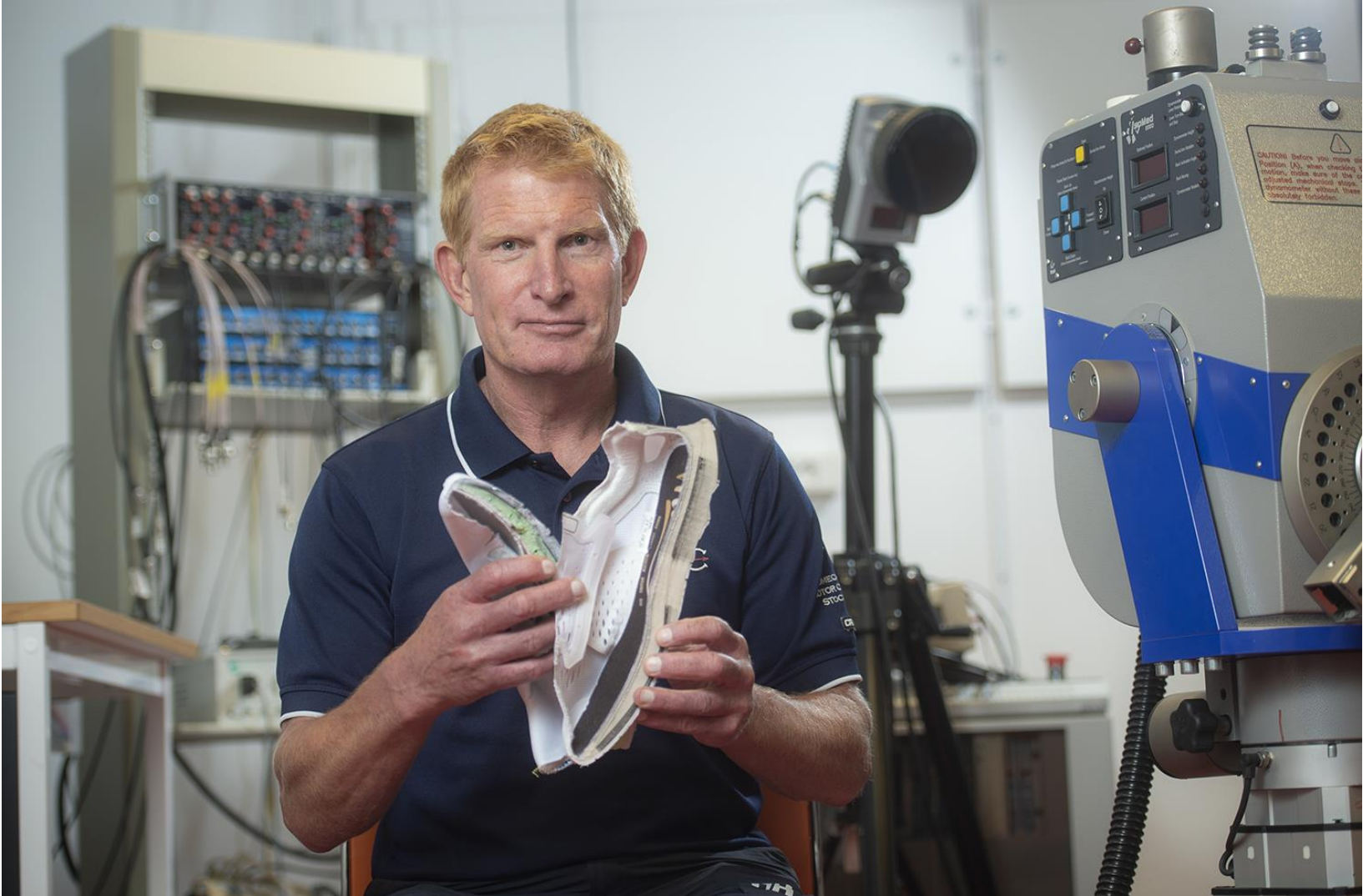


The effect of *Super Spikes* in long jump performance: an inside look into a prospective project

