

Athletes Development

Athletics in India

WHO WE ARE



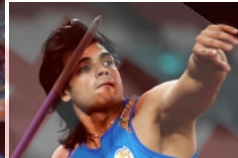
Distance Running
[10 disciplines, 20.83%]



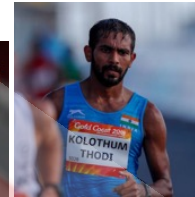
Sprinting
[17 disciplines, 35.42%]



Jumping
[8 disciplines, 16.67%]



Throwing
[8 disciplines, 16.67%]

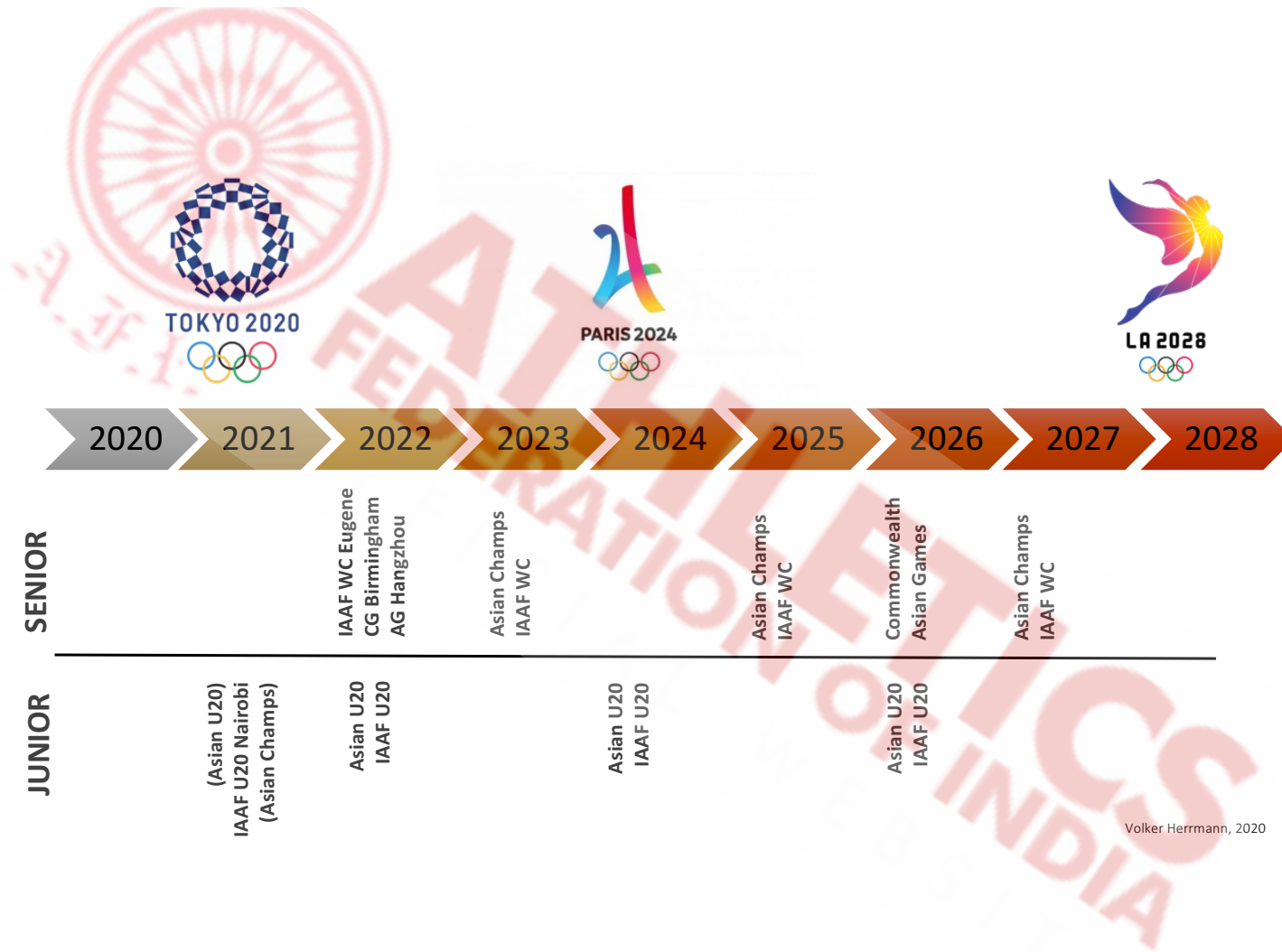


Race Walking
[3 disciplines, 6.25%]



