



# Supporting coaching actions for the Finnish XC skiing national team



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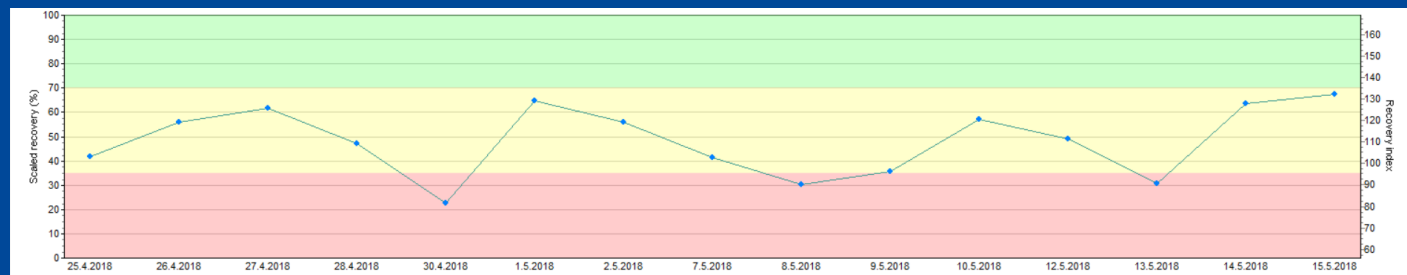
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# Support during training camps

- Specialist of sports physiology from KIHU is part of the team
  - Attending to all training camps (~100 days per year)
- Morning measurements
  - Body weight measures (rough estimate of fluid balance especially in high altitude)
  - Oxygen saturation measurements (high altitude training camps)
  - Recovery analysis (also between training camps)
    - Nocturnal heart rate variability analysis (Firstbeat, Emfit) or
    - 5 min morning HRV analysis (Omegawave, Polar Electro)





# Support during training camps

- Daily feelings questionnaire (perceived recovery and overall feelings, scale 0 - 10)
- Short, submaximal treadmill running test (weekly)
  - 4 x 4 min with increasing speed
  - HR ja BLa controls
- Jump tests (CMJ, reactivity jump) (Sensorize)
- Coaching (eg. planning and supervising training sessions)





# Support during training camps

- During training sessions
  - Training load monitoring
    - Ensuring quality of training
    - HR, lactate controls
  - Technique analysis
    - Video analysis
- Between training sessions
  - Database in cloud
    - Video clips
    - Training data
    - Stress & recovery measures





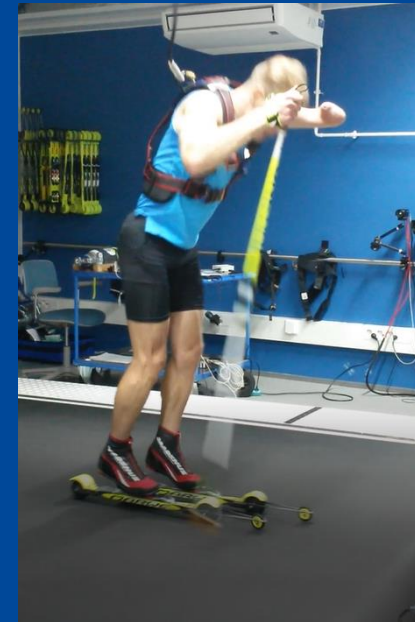
# Test camps / day 1

## Max. anaerobic double poling tests

Roller skiing on a treadmill

N x 25 sec dp with increasing speed / 95 sec rec

BLa sample after each speed (Biosen)



## Strength/power tests

jump tests (CMJ, reactivity test)

bench press: 1RM and power (50% of 1RM)

squat power: loads: 60% & 100% of BW





# Test camps / day 2

Blood profile & spirometry

$\dot{V}O_{2\max}$  test (V2)

N x 3 min with increasing speed

Breathing gases (Oxycon mobile, Cosmed K5)

