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Psychological Interventions Associated with Injury Prevention: A Systematic Review

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Introduction

Understanding injury mechanisms: a key component of preventing injuries in sport

R Bahr, T Krosshaug

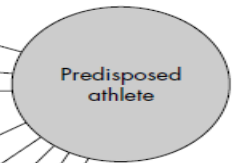
Br J Sports Med 2005;39:324-329. doi: 10.1136/bjism.2005.018341

Injuries are multifactorial. Our intervention programmes should be the same.



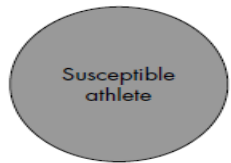
Internal risk factors:

- Age (maturation, aging)
- Sex
- Body composition (e.g. body weight, fat mass, BMD, anthropometry)
- Health (e.g. history of previous injury, joint instability)
- Physical fitness (e.g. muscle strength/power, maximal O₂ uptake, joint ROM)
- Anatomy (e.g. alignment, intercondylar notch width)
- Skill level (e.g. sport specific techniques, postural stability)
- Psychological factors (e.g. competitiveness, motivation, perception of risk)



Exposure to external risk factors:

- Sports factors (e.g. coaching, rules, referees)
- Protective equipment (e.g. helmet, shin guards)
- Sports equipment (e.g. shoes, skis)
- Environment (e.g. weather, snow and ice conditions, floor and turf type, maintenance)



Inciting event:

Playing situation
Player/opponent behaviour
Gross biomechanical description (whole body)
Detailed biomechanical description (joint)



Comprehensive model for injury causation

Introduction: some potential benefits

↓ Stress

↑ Perceived wellness

Altered hormone release

↑ Situational awareness

↓ Muscle tension

Neuromuscular benefits



Skill learning

↑ Thought clarity

↑ Decision making

↑ Concentration

Altered risk perception and risk-taking behaviours

↑ Movement quality




Introduction

- However...
Multifactorial causation ≠ multifactorial prevention?




Physiotherapy
Volume 101, Issue 2, June 2015, Pages 95–102




Systematic review
Musculoskeletal physiotherapists' use of psychological interventions: a systematic review of therapists' perceptions and practice

Jenny Alexanders^{*}, Anna Anderson^{*}, Sarah Henderson^{*}




Physical Therapy in Sport
Volume 23, January 2017, Pages 99–104



Original Research
Is there a link between previous exposure to sport injury psychology education and UK sport injury rehabilitation professionals' attitudes and behaviour towards sport psychology?

Caroline A. Heaney^{*}, Claire L. Rostron^{*}, Natalie C. Walker^{*}, Alison J.K. Green^{*}
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Journal
International Journal of Sport and Exercise Psychology
Volume 4, 2006 - Issue 1

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Original Articles

Physiotherapists' perceptions of sport psychology intervention in professional soccer

Caroline Heaney



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158

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0

CrossRef citations

8

Altmetric

Review Article

Knowledge, behaviors, attitudes and beliefs of physiotherapists towards the use of psychological interventions in physiotherapy practice: a systematic review

Christina Driver, Bridie Kean, Florin Oprescu & Geoff P. Lovell

- Time constraints?
- Resource constraints?
- Uncertainty?
- Intolerance?
- Perceived benefits?

Research questions

(1) What practical recommendations can be made for clinical practice?

(2) What is the overall methodological quality of included studies?

(3) What are the salient future research directions to advance this research area?

Method: Systematic review

- PRISMA guidelines
- Data sources: CINAHL, MEDLINE, PsycARTICLES, PsycINFO, SPORTDiscus, Science Direct and PubMed
 - Bibliographic screening
 - Forward citation searching
 - Hand searching of relevant journals
- Mixed-methods Appraisal Tool (Pluye et al. 2011)
- Three independent reviewers (sport psychology, sport science and sports therapy perspectives)
 - Inter-researcher reliability of appraisals = **.982**

Results: RQ1

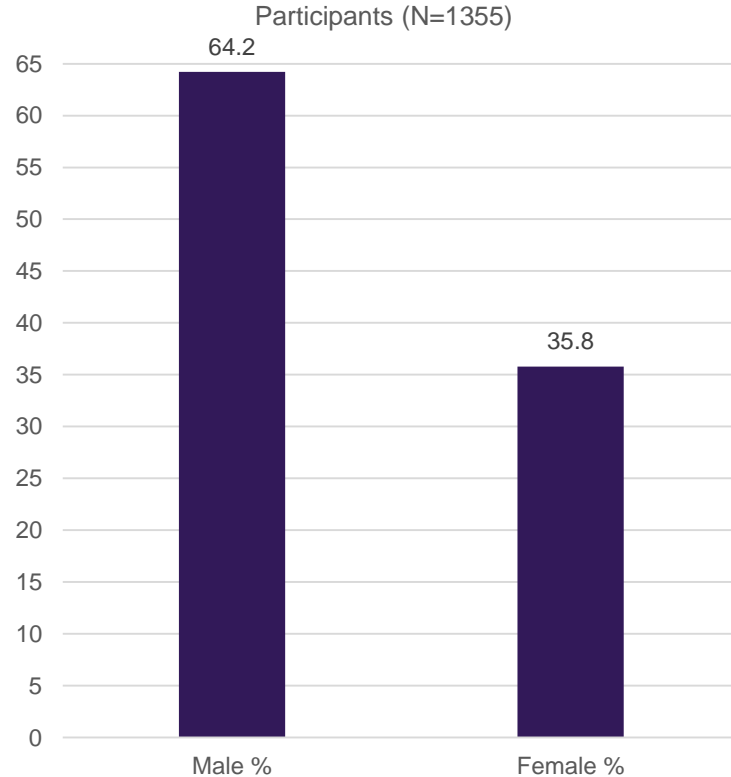
What practical recommendations can be drawn for clinical practice?