Multi events
[2 disciplines, 4.17%]

- Six different event groups offer **various options** for **everyone**. Small, big, tall, skinny, strong: Everybody will find his niche.
- 48 disciplines equal **48 potential gold medals** and 144 medals overall in athletics.



THREE WAYS of PREPARATION



1 year, current HP athletes



4 years, current HP athletes + youth / junior athletes



8 years, current youth / junior athletes + (future) talents

ATHLETES' DEVELOPMENT

Psycho-social

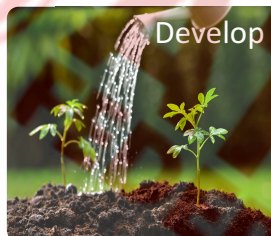
(mental, emotional, cognitive development)

Motor-skills / technique

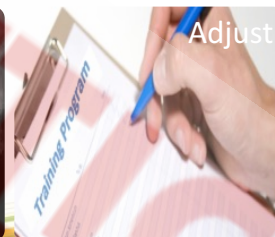
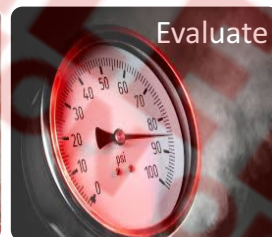
(rough-model / basic-model / advanced-model)

Conditioning / physical

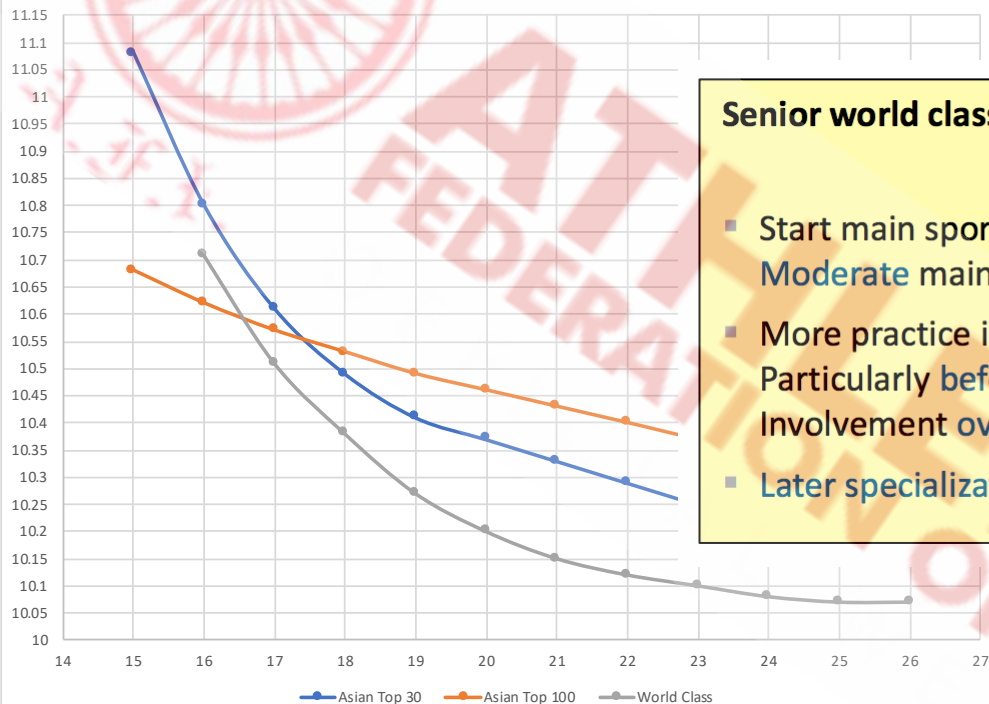




TALENT vs. HIGH PERFORMANCE



Performance Development 100m



Senior world class vs. youth success vs. senior national class

- Start main sport **later**
Moderate main-sport practice **intensity**
- More practice in **other sports**
Particularly **before start main sport**
Involvement **over more years**
- Later specialization**

