

HIGH PERFORMANCE CONFERENCE WARSAW 2022

Perspectives on the current and future challenges of High Performance

Day 3, Wednesday 18 May

Systemic Performance & Talent Development

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Outline

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Systems, do they exist?

Overview of current cultures in Athletics



Finding and developing talent Are we all making the same mistakes?



Early specialization? Do we really need it in Athletics?



Can we use data to drive change? Looking after assets

Systems: what are the components?

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What is everyone doing

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Increase Numbers

More participants more chances?



Funding

Government > Private



0

Talent Development

Is it structured?



Support The Top

Try to win medals at major events

Medals in Tokyo

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43 NOCs/196

70 NOCs in the placing table



What can we say about the current status?

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- Olympic/World medals in athletics are won by many nations
- In many cases successful athletes are not the result of systematic approaches to talent selection and development or 'systems'
- Movement of people for work/life/family reasons is changing how talent manifest itself and which country he/she ends up representing
- However, support when athletes can reach high level is fundamental to make sure they continue progressing/performing
 - Health support
 - Financial Support
 - Training and competitions structures
 - Scientific Support
- Athletes' and coaches' care is very diverse
- <u>Athletics relies on a lot of volunteers/part time coaching staff</u>
- Many Talent ID/development programmes are 'theoretical'?



slido



(i) Start presenting to display the poll results on this slide.

What are we after?





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Let's re-think talent ID and development

- From science we know quite a lot about how young athletes develop
- What we don't know well is how to train them and develop them to guarantee long careers
- Youth athlete development is contingent on an individually unique and constantly changing base of normal physical growth, biological maturation and behavioral development
- Knowledge of developments stages is key to provide appropriate coaching strategies
- Success at early stages does not guarantee success at senior level





Real World







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Talent



"A talent in sports is an individual whose athletic performances are superior to his peer group and is capable of reaching or has achieved consisting performances at top level" Breithback et al. 2014 Sports Medicine



Growth and Maturation

- Growth is a change in body size, body composition or dimensions of a specific region of the body (Joyce and Lewindon, 2014).
- Maturation is the progression of the human body towards adulthood. The rate and timing of maturation can be highly variable and even different systems can mature at different time for example the skeletal system will mature at a much later date than the reproductive system (Lloyd and Oliver, 2014)



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Age is not just a number

- **Chronological age** is the age of a person with regards to years since birth.
- Biological age can be thought of as a person's development based on physiological markers. Biological age considers where the person is on the maturation and development front, while chronological age does not.
- **Training age** is the number of years the young athlete has spent performing structured forms of training



How old is a 13 years old child?

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Growth and maturation

Growth Status

- The status of the young athlete at the time of observation = Skeletal Age
- Measured with Hands X-rays
- Secondary sexual and somatic characteristics, and dental age
- Maturity Timing
 - Age at Peak Height Velocity (aPHV)
 - Age at menarche
 - PHV and maturity offset can be determined with anthropometry (Height/Leg length/body weight) [Mirwald et al. (2002) *Med Sci Sports Ex.*]





Creo & Schwenk (2017) Pediatrics

^[1] Mirwald RL, Baxter-Jones ADG, Bailey DA, Beunen GP. An assessment of maturity from anthropometric measurements. Med Sci Sports Exer 2002;34(4):89-94

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Skeletal Age Methods

- Modern technology now allows minimizing the exposure to radiation to as little as 0.001 mSv, which is commensurate to less than natural background radiation walking around a city centre, or any radiation associated with a 2-h flight
- Tanner–Whitehouse (TW) method evolved from the Oxford method, with the original version (TW-I) determining the skeletal age based on maturity indicators for 20 bones. Recent development of the TW-3 take into account RUS (Radius, Ulna and Metacarpal Bone) and predicts height
- The **Greulich and Pyle Method** (based on a radiographic database of 1,000 children collected in the 40s-50s)
- The **Fels** method was developed by Roche through a longitudinal study, based on a total of 13,823 serial X-rays of the left hand and wrist.



Is this a real issue?



Our recent observations



Lolli L, Johnson A, Monaco M, Cardinale M, Di Salvo V, Gregson W. Tanner-Whitehouse and Modimed Bayley-Phineau Adult Height Predictions in Elite Youth Soccer Players from the Middle East. Med Sci Sports Exerc. 2021 Dec 1;53(12):2683-2690. doi: 10.1249/MSS.00000000002740. PMID: 34649263.

