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Editorial: What is esports performance?

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Editorial on the Research Topic What is esports performance?

The rapid growth of esports underscores its increasing need to be taken seriously by commerce, nations and sports organisations. Born from and rooted in the digital age, esports furthermore manifests ideas and ways of being engaged and performing that generate a wealth of novel questions for research and academic discussion. Esports has thus unsurprisingly emerged as a rich subject of academic inquiry, with researchers exploring whether esports is suitably physical to be considered sport (1–5), whether esports could become an Olympic discipline (6), but also esports specific issues relating to health (7), gender (8–10), spectatorship (11–13), economics (14–16), matters of governance, management and institutionalization (17–21), as well as different ethical issues rapidly emerging within and around esports (22–26). Researchers have moreover taken an active interest in esports as novel kinds of bodily practices (27–30), with esports performances serving as potentially illuminating cases for broader discussions within cognitive science on the relationship between cognition, embodiment and other virtual technologies (31–38).

With this research topic, held together by original and methodologically diverse contributions from fifteen authors, the aim is to add further nuance to the phenomenon of esports performances.

Starting from an often-debated feature of esports performance, namely its hybrid, virtual-physical nature (5, 39, 40) Stapley et al. contextualize the hybrid case of the *Arena Games Triathlon* (ATG). As a competitive Triathlon platform, partially borne out of the Covid-19 pandemic, ATG virtualizes the cycling and running elements of the competitive sport by integrating these physical performances with digital platforms. The authors explore and discuss both the ATG-specific practical challenges in incorporating virtual platforms for competitive cycling and running, as well as the opportunities afforded in doing so. This includes ATG's high media engagement (compared to the World Triathlon) and the unique training- and evaluation-specific opportunities that virtualized and competitive platforms offer. Notably, as a novel injection into the ongoing debate about esports' relationship to the Olympics (6, 41), the authors further contemplate the possibilities for ATG as a hybrid phenomenon fitting into the future Olympics-based esports initiatives.

Staying on the topic of esports' hybridity, Østergaard et al. turn to the impact of physical activity on esports performance. In this regard, the relationship between physical activity and esports performance has long interested researchers (42–45). Specifically, with an eye towards younger players (for whom traditional endurance- and strength-training practices might resonate comparatively less) the authors focus on *playful* forms of bodily activity as a potentially relevant feature of esports training. In this regard, through interviews with and observations of relevant players and coaches, the authors demonstrate the significance of playful activities for the participants' esports performance. Notably, the authors further find that the comparatively more valuable, playful activities deployed tend to relate to and resonate with the particular esports platforms played by the participants. The study's results thus add further nuance to existing conceptual and empirical research, pointing to a close relationship between esports performance, play and embodiment (27, 28, 30, 46–48).

Looking to illuminate esports coverage, Rong & Li's study explores the role of esports insiders with regard to off-season, player transfers. The authors examine the different competitive structures of different esports practices, before turning to the complex dynamics of the esports transfer market. Focusing on the esports platform CS:GO, the authors analyse data collected from the Perfect World Esports APP and HLTV websites. Identifying an increase in the popularity of transfer information since 2019, the authors' results show that insiders play a progressively important role in the overall transfer ecology of the competitive platform. Touching upon dynamics not always apparent, the authors thus provide a more detailed picture of this platform's transfer ecology, as well as some of its distinct social dynamics.

With two distinct contributions, Rogers et al. turn their attention specifically to first-person shooters in esports contexts. Their **first contribution** moves from recognising the lack of game-based metrics for quantitative assessments of esports shooting performances to a positive assessment of one possible software for gauging precisely this kind of esports performance, namely the aim trainer *KovaaK's*. In their **second study**, operationalizing *KovaaK's* aim trainer as a performance gauge, the authors investigate the impact of caffeine intake on esports performance specifically in the context of first-person shooters. Their results point to a correlation between caffeine intake and increased player precision and reaction time. What is noteworthy here is that the authors find no significant difference in

KovaaK's-specific performative effects between higher doses (3 mg·kg⁻¹ BM) and lower doses (1 mg·kg⁻¹ BM) of caffeine. Given the prevalence of caffeine consumption amongst esports players, both amateur and professional (49–51), these results might contribute to a more informed caffeine ingestion culture in esports performance, specifically amongst younger players. Furthermore, the study (and future similar studies) are urgently needed to inform the debate on the use of performance enhancing drugs in esports, and the limits that should be set for certain substances, related to the specific kind of performances and training in esports.

