

Langfristige Entwicklung von Athletinnen und Athleten

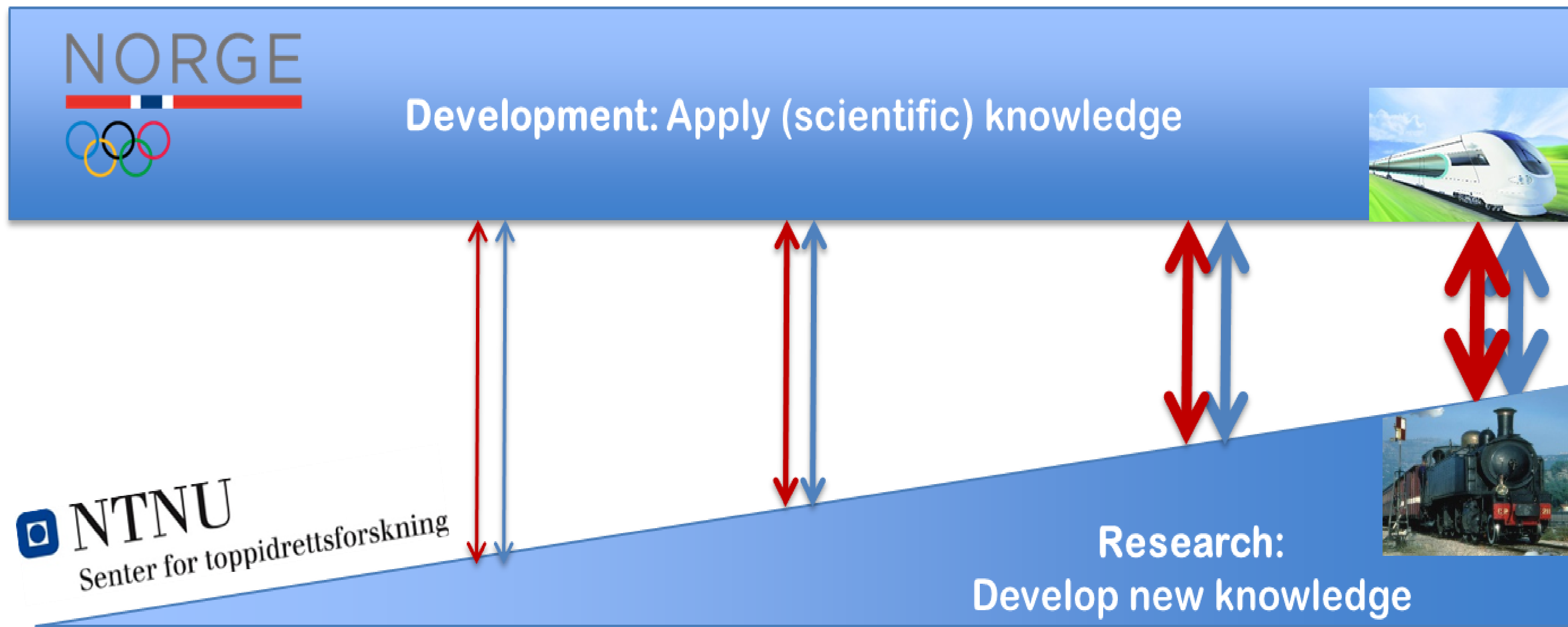
Øyvind Sandbakk

Professor Norwegian University of Science and Technology

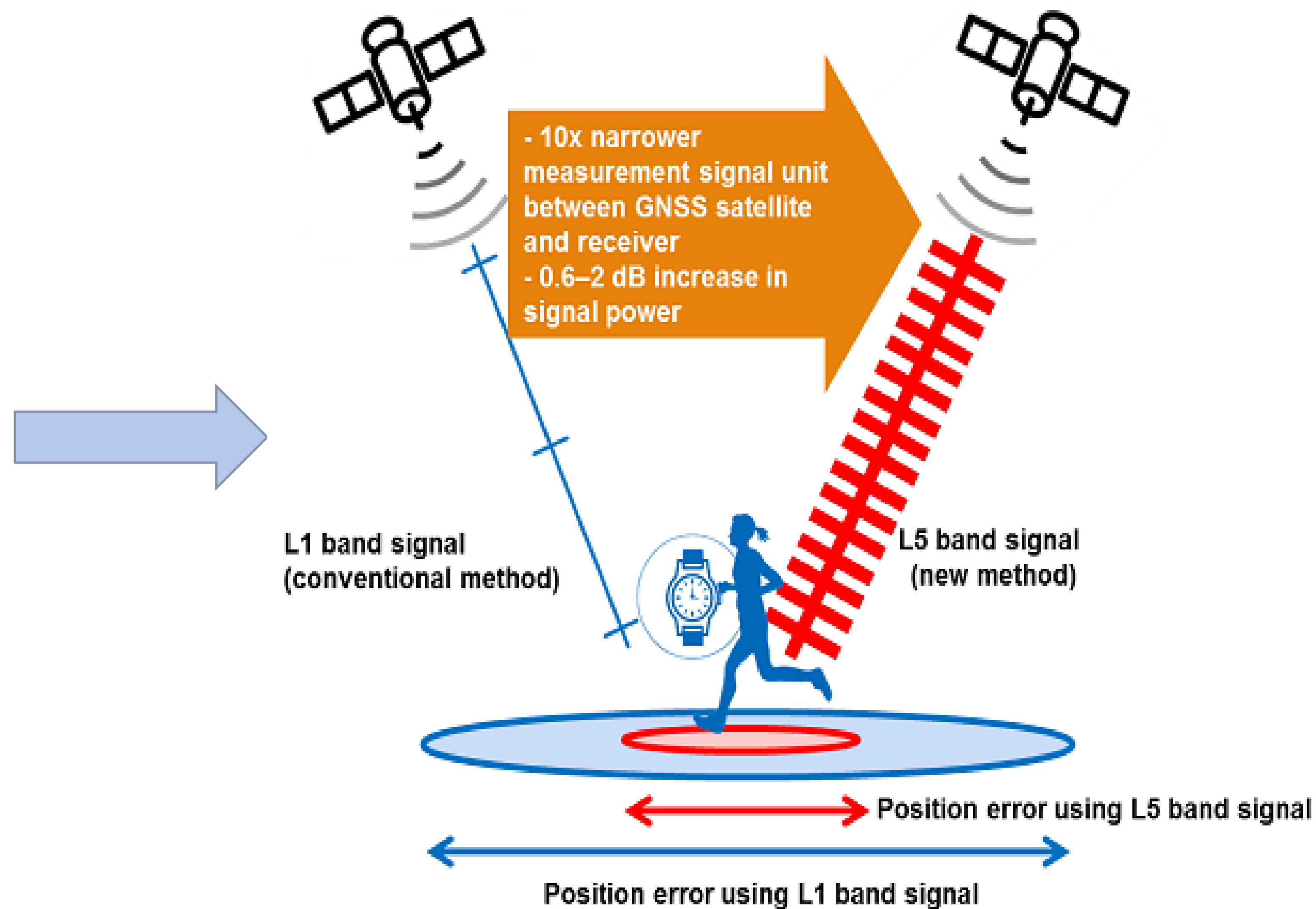
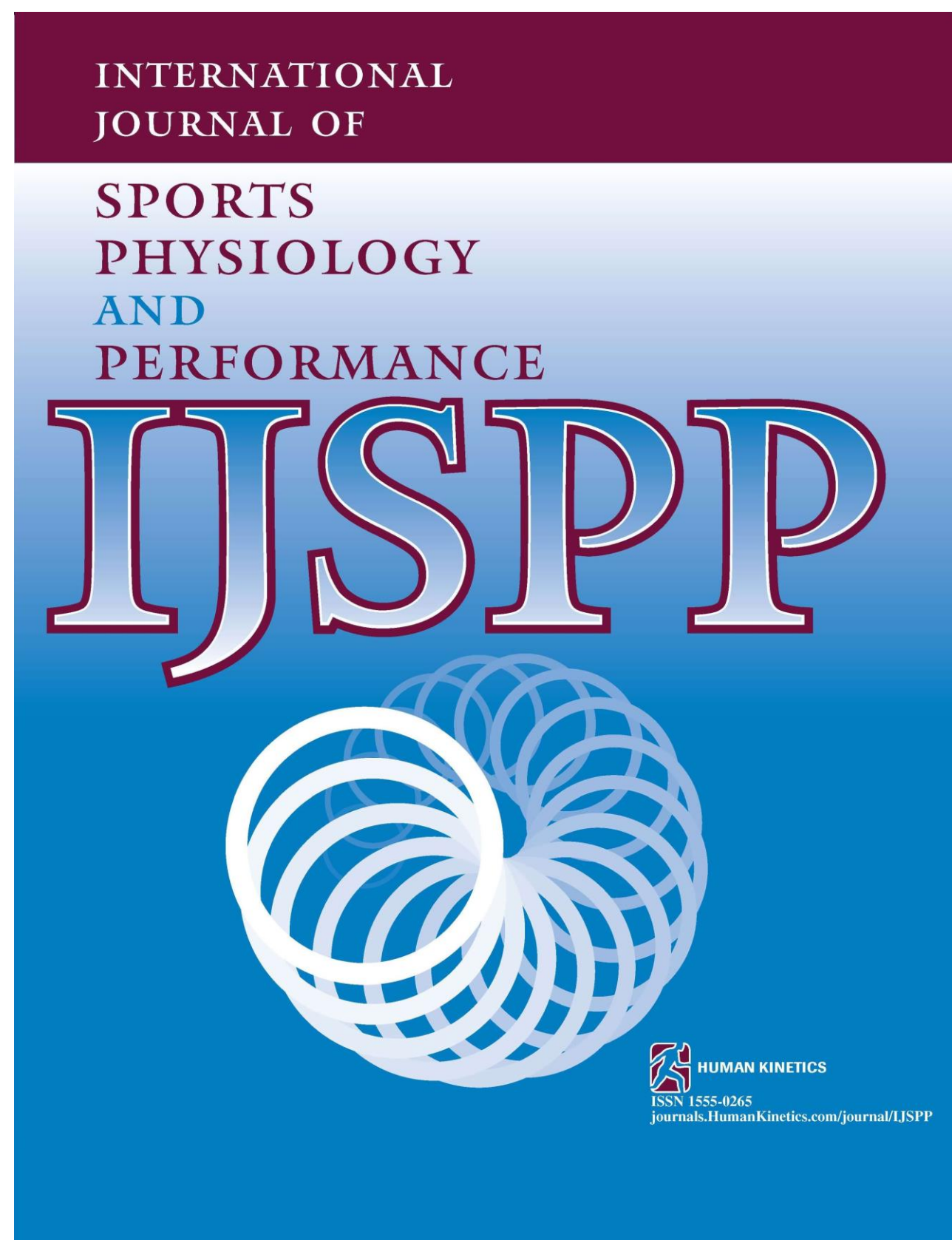
Professor II School of Sport Sciences, UiT