Salivary Testosterone

Sal T vs Development Stage and % of predicted Adult Height (Ages 6-16) (Hibberd et al J Pediatr Endocr Met 2015; 28(3-4): 381–386)



Unpublished data

Relative Age Effect





"The relative age effect is an uneven distribution of birth date favouring subjects born in the initial months of a selection year." (Mujika et al., 2009)



Athletics and Physical Abilities





RUN

JUMP

THROW

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Physical and Cognitive Abilities improve with Age and then decline A. 100m. straight (track and field), random selection



Berthelot et al., (2019) Archives of Public health

Performance Tracking -Profiling



• With results now becoming available online and wearable technology, it has become easier to have access to large datasets

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- Larger databases allow us to understand how athletes evolve their performances as well as world/continental/national/regional trends
- This can provide some predictive abilities as well as the possibility to benchmark typical developments
- The concept of Performance Funnels were introduced in Athletics by coach Kevin Ankrom and some federations

Performance tracking/profiling allows you to:

- Assess if your athlete's progression is 'normal' or better/worse than specific cohorts
- Analyse the potential of your system and individuals within the system
- Analyse World/Continental/National trends and help you check your competitiveness
- Help you decide on funding/selection/deselection
- Assess 'abnormal' performances potentially affected by Doping/Injury/Judges/Facilities

RAE in Athletics



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Birthdates of 39,590 athletes (51.6% females) ranked in the International Association of Athletics Federations top 100 official lists between 2007 and 2018 season of Under 18, Under 20, and Senior categories.

Under 18 and Under 20 athletes born in the first week of the year are about 2 to 3.5 times more likely to be included in the top-100 ranking than the athletes born in the last week of the year.

Brustio PR, Kearney PE, Lupo C, Ungureanu AN, Mulasso A, Rainoldi A, Boccia G. Relative Age Influences Performance of World-Class Track and Field Athletes Even in the Adulthood. Front Psychol. 2019 Jun 18;10:1395. doi: 10.3389/fpsyg.2019.01395. PMID: 31275208; PMCID: PMC6591260.

Peak Age and Performance Progression

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Haugen TA, Solberg PA, Foster C, Morán-Navarro R, Breitschädel F, Hopkins WG. Peak Age and Performance Progression in World-Class Track-and-Field Athletes. Int J Sports Physiol Perform. 2018 Oct 1;13(9):1122-1129. doi: 10.1123/ijspp.2017-0682. Epub 2018 Oct 18. PMID: 29543080.

Top National Athletes



Age <i>(yr)</i>	60 m		800 m		Long Jump		High Jump	
	Boys Progression (s and %)	Girls Progression (s and %)	Boys Progression (s and %)	Girls Progression (s and %)	Boys Progression m (%)	Girls Progression m (%)	Boys Progression m (%)	Girls Progression m (%)
11–12	-0.35 (4.1)	-0.35 (4.0)	-6.4 (4.4)	-7.3 (4.8)	+0.35 (7.4)	+0.36 (7.9)	+0.11 (7.4)	+0.10 (7.2)
12–13	-0.48 (5.8)	-0.25 (2.9)	-8.7 (6.2)	-5.5 (3.8)	+0.43 (8.6)	+0.30 (6.0)	+0.12 (7.9)	+0.09 (6.3)
13–14	-0.29 (3.7)	-0.16 (2.0)	-5.9 (4.5)	-3.6 (2.6)	+0.50 (9.0)	+0.21 (4.1)	+0.13 (8.1)	+0.06 (3.6)
14–15	-0.10 (1.3)	-0.02 (0.2)	-5.2 (4.1)	-2.2 (1.6)	+0.34 (5.6)	+0.13 (2.4)	+0.08 (4.3)	+0.04 (2.4)
15–16	-0.17 (2.3)	-0.08 (1.0)	-3.2 (2.7)	-1.6 (1.2)	+0.28 (4.4)	+0.10 (1.8)	+0.07 (3.6)	+0.03 (1.8)
16–17	-0.10 (1.4)	-0.07 (0.8)	-2.3 (1.9)	-1.5 (1.2)	+0.19 (2.9)	+0.06 (1.1)	+0.05 (2.5)	+0.01 (0.6)
17–18	-0.05 (0.7)	-0.02 (0.2)	-1.5 (1.4)	-0.6 (0.4)	+0.17 (2.5)	+0.02 (0.4)	+0.04 (1.9)	+0.01 (0.5)

Data are mean (standard deviation) for top 100 Norwegian male and female performers in each discipline.

doi:10.1371/journal.pone.0129014.t001

Tønnessen E, Svendsen IS, Olsen IC, Guttormsen A, Haugen T. Performance development in adolescent track and field athletes according to age, sex and sport discipline. PLoS One. 2015 Jun 4;10(6):e0129014. doi: 10.1371/journal.pone.0129014. PMID: 26043192; PMCID: PMC4456243.