Master student project at GIH, School of Sports, Stockholm, 2023

Student: Erik Svensson

Supervisors: Johanna Rosén & Toni Arndt







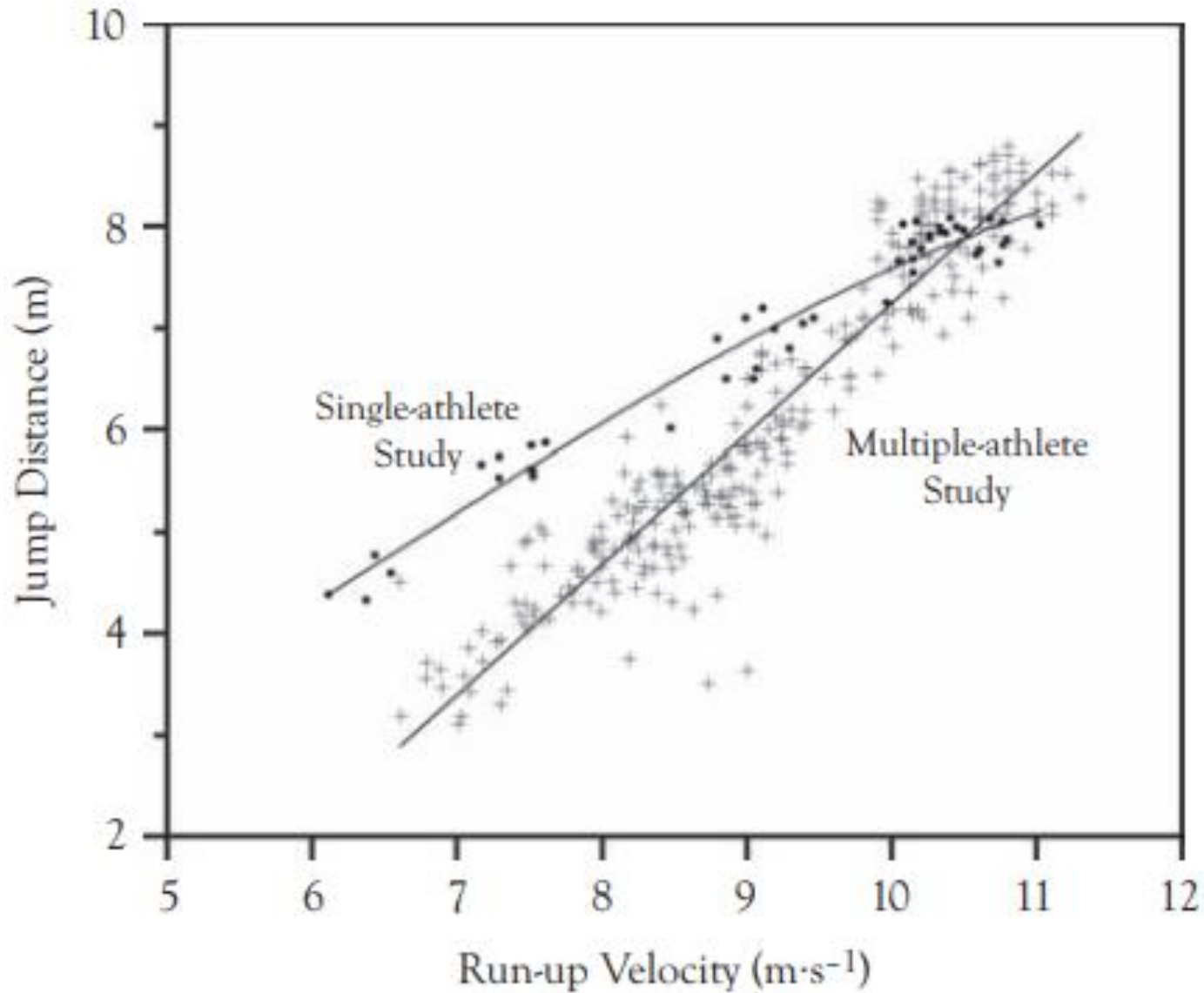
- Optimizing musculoskeletal system
- Maximize energy return
- Minimize energy loss

