

# FUNCTIONAL MOTOR COMPETENCE, HEALTH-RELATED FITNESS AND INJURY IN YOUTH SPORT

CRAIG E. PFEIFER

## ABSTRACT

In the United States there are millions of youth who participate in sport. Unfortunately there is also a high rate of musculoskeletal injury in sport, accompanied by millions of dollars in medical cost. The development of functional motor competence and health-related fitness (HRF) is important as these two constructs are related to health, performance, and injury incidence in youth sport. It is assumed that children develop their movement ability and physical fitness as they age, however recent evidence suggests that youth functional motor competence and HRF decrease across childhood. An evaluation of functional motor competence gaining popularity among health and strength and conditioning professionals, is the Functional Movement Screen (FMS™). The FMS™ has been utilized as a screening tool to evaluate individuals at risk from dysfunctional movement. The evaluation and modification of risk factors and mechanisms for injury incidence in youth sport is critical to aid in the reduction of injury. Therefore, the following three studies were conducted.

The first study evaluated the mean and distribution of the FMS™ in youth sport (age 11-18), and if there was a composite FMS™ score which was predictive of increased injury risk. Results indicated that youth sport participants have a mean composite FMS™ score of  $13.54 \pm 2.66$ , revealing that these individuals demonstrated some level of dysfunctional movement. There were two composite FMS™ scores which were predictive of increased risk of injury ( $FMS™ \leq 14$ ,  $\leq 15$ ), however when adjusting for sport, there were no significant composite FMS™ scores that were predictive of increased risk of injury.

The second study evaluated the HRF of youth sport participants (age 11-18), and provided a comparison between Canadian youth normative data and youth in sport. The results revealed that HRF in youth sport participants needs improvement, and that on several measures of HRF there were no differences between the Canadian youth normative data and

youth in sport. Furthermore, this study highlights the need to evaluate and address HRF in youth as these measures may related to future health, sport performance, and risk of injury.

The final study evaluated the relationship between HRF and the FMS™ in youth sport (age 11-18), and evaluated if the combination of both HRF and the FMS™ has utility for prediction of injury in youth sport. Results indicated that there are variable relationships between the FMS™ tasks and multiple measures of HRF, with not overall relationship noted. The combination of the FMS™ and HRF for the prediction of injury in sport revealed that the two salient factors for injury risk are an individual's sex and muscular power. However, the relationship between the inline lunge task of the FMS™ and HRF variables may provide insight for strength and conditioning professionals to re-evaluation their selection of training tasks based on the importance of developing both functional motor coordination and HRF.