Arne Guellich, 2016

AVOID EARLY SPECIALISATION

Specializing early on in a single, late specialisation sport contributes to

- One-sided, sport-specific preparation
- Lack of ABCs, poor basic movements and fundamental sports skills
- Overuse injuries
- Early burnout
- Early retirement from training and competition



Support early diversification



work on the fundamentals



DEVELOPMENT TRAINING



Provide a huge variety – implement other sports
Develop physical literacy

BIO-MOTOR ABILITIES



SPEED



STRENGTH



ENDURANCE



FLEXIBILITY



MOTOR-SKILLS

ATHLETES DEVELOPMENT

Concurrent development of all motor-skills

Physical and technical elements are interdependent and have to be developed simultaneously



Simple / Details

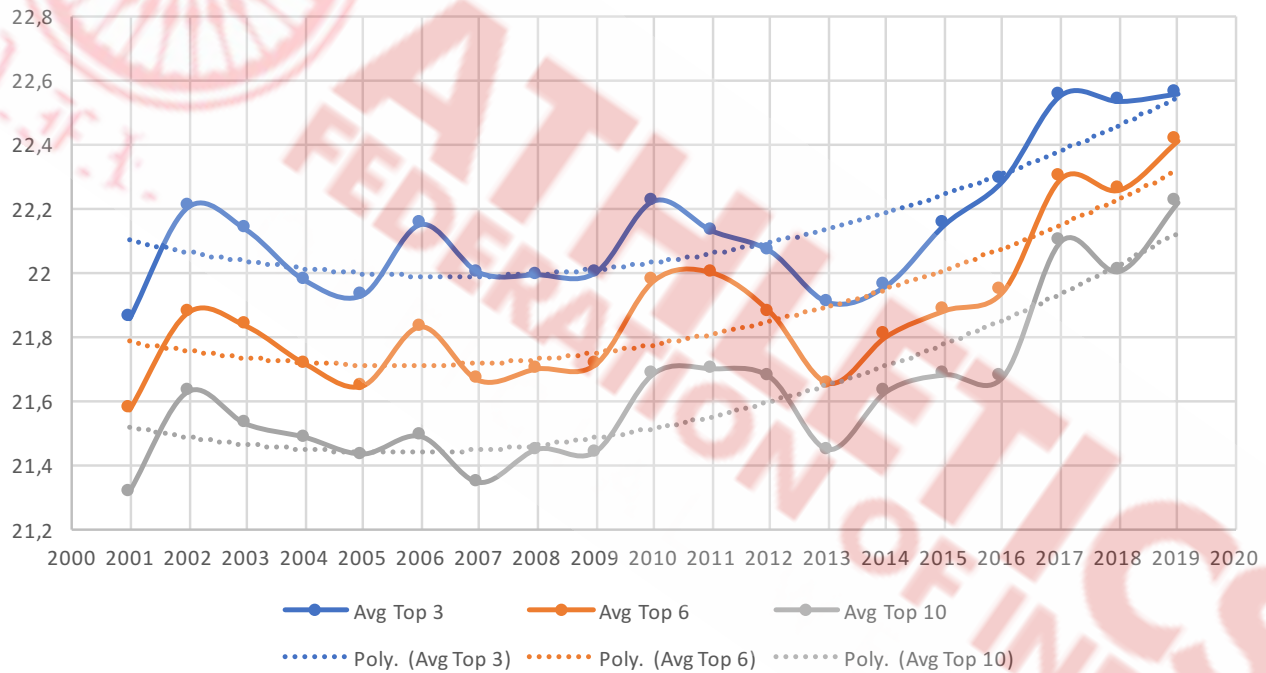
Complex / Sequences

Advanced model

Always start your technique with the main acceleration phase of the respective discipline