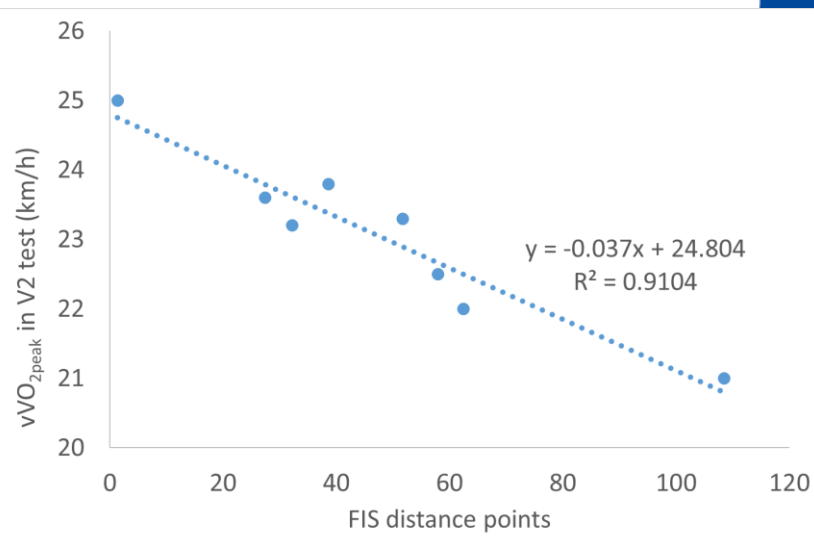
Lactate (Biosen), HR (Suunto/Garmin)

EMG (Mbody, Myontec)

Motion analysis (SIMI) or "light" analysis using coachtech

Coach – athlete meeting before leaving KIHU

→ feedback and "training advices / tools for the training"





# Support between the camps

- HRV analysis
- Training sessions on the large treadmill
  - Targeted training for high intensity
  - Simulation of some track profiles
- Search for more knowledge
  - Scientific databases / contacts to other experts



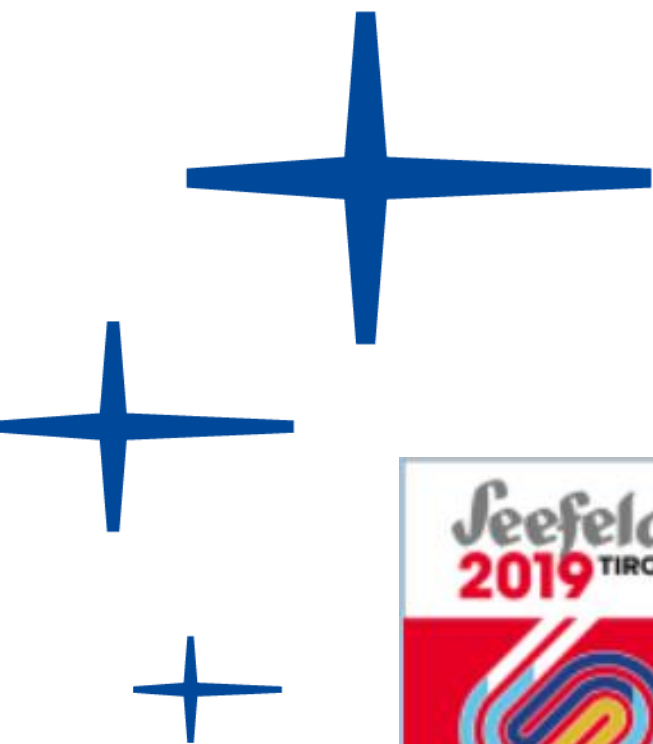
Videos of tests, simulation of track profiles etc.





# Summary of the supporting actions

- Work with scientific knowledge and precision!
  - *Know the  $p$ -values*
- Be practical!
  - *Don't speak about the  $p$ -values*
- Know how to share your knowledge!
  - *And when to shut up & listen*



Looking forward to  
the following  
games!

