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THE POPULATION-LEVEL IMPACT OF EXERCISE TRAINING PROGRAMS TO PREVENT SPORTS INJURIES – A CONTROLLED ECOLOGICAL EVALUATION BASED ON REDUCTIONS IN HOSPITAL-TREATED INJURIES

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10.1136/injuryprev-2016-042156.157

Background To date, there have been very few attempts at setting broad-based sports injury prevention public health activity. A staged and evidence-informed approach towards developing and delivering a new lower limb injury prevention program (Footy-First) for community-level Australian football. The National Guidance for Australian football Partnerships for Safety (NoGAPS) study is one of the first large-scale studies to use a controlled, ecological design to assess the effectiveness of a sports injury prevention intervention at the population-level. The aim of this talk is to present the population-level evaluation of FootyFirst

Methods FootyFirst was implemented during the 2012 and 2013 football seasons and its impact on injury rate evaluated through a controlled ecological study design applied to three distinct geographic regions (R1-3). Each region received a different combination of program + delivery mode: Region 1 (R1)-Full FootyFirst program + fully supported delivery in both 2012 and 2013; R2-Full FootyFirst program + unsupported delivery (both 2012 and 2013); R3-No FootyFirst + no delivery in 2012 (control), full FootyFirst program + full delivery in 2013. For each region, the numbers of hospital-treated (admissions and emergency department presentations) sports injury cases at the hospitals serving those regions were obtained from routine data collections. The in-football season monthly number of lower limb injuries (#LLI) during 2006–2013 was modelled by an intervention time series. The sports injury data was “interrupted” at the beginning of 2012, to coincide with the starting of the FootyFirst delivery, and a second inter accounted for an administrative data change. The model was used to assess changes in slope of the trend lines pre- and post-intervention using a generalised least squares method.

Results There was a significant decline in #LLI after the first delivery of FootyFirst only for R1 (pre-FootyFirst monthly increase of 0.15 cases; post-FootyFirst monthly decline of 2.62 cases; effect $p = 0.005$). The administrative data change led to an increase in the number of cases in all regions.

Conclusions After adjusting for seasonal effects, there was a significant reduction in #LLI treated in hospitals in the region where FootyFirst was accompanied by full implementation support.

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PREVENTION OF ANKLE SPRAIN INJURIES IN YOUTH SOCCER AND BASKETBALL

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10.1136/injuryprev-2016-042156.158

Background Sport participation is the leading cause of injury in youth and ankle sprain is the most common sport injury. This study evaluates the effectiveness of neuromuscular training (NMT) in reducing the risk of ankle sprains in youth soccer and basketball players. The secondary objective includes evaluation of

sex, age, sport and previous lower extremity (LE) injury as independent risk factors for ankle sprain.

Methods A secondary data analysis of three cohort studies and two randomised controlled trials conducted in one season of play in youth soccer and basketball players (ages 11–18) in Alberta, Canada (2005–2011) was completed. The definition of ankle sprain and injury surveillance methodology was consistent in all studies. Multivariable Poisson regression analysis (controlling for clustering by team) was used to estimate incidence rate ratios (IRR) with 95% confidence intervals (CI), considering confounding and effect modification (e.g., sex, age, sport, previous injury).

Results There were 188 ankle sprains in 171 players in 2,265 study participants. Multivariable analysis suggests that NMT was protective for ankle sprain injury [IRR = 0.69 (95% CI: 0.45–1.05)] based on the point estimate. Sex, age, sport and previous injury did not modify this effect. Independent risk factors for ankle sprain injury included previous LE injury history [(IRR = 1.77 (95% CI: 1.34–2.35))] and participation in basketball vs. soccer [(IRR = 1.98 (95% CI: 1.30–3.01)]. The risk of ankle sprain injury did not differ by sex [IRR = 1.01 (95% CI: 0.53–1.92)].

Conclusions Exposure to a NMT program is protective for ankle sprain injury in youth soccer and basketball players. Independent risk factors for ankle sprain in youth sport include basketball participation (vs. soccer) and previous LE injury. Future research should focus on optimising NMT programs for the prevention of ankle sprain injuries and maximising player-adherence to NMT programs in youth soccer and basketball.

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EMERGENCY MEDICAL SERVICES RESPONSE TIME AND PAEDIATRIC MORTALITY AND MORBIDITY IN THE URBAN SETTING

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10.1136/injuryprev-2016-042156.159

Background The standard response time benchmark for Emergency Medical Services (EMS) has been set at eight minutes or less for ground ambulances in many parts of the world. It has not been extensively studied, especially in paediatric patients who suffered a traumatic injury. As injury is the leading cause of death for those under the age of 18 it is important to determine if this benchmark for EMS response time may be a factor in paediatric mortality and morbidity outcomes.

Methods All paediatric calls made to EMS between April 2010 to September 2013 in the cities of Calgary and Edmonton, Alberta, Canada were examined to select patients who had suffered a traumatic injury. These records were then linked to emergency department records and hospitalisation records using a deterministic linkage strategy using personal healthcare number, sex, and receiving facility. Patients were excluded if they were ≥ 18 years old, attended to outside of Calgary or Edmonton areas or suffered a medical complaint not related to an injury. Response time, the exposure, was defined as time of call to 9–1–1 to arrival of ambulance on scene. Response time was dichotomized into < 8 minutes and ≥ 8 minutes. The main measure of morbidity was