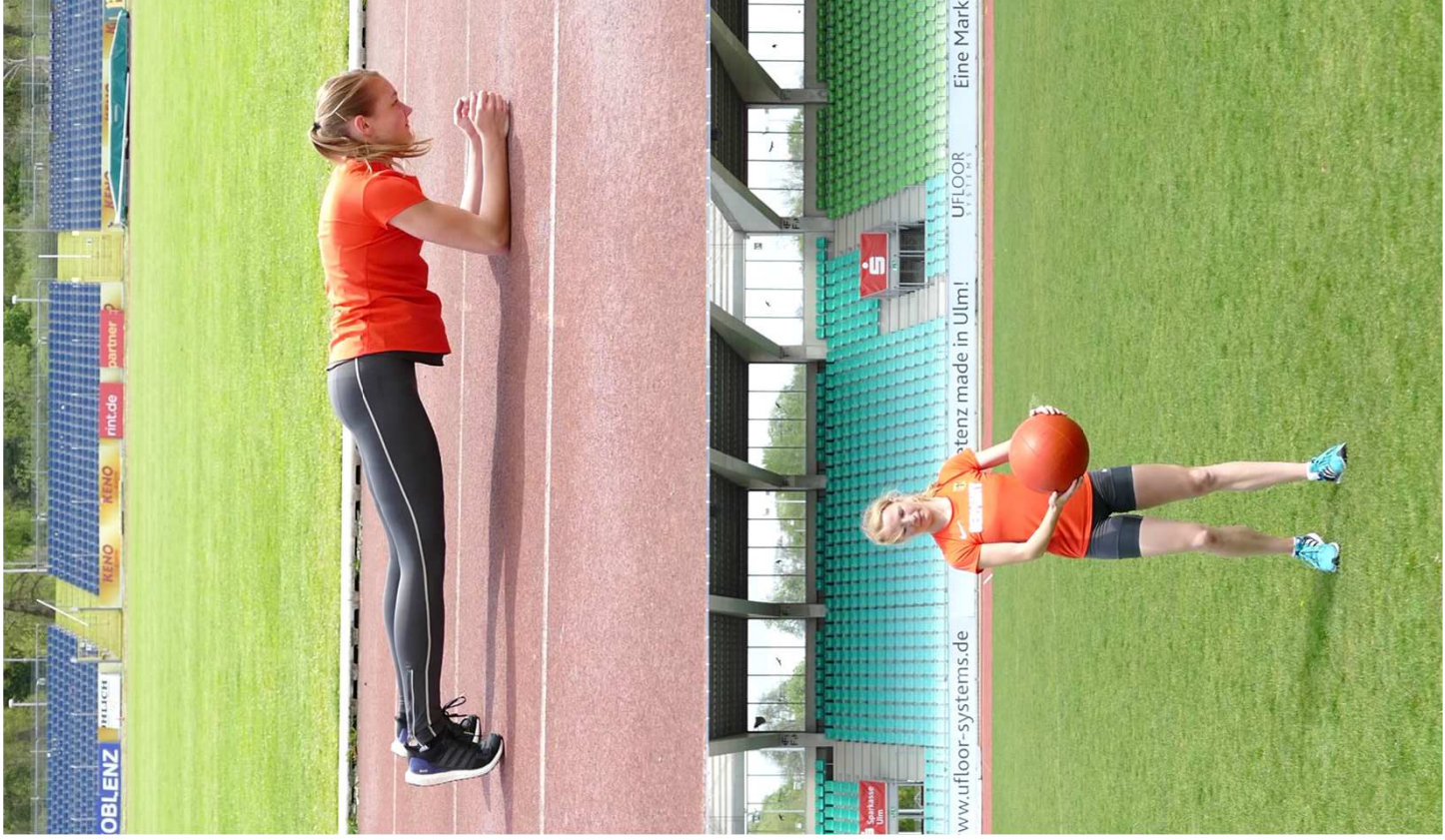
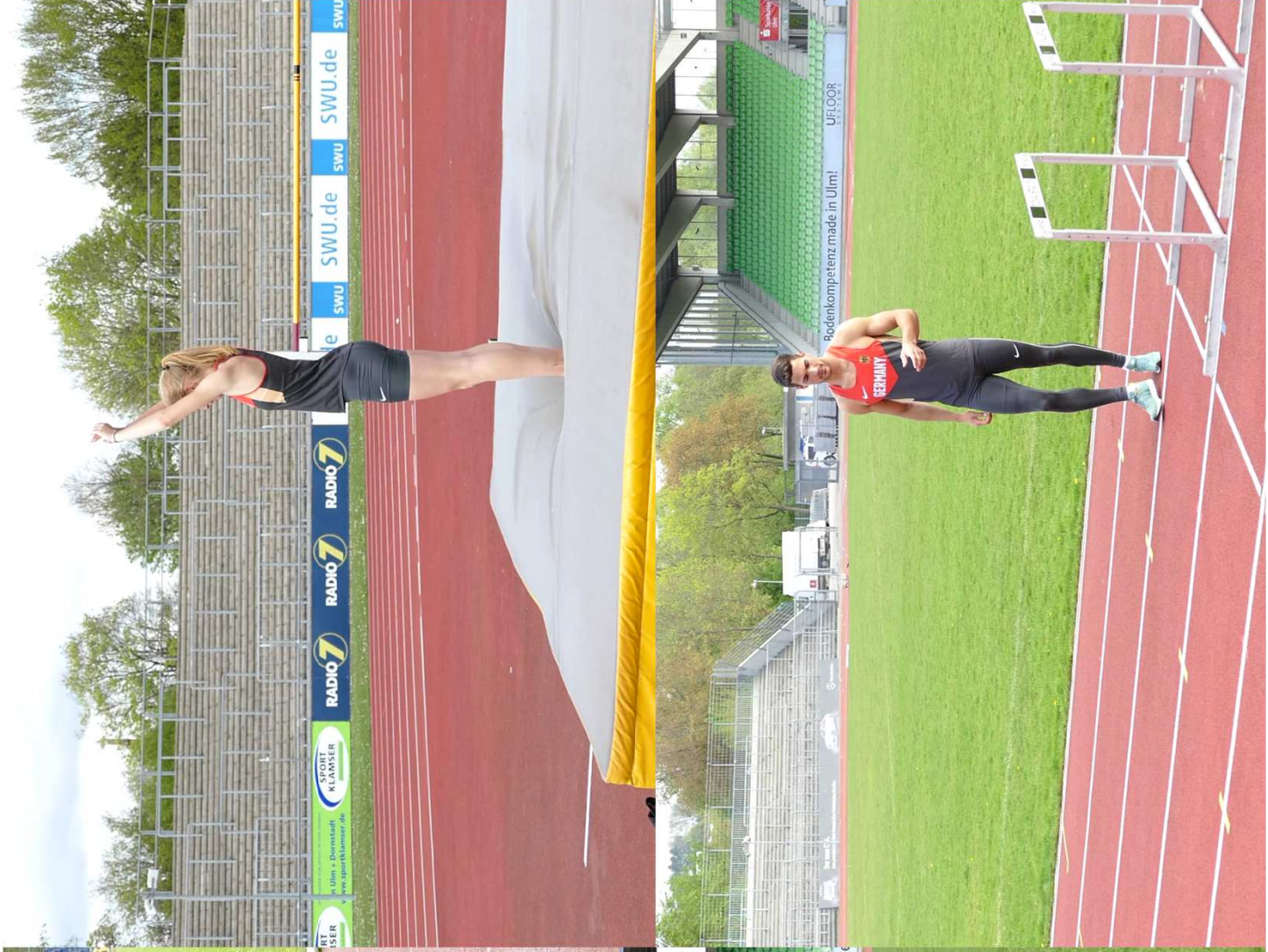
- Flexibility by Stretching, Gymnastics
- Versatility by Technique of other sports and games
  - Acrobatics, general athletics, weightlifting, Skiing (downhill), ...
  - Basketball, handball, volleyball, table tennis ...
- General endurance by Endurance sport techniques
  - Bicycling
  - Inlineskating, Skiing (cross country)
  - Swimming,
  - climbing
- general coordinative skills like rhythm, balance, ...