Director for the Centre for Elite Sports Research

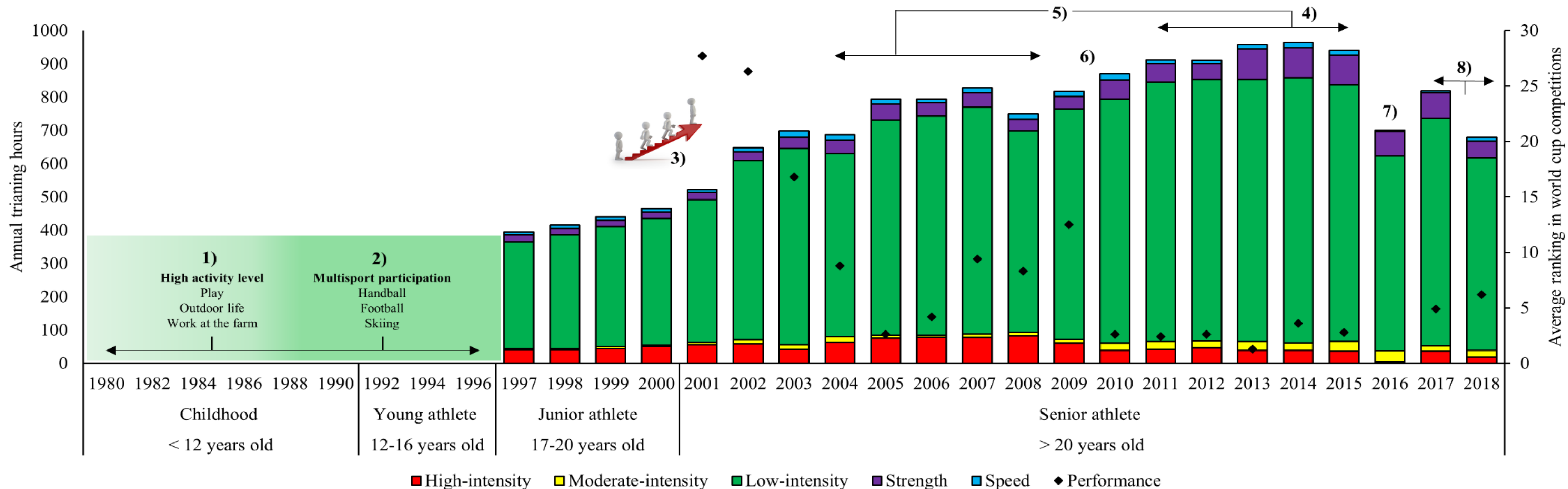
Editor in Chief International Journal of Sports Physiology and Performance







Long-term performance-development

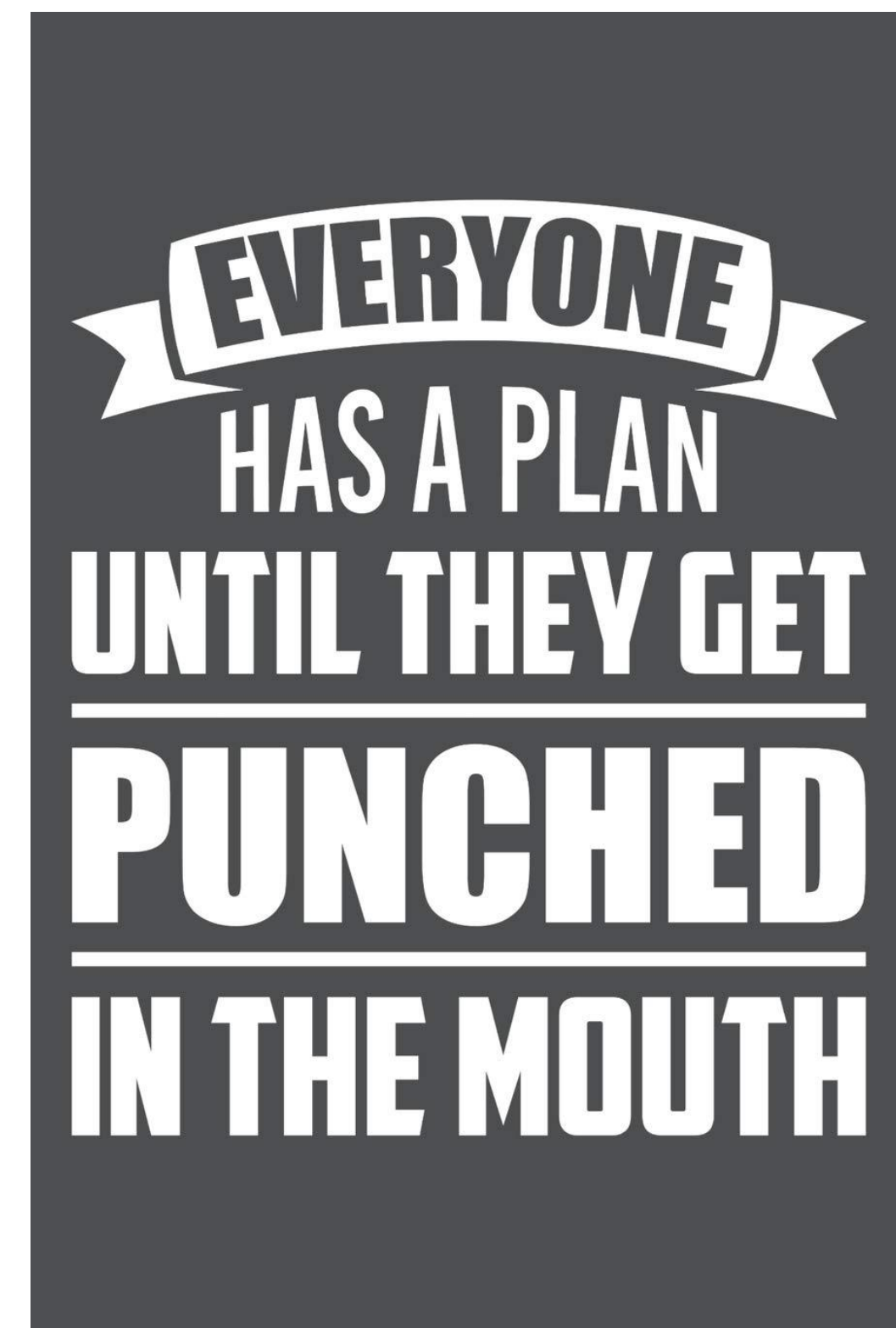


The Training Characteristics of the World's Most Successful Female Cross-Country Skier

Guro S. Solli¹, Espen Tønnessen² and Øyvind Sandbakk^{3*}

Individualization process

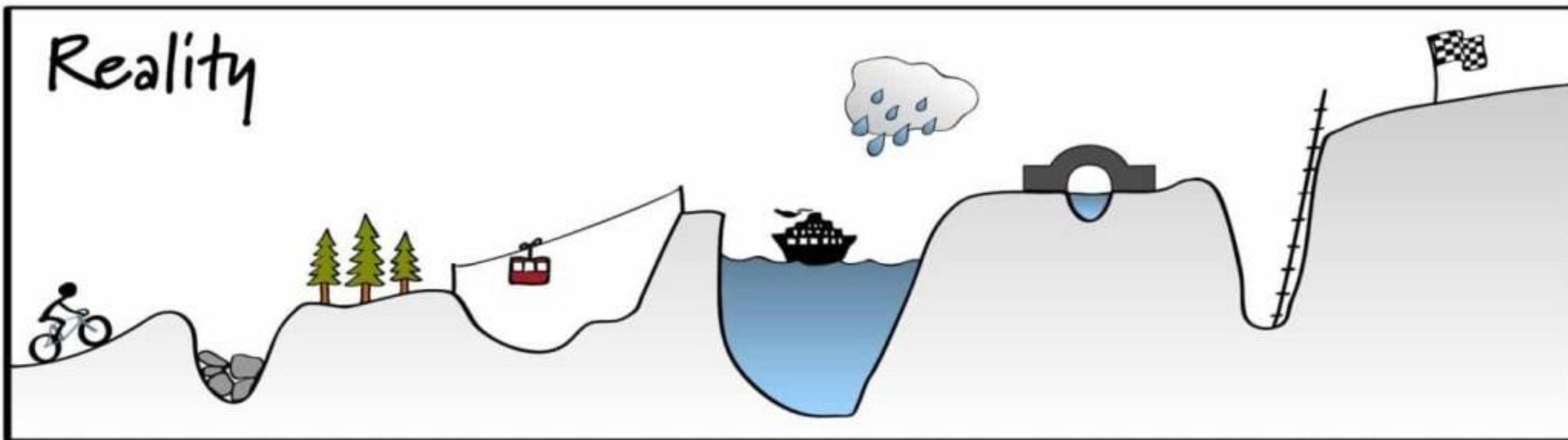
1. Goal setting
2. Gap-analysis
3. Game-plan
 - Training content
 - Training periodization
 - Quality of training
 - Competition and camp scheduling
 - Monitoring, evaluation and testing
 - Follow-up/coaching of athletes



