

Living on 1HP: Early Research into Health and Performance in Esports

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1HP

About the Presenters



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Esports Medicine: New Field, Needs Data

- Why do we need it?
 - Population size
 - Financial considerations for teams/developers
 - Distinct enough to need its own data

Are esports sports / Are esports competitors athletes?



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Who can we borrow from in the meantime?

- Traditional athletes
- Office Workers
- Air-Traffic Controllers
- Musicians
- Chess Competitors
- However, esports is separate and distinct from all these fields
 - To provide the best evidence-based care, we need our own evidence

What exists right now?

- Anecdotal advice on how to manage gamers and their pain
- Specific pain pattern or injury presentations in gamers (rare)
- Survey studies of gamers
 - Not great
- Performance-based studies (rare)
- Causation of pain studies (REALLY rare)
- Difference between casuals and pros (rare)

Virtual sports deserve real sports medical attention

Ana Monteiro Pereira^{1 2}, João Brito¹, Pedro Figueiredo^{1 2}, Evert Verhagen^{3 4}

Affiliations + expand

PMID: 31803495 PMCID: [PMC6887499](#) DOI: [10.1136/bmjsem-2019-000606](#)

- There should be a baseline for quality sports medical care in Esports
 - We don't have enough data to make it
- Esports competitions are getting bigger and more established thus professionals will likely have even more pressure to perform and may push themselves beyond their limits trying to succeed
 - We can get ahead of this problem
- Esports is booming and there is an increase in competitiveness and professionalism, yet little is known about how to train and prepare best for eSports

The New Frontier of Esports and Gaming: A Scoping Meta-Review of Health Impacts and Research Agenda

[Sarah Kelly](#)¹, [Janni Leung](#)²

Affiliations + expand

PMID: 33796849 PMCID: [PMC8008070](#) DOI: [10.3389/fspor.2021.640362](#)

- Scoping meta-review
- 10 studies in total evaluated
- May have positive effect on cognitive ability
- Mixed data on social skills, behavior, and social networks vs isolation
- Little research on the impacts of gaming on healthy lifestyle behavioral factors



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Gamer's Health Guide: Optimizing Performance, Recognizing Hazards, and Promoting Wellness in Esports

Ahmed K Emara¹, Mitchell K Ng, Jason A Cruickshank, Matthew W Kampert, Nicolas S Piuze, Jonathan L Schaffer, Dominic King

Affiliations + expand

PMID: 33306517 DOI: 10.1249/JSR.0000000000000787

Three-point framework

- 1) awareness and management of common musculoskeletal and health hazards
- 2) opportunities for health promotion
- 3) recommendations for performance optimization
 - Contributes to dialogue around health and esports, possible structure
 - Does not have a fully nuanced view of ergonomics and its importance to performance

The Role of Experience, Perceived Match Importance, and Anxiety on Cortisol Response in an Official Esports Competition

- Tested anxiety, self-confidence, cortisol levels, and perceived match importance for League of Legends professionals
- Significantly higher cortisol levels, perceived match importance, and cognitive anxiety levels in professionals than in “non-experts”
- This seems obvious--why is it important?

Musculoskeletal pain is common in competitive gaming: a cross - sectional study among Danish esports athletes

- **Tested** The primary outcome was any MSK pain in the body during the previous week
- Of 188 included athletes, 42.6% reported MSK pain. The most common pain site was the back (31.3%). Athletes with MSK pain participated in significantly less esports training compared with athletes without MSK pain (mean difference -5.6 hours/week; 95% CI -10.6 to -0.7, $p=0.035$). There was no significant difference in physical activity levels between groups
- **Conclusion:** Back pain is common among esports athletes.

Lindberg L, Nielsen SB, Damgaard M, Sloth OR, Rathleff MS, Straszek CL. Musculoskeletal pain is common in competitive gaming: a cross-sectional study among Danish esports athletes. BMJ Open Sport Exerc Med. 2020 Aug 28;6(1):000799. doi: 10.1136/bmjsem-2020-000799. PMID: 33585039; PMCID: PMC7876625.



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The structure of performance and training in esports

- Large sample size survey to assess training structures in esports
- The results reveal game-specific competence and training structures in the five esports selected for the study (Starcraft II, League of Legends, Rocket League, FIFA, and Counter Strike)
- The survey revealed that there are indeed differences between e-sports with regard to the importance and training of certain competencies and training areas.



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Carpal Tunnel syndrome symptoms in Esports players

- Serious methodological concerns
- Very small sample size
- What can we learn?
 - Importance of context
 - Importance of familiarity with gaming

Carpal Tunnel syndrome symptoms in Esports players

Ivanova, Violeta (2020)

RefWorks



Julkaisun pysyvä osoite on

<http://urn.fi/URN:NBN:fi:amk-2020112624401>

Abstract

The thesis study was conducted to identify the risk factors for Esports players when it comes to developing Carpal Tunnel syndrome, how prevalent the symptoms are, and what preventative measures can be taken based on current research and available treatment methods.

Proposed Best Practices for Research

- Endemic and nonendemic cooperation
 - This is not an “us vs them” venture
 - Knowledge and experience of endemics
 - Research qualifications of nonendemics
- Incorporate “subjects”
 - Pain science research publication concepts
 - Expertise is not just academic



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The Money Question: Who Pays?

- Who benefits?
 - Applicability to other fields
 - Cognition
 - Fine motor skills
 - Neurodegeneration
- Academic institutions
- Medical organizations
- Government organizations

Why Should Developers Care?

- Not all of them should!
- Player/career longevity = value
 - Leagues
 - Fans follow players, not just teams
 - More stable, sustainable industry
- Correcting misconceptions of gaming
- Tap into new markets
 - Improve parental support

What do we need?

- Best-practice guidelines!!!
- Prevalence data
 - especially longitudinal data on specific musculoskeletal conditions across esports games and levels of performance
- More understanding of the physical demands of gaming
 - I.e. how which different gaming input devices, game types, and play styles affect the loads placed on joints, ligaments, muscles, and tendons
- Better-equipped healthcare professionals
- Funding



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