## Body stabilisation circuit

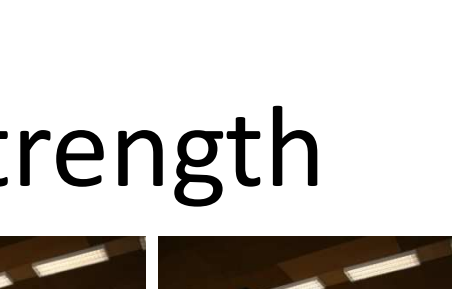
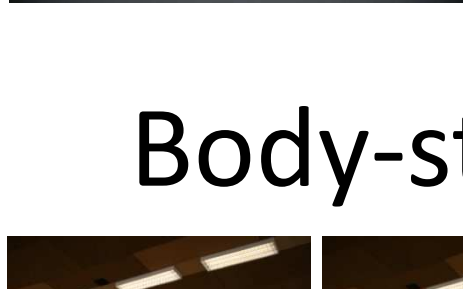
2-3 x 10-15 exercises 30/20  
= 15-25 min muscle work



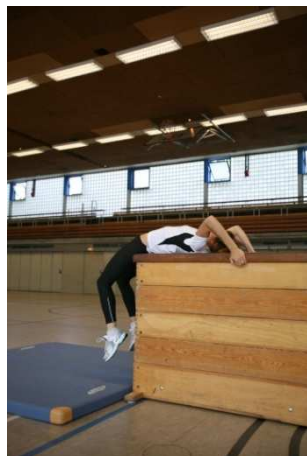








# Body-strength





## Acrobatics - stabilisation



## Medicine ball





# Endurance: Why not in competitions?



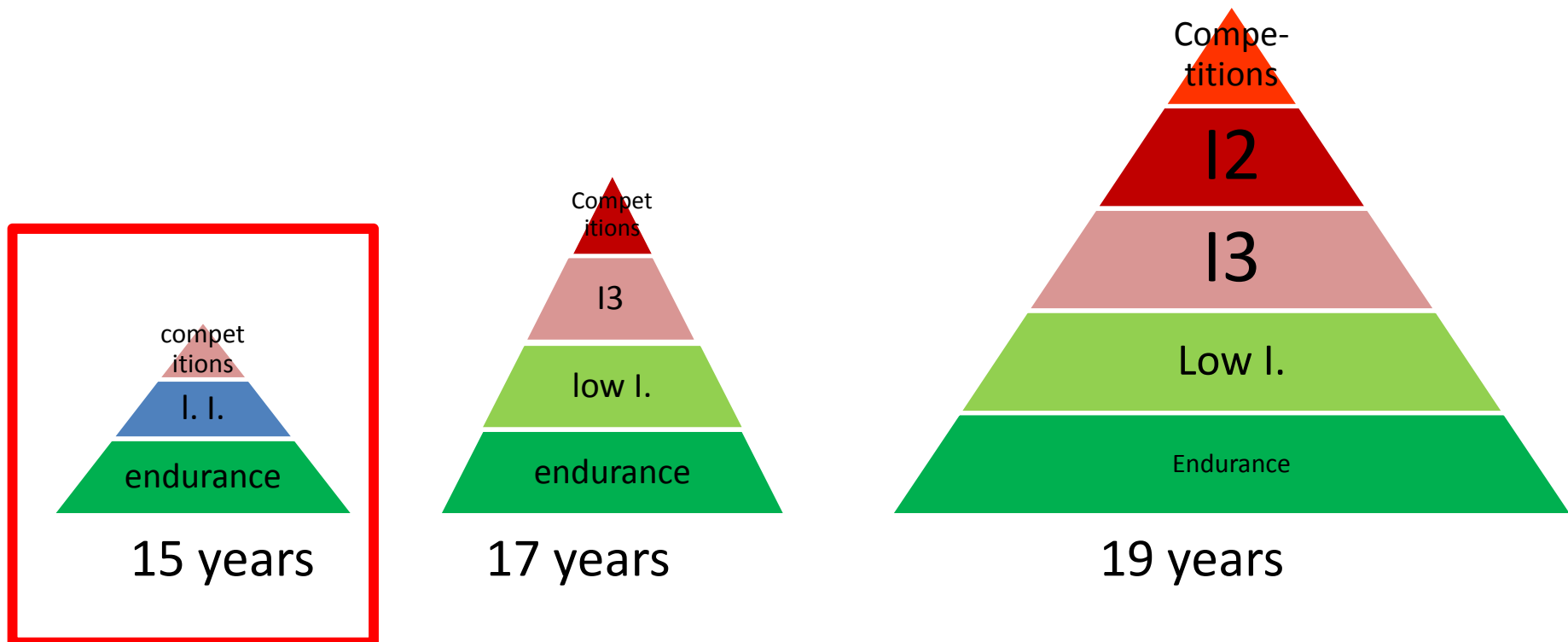
The background of the slide features a photograph of two runners on a track. The runner on the left is in the foreground, wearing a white long-sleeved shirt and dark shorts, captured in a dynamic running pose. The runner on the right is slightly behind and to the side, also in a running pose. The track is green with white lane markings. In the background, there are blurred structures and spectators, suggesting a competitive event.