Your Plan



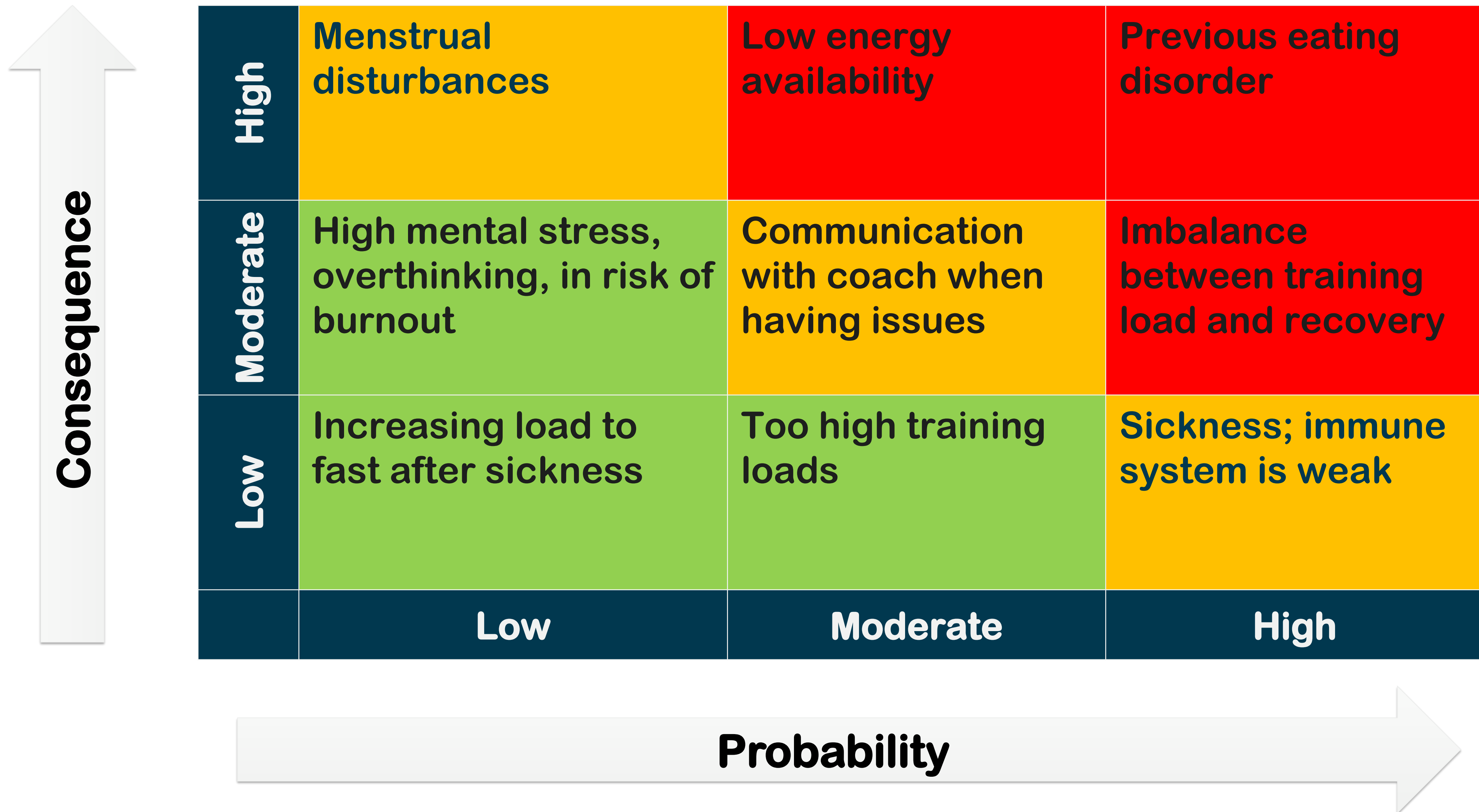
Reality



**What are the key factors to optimize
the long-term development?**

**What are the main mistakes that
limit development?**

Risk assessment



Prevention and treatment

Risk	Prevention	Treatment
Previous eating disorder	<ol style="list-style-type: none"> 1. Involvement of core team 2. Psychology-checks 3. Involve parents 	<ol style="list-style-type: none"> 1. No competition 2. Involve experts 3. Reduce training
Low energy availability	<ol style="list-style-type: none"> 1. Energy intake plan 2. Med-checks (LEA) 3. Glucose monitoring 	<ol style="list-style-type: none"> 1. Reduce training 2. Nutritional guidance 3. Close follow-up
Imbalance between training load and recovery	<ol style="list-style-type: none"> 1. Daily log of training&rec. 2. Weekly standard sessions 3. Periodization plan 	<ol style="list-style-type: none"> 1. Two weeks off 2. Progressive build-up 3. Close follow-up and tests

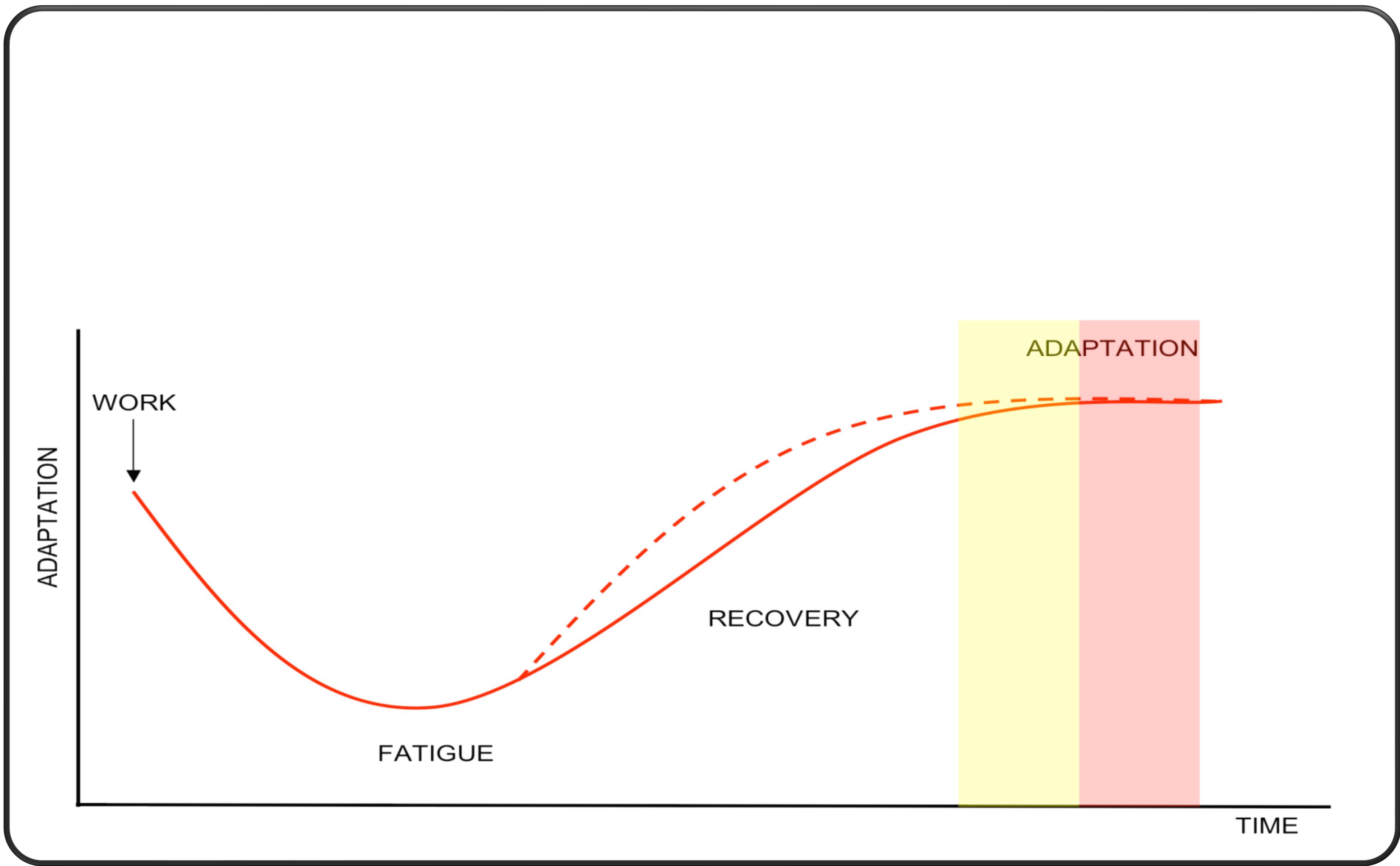
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**What are the main mistakes that
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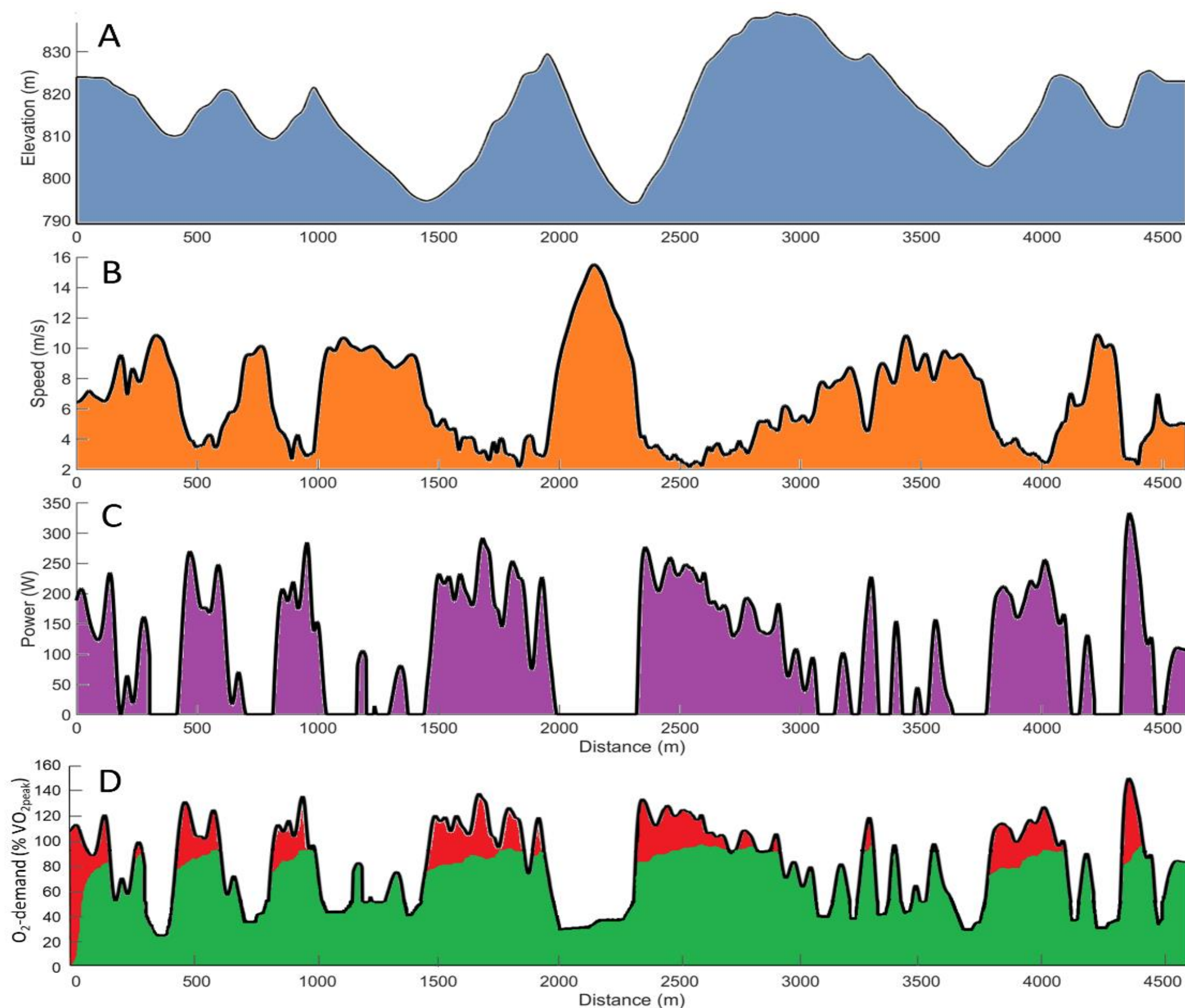
Key optimization factors