e.g. sprint start / take-off jump / power position throws

Shot put men



ATHLETES DEVELOPMENT



KIDS' ATHLETICS /
FUNDamentals



MULTI-EVENTS /
LEARN to TRAIN



EVENT GROUP /
TRAIN to TRAIN



SPECIALISATION /
TRAIN to COMPETE

PERFORMANCE /
TRAIN to WIN

#12 My Brother And His Friend, Both Age 13. We Loved The Difference In Height



Chronological Age

When has the athlete been born? What is his calendric age?

Biological Age

Physical maturity of the athlete. Children with the same chronological age banding can differ by several years in their level of biological maturation.

Developmental Age

The complex interaction between physical, emotional, psychological and social development.

Training Age

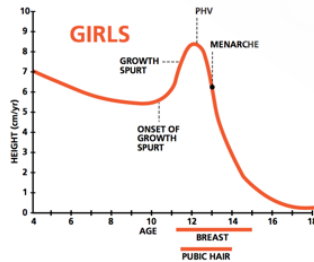
The number of years that an individual has been experiencing a specific (planned) training in any sport.

LONG TERM DEVELOPMENT

Developmental age (different in India / Asia?)

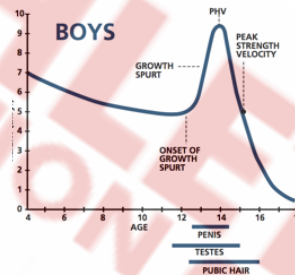
Sensitive periods of optimal trainability?

Figure 7: Maturity Events in Girls (Adapted and modified from Ross & Marfell-Jones, 1982)



Peak Height Velocity (PHV) in girls occurs at about 12 years of age. Usually the first physical sign of adolescence is breast budding, which occurs slightly after the onset of the growth spurt. Shortly thereafter, pubic hair begins to grow. Menarche, or the onset of menstruation, occurs rather late in the growth spurt, after PHV is achieved. Peak Strength Velocity (PSV) comes immediately after PHV, or at the onset of menarche (usually a year after PHV). The sequence of developmental events may normally occur two or even more years earlier or later than average.

Figure 8: Maturity Events in Boys (Adapted and modified from Ross & Marfell-Jones, 1982)



PHV in boys is more intense than in girls and, on average, occurs about two years later. Growth of the testes, pubic hair and penis are related to the maturation process. PSV comes 12 to 18 months after PHV. Thus, there is pronounced late gain in strength characteristics of the male athlete. As with girls, the developmental sequence for male athletes may occur two or more years earlier or later than average. Early maturing boys may have as much as a four-year physiological advantage over their late-maturing peers. Eventually, the late maturers will catch up when they experience their growth spurt.

WHEN TO START

Core Strength

Basic exercises with the athletes' bodyweight can be introduced at the age of 9/10
They become of particular importance, once the growth spurt sets in

Maximum Strength

- ♀ immediately after PHV / onset of menarche
- ♂ 12-18 months after PHV

Endurance

Beginning of aerobic endurance training with onset of growth spurt
(avoid anaerobic training before the age of 18)

STRENGTH TRAINING



Constantly affect (core) strength
All the way to high performance

AGE-RELATED TRAINING

Training has to become more specific with increasing (training) age

Work on fundamentals to enable specific training

There's no shortcut and a fundamental base is essential for long-term development

General contents provide an appreciated and necessary alternative to more specific contents and allow more recovery in between intensive sessions.