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 The results indicate that the sex difference evolves from < 5% to 10–18% in all the analyzed disciplines from age 11 to 18 yr. This evolution is practically identical for the running and jumping disciplines

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Relative annual performance
development in females gradually
decreases throughout the
analyzed age period. In males,
annual relative performance
development accelerates up to
the age of 13 (for running events)
or 14 (for jumping events) and
then gradually declines when
approaching 18 years of age.

Performance Progression Jumpers

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Boccia G, Moisè P, Franceschi A, Trova F, Panero D, et al. (2017) Career Performance Trajectories in Track and Field Jumping Events from Youth to Senior Success: The Importance of Learning and Development. PLOS ONE 12(1): e0170744. https://doi.org/10.1371/journal.pone.0170744 <u>https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170744</u>

Performance prediction

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Personal best prediction (R ²)												
	Age	M – High Jump	M – Long Jump	W – High Jump	W – Long Jump							
D (14	0.286	0.194	0.631	0.522							
Performance	15	0.540	0.526	0.685	0.536							
annual change	16	0.637	0.481	0.754	0.602							
	17	0.794	0.668	0.807	0.714							
	18	0.815	0.744	0.846	0.793							
Personal best prediction (R ²)												
	Age	M – High Jump	M – Long Jump	W – High Jump	W – Long Jump							
	14	0.207	0.152	0.410	0.290							
Performance	15	0.343	0.240	0.586	0.402							
only	16	0.536	0.428	0.622	0.527							
	17	0.671	0.580	0.693	0.679							
	18	0.791	0.664	0.752	0.720							

Figure 1: Coefficient of determination of personal best prediction in jumping events using best performance and annual change in performance vs. best performance only using data from the Italian competitions database. (Data from Boccia et al, 2017).

Realistic Expectations





Percentages of top-level adult athletes that were considered top-level when they were younger than 18 yo.

Boccia G, Brustio PR, Moisè P, Franceschi A, La Torre A, Schena F, Rainoldi A, Cardinale M. Elite national athletes reach their peak performance later than non-elite in sprints and throwing events. J Sci Med Sport. 2019 Mar;22(3):342-347. doi: 10.1016/j.jsams.2018.08.011. Epub 2018 Aug 22. PMID: 30172614.

UK Data





Figure 1. The percentage of top 20 ranked (a) senior male, and (b) senior female athletes at the end of the 2014–15 track and field season who were ranked in the top 20 at each age grade. U = Under.



the youngest age 1449093

Philip E. grade of Figure 2. The proportion of top 20 ranked female (a to f) and male (g to I) athletes at the lower grade who retained their top 20 ranking (white portion), retained a national ranking outside the top 20 (grey ranking), or no longer appeared on the rankings (black portion).

Kearney PE, Hayes PR. Excelling at youth level in competitive track and field athletics is not a prerequisite for later success. J Sports Sci. 2018 Nov;36(21):2502-2509. doi: 10.1080/02640414.2018.1465724. Epub 2018 Apr 18. PMID: 29667867.

How to use it – what we did

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What about international success?

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5981 Athletes Top 50 2000-2019

Only 8% of males and 16% of females top 50 ranked at the age of 16 years managed to be included among the *top50* senior.



Transition rate





FIGURE 2 Performance progressions for males (upper panels) and females (lower panels) in two subgroups of athletes: *Only U18*, that is, those who have been included in the top 50 rankings at under 18 but did not reach the top 50 rankings in the senior category; *Top50 senior*, that is, those who have been top 50 ranked in the senior category, independently from being top 50 ranked in the U18 category or not. Post hoc analysis: *P < .05; **P < .05; **P < .05

Boccia G, Cardinale M, Brustio PR. Performance progression of elite jumpers: Early performances do not predict later success. Scand J Med Sci Sports. 2020;00:1– 8. <u>https://doi.org/10.1111/sms.13819</u>

International Level Sprinters

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4924 athletes (females: n = 2865, 58.2%)

On average, only 17% (90% confidence interval, 12 to 23) of the male athletes and 21% (90% confidence interval, 16 to 28) of the female athletes were in the top 50 rankings both in U18 and in the senior category (U18 and senior subgroup).



