

# Sports injury prevention: Mission Possible!

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'Mission completed' could be the headline for Myklebust *et al* who tell the story of how the incidence of ACL injury among female handball players in Norway has been kept low, 10 years after the publication of their successful intervention study.<sup>1</sup> An inspirational read, emphasising how a step-by-step approach combined with hard work and persistence, can make a difference (that matters). This issue highlights Norway's systematic, consistent and long-term approach to addressing key research areas: sports injury prevention, active rehabilitation, women's health and physical activity medicine. It also celebrates *BJSM* welcoming the Norwegian Association of Sports Medicine and Physical Activity (NIMF) and the Norwegian Sports Physiotherapy Association (FFI) as member societies; a partnership we are extremely proud of. Full text of *BJSM* is freely available to all Norwegian URL addresses, not just to society members.

## STEP-BY-STEP TOWARDS PREVENTION SUCCESS

Since the establishment of Oslo Sports Trauma Research Centre (OSTRC) 13 years ago, its members have contributed to over 200 articles covering the various stages of systematic injury prevention research (figure 1).<sup>2,3</sup> Examples of each stage can be found in this issue.

The first step, describing the extent of the problem, is covered by two of OSTRC's new focus areas: sports cardiology and overuse injuries. In their study of ambulatory blood pressure in footballers, Moseby Berge *et al* unmask how little we currently know about the prevalence of hypertension in athletes, while Clarsen *et al* present a novel method for registration of overuse injuries in epidemiological studies. The need for specific methods to study overuse issues was highlighted by Professor Roald Bahr in his

opening keynote address at the Second World Congress on Sports Injury Prevention in Tromsø, Norway in 2008.

The second step in the sequence of injury prevention is to determine the causes of injury by analysing risk factors and injury mechanisms. Visnes *et al* report an interesting risk factor for development of jumper's knee; namely jumping ability! Meanwhile, our terrific cover image by computer animation specialist Oliver Faul highlights the techniques used by OSTRC researchers to determine injury mechanisms based on video analysis.<sup>4</sup> These attractive animations are really helpful, but the editorial by Kristianslund *et al* reminds us to 'proceed with caution' when interpreting the results of biomechanics studies.

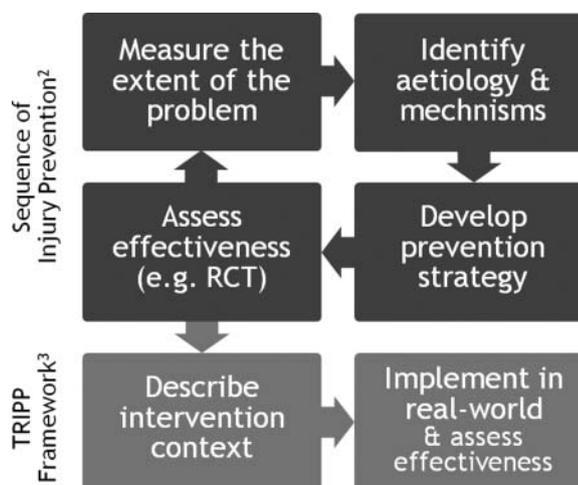
The third step in the sequence of prevention is to develop prevention strategies, and the fourth is to implement them and measure their efficacy. On this note, Bjørneboe *et al* demonstrate the effect of stricter rule enforcement on the number of injury situations in Norwegian professional football. This shows how referees may be important in reducing injury risk in the future, but only if they maintain the same strategy after the researchers have packed up and left. Therefore, the final steps of systematic prevention research involve investigating the implementation context.<sup>3</sup> In this issue we have two papers representing the forefront of this field: Steffen *et al*

investigate whether different methods of delivering the FIFA 11+ programme affect team compliance and injury risk in youth football, while in their insightful editorial Donaldson and Finch 'drive' home an important message; the principles of implementation science should be applied to sports injury prevention in order to understand what does and does not work in the real world.

## IMPORTANT STEPS FOR WOMEN AND CHILDREN

The relationship between physical activity and health is another key research area in Norway. In his editorial, Professor Sigmund Andersen draws attention to the challenge of fighting childhood obesity and to a school-based RCT published in *BJSM* aimed at increasing physical activity among pupils.<sup>5</sup> School-based interventions are promising, which is good news given the uncertainty of the effectiveness of primary-care referrals to promote physical activity, highlighted in the 'from the BMJ' article by Pavey *et al*. Meanwhile, Gjestland *et al* provide encouraging evidence of the value of exercise during pregnancy, even if the current exercise recommendations are far from followed.

Finally, Moksnes *et al* report the results of a 6-year cohort study of ACL-injured children. Their findings may have substantial implications on clinical practice in this field, something we have almost come to expect from the prolific group at the Norwegian Research Center for Active Rehabilitation (<http://www.nar.no>). You can look forward to several new articles in *BJSM* from members of NAR, as well as a podcast, in the near future.



**Figure 1** A systematic approach to sports injury prevention. The original four-step model was described by van Mechelen *et al* in 1992,<sup>2</sup> and later expanded by Finch.<sup>3</sup>

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**'OUTROSPECTIVE'**

Looking over the 'Norwegian' articles in this edition, it is worth noting that almost a third of the authors are not from Norway. This highlights the strong commitment to international collaboration, as well as the increasingly diverse cultural mix within our milieu. Every day we (1 Norwegian and 1 Australian) sit alongside researchers from all corners of the globe, and it seems that at all times some of our colleagues are on international exchange. This bodes well for the mission of sports and exercise medicine research in Norway!

We hope you enjoy this edition of *BJSM* and welcome suggestion from both inside

and outside Norway as to making the 2014 issue even more relevant for you!

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**REFERENCES**

- 1 Myklebust G, Engebretsen L, Braekken IH, *et al.* Prevention of anterior cruciate ligament injuries in female team handball players: a prospective

intervention study over three seasons. *Clin J Sport Med* 2003;**13**:71–8.

- 2 Van Mechelen W, Hlobil H, Kemper HC. Incidence, severity, aetiology and prevention of sports injuries. A review of concepts. *Sports Med* 1992;**14**:82–99.
- 3 Finch C. A new framework for research leading to sports injury prevention. *J Sci Med Sport* 2006;**9**: 3–9.
- 4 Krosshaug T, Bahr R. A model-based image-matching technique for three-dimensional reconstruction of human motion from uncalibrated video sequences. *J Biomech* 2005;**38**:919–29.
- 5 Grydeland M, Bjelland M, Anderssen S. Promoting healthy weight in school children: what does the HEIA study teach us about effective interventions? *Br J Sports Med* 2013 (in press).