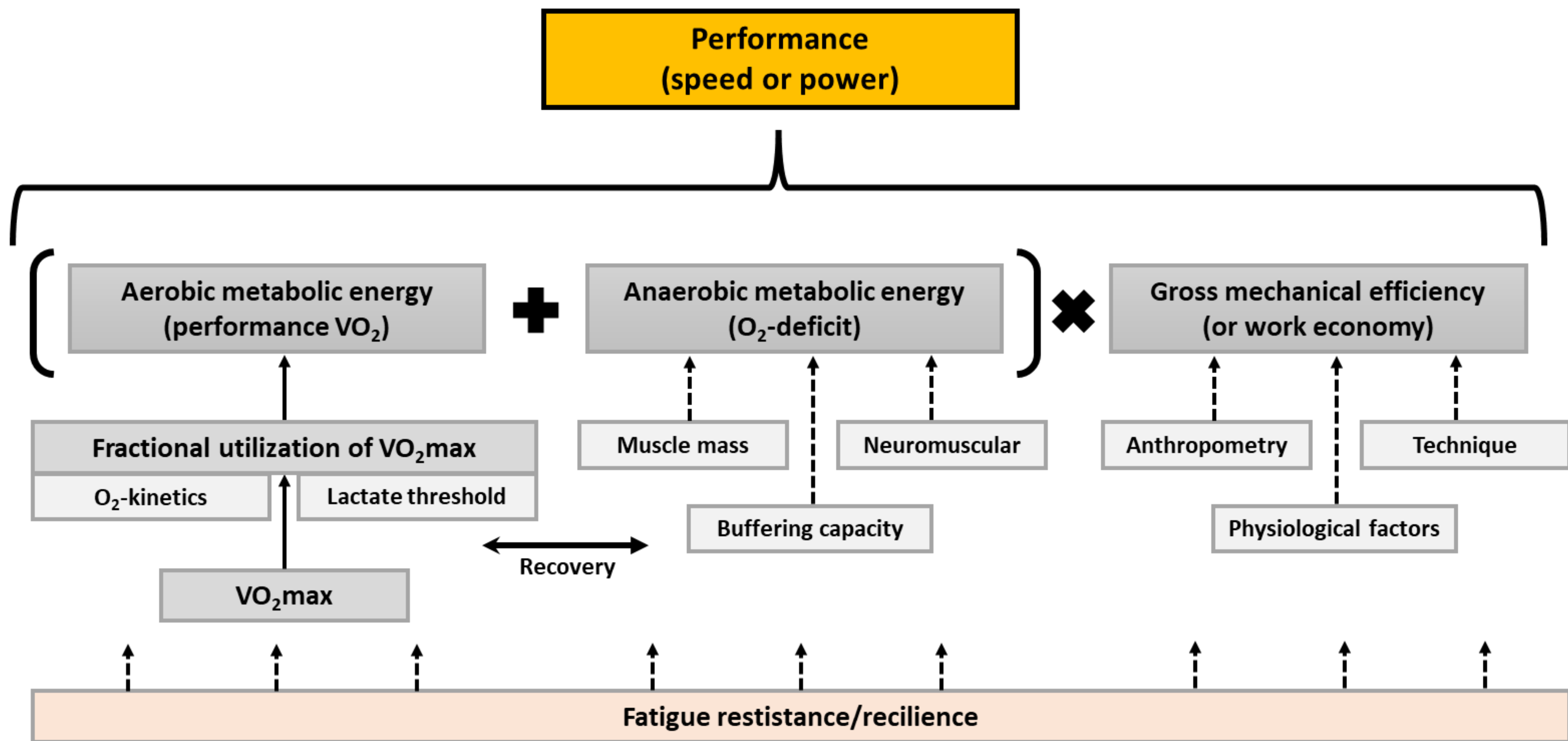
- **Target the most important performance demands**
- **Make training and competitions learning arenas**
- **Quality assure the development-process**
- **Ensure life balance: training philosophy should match life philosophy**