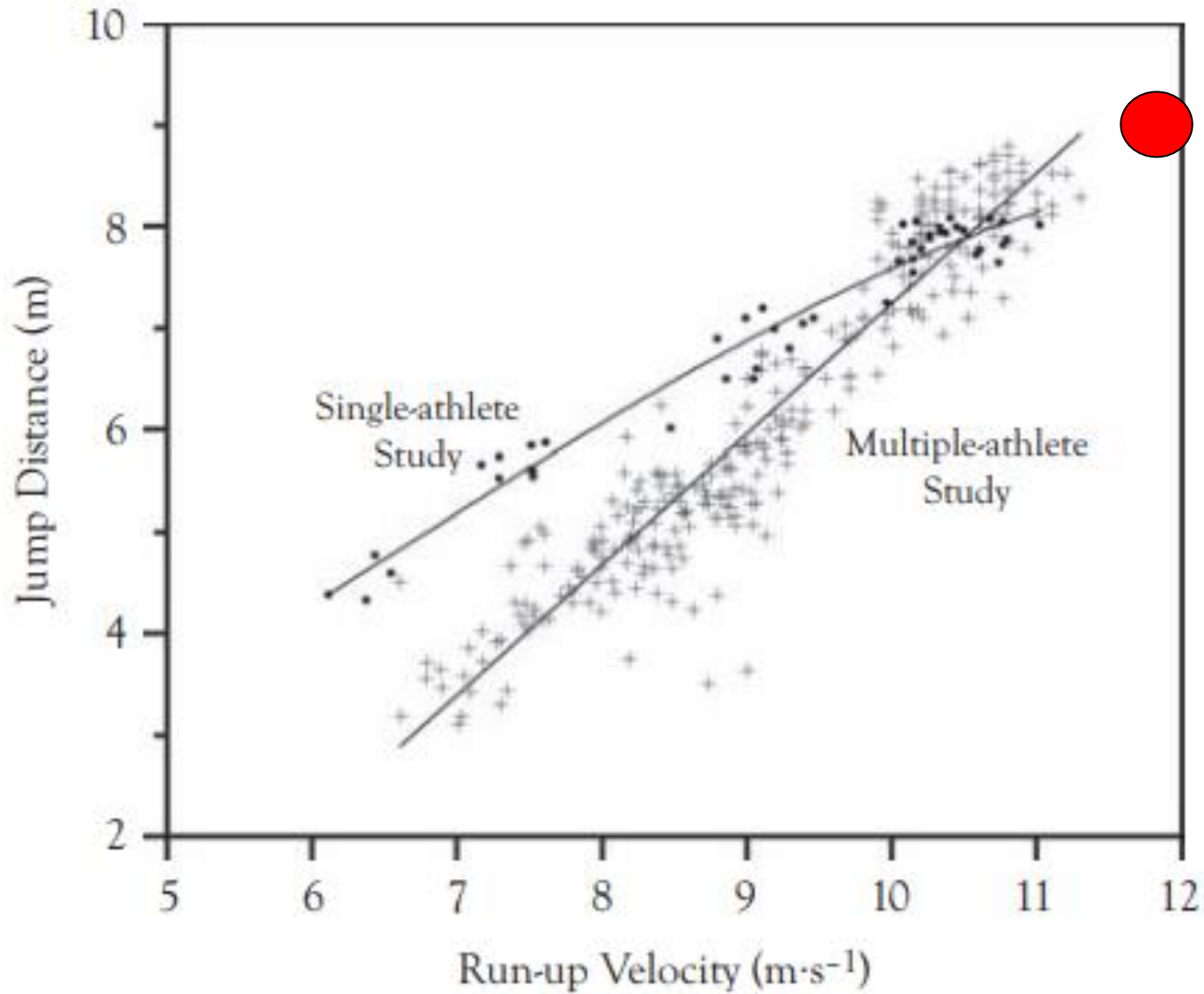
?

*Pardos et al. 2021. Recent Improvements in Marathon Run Times Are Likely Technological, Not Physiological

Mike Powell:

”Speed, speed, speed!”





