Relationship Between 10 m Acceleration, Functional Movement Screen Scores and Maturation for Male Youth Athletes

Rohan Kandoi, Peter Maulder, Martyn Beaven, Rhodri Lloyd and Jako Bekker
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Background:

- Acceleration is an important characteristic of successful sport performances.
- Movement competency for youth athletes is an important aspect of training.
- It is important to consider the maturation of youth athletes during acceleration development and movement training.

Purpose:

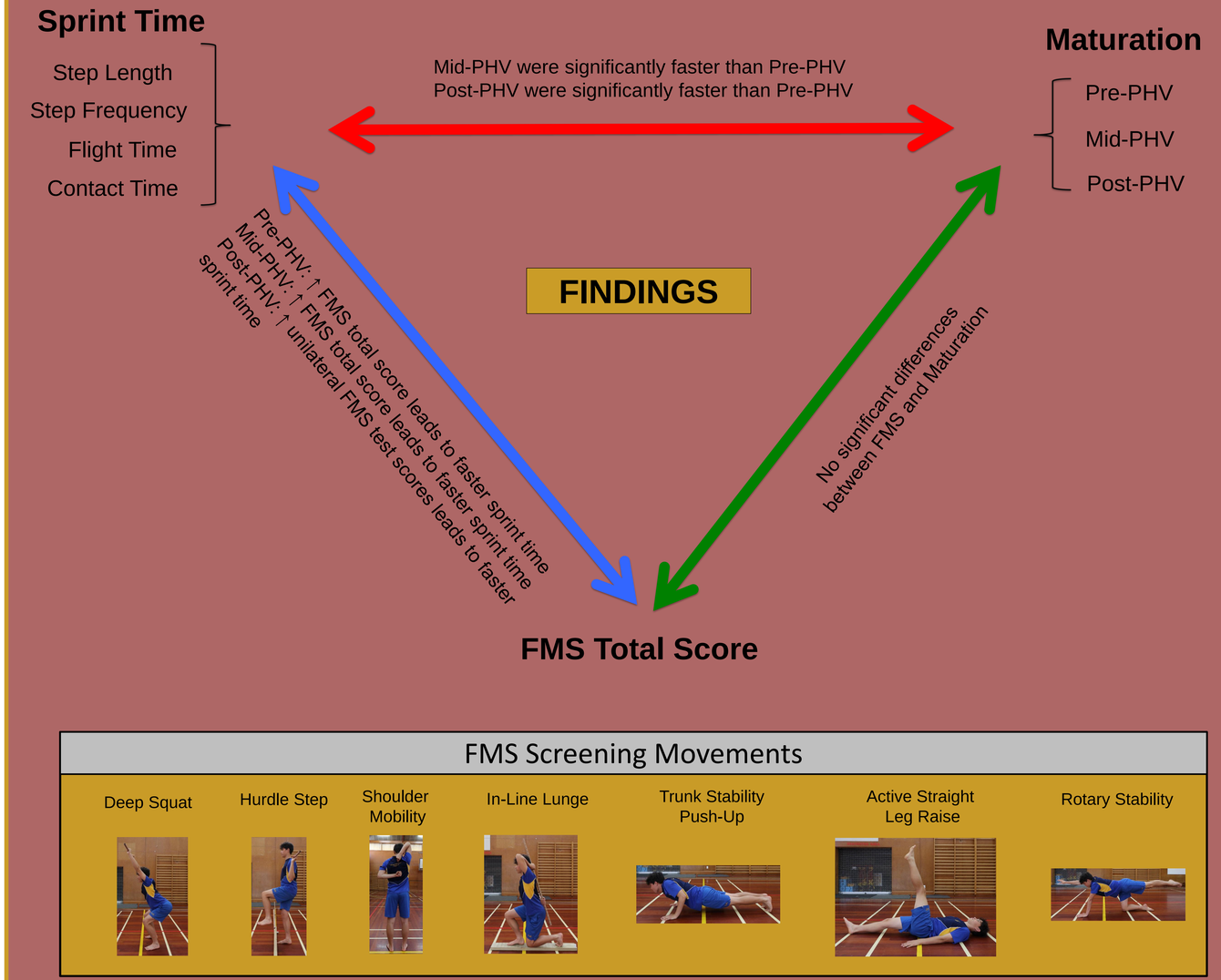
investigate the relationship between 10 m acceleration, Functional Movement Screen (FMS) scores and maturation for male youth athletes.

Methods:

- 47 male youth athletes participating in a variety of sports volunteered for this study.
- Participants completed four maximal effort 10 m sprint trials. Sprinting kinematics were recorded using an optical measurement system.

- Anthropometric data was collected for calculation of maturity status using a validated regression equation: date of birth, body mass, height and seated height.
- All participants completed the FMS screen. Movements that required immediate assessment were screened real-time, whereas all other movements were filmed using iPads.

Better movement competency in the Functional Movement Screen leads to faster sprint times for pre- to mid-PHV youth boys



FMS Screening Movements

Results & Discussion:

- Older participants had better scores for the unilateral tests on the FMS than pre- or mid-peak height velocity (PHV) participants because of more years of exposure and practice in these movements.
- No significant differences were observed for acceleration kinematics between maturity groups.
- Step length and the manner in which horizontal force is applied are the most important characteristics of acceleration development for youth athletes.
- Contrary to literature, no significant differences were observed for total FMS scores between PHV groups. Plausible reasons include, testing a non-elite group of athletes and several post-PHV participants reporting pain across exercises.
- The FMS was not sensitive to differentiate between participants with substantially greater movement competency and those with poor movement.

Practical Applications:

1. Assessing youth athletes for their movement competency will provide coaches with an insight into acceleration performance.
2. Coaches should focus on improving step length during acceleration training for youth.
3. Practitioners should consider using a youth specific movement screening tool to assess movement competency for youth athletes.