All included studies (N=14) demonstrate the potential for injury risk reduction

- Cognitive/somatic relaxation (n=6)
 - Imagery (relaxation) (n=3)
 - Stress inoculation training (n=5)
 - Goal setting (n=3)
 - Attribution training (n=1)
 - Confidence training (n=2)
 - Self-talk (n=1)
 - Autogenic training (n=1)
 - Mindfulness (n=1)
 - Awareness training (n=1)
- No two studies have the same intervention
 - Different session/intervention lengths
 - Few provide sufficient detail to replicate interventions

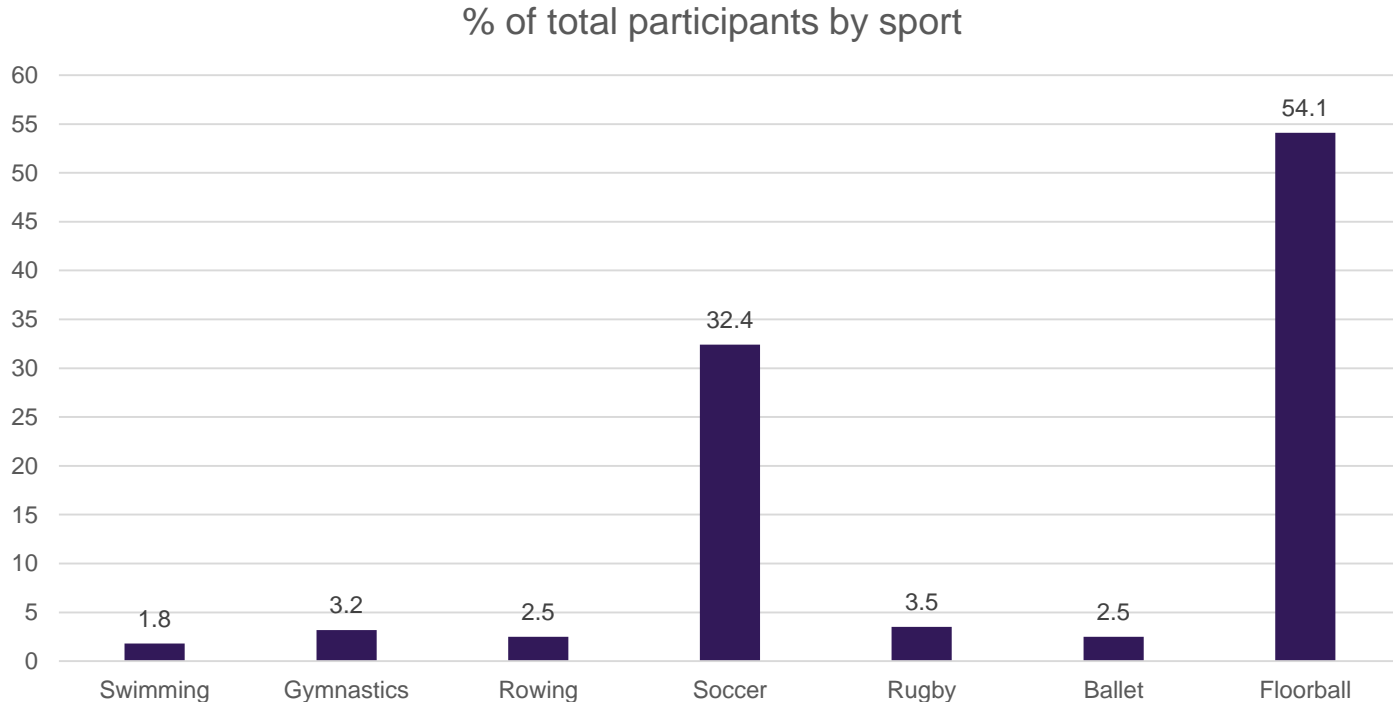
Results: RQ1

What practical recommendations can be drawn for clinical practice?



Results: RQ1

What practical recommendations can be drawn for clinical practice?



Results: RQ2

What is the overall methodological quality?

- Moderate risk of bias (51.9%)
 - Potential selection bias (e.g. selecting 'at risk' athletes for intervention groups)
 - Potential reporting bias (e.g. incomplete details over randomisation)
- Concerns over sample size in 78.6% of studies

Results: RQ3

Future research directions?

- Replication studies
- Psychological skills training aimed at eliciting neuromuscular benefits
- Psychological skills training aimed at enhancing movement quality/skill learning
- Greater representation of female athletes

Take home messages

Where are we now?

All included psychological intervention studies demonstrate the potential to reduce injury risk

What are the existing concerns?

- Moderate risk of bias (selection and reporting)
- Lack of replication studies
- Concerns over small sample sizes in most studies

Where do we go from here?

- Future replication of stress-based studies
- Interventions which can elicit movement quality learning and/or neuromuscular changes may advance the area

Thank you for listening!

Any questions?

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