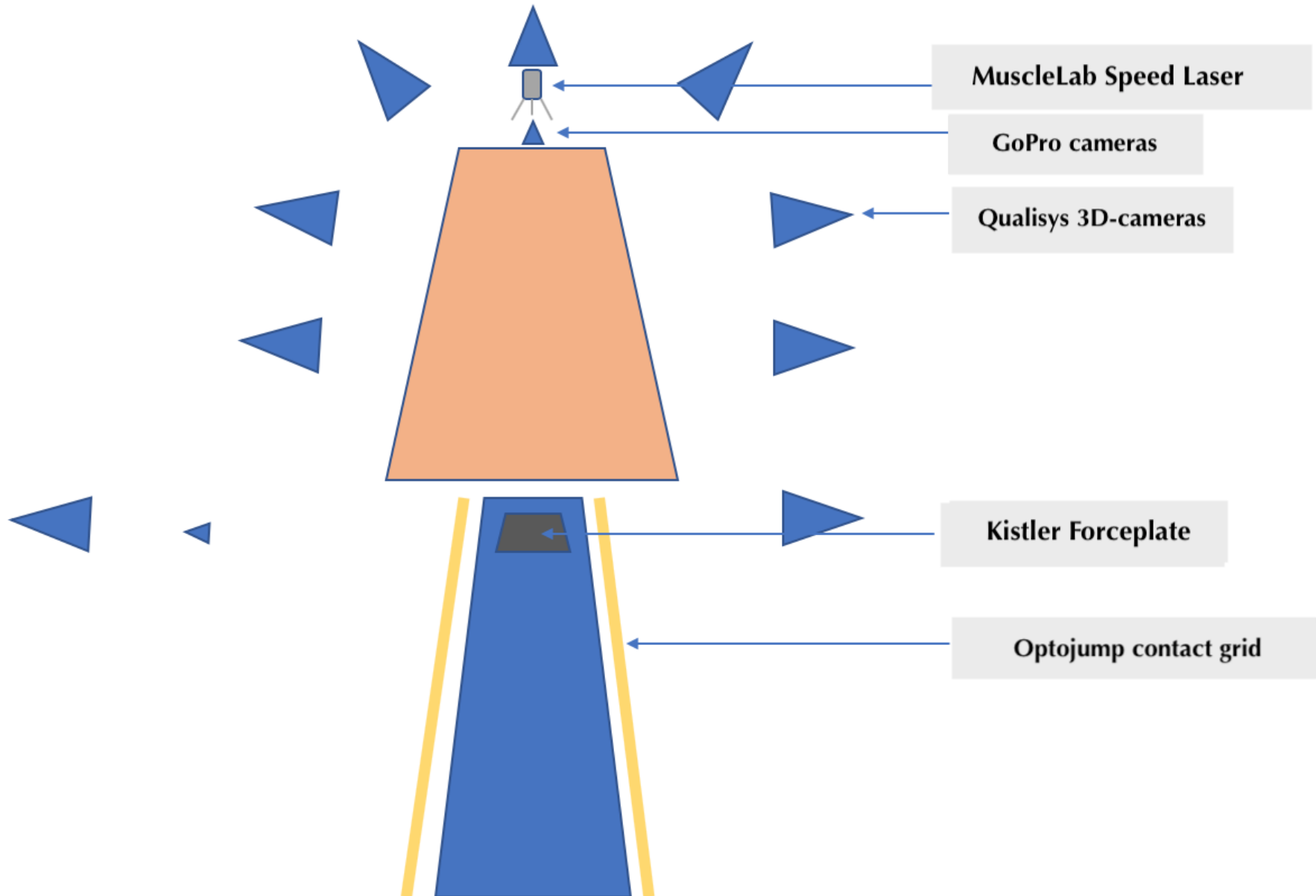
Comp. Result	Effective result	Wind	Steplength						Contacttime					
			1	2	3	4	5	T-off	1	2	3	4	5	T-off
7.93	7.93	+1.3		230	222	215	231	204	0,093	0,092	0,099	0,089	0,115	0,144
7.82	7.83	+1.8		234	237	227	241	207	0,097	0,097	0,097	0,093	0,115	0,127
7.58	7.62	+1.4		233	241	226	242	237	0,091	0,089	0,092	0,091	0,116	0,118
7.57	7.60	+0.8		207	224	200	233	212	0,100	0,101	0,098	0,097	0,119	0,114
7.09	7.29	+0.8		222	223	220	239	214	0,098	0,089	0,098	0,092	0,121	0,120

OPTOJUMP
next

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Is there any difference in performance
between long jump spikes with or
without carbon fiber plate?