Recovery becomes the critical factor when it comes to the density of intensive sessions

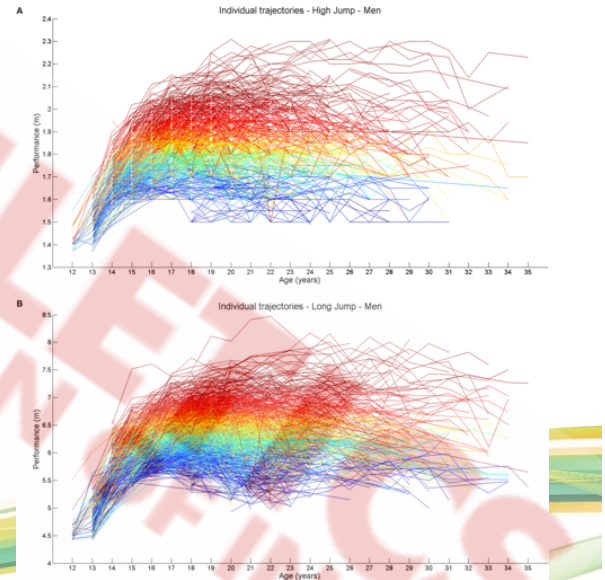
	Age	14-15	16-17	18-19	20-22	23+
Sessions	General	3-4	3-4	3-4	3-4	3-4
	Specific	1	2	3	4	4-5

LONG TERM DEVELOPMENT

The “(...) findings suggest that **performance before the age of 16 is not a good predictor of adult performance in long and high jump.** (...) Coaches should be **careful about predicting future success based on performances obtained during youth in jumping events.**”

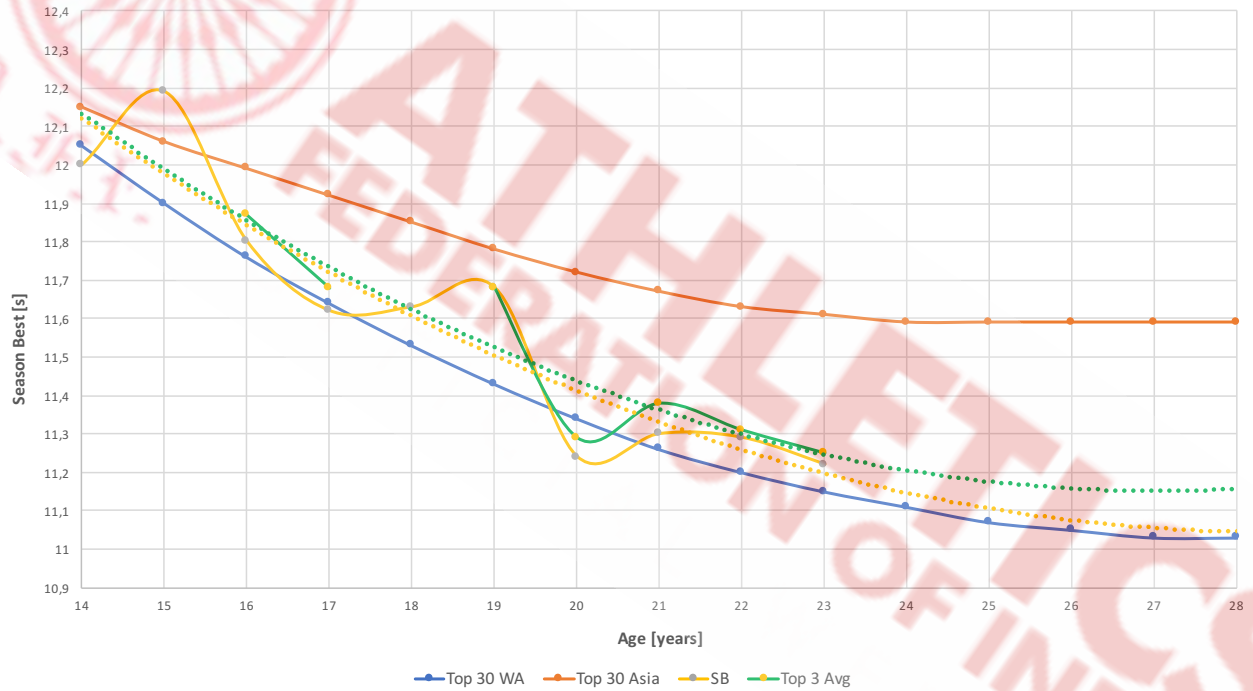
Let's be patient.

What are the critical skills we have to develop for future (international) success?



