

A Systematic Review on the Effectiveness of Different Rehabilitation Programs for Preventing Hamstring Re-Injury

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ABSTRACT

Sports injuries can result in damage to that will lead to lifelong chronic illness and disabilities. growth disorders. The term sports injury refers to a variety of injuries to the integumentary system, muscles and skeleton caused by sports activities. In children, sports injuries affect the growth of bones and soft tissues, and can result in damage to growth mechanisms that will cause lifelong growth disorders. Therefore, it is of interesting to find biomarkers that can be used to monitor the progression of sport injuries as well as the prediction of short- and long- term outcome. This study aims to explore the musculoskeletal injury due to sport activities, focusing on the kinds of injuries, most sports that predominate the injuries, risk factors, and to subsequently discuss the biomarker involved in the progression and prediction of the injuries. This study is designed as a systematic review, following the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) recommendation. Literature searching has been performed using three scientific databases, namely Pubusing key-terms according to the determined PICO (population, intervention, control-comparison, and outcome). Inclusion-exclusion criteria are used to screen the literatures, and their eligibility will be assessed with Newcastle Ottawa Scale (NOS). Selected studies will be extracted and analyzed descriptively. The study is conducted between Biology (FMIPA UNY) and Sport Coaching (FIK UNY) in collaboration with the Department of Orthopedic and Sports Medicine, Amsterdam UMC University of Amsterdam, the Netherlands. The output targets of this research are an article submitted to an international-reputable indexed journal database (Journal of Sports Medicine and Physical Fitness (Q2)), an international-indexed proceeding (Yogyakarta International Seminar on Health, Physical Education, and Sport Science) and an article submitted to Jurnal Ilmu Keolahragaan (SINTA 2). Implementation agreement and/ or Memorandum of Agreement on research and publication between the parties will be composed as additional outputs. Currently, this basic research is at the level of technological readiness at TKT 1 and is expected to reach TKT 2 at the end. University of Amsterdam ranks 55 according to QS World University Rankings, therefore this collaborative research will certainly contribute to the "IKU" of UNY, boost UNY World rank as well as support UNY internationalization.]

Kata Kunci: *sport, injury, musculoskeletal tissue, biomarker, recovery*