# Classes of Intensities

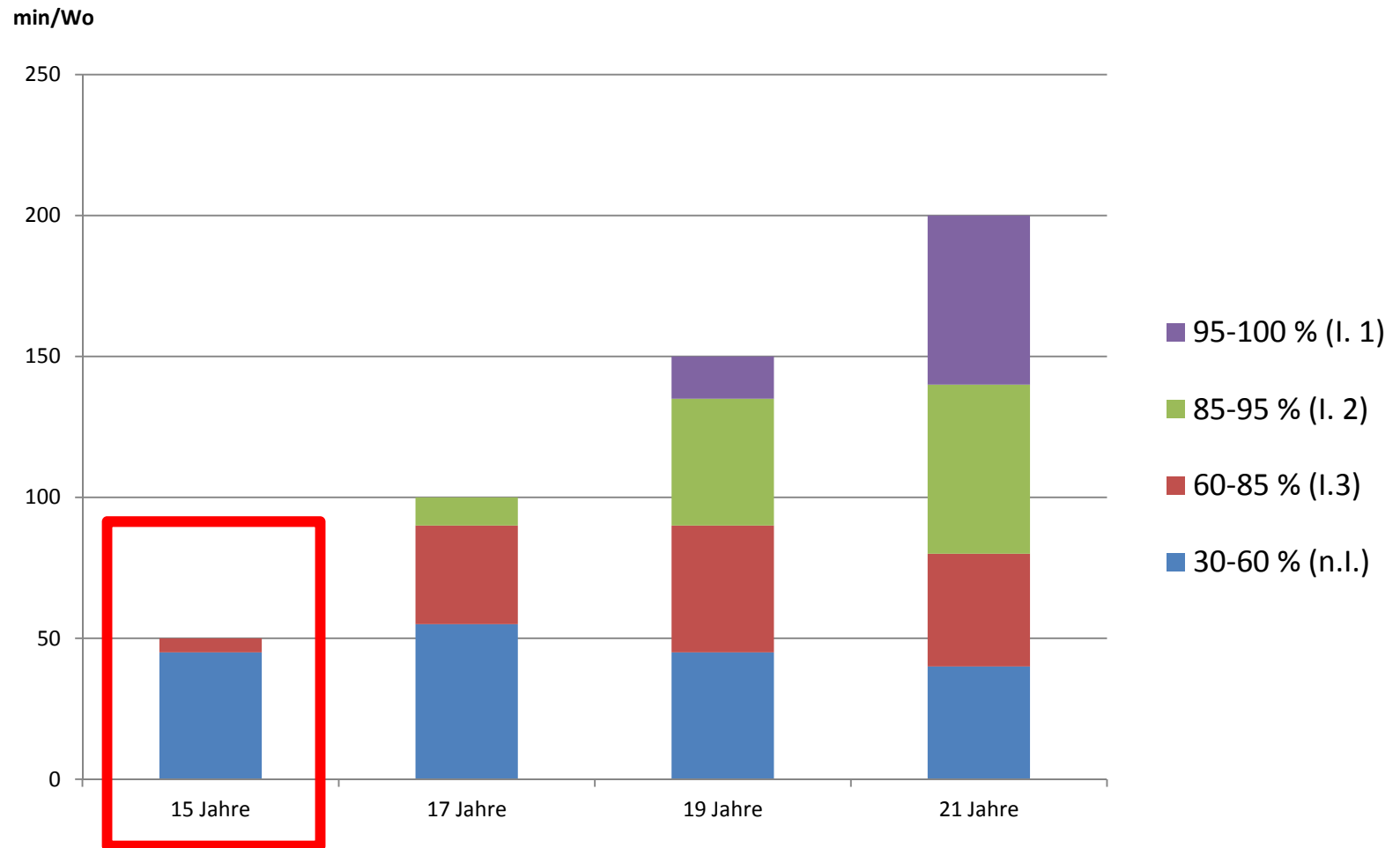
	Low Intensity	I3	I2	I1
Per cent by actual maximum	-70 %	70- 85 %	85-95 %	95 – 100 %