G. Boccia et al., 2017

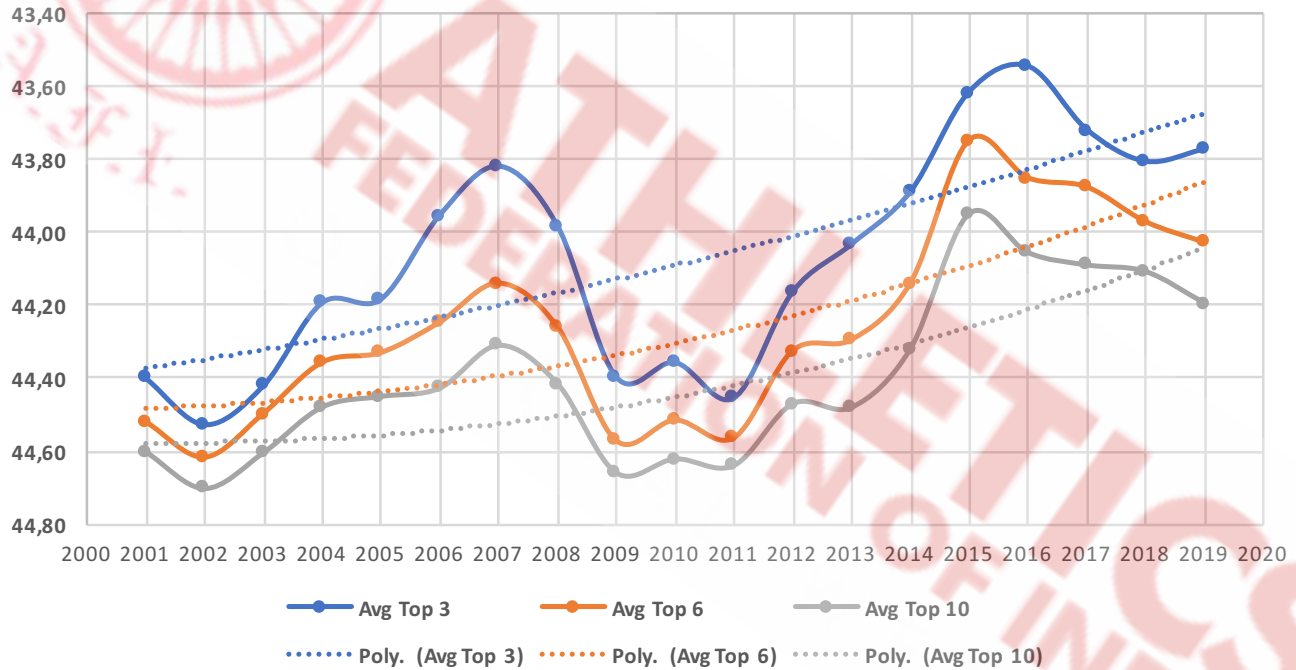
Performance Development Dutee Chand - 100m



