

(P100066)

A systematic review of participatory engagement in men's health promotion programs.T. Key^a, P. Sharp^{a,b}, C. Grandou^a, L. Wallace^a, C. Caperchione^a^aUniversity of Technology Sydney, Australia^bUniversity of British Columbia, Canada

Introduction: Health promotion interventions have struggled to engage men, with men being on average only 1/3 of intervention participants. Gender-sensitised programs aim to tailor interventions to the needs of men, however, to be effective men need to be involved in the design and delivery of these programs. Participatory engagement provides an opportunity for men and relevant stakeholders to be involved in the design and delivery of health programs. Increasing the use of participatory engagement aligns with recommendations from knowledge translation and implementation science to improve uptake of research in practice. How participatory methods are being used to tailor health programs for men has yet to be explored. The aim of this study was to understand how participatory methods are being used to tailor health programs to men.

Methods: A systematic literature search with no date restrictions was conducted across four databases. Included studies targeted adult (≥ 18 years) men's health-related behavioural change including physical activity, nutritional behaviour, smoking cessation, and/or alcohol reduction. Studies utilised both randomised and non-randomised designs. Risk of bias was assessed for randomised (ROB2 tool) and non-randomised (ROBINS-I tool) control trials. A qualitative analysis of study outcomes and the use of participatory methods was conducted with study variables being collected under 5 categories: study design, intervention, retention, engagement, results. Participatory engagement was mapped using the IAP2 Spectrum of Public Participation. This review adheres to the PRISMA guidelines, the AMSTAR-2 tool, and has been prospectively registered in PROSPERO (CRD42021257719).

Results: Database searches yielded 5025 articles, with 60 studies of 55 discrete interventions meeting the inclusion criteria. Most of the included interventions were theoretically grounded (65%) and the majority targeted a combination of physical activity and nutrition behaviours (67%) followed by physical activity interventions (11%), smoking interventions (9%), alcohol interventions (7%), nutrition interventions (4%) and smoking and alcohol interventions (2%). Of the included studies 65% utilised a randomised control design, 50% indicated that the intervention was tailored to men, and 53% studies indicated some type of participatory engagement with either men (end-users) or stakeholders. Based on the IAP2, participatory engagement methods utilized within studies included consultation (18%; e.g. interviews), involvement (2%; e.g. co-design), collaboration (27%; e.g. community-based facilitators) and empowerment (5%; e.g. community champions).

Discussion: While 50% of included studies reported that they were tailored to men, only 1 in 3 studies reported going beyond consultation to develop and deliver their health program with the men or relevant stakeholders. Further research is needed to understand how health researchers are engaging with end-users and stakeholders. This will help to develop an understanding of participatory engagement's contribution to successful implementation and sustainability of interventions.

Impact and application to the field: Findings from this research may be used to inform the use of participatory engagement methods in men's health promotion to improve engagement, implementation, and scalability of behaviour change interventions.

Conflict of interest statement: My co-authors and I acknowledge

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Injury and illness profiles in short-course triathletes – A systematic reviewM. Crunkhorn^{a,c,e}, S. Guevara^{a,d}, M. Drew^a, G. Waddington^{a,b}, J. Périard^a, N. Etxebarria^a, L. Toohey^{a,b}, P. Charlton^{a,e}^aUniversity of Canberra Research Institute for Sport and Exercise (UCRISE), Australia^bThe Australian Institute of Sport, Australia^cQueensland Academy of Sport, Australia^dNew South Wales Institute of Sport, Australia^eTriathlon Australia, Australia

Introduction: A clear understanding of injury and illness aetiology and mechanisms in short-course triathletes (standard distance and below) provides a better opportunity to identify high risk subgroups of athletes within the sport and assist in the development and implementation of targeted prevention strategies.

The objective of this systematic review is to synthesise the existing evidence relating to the incidence and/or prevalence of injury and illness within short course triathletes, and to summarise reported injury or illness aetiology and risk factors in this population.

Methods: Studies reporting health problems (injury and illness) in able-bodied and para-triathletes, inclusive of all sexes, ages and experience levels, training or competing in short-course distances were included in this review. Studies were excluded if they reported health problems in non-triathlete populations, in unspecified or longer than short-course distances, did not include epidemiological data, were intervention studies, systematic reviews or non-scientific articles and were not published in English. Six electronic databases (Cochrane, MEDLINE, EMBASE, PsychINFO, Web of Science and SPORTDiscus) were searched using different key-terms. Risk of bias was independently assessed by two reviewers using the Newcastle-Ottawa Quality Assessment Scale. Data extraction was independently completed by two of the authors. Results were reported narratively following qualitative synthesis.

Results: The search yielded 7998 studies, with 42 studies eligible for inclusion. Twenty-three (55%) of the included studies investigated injury, twenty-four (57%) studies investigated illnesses, inclusive of five (12%) studies which investigated both injuries and illnesses.

Injury incidence rates ranged from 15.7-24.3 per 1000 athlete exposures, and illness incidence rates ranged from 1.8-13.1/1000 athlete days. Injury and illness prevalence ranged between 2-15% and 6-84% respectively, with these figures referring to the proportion of triathletes affected by a health problem across differing time periods. The most frequently reported health problems reported in short-course triathletes were: overuse, lower limb injuries that mainly occurred due to running; gastrointestinal and cardiovascular illnesses, mainly attributable to environmental factors (contaminated water); and respiratory illness, mainly caused by infection.