Figure 1 — Performance progressions (mean, 90% confidence interval), from the first to the last appearance in International Association of Athletics Federations database, are reported for each subgroup of athletes: *only U18* (black circle), that is, those who were among the top 50 ranked only at U18 but not in the adulthood; *U18 and senior* (empty circle), that is, those who were top 50 ranked both at U18 and in the adulthood; and *only senior* (gray circle), that is, those who were top 50 ranked only in the adulthood.



Boccia, G., Cardinale, M., and Brustio, P. R. (2021). World-Class Sprinters' Careers: Early Success Does Not Guarantee Success at Adult Age. International Journal of Sports Physiology and Performance 16, 3, 367-374, available from: < https://doi.org/10.1123/ijspp.2020-0090> [Accessed 20 November 2021])

Throws

5108 throwers (49.9% females) - Top 50 in Ranking 2000-2019

The transition rate at 16 and 18 yrs of age was 6% and 12% in males, and 16% and 24% in females

1344 athletes were shot putters (female: n=643, 47.8%), 1284 discus throwers (female: n=636, 49.5%), 1158 hammer throwers (female: n=616, 53.2%), and 1322 javelin throwers (female: n=604, 45.7%).





Boccia, G., Cardinale, M., & Brustio, P. R. (2021). Elite Junior Throwers Unlikely to Remain at the Top Level in the Senior Category, International Journal of Sports Physiology and Performance, 16(9), 1281-1287. Retrieved Nov 20, 2021, from https://journals.humankinetics.com/view/journals/ijspp/16/9/article-p1281.xml
Throws



Finalists

Males disappeared from IAAF ranking in 2012

Females disappeared from IAAF Ranking in 2012

Figure 2: Junior to senior transition in throwing events. Data from Piacentini et al (2014).

Only 8 athletes (2.5%) won a medal at World Championships or Olympic Games

	Age				
Event	14	15	16	17	
M – Discus Throw	2	23	23	38	
W – Discus Throw	14	20	35	50	
M – Shot Put	2	12	12	33	
W – Shot Put	7	23	38	43	

Figure 4: Percentage of top-level athletes which were elite at youth level in sprints and throwing events in the Italian results database. (Data from Boccia et al 2019).

Piacentini MF, Comotto S, Guerriero A, Bonato M, Vernillo G, La Torre A. Does the junior IAAF athletic world championship represent a springboard for the success in the throwing events? A retrospective study. J Sports Med Phys Fitness. 2014 Aug;54(4):410-6. PMID: 25034545.

Similar in other sports (e.g. Swimming)

The yearly performance of 6631 European swimmers (females = 41.8% of the sample) competing in 50 and 100 m freestyle, backstroke, breaststroke, and butterfly were included in the analysis. The junior-to-senior transition rate was determined as the number of elite junior athletes who maintained their elite status in adulthood.

The average transition rates ranged, depending on the age of reference, from 10 to 26% in males and from 23 to 33% in females. The transition rate for the top 100 junior swimmers was greater than that for the top 10 swimmers.





Brustio PR, Cardinale M, Lupo C, Varalda M, De Pasquale P, Boccia G. Being a top swimmer during the early career is not a prerequisite for success: A study on sprinter strokes. J Sci Med Sport. 2021 Dec;24(12):1272-1277. doi: 10.1016/j.jsams.2021.05.015. Epub 2021 May 28. PMID: 34099366.

Exceptions to the rule



WJC before WYC Age group numerous WRs



 $1^{\mbox{st}}$ place YWC and JWC



1st place JWC (Twice and W record) Multiple Age Group records



1st place YWC (championships record) 1st (and 3rdplace) JWC Multiple Age Group WRs



5th place JWC 8th place JWC EJC Heptathlon



11th place WJC (4:23.49) 2nd place WC Daegu (4:05.68)

Different Pathways can lead to similar outcomes

2010 WJC Gold (2.30m)

2011 Asian Champion (2.35m)



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> 2010 WJC 21st (2.10m) 2011 EC Bronze (2.25m)



Why do we have a low transition rate from youth to senior success?

- Lack of Progress
 - Maturation Early maturers perform well as juniors, but can't continue the progress when moving to seniors
 - Used to win/dominate at youth/junior level, struggling to perform as seniors in the first few years (U23 might help but we should look at it)
- We don't know <u>how many stop because of injuries</u> and there are very few documented training diaries of athletes from youth to senior we should do more to make them public and analyse the training development of successful athletes
- Burnout/lack of funding or financial incentives
- Doping/Move to other sports
- We should do more to understand why so many athletes who are successful as youth and juniors can't progress as seniors









We have a problem with Injuries

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Martínez-Silván D, Wik EH, Alonso JM, Jeanguyot E, Salcinovic B, Johnson A, Cardinale M. Injury characteristics in male youth athletics: a five-season prospective study in a full-time sports academy. Br J Sports Med. 2021 Sep;55(17):954-960. doi: 10.1136/bjsports-2020-102373. Epub 2020 Nov 3. PMID: 33144348.

