

# **An interdisciplinary research methodology to address the complexity of youth sport injury aetiology: Towards a more comprehensive understanding**

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Football is the most popular sport for children and adolescents in Sweden. Playing football can include beneficial health effects, but there is also a high risk of injury. The high injury rate among youth football players is alarming, and the concern is two-fold: First, injuries sustained during youth influence the onset of injuries later in a career. Second, injuries may cause (or force) children and adolescents to drop out from sport, which can detriment life-long physical activity and wellbeing.

To prevent sports injuries, research has aimed to understand their aetiology from both the natural and social sciences. Researchers situated in the natural sciences have typically approached the phenomenon by applying a methodology that encompasses quantitative techniques, such as questionnaire, physical testing, and mathematical and statistical analysis. The social sciences have in contrast applied a methodology consisting of qualitative techniques, such as observation, interview and interpretive analysis. The application of different methodologies has resulted in strong disciplinary knowledge, especially in biomechanics, sport medicine, sport physiology, sport psychology and sport sociology, demonstrating that injuries are influenced by a multitude of individual, social and contextual factors. Yet, injuries continue to occur. One key reason for the continued high injury rate in youth sport relates to the dominance of disciplinary-specific knowledge at the expense of understanding the athlete as a whole person and his/her specific training conditions, coach-athlete relationships, coaching practice and training methods. A methodology to account for and integrate these factors across disciplines, as well as address the complexity of sport injury aetiology, is however missing.

To address this methodological gap, the overarching aim of this thesis is to develop, implement and evaluate an interdisciplinary research methodology for the study of youth sport injury aetiology. Specifically, the thesis' objectives, which have been achieved through paper 1, 2 and 3, are to: 1. Generate state of the art disciplinary knowledge on youth sport injury aetiology; 2. Develop and implement an interdisciplinary research process; and 3. Develop an analytic procedure that integrates quantitative and qualitative injury data. Furthermore, the thesis' objectives, which will be achieved in paper 4, 5 and 6, are to: 4. Translate, adapt and validate the Oslo Sport Trauma Research Centre Questionnaire on Health Problems (OSTRC-H) into Swedish and to youth football players; 5. Describe the prevalence and severity of health problems in a cohort of Swedish youth football players; and 6. Address the complexity of sport injury aetiology through a case study analysis procedure.

To achieve the six objectives, the thesis draws on complexity theory and an interdisciplinary research process that draws on disciplinary perspectives and integrates these perspectives through the construction of a more comprehensive understanding of the phenomenon under study. The context in which the thesis research is conducted is the interdisciplinary research project “Injury free children and adolescents: Towards best practice in Swedish football” (FIT project). The FIT project aims to produce a comprehensive picture of injury development in a sample of male and female Swedish football players aged 10 to 19 through integrating natural and social science as well as quantitative and qualitative data.

The results of my research that flow into this doctoral thesis are, so far: (1) state of the art disciplinary knowledge on youth sport injury aetiology (Paper 1); (2) a protocol of an interdisciplinary research methodology to conduct youth sport injury aetiology research (Paper 2); and (3) introducing an interdisciplinary case analysis procedure (ICAP) that integrates qualitative and quantitative injury data (Paper 3). I propose that by working across scientific disciplines and using qualitative and quantitative research methods, the interdisciplinary methodology presented in this thesis can serve as a practical guide for injury researchers aiming to better address the complexity of injuries. Through methodological pluralism and interparadigmatic integration, researchers can begin to ask more and new questions that will provide novel insight into the complex phenomenon of injury aetiology. Consequently, more effective injury prevention strategies can be developed.