Considerations and Interpretation of Sports Injury Prevention Studies

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KEYWORDS

• Athletic injuries • Sports medicine • Epidemiologic methods • Injury prevention

KEY POINTS

- Study designs on sports injury prevention are prospective by default, and clinicians should consider the external validity of findings before applying preventative measures in their context.
- Injuries and injury rates should not be the sole outcome of injury prevention studies while outcomes of injury prevention efforts are also measurable in terms of severity, burden, and compliance/adherence to preventative strategies.
- Sports injury prevention studies should provide a clear definition of what was considered an injury in the study, data on sport exposure, severity of injury, and compliance/adherence to preventative measures.

INTRODUCTION

Maintaining a physically active lifestyle is a major contemporary public health issue.[1] Therefore, promoting sport participation is crucial for contemporary society.[2] The paradox is that, on the one hand, sport participation improves health through the well-documented benefits of regular physical exercise.[3] On the other hand, sport participation also increases the risk of unfavorable consequences, such as sports injuries.[4] The negative experience associated with injuries can discourage maintaining sport participation, which conflicts public health efforts.[2] Moreover, sports injuries negatively

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influence team and individual athletic success.[5] Given the detrimental impact of sports injuries for the individual and society, preventative efforts are of great importance.[6]

Through understanding of research methodology, clinicians are better able to assess whether a research finding is valid and applicable for their context. Accordingly, this article is meant to be a resource for sport clinicians to understand and interpret (1) study design, (2) outcome measures, and (3) statistics in sports injuries prevention research. This should provide a foundation of knowledge for clinicians on the decision-making process to apply research findings in the area of injury prevention in practice.

STUDY DESIGNS IN INJURY PREVENTION STUDIES

Sports injuries prevention efforts follow, in general, the sequence of prevention (Fig. 1).[7] The extent of the injury problem should first be established (step 1) and subsequently the problem's underlying etiology and mechanisms investigated (step 2). After following these first 2 steps, there should be enough information to develop and introduce a preventative strategy (step 3) and, finally, assess its (cost-) effectiveness (step 4). This article focuses on the methodology of step 4 of the sequence of prevention, that is, assessing the (cost-) effectiveness of an injury prevention strategy.

There needs to be a clear distinction between efficacy and effectiveness of preventative measures. Efficacy describes the effect of any intervention under fully controlled and ideal conditions, taking any potential disturbing factors into account and giving the intervention the best conditions to demonstrate a beneficial effect. This is usually done in explanatory randomized controlled trials (RCTs)[8] and gives an answer to the

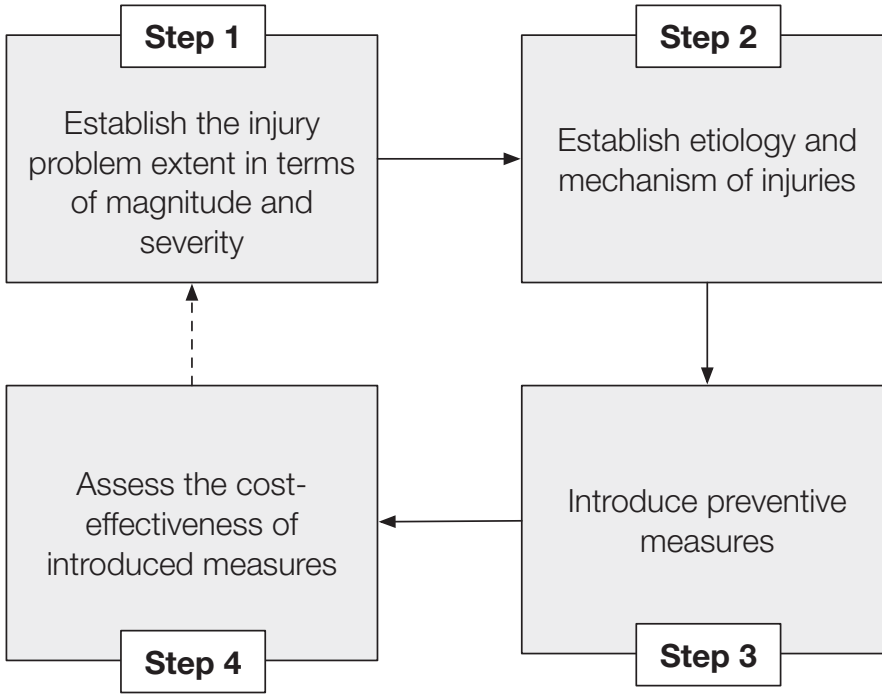

Fig. 1. The sequence of prevention of sports injury. (*Adapted from* van Mechelen W, Hlobil H, Kemper HCG. Incidence, severity, aetiology and prevention of sports injuries. Sports Med 1992;14(2):84; with permission.)