Injury Prevention considerations

- Growth rates and skeletal maturation are injury risk factors.
- We have studied it in a relatively large cohort of adolescents involved in athletics.
- Rapid growth in stature and leg length, younger skeletal age, and faster maturity tempo were significantly associated with increased risk of bone and growth plate injuries.
- Changes in body mass, BMI, and trunk height were, on the other hand, not associated with injury.

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TABLE 3 Incidence rate ratios (IRR) adjusted for chronological age for different injuries in association with annual standardized relative change in anthropometric variables among adolescent athletics athletes

		IRR (95% CI)	Р
	Overall injuries (n = 73)		
	Δ Stature	1.10 (0.86-1.40)	.46
~	Δ Body mass	1.04 (0.69-1.57)	.86
	Δ Body mass index	1.01 (0.67-1.52)	.96
	Δ Trunk height	0.87 (0.59-1.27)	.46
	Δ Leg length	1.30 (1.01-1.67)	.039
	Gradual onset injuries (n =	= 46)	
	Δ Stature	1.25 (0.97-1.61)	.08
	Δ Body mass	1.11 (0.77-1.62)	.57
	Δ Body mass index	1.01 (0.66-1.54)	.97
	Δ Trunk height	1.04 (0.79-1.37)	.77
	Δ Leg length	1.29 (0.99-1.68)	.06
	Sudden onset injuries (n =	: 27)	
	Δ Stature	0.80 (0.50-1.30)	.37
	Δ Body mass	0.81 (0.41-1.61)	.55
	Δ Body mass index	0.89 (0.51-1.54)	.68
	Δ Trunk height	0.64 (0.30-1.38)	.25
	Δ Leg length	1.26 (0.76-2.10)	.37
	Bone injuries $(n = 36)$		
	Δ Stature	1.47 (1.11-1.94)	.007
	Δ Body mass	1.13 (0.75-1.71)	.55
	Δ Body mass index	1.03 (0.65-1.65)	.89
	Δ Trunk height	1.16 (0.85-1.57)	.36
7	Δ Leg length	1.41 (1.04-1.92)	.029
	Growth plate injuries (n =	: 19)	
	🔺 Δ Stature	2.14 (1.46-3.13)	<.001
	Δ Body mass	1.23 (0.68-2.26)	.49
	Δ Body mass index	1.02 (0.47-2.24)	.96
	Δ Trunk height	1.31 (0.91-1.88)	.15
	Δ Leg length	2.06 (1.43-2.97)	<.001

Note: P-values in italics indicate significant associations

Wik EH, Martínez-Silván D, Farooq A, Cardinale M, Johnson A, Bahr R. Skeletal maturation and growth rates are related to bone and growth plate injuries in adolescent athletics. Scandinavian Journal of Medicine & Science in Sports, 20 Feb 2020, 30(5):894-903. DOI: 10.1111/sms.13635 PMID: 32034797

How can data and technology can help us?

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Of 24,854 athletes aged 13 to 19 who competed in track and field in 2016 in England, 43% of them did not compete again the following year.



At any time, 24% of athletes reported a health problem, with 11% having experienced a health problem that had substantial negative impact on training and performance. (Robert Mann's PhD)



From Data to Action



Summary

- Early success is not a pre-requisite for success at adult age
- Assessing maturity status is key to inform training and put progress/results into context
- Training should be progressive, adequate, targeted to develop multiskills and target all physiological systems. Do we really know how to train and develop athletes?
- We need to be aware of *injury patterns and what causes them* to reduce the risk of injuries in young (and senior) athletes and make sure they develop
- There is no perfect system: <u>engaging, retaining and developing</u> talent is one of our chances to survive as a sport



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DEVELOPING YOUNG TALENT TO OLYMPIC CHAMPIONS IN ATHLETICS

UNDERSTANDING REALISTIC PROGRESSIONS

- Written by Marco Cardinale, Qatar

INTRODUCTION

Athletics is quite possibly the most ancient sport in the Olympic programme. It is a collection of sporting events that involve running, jumping, throwing and walking and it has been documented since the ancient Olympics. Athletics is in fact one of the only five sports that have been contested at every summer Olympic Games since 1896 with a current programme of 24 events contested in the Olympic programme. National and continental and World events are also 🖸 SHARE 🛛 🖬 💆 🖂 🛄 March 2020 Volume 9 - Issue targeted topic return to performance after acl J PDF Version reconstruction Download this Issue CATEGORIES Sports Science Sports Science Volume 8 Targeted Sports Medicine