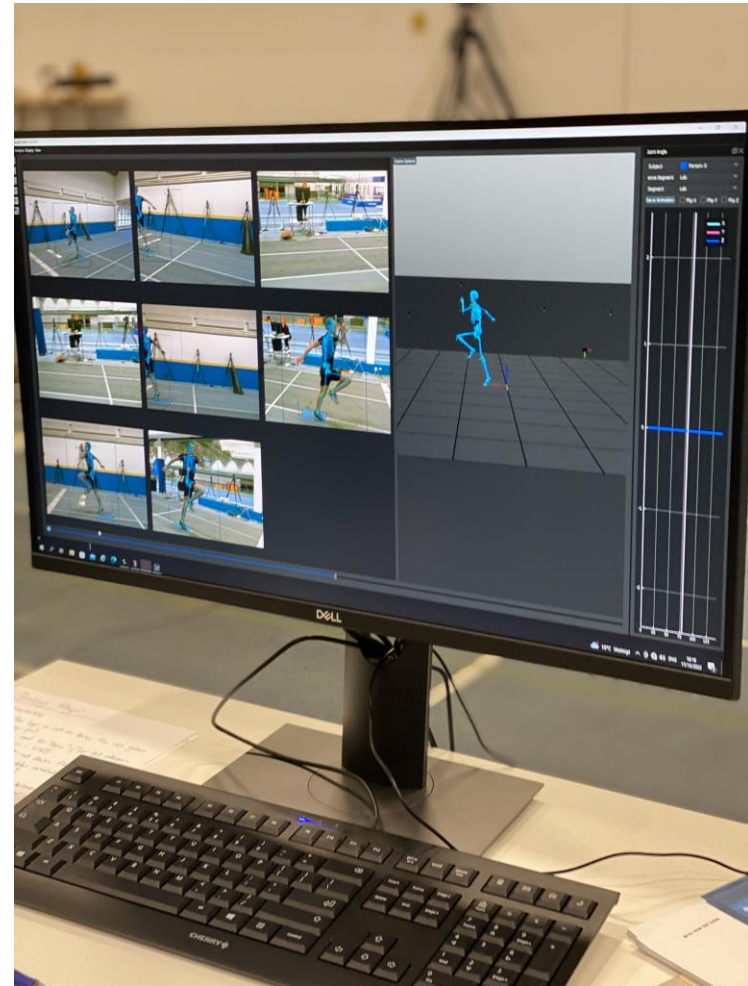


Variables

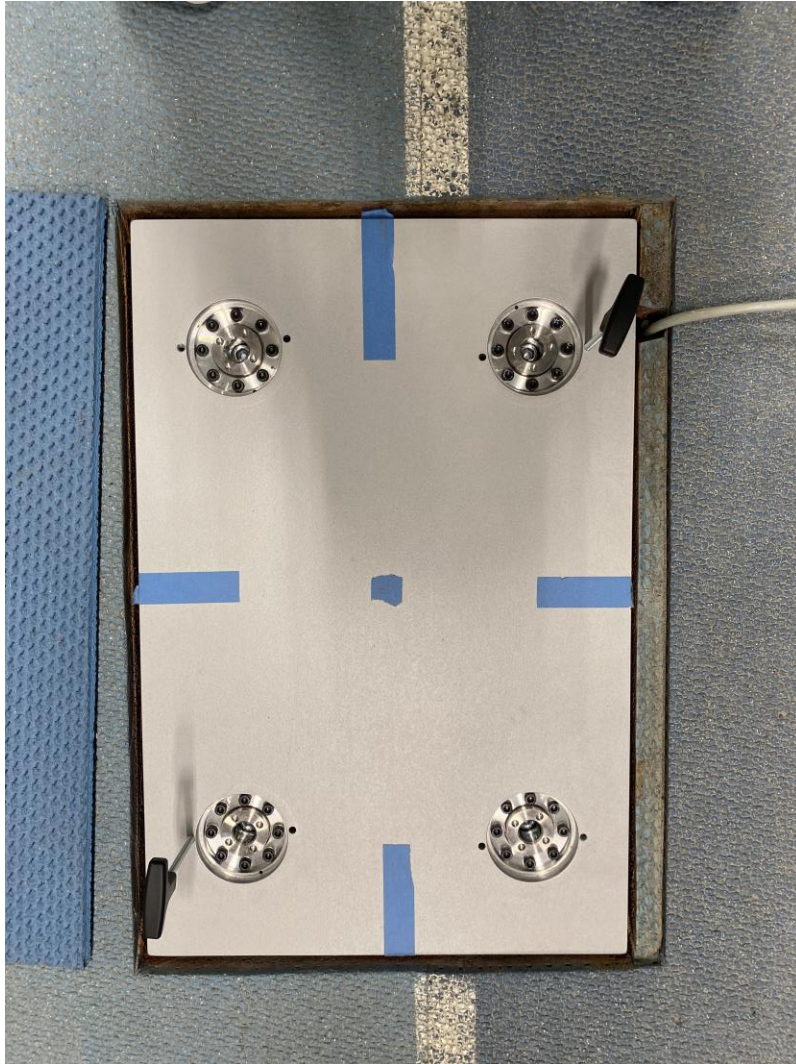
- Maximal horizontal run-up velocity
- Step lengths and contact times last 3 steps before take-off
- Foot, knee and hip kinetics and kinematics during take-off
- Contact length during take-off



Visual 3D



Markerless Qualisys and
Theia Software



Hypothesis?

What's next?

Thank you!



eriksvensson185@gmail.com



@thesvensson