# Speed endurance training depending on age

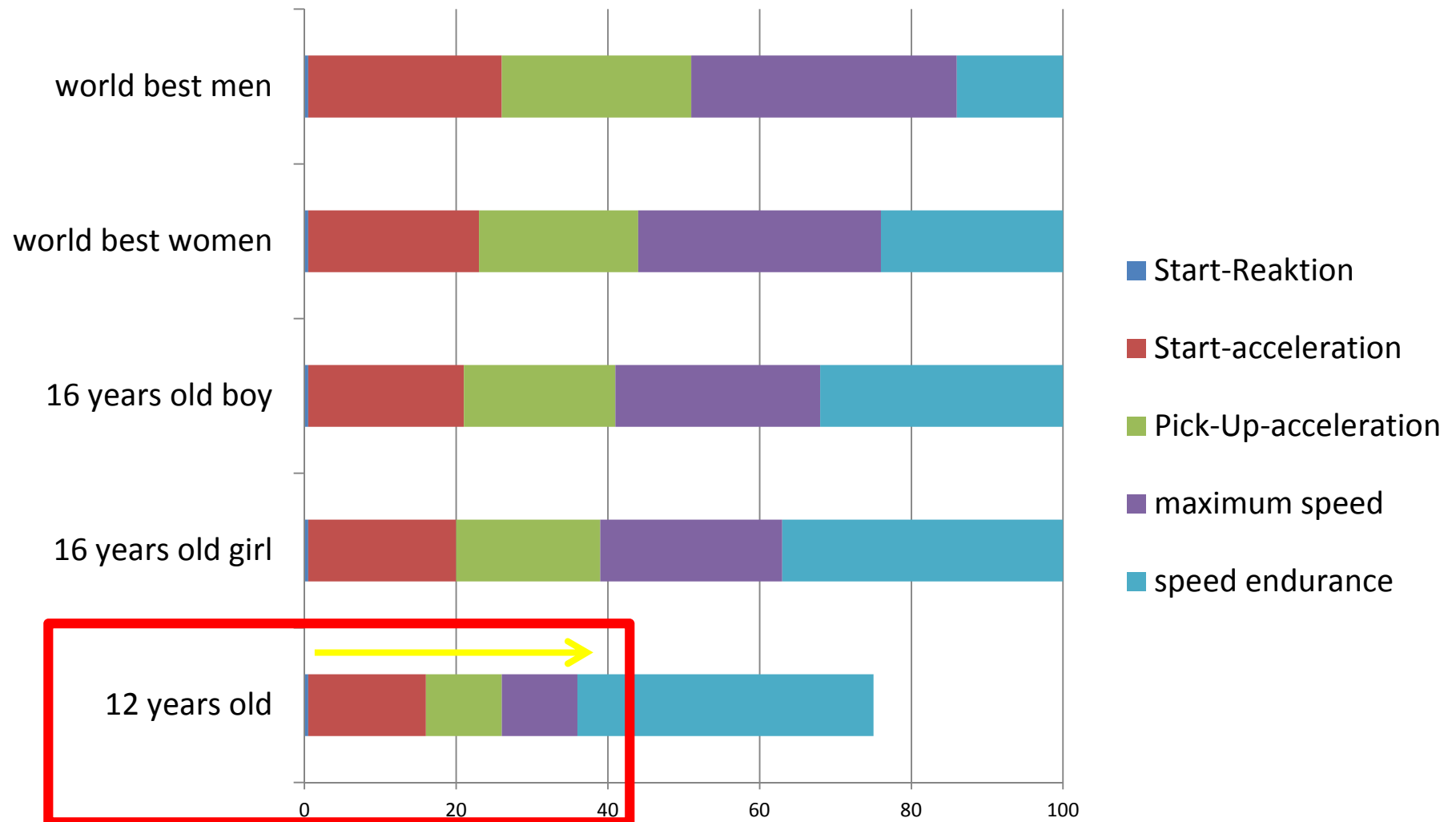


# Weight training intensity depending on age

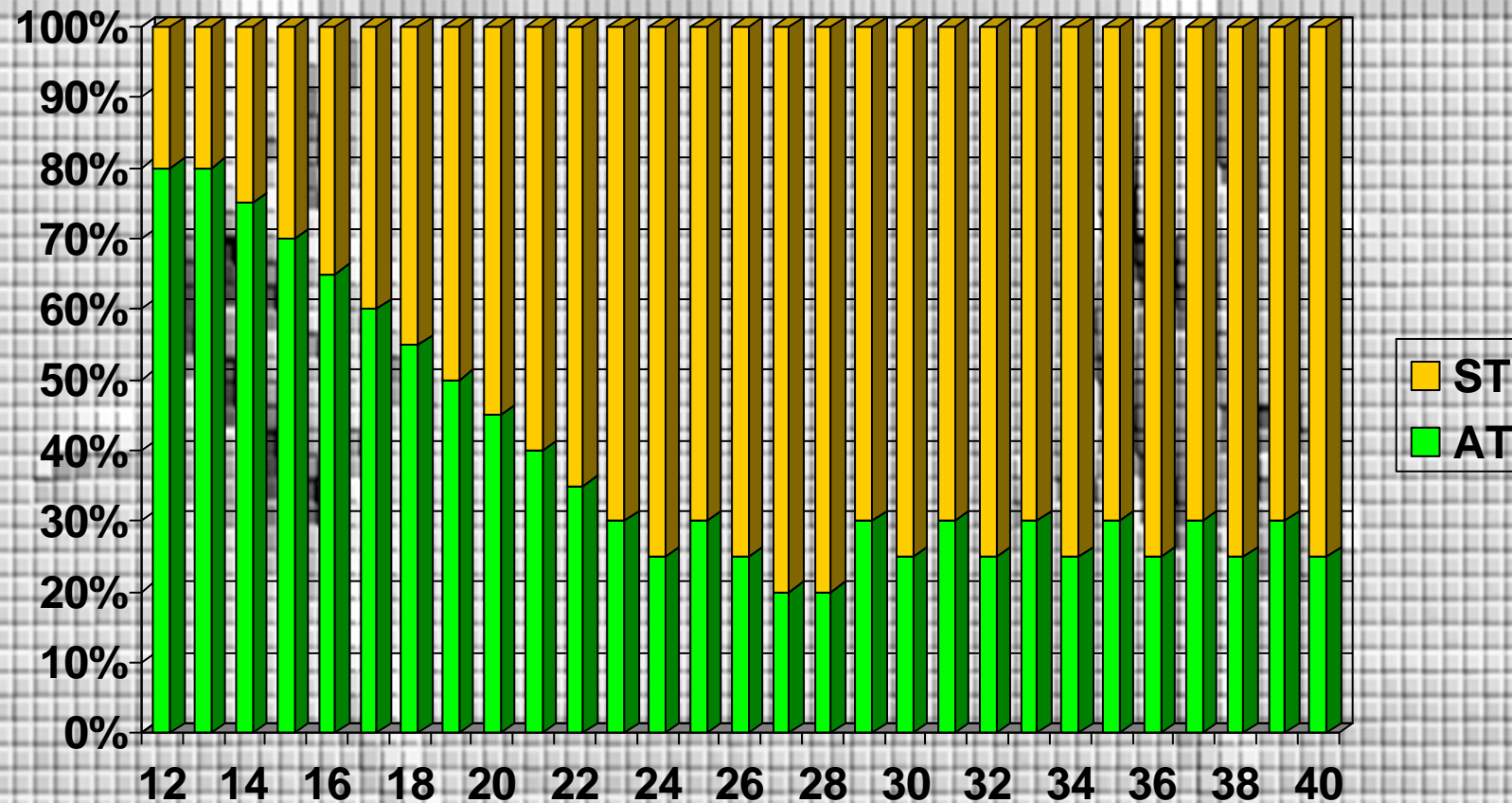




# Sprint phases in different ages - Increase acceleration and speed! Not speed endurance!



## Relation specific (ST) and general (AT) training means





# Training examples 2





# Training examples 3





# Training examples 4





# I prefer group training for young athletes



- Young people need the peer group
- The group „educates“ the single members
- Middle training intensity allows everybody to join
- The coach learns with the group
- Same training orders have different effects
- Later, there is time enough for individual training





Kids need a living group and sensitive coaches

# Take-Home-Message:

## Kid athletics (6-11)

- Talent criteria:
  - Fun and motivation for training and comparisons
- Training
  - Different motoric experiences
  - Wide range of coordinative and velocity skills
  - Group training, group exercises
- “Competitions”
  - Games, relays, group events, ...



# What should you do in Basic Training 11-15 years?

- Talent criteria:  
Quickness, coordination and velocity in sprint, jumps, throws
- Training  
Main techniques and coordination in athletics techniques and in other basic sports (gymnastics, weight lifting, basketball ...)  
Do a lot of general training (>80 %)  
First athletic status (body muscles strength)  
Prophylactic strengthening typical weak points

## Competitions

Different events / sports

# What should you do in Build-up training 15-19?

- Talent criteria
  - Look for talents in other event groups, other sports
- Training
  - Specialisation first on event group, later event
  - Develop the fine form of the important techniques and the finest form of the main event technique
  - Do still a lot of general training
  - Improve the special training to 30 %, later 40 %
- Competition
  - Concentrate more and more on your event



Thank you  
for your  
attention!

Are there  
Questions?