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Reflections on Performance Culture: Optimising Performance Environments in Training and Competition

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Anders Möller (SWE)

Head Coach Jumping events, Swedish Athletics Federation

Performance Center Jumps, Karlstad Sweden



Performance Environment Goals:

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Optimising performance

We want environments that create the highest possible propability of success on the field (and track)

Optimising career length

We wish for our athletes to have continued success and feel supported and appreciated through ebbs and flows of a career



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Performance environment:

Practice → *Championship What's the difference??*

Practise \approx **Preparation**:

- Everything taylored to optimize for athlete
- Comfort
- Controlled environment

Championship \approx Implementation:

- Implentation of everything we worked on
- On the field: Same movements
- Around the field: Everything different

Championship Team: How do we help athletes perform their best?



Interviews and questionaire:

Karin Torneklint, 8½ years as Head Coach 2013 - 2021 Kajsa Bergqvist, New Head Coach Dejan Mirkovic, Sports Director

- Are there common social traits to athletes with championship success?
- What are current thoughts and goals on why we handle the team the way we do?

Questionaire to 10 ex-athletes (jumpers), all WC finalists or European Medallists with 10+ national team Sweden appearances

- What has been your experience being part of Team Sweden
- Suggestions to enhance well being and performance in the team



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Common social traits of athletes with championship success

Socially Competent



Socially Comfortable

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Common social traits of athletes with championship success

Social Comfort is key, why?

- Amount of time in team before competing
- Zooming in & out of focus
- Preserving and Building energy
- Decreased anxiety
- Not me against the World, but us against the World
- It doesn't take social skills to qualify for championships, but to perform at championships...

Helena: Mondo's most important skill is his social compentence



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Group Goals

- Team Leaders support athletes & coaches to feel welcome in the team
- Environment of athletes supporting and lifting each other
- Inclusion
- Stress-free environment
- Facilitate everyone being prepared
- Facilitate fun



No matter what result you get, we want people to look forward to coming back to the team



Questionnaire quotes:

- "Love getting boosted by my team mates, supporting each other on and off the field"
- "In the beginning I was struggling with media, but after I asked for help Karin and Hilevi have supported me amazingly"
- "The Team feeling helps me relax, be more excited and less worried"
- "Love celebrating those who do well, it shows that there is more to win that there is to lose"
- "I feel like I have to perform at Team meeting. I worry about it before the meeting and it takes a lot of energy"
- "I wish I could decide even more for myself when to be part of the team and when to be by myself"

Performance environment optimisation, Sweden

Specific tools:

- HC treating everyone equally Karin watched every athlete and gave every athete a review at Team meeting
- Everyone introducing themselves to the team
- Create occasions to zoom in & out of focus
- Celebrate opportunity to perform
- Celebrate effort
- Give individual freedom to those who need
- Pre-championship preparation
 - \circ Practical / medical / food needs
 - \circ Social needs & expectations
 - o Media help
 - \circ $\,$ Game plan for competition day



slido



Implementation in Championship Team

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Prioritise time before & after championships to optimise execution and comfort

Pre-Championship:

Take information from athletes:

- Social needs
- Medical / physio needs / Training needs
- Media needs
- Competition needs (specific help, support)

At Championship:

Balance:

- Team building
- Individualisation
- Everyone feeling supported & important

After Championship:

- Evaluate
- Get to know important individual needs for upcoming Championships



Stress Management in International Championships

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Renaud Longuèvre (FRA)

High Performance Director at Israel Athletic Association



Key terms

- STRESS in COMPETITION SPORT: When we talk about stress in sport generally, we talk about « a dynamic relationship between athletes and their practice and competition environments »
- **COMPETITION STRESSORS**: factors or demands that may raise athletes' anxiety (goals set, expectations from family members and coaches, financial matters, media expectation...)
- ATHLETE'S RESPONSE: the term anxiety is the common term used to talk about an athlete's response. It includes somatic symptoms that may appear.