Discussion: The lack of high-quality prospective studies exploring the incidence, aetiology and risk factors for health problems in short-course triathletes has precluded the development of preventative strategies. Effective injury and illness prevention requires identification of accurate injury and illness incidence rates over entire seasons. Future research should focus on optimising performance through targeted

prevention practices addressing the aetiology and risk factors associated with the highest burden health problems in short-course triathletes. Developing a greater understanding of injury severity in short-course triathletes is required to determine injury severity and inform injury prevention programs.

Impact and application to the field:

- Overuse, lower limb injuries that mainly occurred due to running; and gastrointestinal and cardiovascular illnesses, mainly attributable to environmental factors, were the most frequently reported health problems in short-course triathletes.
- Identifying triathlon-specific injury mechanisms, activities and risk factors is critical for prioritisation of targeted prevention programs.

Conflict of interest statement

My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

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Injury epidemiology in elite triathletes: A 4 year prospective study

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Introduction: To investigate the prevalence, incidence rate (IR) and burden of injuries in elite Australian triathletes over four years of training and competition to assist the identification of future prevention priorities.

Methods: Fifty triathletes (25 females and 25 males, mean age: 24 years \pm 3.5) of the Australian national elite squad were prospectively followed for four seasons (2018-2021). Injuries requiring medical attention were prospectively recorded in a centralised database and were further sub-categorised as time-loss or non-time loss injuries. The IR and burden were calculated per 365 athlete-days, with differences in IR between males and females compared using incidence rate ratios (IRR) generated from negative binomial regression modelling.

Results: A total of 266 injuries were reported in 46 athletes, with 61.3% injuries resulting in a period of time-loss. The overall IR was 1.87 (95%CI=1.7-2.8) injuries per 365 athlete-days, and comparable between females (2.1, 95%CI=1.8-2.4) and males (1.7, 95%CI=1.4-2.0) (IRR= 0.82, 95%CI=0.7-1.0, $p=0.10$). Overall athlete availability was 83.8% (95%CI=83.5-84.0).

The injury sites were comparable between females and males, with injuries most frequently reported at the ankle (15.8%), foot (12.4%), and lower leg (12.0%). Foot injuries accumulated the highest number of days missed from sport (2337 days). Pelvis/buttock (75 days, IQR 6-204) and foot (60, IQR 20-152) injuries had the highest median days of time loss per injury.

The most frequently reported tissue type injury was muscle ($n=48$, 18.0%) and tendon ($n=46$, 17.3%) injuries. There were twenty-five bone stress injuries reported, which resulted in the highest number of total days missed from sport (4456 days) of all tissue types. Bone stress injuries resulted in the highest number of median days lost (160 days, IQR 121-208). Females had a 2.7 times

higher rate of bone stress injuries compared to males (IRR=2.7, 95% CI=1.1-6.4, $p=0.03$).

The injury burden was 68.5 days time-loss per 365 days (95% CI=58.8-80.0), with bone stress injuries accounting for almost half of the overall injury burden (32.1 days time-loss per 365 days, 95% CI=21.7-47.5).

Discussion: The majority of medical attention injuries reported in elite triathletes resulted in time-loss. Foot, ankle and lower limb injuries had the highest incidence, however pelvis/buttock and foot injuries were more severe, resulting in the highest number of training and competition days missed. The overall injury rate experienced by male and female triathletes was comparable, however, females demonstrated a significantly higher rate of bone stress injuries compared to male triathletes. Whilst there was a higher incidence of muscle and tendon injuries, bone stress injuries were far more severe than any other injured tissue and had the highest injury burden.

Impact and application to the field:

- Bone stress injuries were associated with the highest injury burden.
- The higher rate of bone stress injuries in female triathletes warrants consideration for specific selective prevention strategies.

Conflict of interest statement

My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

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Functional outcome measures reported in longitudinal studies of ACL injury: a scoping review

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Introduction: The incidence of Anterior cruciate ligament (ACL) injury continues to increase each year. Many tools have been developed and validated to specifically measure function after an ACL injury. However, variability in these tools makes it difficult to compare and pool the results across different studies, potentially impacting on the quality of the evidence available to patients, clinicians, and policy makers. The aim of this scoping review was to summarize the different functional outcome measures and study characteristics in longitudinal studies of people following ACL injury.

Methods: Four electronic databases were searched: Medline, EMBASE, SPORTDiscus and CINAHL, from inception to October 2020. This review included longitudinal studies (with at least three months between at least two timepoints) published in any language, that reported any measure of function following an ACL injury that was managed either surgically or conservatively. Two independent reviewers screened titles/abstracts and the full text of potentially eligible studies. Data extraction was completed using a piloted data extraction sheet by two reviewers, with agreement determined by a third reviewer.

Results: The included studies ($n=265$) had a combined sample of 106,449 participants, of which 62,085 (58%) were male and 44,364 (42%) were female. Participants' mean age was 27.5 years and a total of 17 different self-reported functional outcome measures reported. The International Knee Documentation Committee (IKDC) was the most frequently reported functional measure ($n=141$, 53%), followed by Lysholm ($n=106$, 40%), Tegner ($n=80$, 30%) and Knee Injury and Osteoarthritis Outcome Score (KOOS) ($n=58$, 22%), with the IKDC and KOOS becoming increasingly more common over the