**Target the most important
performance demands**



Demands of XC skiing

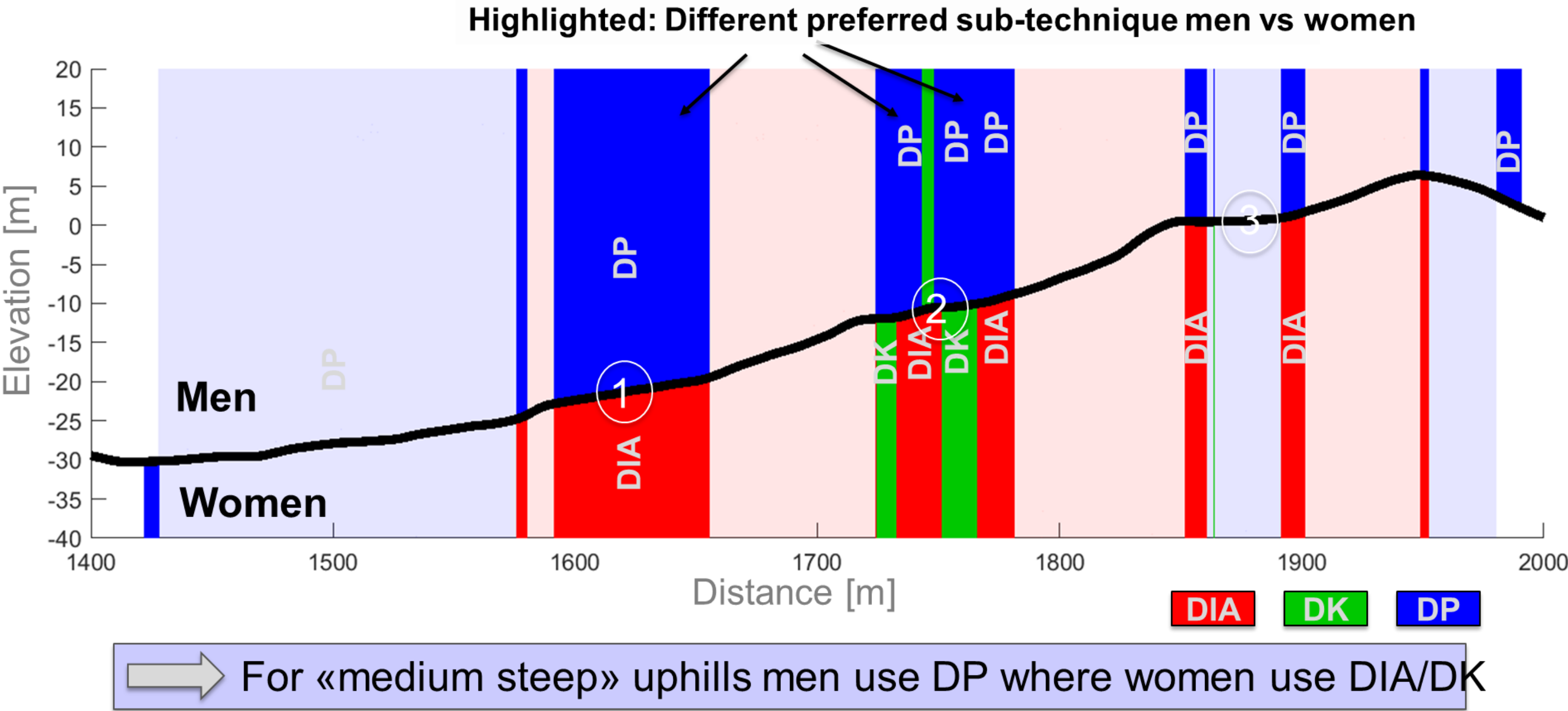


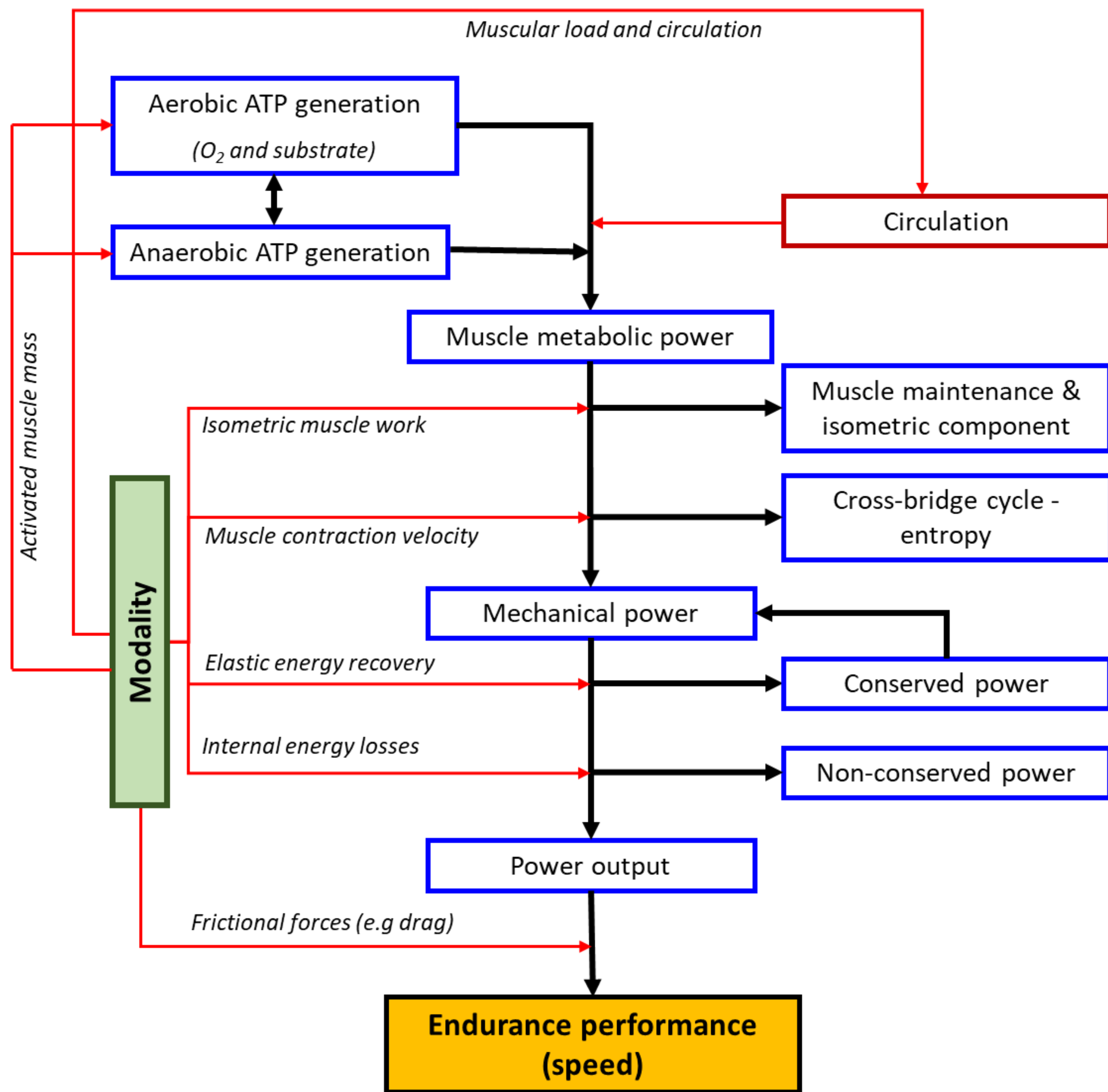


RESEARCH ARTICLE

Sex-based differences in sub-technique selection during an international classical cross-country skiing competition

Guro Strøm Solli^{1,2*}, Jan Kocbach^{2,3}, Silvana Bucher Sandbakk⁴, Pål Haugnes², Thomas Losnegard⁵, Øyvind Sandbakk²





**Training content
x
Training quality
+
...and recovery**

Before training:

What are my goals for the session?

What should I improve today?

During training:

Am I 100% "present"?

Am I doing what I set out to do?

After training:

How did I carry out the training?

What can I do better next time?



**Training and competitions are
learning arenas**

Bucher Sandbakk S¹, Tønnessen E², Haugen T², Sandbakk Ø^{3,4}

Training and Coaching of Female vs. Male Endurance Athletes on their Road to Gold. Perceptions among Successful Elite Athlete Coaches

Training und Coaching von weiblichen vs. männlichen Athleten auf ihrem Weg zu Gold? Einschätzungen erfolgreicher Trainer von Eliteathleten

SHORT REPORT

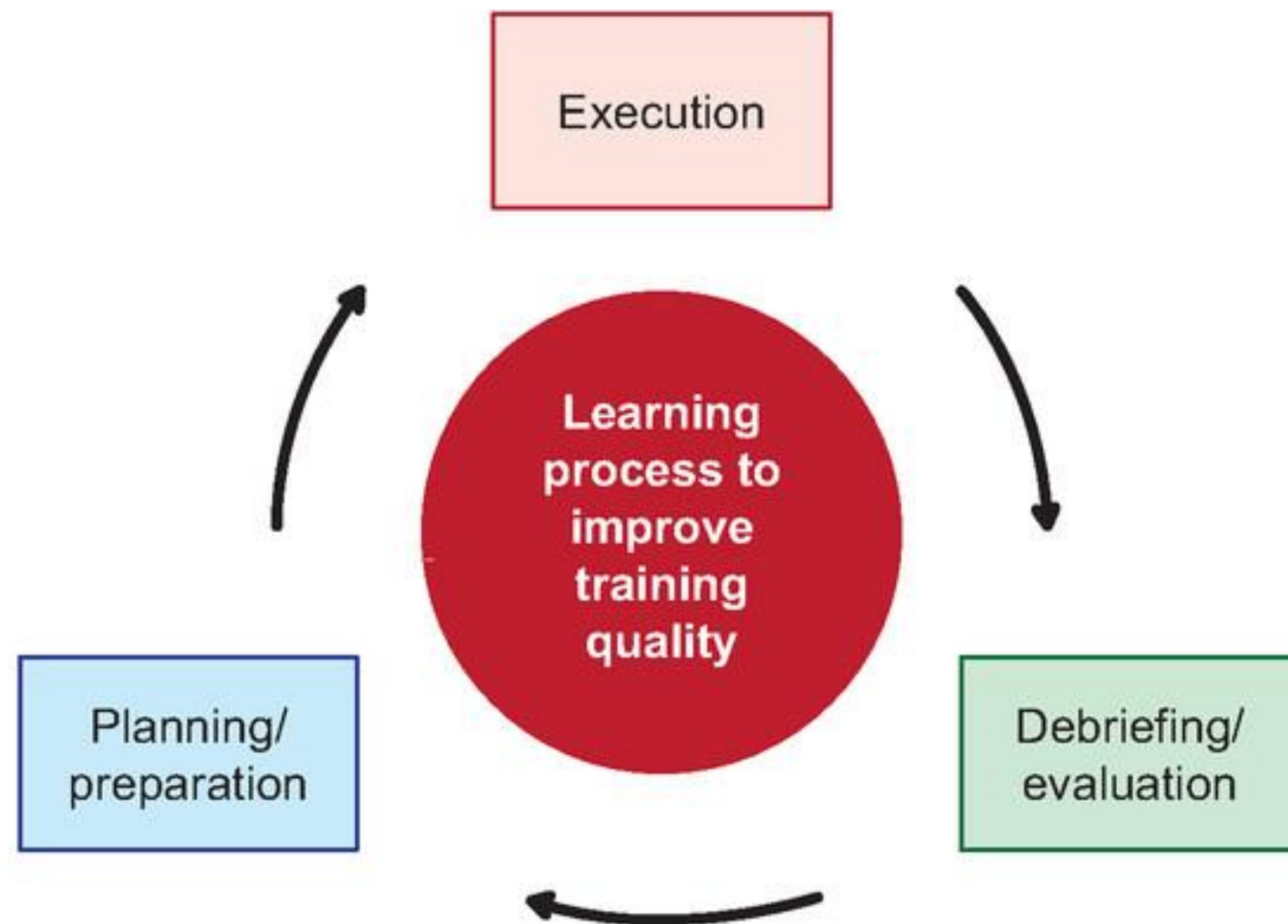
ACCEPTED: October 2022

PUBLISHED ONLINE: November 2022

Bucher Sandbakk S, Tønnessen E, Haugen T, Sandbakk Ø. Training and coaching of female vs. male endurance athletes on their road to gold. Perceptions among successful elite athlete coaches.. Dtsch Z Sportmed. 2022; 73: xx-xx. doi:

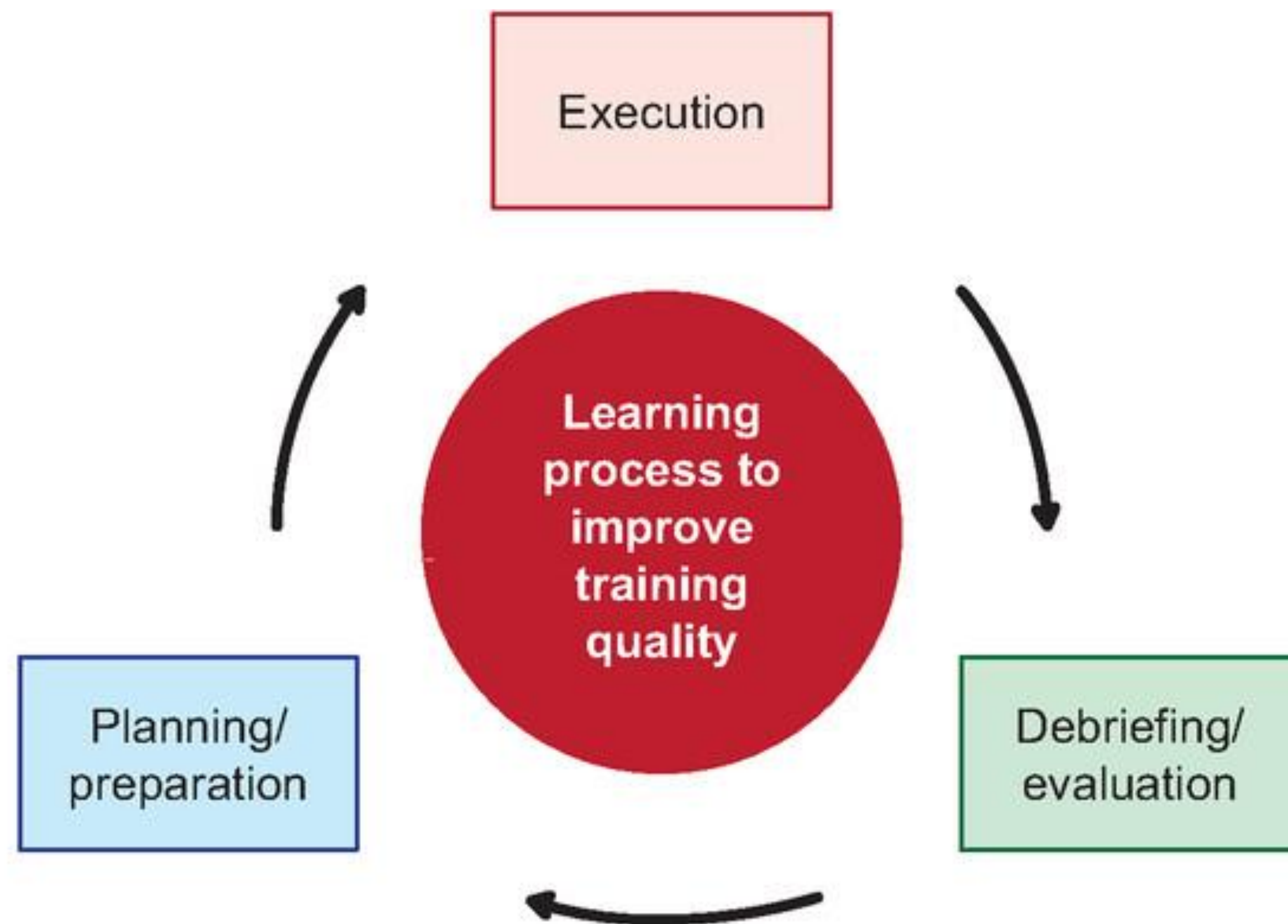
- All coaches adjusted their key training and coaching principles to the individual athlete
- A coach-driven and athlete-centered individualization process was essential to create trust, mutual understanding, and optimal training content as an outcome
- Possible sex differences were revealed as part of this process

Quality of training process

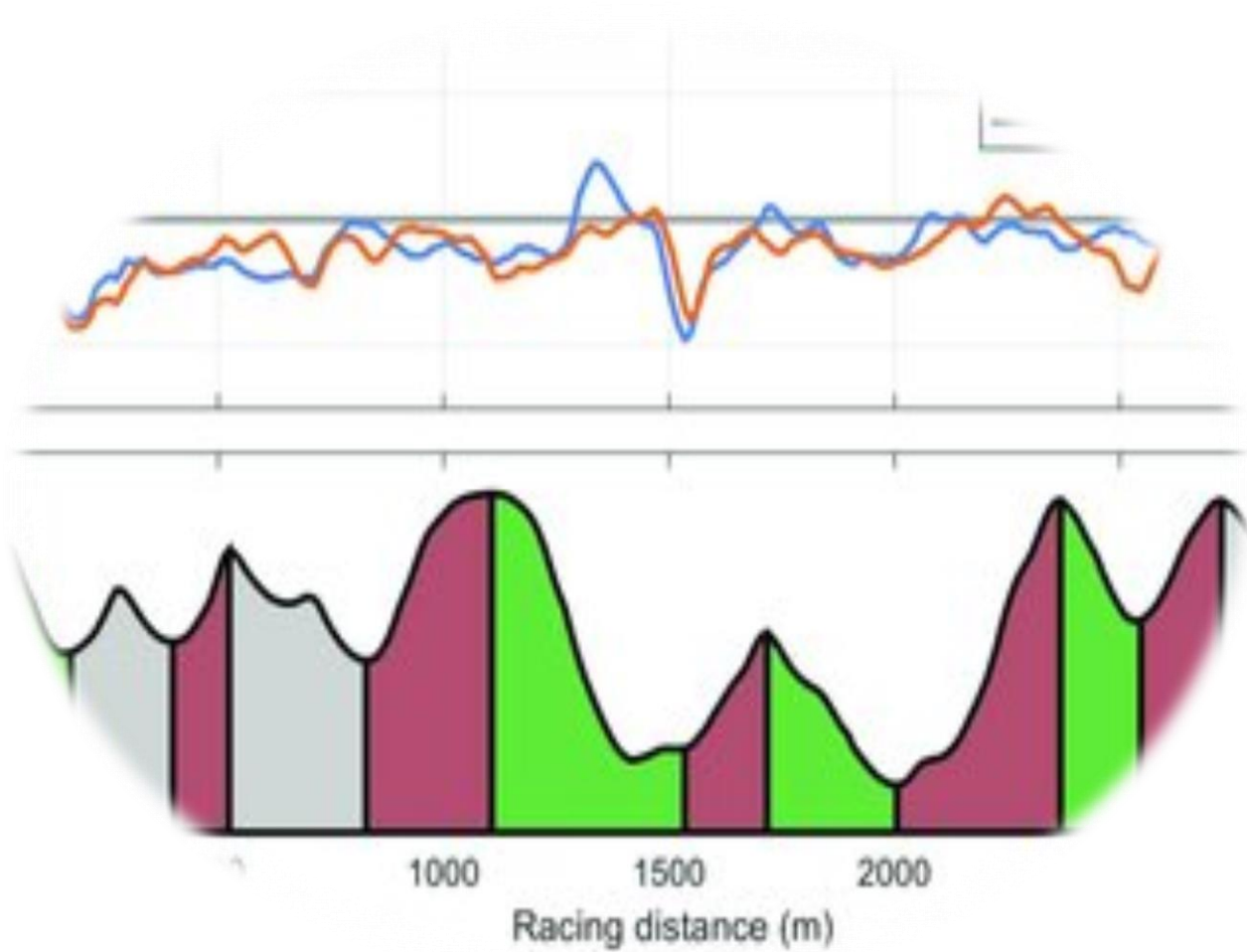


Haugen et al. (2023)
Bucher Sandbakk et al. (2023)

Quality of training sessions



Haugen et al. (2023)
Bucher Sandbakk et al. (2023)



**Objective measures calibrate
«gut feeling» and support the
decision-making process**

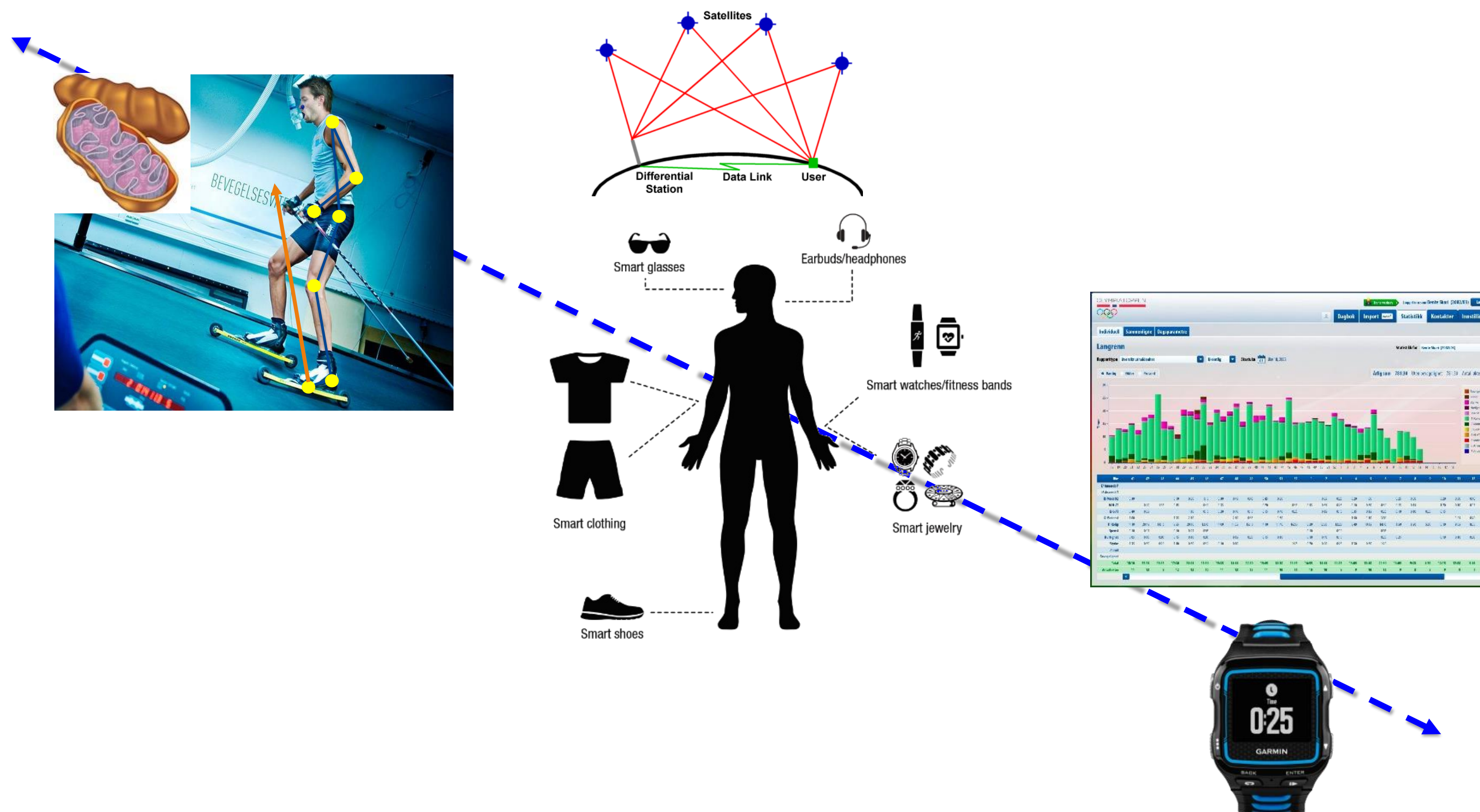
**It provides an arena for
effective communication**