Athlete's communication field

After travel (Israel: 15-20 people) D-2



Athlete's communication field

Warm-up before call room H-3



Athlete's communication field

Call room

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1 (No 15-20 3 electronic device)

Stress management

- Anxiety rises when the communication field of the athlete reduces
- The reduction of the communication field happens before each successive round in the championships
- Before a final with medal chances, athletes are more isolated














The Call Room

Jean GALFIONE (Olympic Pole Vault Champion, Atlanta 1996) :

« In the call room it was a frustrating time with nothing to do but wait. When the officials were leading us to the pole vault area I was telling myself « I am back home » and it was a time of pleasure. »





The Call Room

Jimmy VICAUT (European 100m record holder) :

« Leaving the call room to go to the starting blocks is never a time of pleasure because the start in sprints is something we fear a lot. If you miss it, your competition is over without competing. If you start well, and you feel that your speed is high after 50m, then here is the time for pleasure. »





The Call Room

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Mélina ROBERT-MICHON (Olympic Discus Silver medallist, 2016; 5 participations in OG) :

« My first OG in Sydney I remember that I was a spectator in the call room. I lost a lot of energy watching the other girls. Then I decided to give myself a small warm-up programme to do inside the call room. Now when I see young athletes watching me doing my warm up I know that I have an advantage over them. »



The Call Room

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Leslie DJHONE (French 400m record holder: 44.46 s) :

« At the Athens Olympic Games, inside the call room, the three Americans started to pray together. I suddenly felt alone and weaker. They take an advantage over us, the Europeans, acting like this. »



The Call Room

Stephane DIAGANA (World 400m hurdles Champion, 1997):

« 20 minutes before winning the World Championship I tried to find a door to escape from the call room. I did not find any, fortunately. It did not last too long but I was telling myself « what are you doing here, you have a good diploma, you don't need athletics, you could be on a beach... ». Then I calmed down and went on the track to achieve something great. »



The Call Room

Ladji DOUCOURE (World 110m hurdles Champion, 2005) :

« In the call room I suddenly felt very tired as if I was going to sleep soon. I remember that I refused to let my body lose its tone like this. I hit my own face to wake up and it brought me back into the game. »



The Call Room

Mehdi BAALA (2X European 1500m Champion, 2002-2006) :

« I grew up in a ghetto and there I learnt not show my weaknesses and not to talk about my fears, not to appear weak and become a victim. But in athletics it has been a problem for me because I haven't been able to tell my coach about how to manage the call room in championships. I think I lost 2 or 3 medals because of it. One time I was telling myself not to be active in the call room to save energy but I entered the track with cold legs. I was unable to respond to accelerations during the race. One time I was doing the opposite trying to keep my legs warm inside the call room but entering the track tired. All my career the call room has been a nightmare for me. And I never found the good solution because I never asked for any help. »



The Call Room

Kevin MAYER (World Decathlon Record Holder) :

« My competition starts the day before, in the evening. After that, I don't want to be bothered. The call room is not a problem for me because we spend two days on the track and we have a special room for combined events where we eat, rest and even sleep. »





The Call Room

Diana VAISMAN :

« In Berlin 2018, it was my first senior championship and we had a long way to walk in a tunnel between the warm up area and the track. I wanted to arrive quicker to the track but the officials were walking slowly. I told them to accelerate but they asked me to slow down. It frustrated me. »

How to prepare our athletes



- To work with a sport psychologist. « Brain is a muscle »
- It is important to inform them about the difference between international championships and national competitions or meetings. They also need to know that it is normal to fear this insecure situation. The coach has to encourage them to be able to tell about their fears
- Of course, nothing replaces experience
- Telling our athletes to communicate with other athletes if they know someone inside the call room

How to prepare our athletes



- To programme a routine to stay active in the call room
- To pay attention to athletes who « close » themselves up before important competitions
- Not to isolate an athlete from the rest of the team, because the support of the others counts
- In training, to ask them to leave smartphones in a box

Coffee Break 11:15 – 11:30

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We wish you a good coffee break!



Recognising and Developing a Small Management System for High Excellence

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Ljiljana Culibrk (CRO)

Founder and Manager of Agram Track & Field Club, Croatian's most successful club





2016 Olympic Games Rio de Janeiro

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Sandra Perković



- Gold in Discus throw
- 25 years old
- 13 years of training

Sara Kolak



- Gold in Javelin throw
- 21 year old
- 10 years of training

Blanka Vlašić



- Bronze in High jump
- 32 years old
- 18 years of training

HOW DO WE DO IT?

With very limited finances and limited athletic infrastructure EUROPEAN ATHLETICS HIGH PERFORMANCE CONFERENCE WARSAW 2022

GRE

Basic strategy from 2015 – 2024



The strategy was pointed in two directions:

Short term measures

Long term measures

Basic strategy from 2015 – 2024

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SHORT TERM MEASURES

- Identifying the "microsystem"
- Increase of the financial base

Basic strategy from 2015 – 2024

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LONG TERM MEASURES

• Building and renovating the athletic infrastructure

• Selection of young athletes

Strategy implementation





> Dynamic and organised actions



Positive sequence of changes

Teams of experts, with experience and a degree in sport education, should guarantee high performance and competitive achievements.