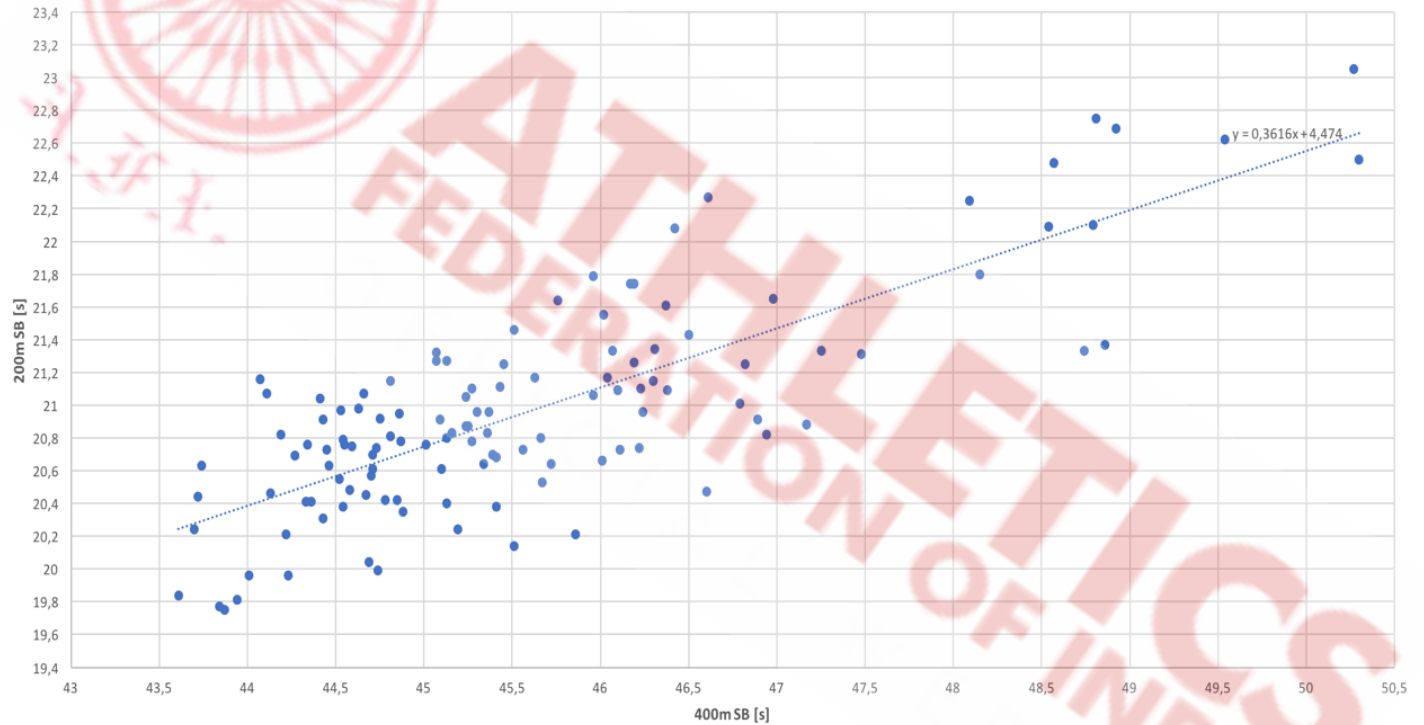
Talent ID

	U14 (12+13)	U16 (14+15)
motor-skill	one-foot balance test (eyes open) one-foot balance test (eyes closed)	one-foot balance test (eyes open) one-foot balance test (eyes closed)
sprints	2x20m start 40m obstacle race	2x30m start 50m obstacle race
jumps	standing long jump vertical jump 5 step bounding	standing long jump vertical jump 5 step bounding
throws	2 x chest pass (girls 1kg, boys 2kg) 2 x cricket ball overhead throw	2 x chest pass (girls 2kg, boys 3kg) 2 x cricket ball overhead throw
endurance	1.6km run	1.6km run

400m men



IAAF 400m Top 30 men 2018 - 200m SB vs 400m SB





EMPHASIZE ON SPEED

Speed ultimately becomes the limiting factor in all events, except the MLD and RW disciplines

Development of 'pure' speed becomes crucial at younger ages:

Age 7-10

non-linear (COD) speed training

Age 11-14

linear + non-linear (COD) speed training

Age 15-16

linear speed training up to 6-7s

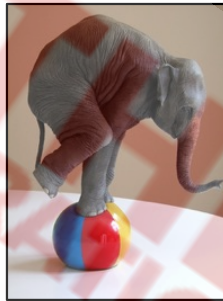
Always consider the 6s rule: Plan your training based on times, not on distances!

QUALITY over QUANTITY



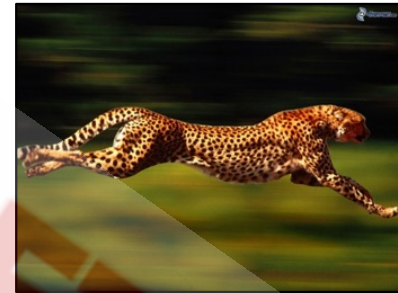
strength

X



coordination /
technique

=



speed /
power