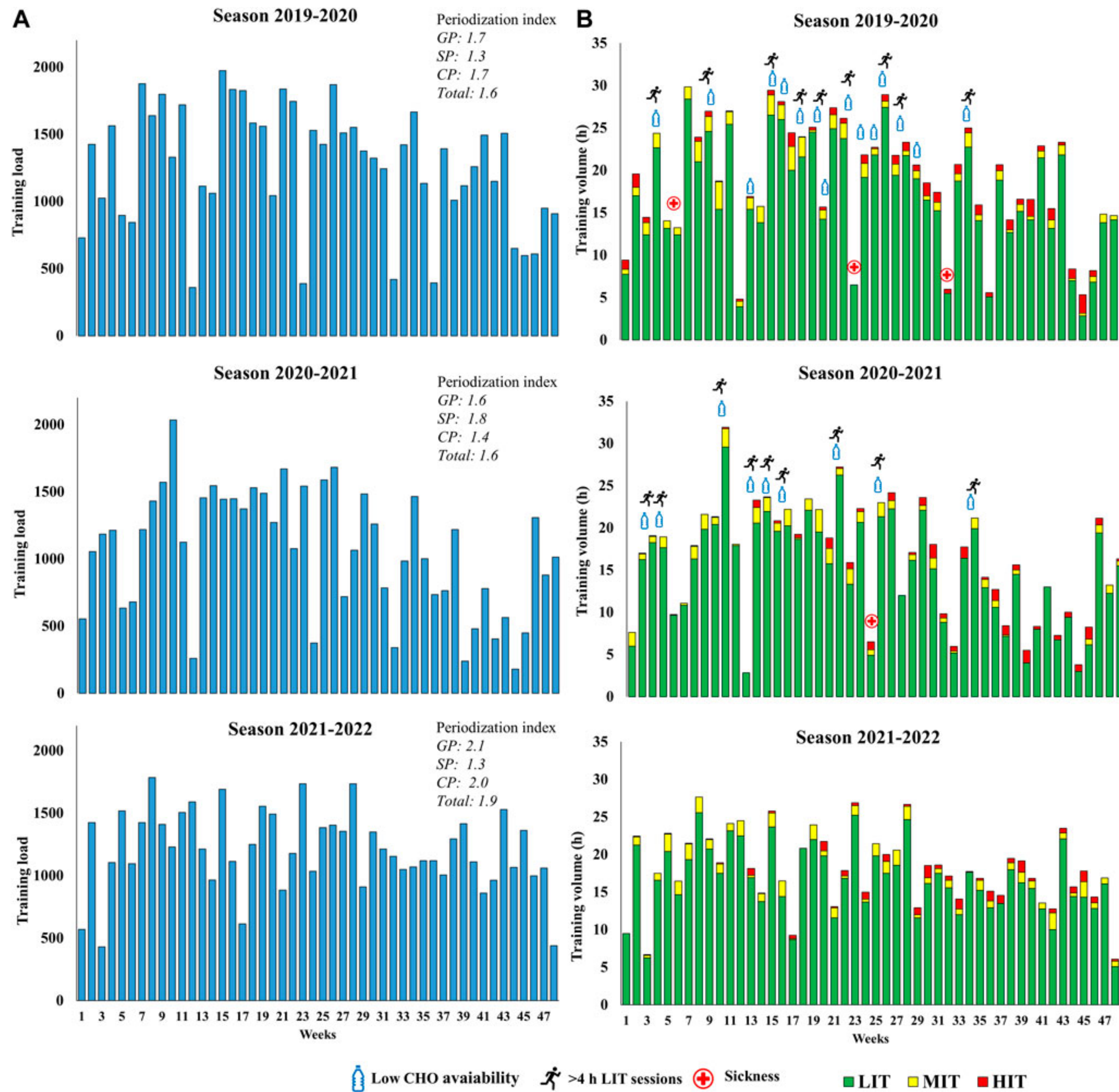
**The development-process is
quality assured**

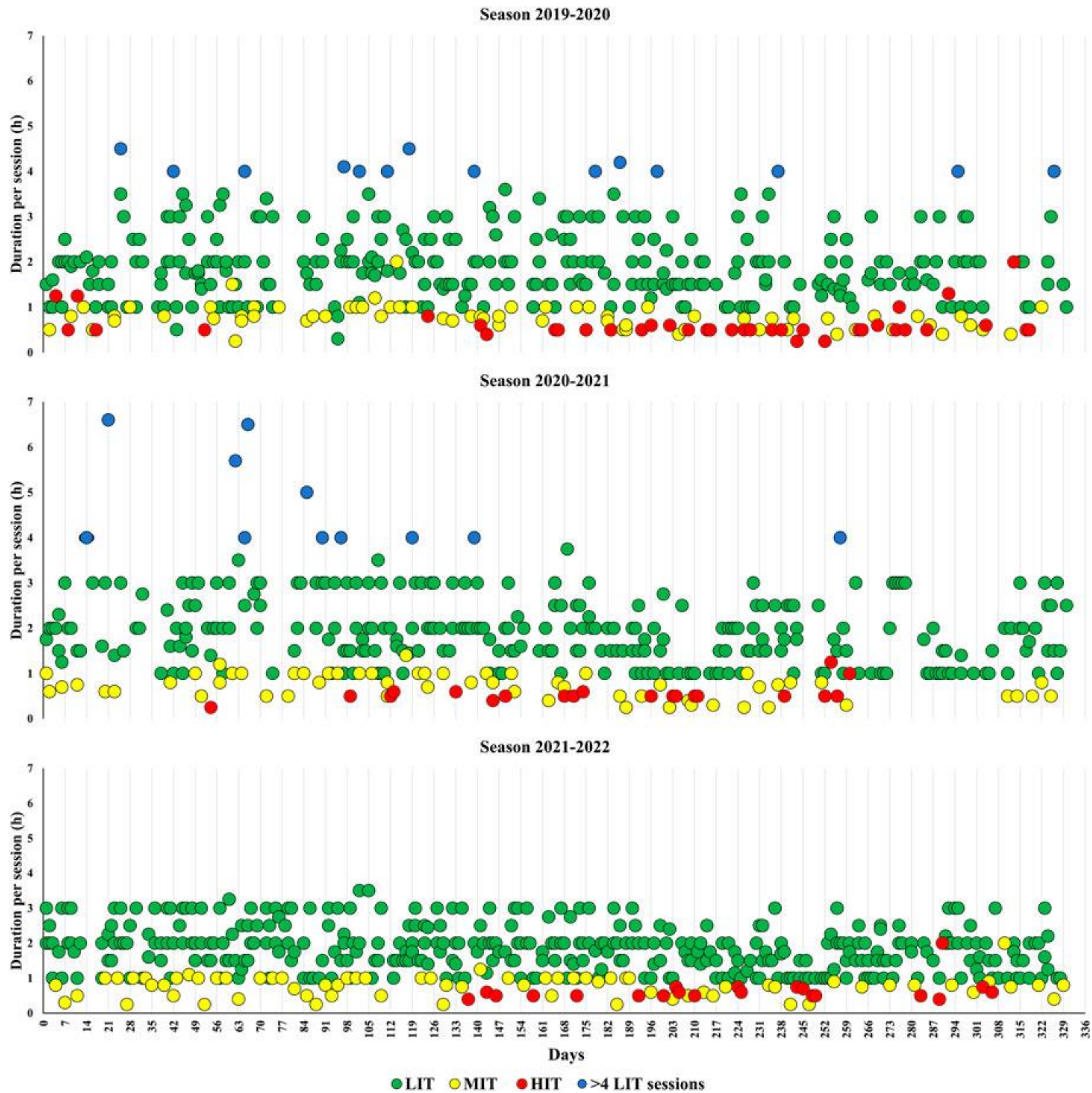
Objective information

Accuracy



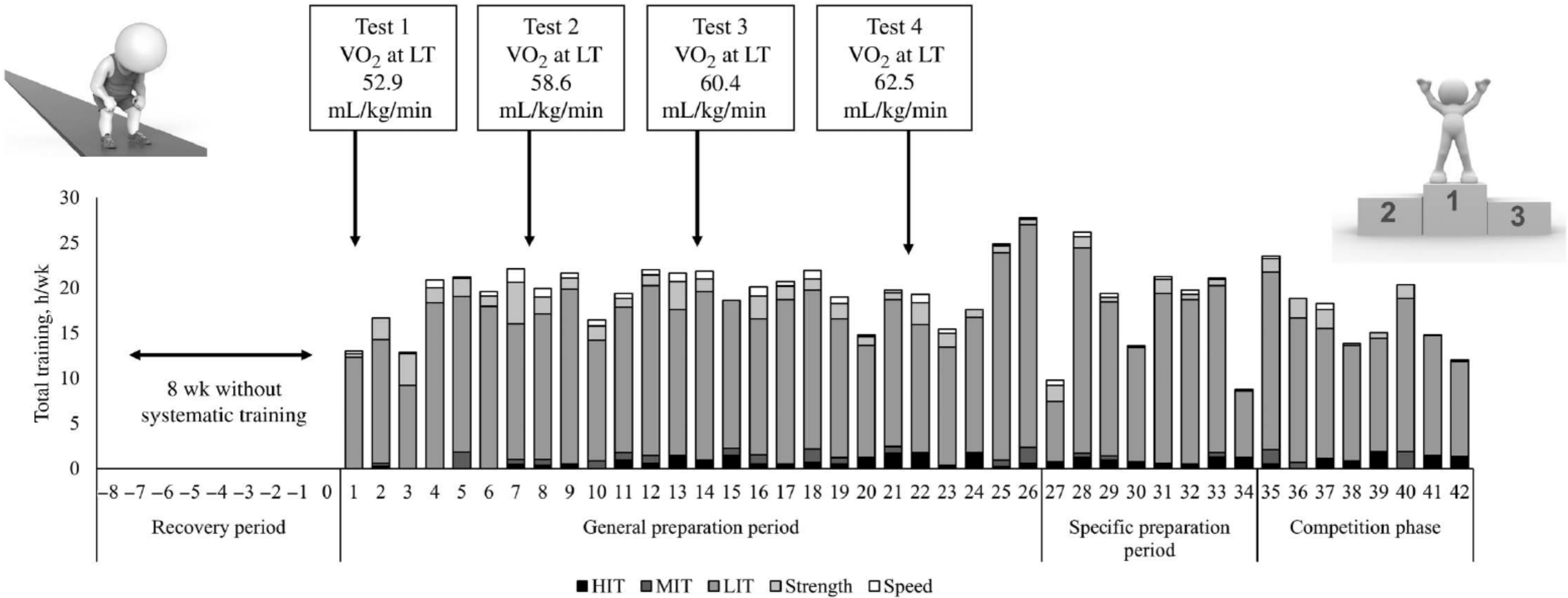
Functionality





The Multidisciplinary Process Leading to Return From Underperformance and Sustainable Success in the World's Best Cross-Country Skier

