A functional movement screen profile of an Australian police force

Rob Orr  
*Bond University, rorr@bond.edu.au*

Michael Stierli  
*New South Wales Police*

Ben Hinton  
*New South Wales Police*

Follow this and additional works at: [http://epublications.bond.edu.au/tru_conf](http://epublications.bond.edu.au/tru_conf)

Part of the Defense and Security Studies Commons, Military Studies Commons, and the Psychology of Movement Commons

This work is licensed under a Creative Commons Attribution-No Derivative Works 4.0 License.

Recommended Citation


A Functional Movement Screen profile of an Australian police force

Orr RM¹, Pope R¹, Stierli, M², Hinton B².

¹ Bond University, Gold Coast
² New South Wales Police, Sydney
Background

• Police officers are required to perform tasks that can include dynamic movements

  (Blacker et al., 2013; Carlton et al., 2013)

• The results of these actions can lead to injury

  (Orr & Stierli 2013)
Background

• Poor execution of FMS elements is associated with an increased risk of musculoskeletal injury
  
(Cook et al., 2006)

• The FMS tool offers an approach to injury prevention and performance prediction by identifying an individual’s functional limitations and / or asymmetries

(Gribble et al., 2013; Perry & Koehle, 2013; Kiesel., 2007; Cook et al., 2006)
Aims

- To profile FMS movement patterns of NSW Police personnel
- To determine whether differences existed between recruit and attested officers and within genders
Participants

- A total of 1512 personnel
  - ♂ n = 1155 (31.34±8.41 years): ♀ n = 357 (27.99±8.02 years)
- 823 police recruits
  - ♂ n = 573 (25.78±5.57 years): ♀ n = 250 (25.07±5.99 years)
- 689 attested officers
  - ♂ n = 582 (34.84±8.00 years): ♀ n = 107, (36.87±6.88 years)
Methods

- FMS selected as the evaluation tool used to assess fundamental movement patterns
- Consists of seven movement patterns

(Cook et al., 2006)
Methods

- Scored for 0-3 for a total of 21 points

(Cook et al., 2006)
Methods

• Inclusion criteria were:
  – a) the participant completed all aspects of the FMS; and
  – b) the police recruit participants had not attempted the police training previously

• FMS completed at commencement of training for recruits and voluntary basis for officers

• Assessors were NSW Police PTI trained in FMS
Methods

• Mann-Whitney Tests were performed to investigate differences in scoring distributions across qualification (trainees and attested officers) and gender.

• ANCOVA and subsequent independent t-tests with a Bonferroni correction to examine differences between pairs of groups

• Alpha was set at 0.05 \textit{a priori}
Results

• Significantly higher mean FMS scores were found
  – recruits (15.23±2.01) v. attested officers (14.57±2.96; p<.001)
  – females (15.24±2.35) v. males (14.84±2.55; p=.008).

• A FMS score of ≤14 points, predictive of higher injury risk, was observed in
  – 43% of male police officers & 41% of female officers
  – 36% of male recruits & 33% of female recruits.
Results

• An ANCOVA revealed that age was a significant factor accounting for the total FMS score differences between
  – male trainees (25.78±5.57 years) when compared to male attested officers (34.84±8.00 years, F (2,1)=17.417, p<.001).
  – female trainees (25.07±5.99 years) when compared to female attested officers (36.87±6.88 years, F (2,1)=6.196, p=0.013).
Results

- The components of poorest performance, were
  - the hurdle step
  - rotary stability
Discussion

• In our study, mean FMS scores (14.93±2.51) were ↓ than:
  – active duty service members (16.2±2.2) (Teyhen, et al, 2014)
  – in an active younger population of between 18 and 30 years of age (15.7±1.9) (Schneiders et al., 2011)
Discussion

• In our study, mean FMS scores (14.93±2.51) were ↑ than:
  – Canadian general population (14.14±2.85) (Kiesel, et al., 2007)
  – fire fighters (13.6±1.9) (McGill, et al, 2013)
  – football players (13.3±1.9) (McGill, et al, 2013)
Discussion

- The components of poorest performance, being the hurdle step and rotary stability, correspond to the leading sites of injury in this population, being knee and back.

(Orr & Stierli 2013)
Conclusion / Take Home Message

• The FMS is a useful outcome measure for police officers.

• FMS movements with poorest performance correspond to injuries typically sustained in a police population.

• Specific conditioning programs to improve performance in movements identified with poorer performance may reduce injuries in police officers.
References


References


References


References
