Diagnostic Camp
High Jump
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Preliminary findings

Our setup to quantify kinetics and kinematics of high jumpers

Alaska/ Dynamicus Model
- Momentum of the COM (breaking & acceleration)
- Energy of the COM
- 3D Joint angles
- 3D Joint moments
- 3D Joint Power
- ...
Methods - High-Speed Videos

Software: Templo by Contemplas™

- Direct & synchronized feedback to Athletes & Coaches
  - Slow Motion of Videos
  - Contact Times (±0.4 msec.)
  - Angles and Distances
  - etc.

2 megapixel @ 200 Hz

# Tendon mechanical properties

- Achilles tendon

Tendon stiffness (k): The extent to which the tendon resists deformation in response to an applied force

Mechanical properties - Patellar tendon -

Mechanical properties - Morphology -

Spatial-temporal characteristics

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<th>Athlete</th>
<th>PB</th>
<th>SB</th>
<th>L</th>
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Fascicle length of the VL & GM

Tendon thickness

Achilles tendon moment arm
Conclusion

- Diagnostics from measurements to reporting possible within 2 weeks
- Direct biofeedback for coaches and athletes possible for some aspects (high speed video, ground reactions forces, joint angle, COM trajectory,...)
- Results indicate an influence of MTU capacities on the jumping technique
  - Necessary to combine the diagnostics of MTU capacities and 3D movement analysis
- Further research is needed to understand the influence of MTU capacities on jumping technique !!!