Guro Strøm Solli, Espen Tønnessen, and Øyvind Sandbakk



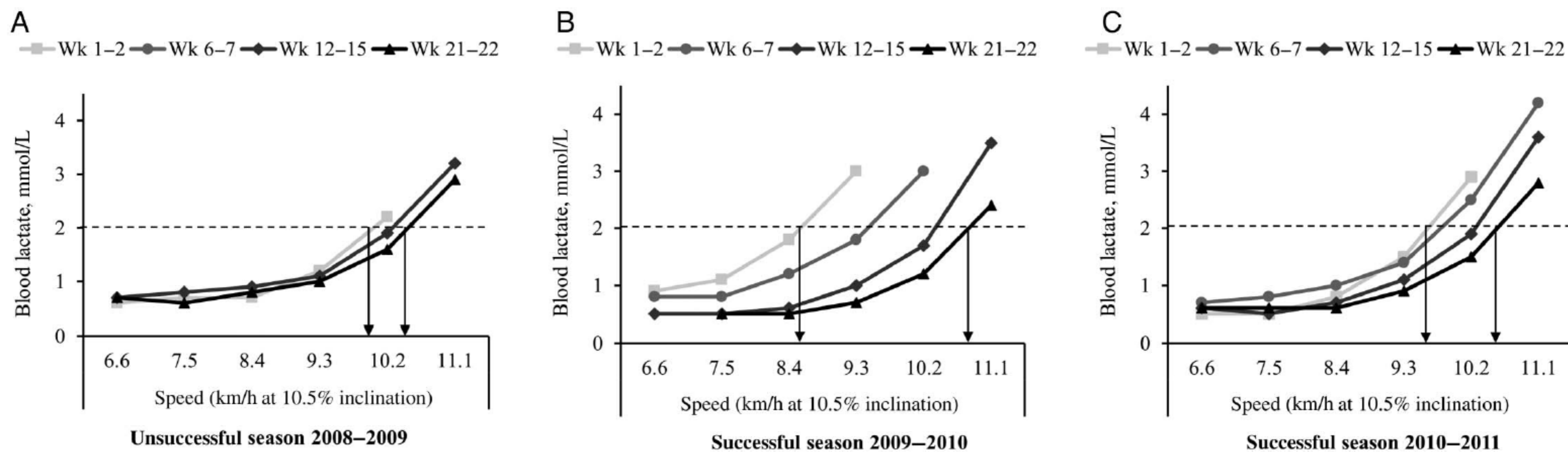


Figure 3 — The lactate profile curves during equivalent time points during the unsuccessful 2008/2009 season and the 2 subsequent successful seasons 2009/2010 and 2010/2011.

The athlete's perspective

It doesn't make sense to hire smart people and **tell them** what to do; we hire smart people so they can **tell us** what to do.



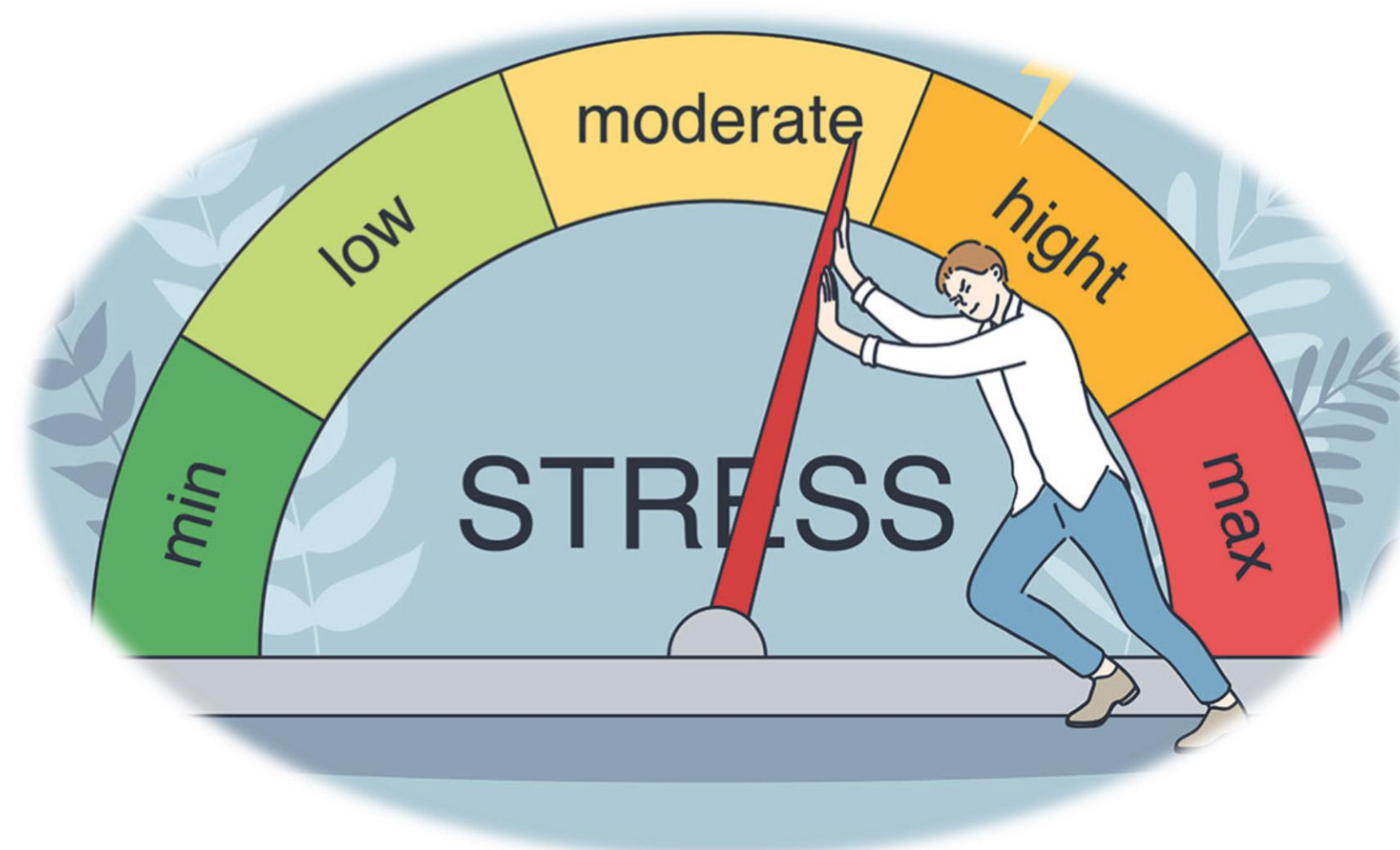
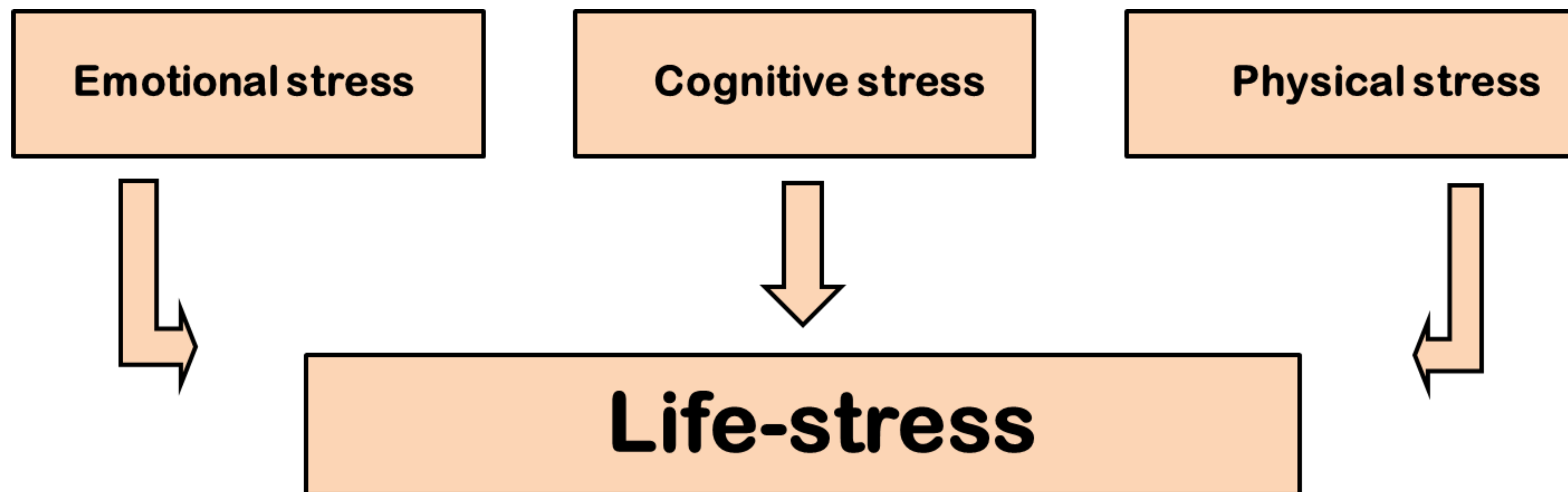
What did you think about?

How did you feel?

Informed decision-making



**Life balance:
How are you, REALLY?**



...driven by passion
...sustained by good health

A good coach can change a game

A great coach can change a life!

Good luck!