



CENTER FOR DISRUPTIVE
MUSCULOSKELETAL INNOVATIONS

Effect of Talotarsal Joint Instability on Knee Alignment

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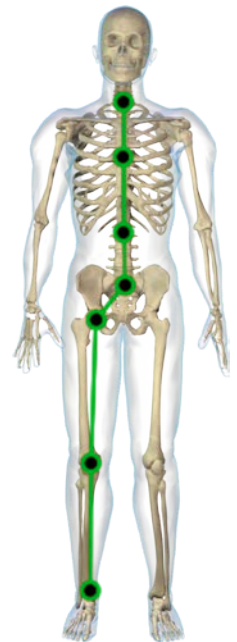
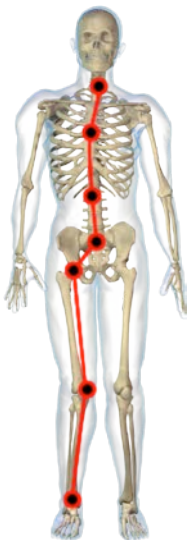
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Background

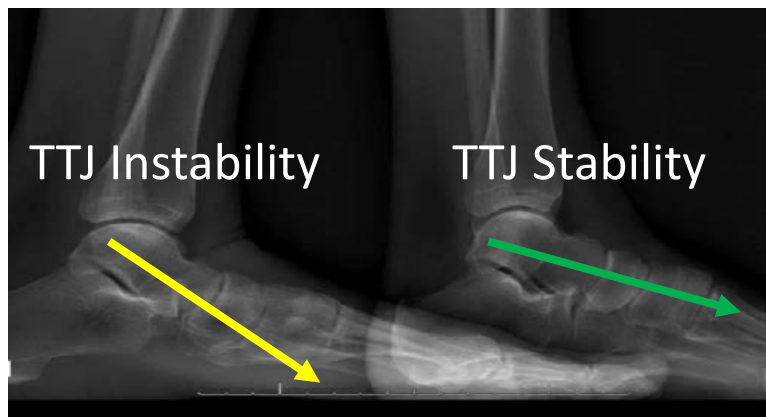
Talotarsal joint instability is a dynamic structural deformity to the foundation joint of the body that contributes to:

- Foot and ankle pathologies
- Unbalanced knee orientation leading to unbalanced load sharing across the knee joint
- Functional leg length discrepancy and pelvic tilt.



Project Aims

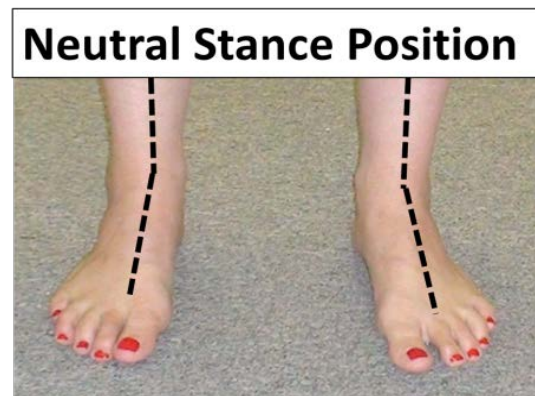
- To show how the the knee joint orientation thus load sharing in the knee change as a consequence of partial talotarsal dislocation.
- Hypothesis: Patients with partial talotarsal dislocation will show an increase in angle between tibia and femur (Femur-Tibia angle)



FT-Angle, TTJ
Instability

- Patient Selection
 - 40 patients with knee pain will be invited to the study.
 - Patients will be independently examined by a qualified foot surgeon.
 - Patients who are diagnosed with talotarsal joint instability, and who are willing to participate in this study, will be included.

- X-Ray
 - Lateral view- **Talar declination angle**: Normal <21 , abnormal >21
 - Anteroposterior (Ap) view- **Talar second metatarsal angle**: Normal <16 , abnormal >16



Methods

- Talar declination angle
- Navicular height: Distance between supporting surface and navicular tuberosity .
- Talar Second Metatarsal Angle



Methods

Relaxed Stance



Neutral Stance



Preliminary findings

Gender	Sample size, n
Male	10
Female	21

Angle °	N	Minimum	Maximum	Mean
Relaxed. FT	31	0,1	11,3	4,18
Neutral. FT	31	0,9	9,7	4,42
Difference (Relaxed FT.- Neutral FT.)	31	0,4	3,7	1,9

FT= Femur-Tibia Angle

Preliminary findings

Angle	Mean	N	ST-deviation
Relaxed. FT	4,18	31	2,67
Neutral.FT	4,42	31	2,46

p= 0.541

Conclusion

- In patients with PTTD there was a 1.9 degree difference in FT-angle between relaxed and neutral stance position.
- However, the difference was not significant ($p=0.541$).

Sources of error/Concerns

- Is X-ray positioning frame needed?
- Different ways of Measuring FT-angle
- Sample size (Power calculation)
- Control group?

Milestones & Timeline

Milestone	Timeline
Obtain IRB Approval	December 30, 2017
Begin Pre-intervention Data collection	January 2, 2018
Finish data analysis	August 31, 2018

Quarterly presentation updates:

- June/July 2018 – conference call
- September 2018 – Fall Symposium @ UCSF (conference call option for non-UCSF teams)
- Final written report including results – October, 28 2018
- **Next: Evaluating the concerns, Finish Data analysis.**

Thank you!