



Photo: Finnish Ice Hockey Association, Heikki Löfman



## Sustainable careers in elite contact sports (SUCCESS)

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**Sustainable careers in elite contact sports (SUCCESS)** promotes a safe and long sports career, cognitive health, and wellbeing of athletes. Physical activity has well documented positive effects on health and well-being. However, contact sports involve actions that pose risk to brain health, such as collisions in ice hockey and headers in football.

SUCCESS studies the consequences of head impacts at different career stages from youth to elite stages into the post-career phase. We identify risk factors for head injuries and prevalence of head impacts in women's elite ice hockey and football followed during two playing seasons. The effects of head impacts are evaluated with detailed tests of cognition, balance, and oculomotor function in collaboration with the medical teams in the league. We examine the short- and long-term outcome of head impacts and how they affect sporting careers

in a longitudinal 10-year follow-up sample of former male youth ice hockey players, and male retired players from ice hockey and football. We use methods such as head tracking sensors, GPS, and video-footage, self-reports, interviews, cognitive measures, and brain imaging.

SUCCESS reveals the consequences of head impacts at different career stages from youth to elite stages, extending into the post-career phase. SUCCESS fills a gap in the equality in elite sport by offering nuanced knowledge about head impacts in female athletes. Most studies are conducted with male players and thus the policy and rule changes are less informed of the physical and psychological characteristics of women. We will use neuroimaging which have been rare in assessing the consequences of repetitive head impacts. We draw on a novel head sensor technology to detect head impacts. By making use of rare longitudinal data, we can produce unique knowledge on the outcome of head impacts. Most of the research on long-term consequences concerns American football or boxing; this urgently needs to be extended to sports such as ice hockey and football.

The project is carried out by researchers in the universities of Helsinki and Jyväskylä in collaboration with sports organizations.



Photo: Football Association of Finland, Jyri Sulander

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<https://blogs.helsinki.fi/success-project/>

<https://www.jyu.fi/en/projects/sustainable-career-in-elite-contact-sports-success>

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#### Main publications:

Hänninen T, Parkkari J, Tuominen M, Iverson GL, Öhman J, Vartiainen M, Luoto TM. Interpreting change on the SCAT3 in professional ice hockey players. *J Sci Med Sport*. 2017 May;20(5):424-431. doi: 10.1016/j.jsams.2016.09.009. <https://pubmed.ncbi.nlm.nih.gov/27707536/>

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