We hope those interested in esports performance find value in the original contributions of this Research Topic, and that the ideas, issues and suggestions raised by the authors are brought to bear on future esports discourse, initiatives and research.

Author contributions

DE: Writing – original draft, Writing – review & editing. IH: Writing – review & editing. ZR: Writing – review & editing. SR: Writing – review & editing.

Conflict of interest

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References

- Jenny SE, Manning RD, Keiper MC, Olrich TW. Virtual(ly) athletes: where eSports fit within the definition of "sport". *Quest.* (2017) 69(1):1–18. doi: 10.1080/00336297.2016.1144517
- Thiel A, John JM. Is eSport a "real" sport? Reflections on the spread of virtual competitions. *Eur J Sport Soc.* (2018) 15(4):311–5. doi: 10.1080/16138171.2018.1559019
- Rosell Llorens M. Esport gaming: the rise of a new sports practice. *Sport Ethics Philos.* (2017) 11(4):464–76. doi: 10.1080/17511321.2017.1318947
- Hallmann K, Giel T. Esports—competitive sports or recreational activity? *Sport Manag Rev.* (2018) 21(1):14–20. doi: 10.1016/j.smr.2017.07.011
- Ekdahl D. Both physical and virtual: on immediacy in esports. *Front Sports Act Living.* (2022) 4. doi: 10.3389/fspor.2022.883765
- Postma DBW, van Delden RW, van Hilvoorde IM. "Dear IOC": considerations for the governance, valuation, and evaluation of trends and developments in eSports. *Front Sports Act Living.* (2022) 4:899613. doi: 10.3389/fspor.2022.899613

7. Yin K, Zi Y, Zhuang W, Gao Y, Tong Y, Song L, et al. Linking esports to health risks and benefits: current knowledge and future research needs. *J Sport Health Sci.* (2020) 9(6):485. doi: 10.1016/j.jshs.2020.04.006
8. Rogstad ET. Gender in eSports research: a literature review. *Eur J Sport Soc.* (2022) 19(3):195–213. doi: 10.1080/16138171.2021.1930941
9. Ruvalcaba O, Shulze J, Kim A, Berzenski SR, Otten MP. Women's experiences in eSports: gendered differences in peer and spectator feedback during competitive video game play. *J Sport Soc Issues.* (2018) 42(4):295–311. doi: 10.1177/0193723518773287
10. Piggott L, Tjønndal A, Hovden J. Leadership and gender inclusion in esports organisations. In: Tjønndal A, editor. *Social Issues in Esports*. 1st ed. Milton Park, Abingdon-on-Thames, Oxfordshire, England, UK: Routledge (2022). p. 46–64. doi: 10.4324/9781003258650-6
11. Rietz J, Hallmann K. A systematic review on spectator behavior in esports: why do people watch? *Int J Sports Mark Spons.* (2023) 24(1):38–55. doi: 10.1108/IJSMS-12-2021-0241
12. Zhu X, Pyun DY, Manoli AE. Assessing the psychological pathways of esports events spectators: an application of service quality and its antecedents and consequences. *Eur Sport Manag Q.* (2024):1–21. doi: 10.1080/16184742.2024.2396629
13. Cauteruccio F, Kou Y. Investigating the emotional experiences in eSports spectatorship: the case of league of legends. *Inf Process Manag.* (2023) 60(6):103516. doi: 10.1016/j.ipm.2023.103516
14. Mangelaja E. Economics of esports. *Electron J Bus Ethics Org Stud.* (2019) 24(2):34–42. <https://jyx.jyu.fi/handle/123456789/66616>
15. Newman JJ, Xue H, Watanabe NM, Yan G, McLeod CM. Gaming gone viral: an analysis of the emerging esports narrative economy. *Commun Sport.* (2022) 10(2):241–70. doi: 10.1177/2167479520961036
16. Scelles N, Peng Q, Valenti M. Do the peculiar economics of professional team sports apply to esports? Sequential snowballing literature reviews and implications. *Economics.* (2021) 9(1):31. doi: 10.3390/economics9010031
17. Abanazir C. Institutionalisation in E-sports. *Sport Ethics Philos.* (2019) 13(2):117–31. doi: 10.1080/17511321.2018.1453538
18. Kelly SJ, Derrington S, