


LA TROBE UNIVERSITY

FOOT ORTHOSES FOR THE PREVENTION OF LOWER LIMB OVERUSE INJURIES IN NAVAL RECRUITS


Daniel Bonanno
Discipline of Podiatry
School of Allied Health
College of Science, Health and Engineering
La Trobe University



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Professor Hylton Menz
Associate Professor Karl Landorf
Associate Professor Shannon Munteanu
Dr George Murley



BACKGROUND

- Overuse lower limb injuries are common in initial defence training
- Weak evidence for interventions to prevent injuries (Yeung et al., 2011)
- Orthoses effective for preventing injury
 - ✓ Stress fractures
 - ✓ Shin pain
 - ✗ Soft-tissue injuries
 - ✗ Trials generally of low quality

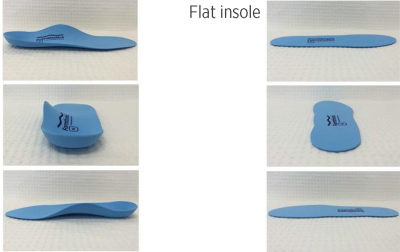


STUDY OBJECTIVE

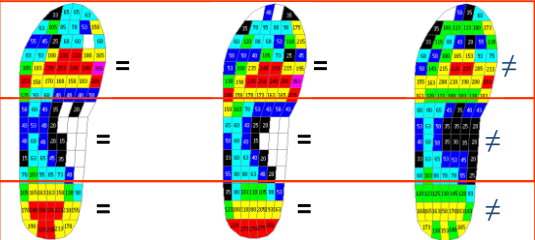
- Evaluate effectiveness of prefabricated foot orthoses for the prevention of overuse lower limb injuries in naval recruits during 11-weeks of basic training
- Injuries of interest:
 - o medial tibial stress syndrome
 - o patellofemoral pain
 - o plantar heel pain
 - o Achilles tendinopathy

SHOE INSERTS

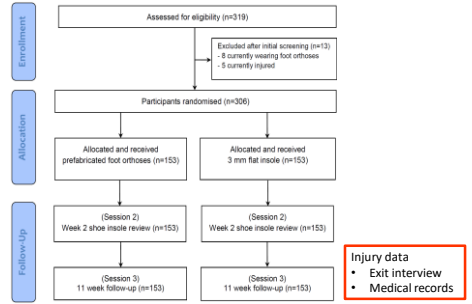
Foot orthosis Flat insole



BOOT ALONE FLAT INSOLE ORTHOSIS



FOOTWEAR

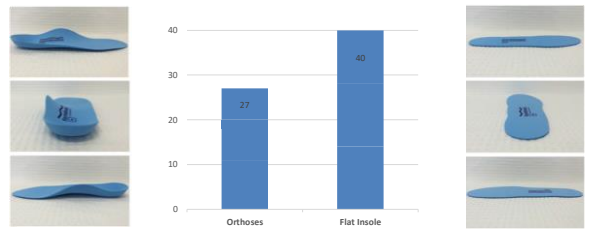


- Injury data**
- Exit interview
 - Medical records

RESULTS

	Orthoses (n = 153)	Flat insole (n = 153)
Age (years)	22.2 (5.2)	22.3 (4.3)
Sex, n (%) male	121 (79)	120 (78)
Height (cm)	175.4 (8.7)	175.9 (8.2)
Weight (kg)	77.8 (13.7)	78.8 (13.8)
BMI (kg/m ²)	25.3 (3.5)	25.4 (3.6)
Foot posture (FPI-6)	2.6 (2.8)	3.1 (7.8)
Multi-stage fitness test (level)	7.8 (1.8)	8.1 (1.8)
2.4 km time trial (mins)	11.4 (1.7)	11.2 (1.7)
Credibility (240 mm VAS)	181.5 (31.2)	177.5 (34.0)
Comfort (100 mm VAS)	71.8 (14.7)	69.9 (13.2)

INJURY INCIDENCE



RESULTS

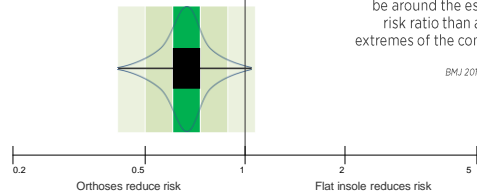
	Orthosis (n=153)	Flat insole (n=153)
Number of injuries	27	40
Incidence	17.6%	26.1%

Risk ratio = 0.68 (0.44 to 1.04), p=0.08

Interpretation: 32% lower risk of injury in the orthosis group

INTERPRETING BORDERLINE SIGNIFICANCE

Risk Ratio = 0.68 (0.44 to 1.04), p = 0.08



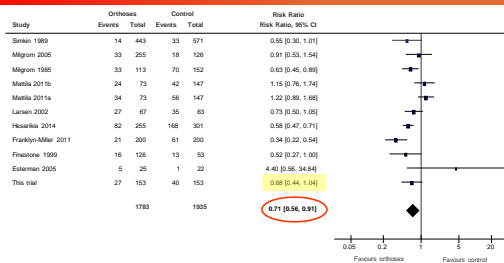
DISCUSSION

Calculating sample size

	Flat insole	Orthosis	Reduction	Sample size
Estimated	30%	15%	50%	306
Actual	26.1%	17.6%	32%	372

- Trial was slightly underpowered

HOW DOES THIS COMPARE?



SUMMARY

- This study is the first participant- and assessor-blinded, parallel-group RCT to evaluate foot orthoses for the prevention of injury
- Injury rate was reduced in the prefabricated foot orthosis group
 - 32% reduction in injury risk
 - Clinically relevant
- Future directions
 - High quality trials on non-military populations
 - Include individuals considered most likely to benefit from orthoses

THANKYOU

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THANKYOU



Daniel Bonanno

d.bonanno@latrobe.edu.au