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Federation monitoring system HEAD COACH AND EXPERT COMMISSION

MICROSYSTEM



Current monitoring status



Coaches

City of Zagreb - 28 professional coaches publicly funded

Coaches work with seniors and younger age groups.



Selection of talented individuals

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- Selection is a procedure of choosing, according to certain criteria
- For the selection procedure to be correct, it is essential to have knowledge of characteristics that distinguish young athletes and probable future champions – Champion model

THE GREAT ATTENTION IN THE RECOGNITION PROCESS IS:

- 1) analysis of athletes' **basic anthropological abilities** and characteristics
- 2) analysis of athletes' **specific abilities**, characteristics and knowledge
- 3) registration and evaluation of **sport performance** or competition parameters

Olympic medallist comparison



Athlete	Beginning of training	Junior competitive level	The best feature in terms of athletic achievement
Sandra Perković	12 years old	Bronze medal at the World Junior Championships	Technical implementation
Sara Kolak	11 years old	Bronze medal at the World Junior Championships	Stability of the spine and shoulder-elbow joint
Blanka Vlašić	6-7 years old	Gold medal at the World Junior Championships X 2	Anthropometry

Croatian athletics competition reality

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National competition programme for average U18 athlete

Croatian championships U18, U20
Croatian team championships U20
Croatian cup championships U20

Local league competition
Junior meetings

≈ 20 starts / per season

Competition programme for talented U18 athlete

Croatian championships U18, U20, U23, senior
Croatian team championships U20, senior
Croatian cup championships U20, senior
Local league competition
All meetings in region

≈ 30 starts / per season

International Success of our athletes



2015

Ivan Horvat	Final, World Championships, Beijing
Blanka Vlašić	Silver medal, World Championships, Beijing
Ana Šimić	Final, World Championsips, Beijing
Sandra Perković	Silver medal, World Championships, Beijing
2016	
Filip Miljaljević	Bronze medal, World Indoor Championships, Portland
Sara Kolak	Bronze medal, European Athletics Championships, Amsterdam
Sandra Perković	Gold, Olympic Games, Rio de Janerio
Sara Kolak	Gold, Olympic Games, Rio de Janerio
Blanka Vlašić	Bronze medal, Olympic Games, Rio de Janerio
Stipe Žunić	Final, European Championships, Amsterdam
Ivan Horvat	Final, European Championships, Amsterdam

2017		
Stipe Žunić	Bronze medal, World Championships, London	
Sandra Perković	Gold medal, World Championships, London	
Sara Kolak	Final, World Championships, London	
2018.		
Sandra Perković	Gold medal, European Championships, Berlin	
Stipe Žunić	Final, European Championships, Berlin	
2019		
2013.		
Sandra Perković	Bronze medal, World Championships, Doha	
Sandra Perković Filip Mihaljević	Bronze medal, World Championships, Doha Final, World Championships, Doha	
Sandra Perković Filip Mihaljević Sara Kolak	Bronze medal, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha	
Sandra Perković Filip Mihaljević Sara Kolak Ana Šimić	Bronze medal, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha	
Sandra Perković Filip Mihaljević Sara Kolak Ana Šimić 2021.	Bronze medal, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha	
Sandra Perković Filip Mihaljević Sara Kolak Ana Šimić 2021. Sandra Perković	Bronze medal, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha Final, World Championships, Doha 4th, Olympic Games, Tokyo	

Insights into Olympic medallists

Training programme

Athlete	Major Success
Sandra Perković	2x Olympic Champion 2x World Champion 5x European Champion
Blanka Vlašić	2x World Champion 1x European Champion 2x Olympic Games medallist
Sara Kolak	1x Olympic Champion 1x European Championships medallist

Thank you for your time!



Panel V 12:00 – 12:45

Systemic Performance & Talent Development, Leadership and managing teams



Marco Cardinale (ITA) Lecturer



Ljiljana Culibrk (CRO) Lecturer



Renaud Longuèvre (FRA) Lecturer



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Anders Möller (SWE) Lecturer

Closing of the Conference & final remarks

Jean Gracia (FRA)

First Vice President of European Athletics





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THANK YOU!

End of the conference

See you at lunch, otherwise we already wish you a safe travel