Clinical research in sports medicine: Where science meets design 2

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Simon Bartold

The Projects

1. Gender
2. The genetic basis for tissue repair
3. Sever's Disease
4. Proprioception
5. Osteoarthritis
6. Cadaver Study

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Proprioception

- quite simply the most stimulating project I have been involved with in 20 years with ASICS

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Mechanoreceptor Stimulation alters foot positioning

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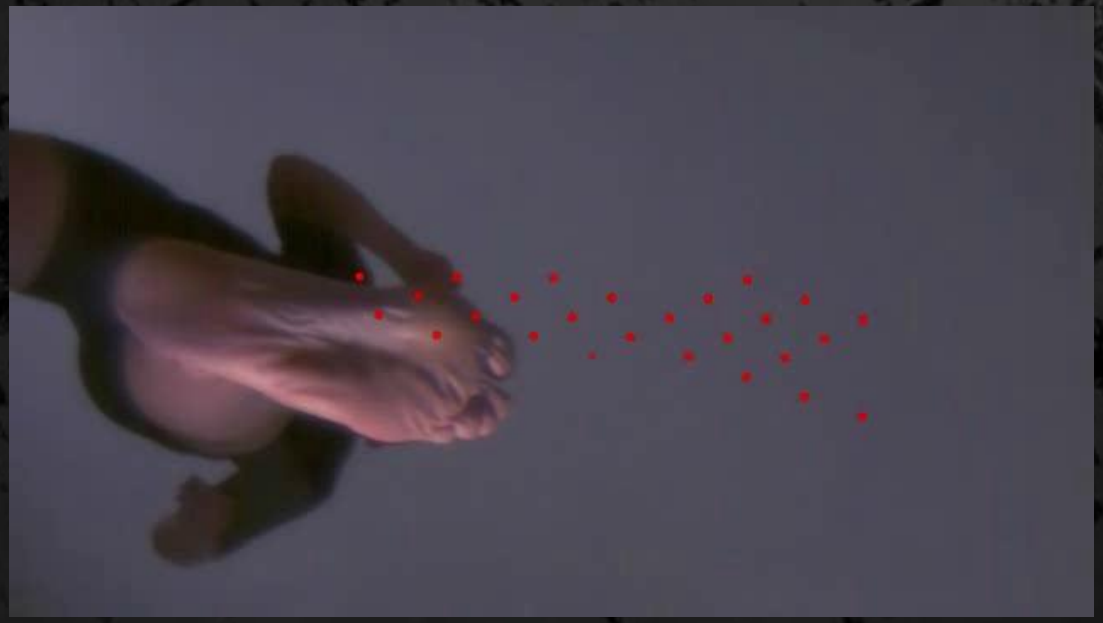
School of Physiotherapy
Centre for Health, Exercise & Sports Medicine

The Hypothesis

- That mechanoreceptor stimulation may influence position and placement of the foot during gait
- that footwear may be designed to positively influence abnormal gait parameters



- Four s d through the in n the botto
- These d in a positi timulus to the a

- Rubber caps were placed on the screws

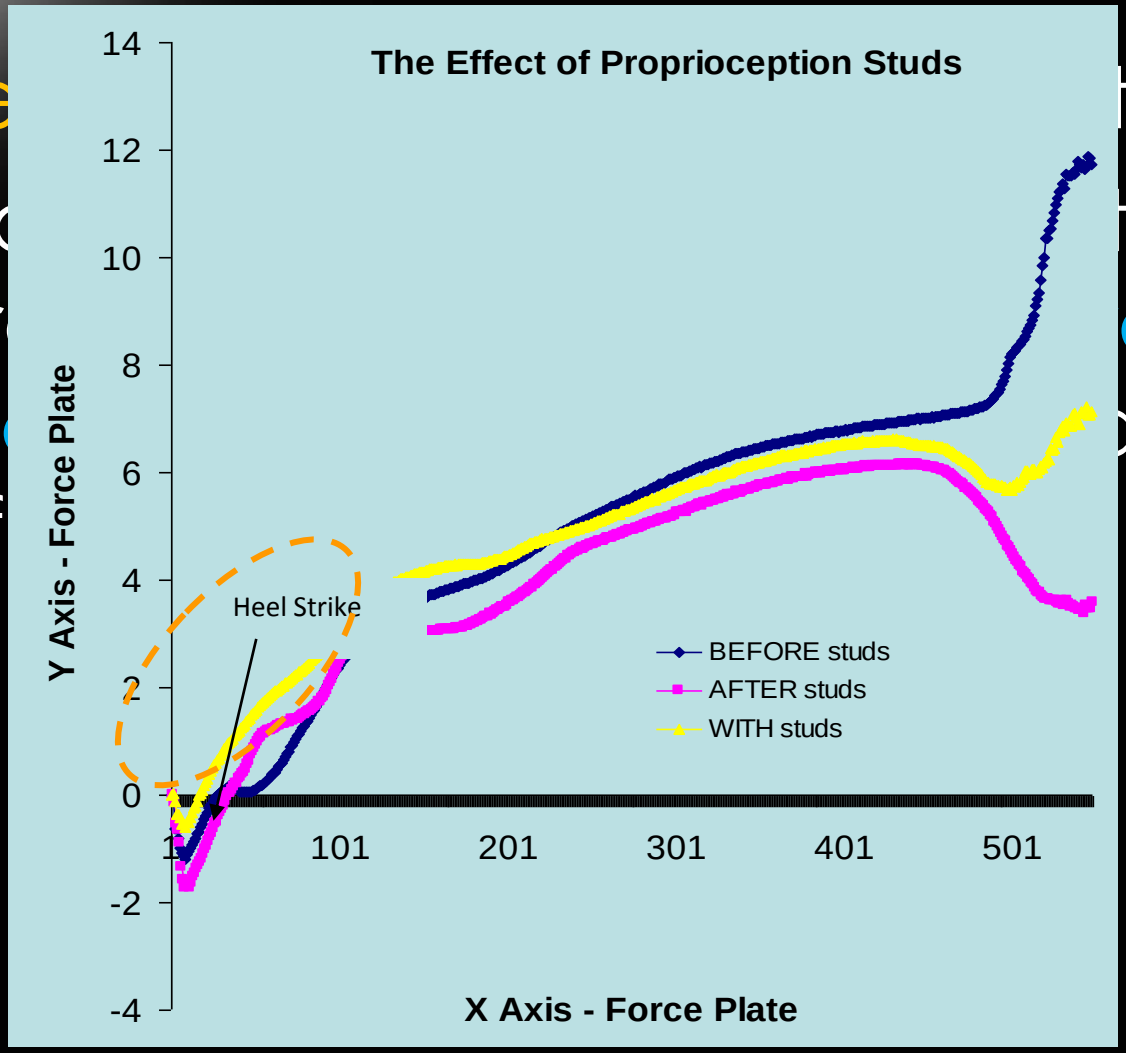

SAMPLE

Some preliminary results

- the effect of the insole both with the "studs" and after they were removed was examined
- Multiple gait trials, all at an identical speed, were performed before, during and after wearing the insoles with the "studs"

Discussion

- ve… …trike
- If … …the gr… …al m… …ds and af…



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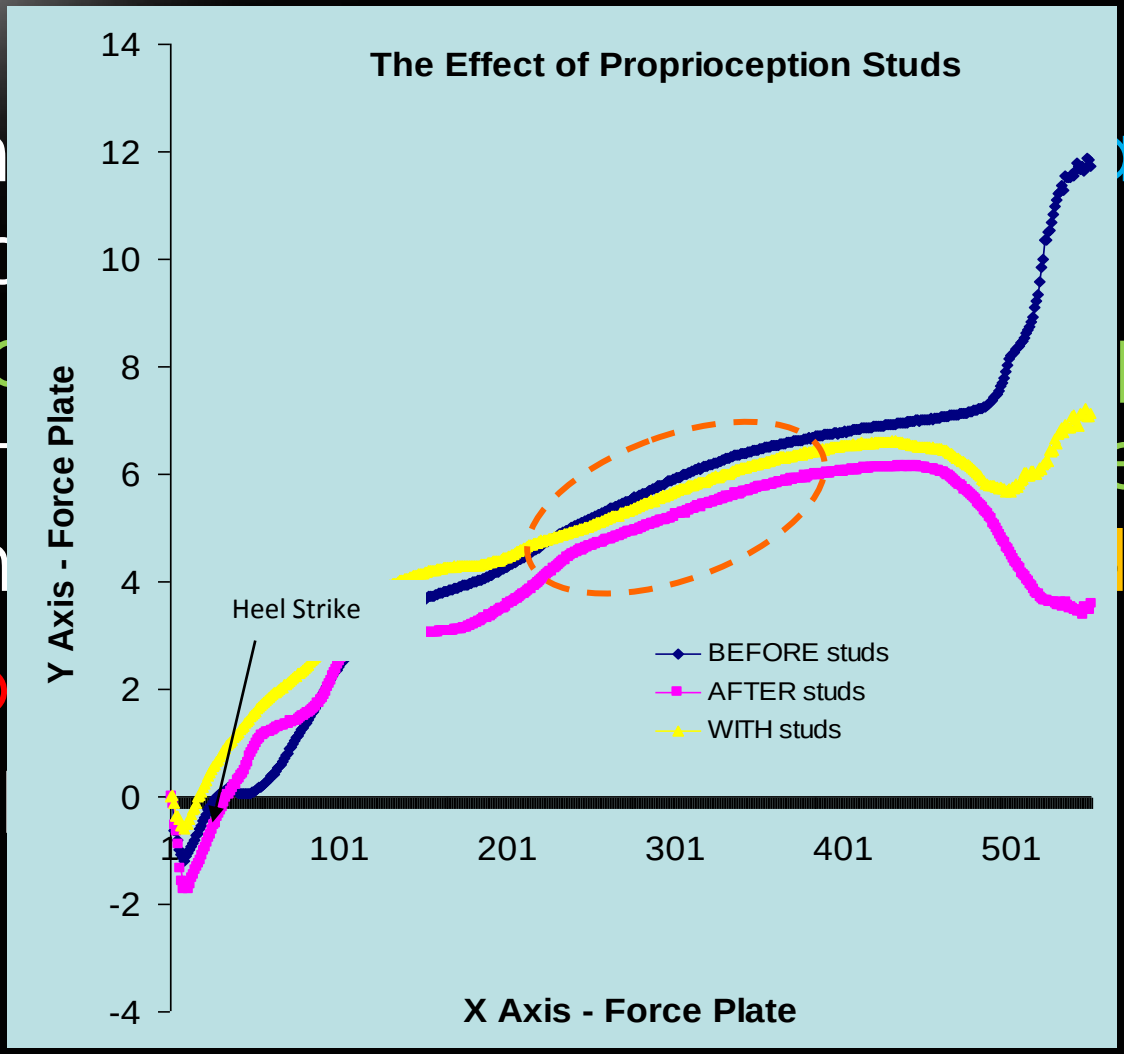
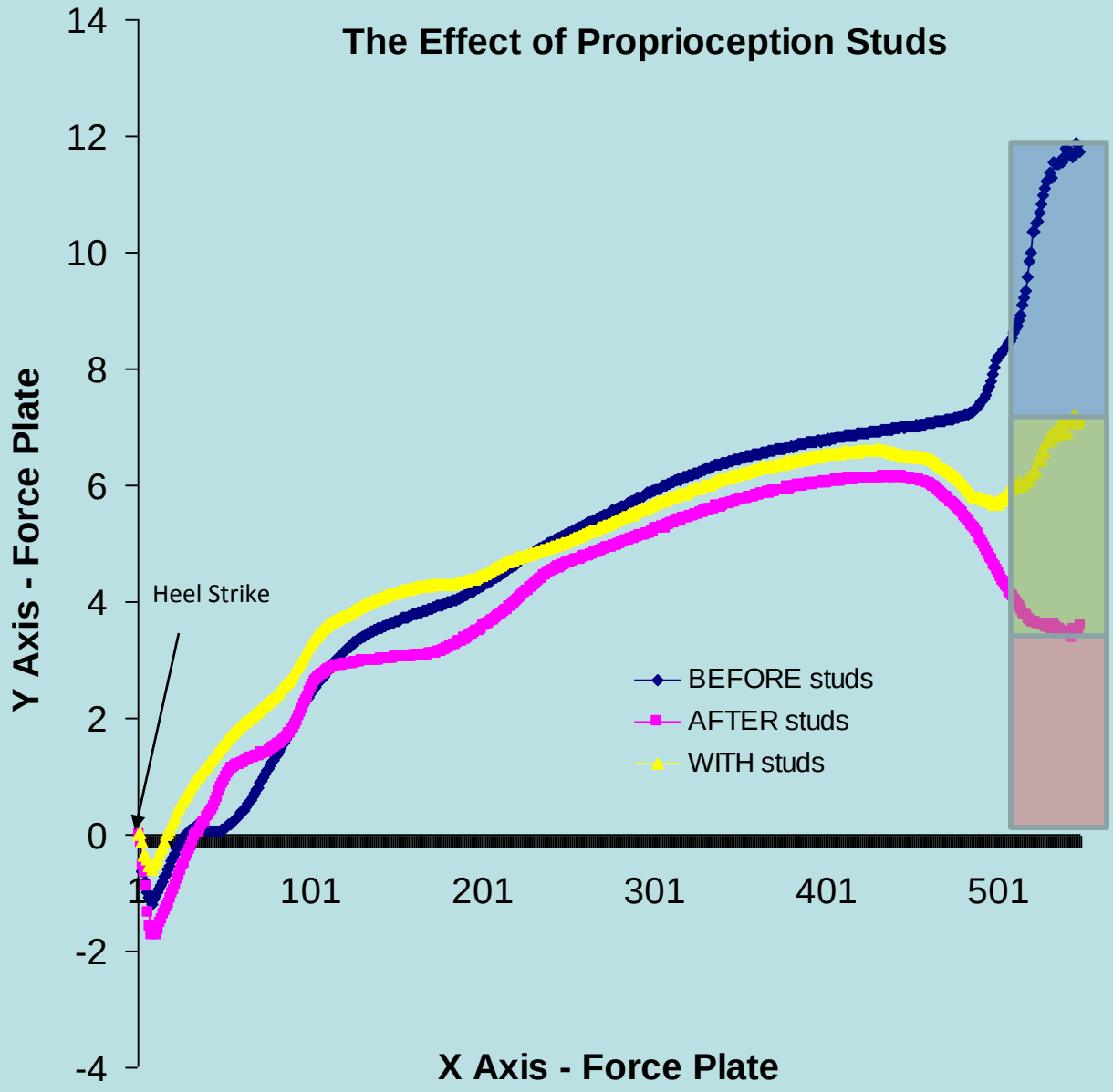


Discussion

- the only dramatic difference occurred just before the commencement of the swing phase
- It appears that the studs reduced the force through the toes, suggesting that take-off was performed more laterally


The Effect of Proprioception Studs
Y Axis - Force Plate
X Axis - Force Plate
Heel Strike
BEFORE studs
AFTER studs
WITH studs
14
12
10
8
6
4
2
0
-2
-4
101
201
301
401
501

Discussion

- Very preliminary data
- More research needed
- Promising avenue of research in terms of footwear and orthosis design

Proprioception

- full scale project now underway
- will include accelerometry and EMG to investigate muscle activity

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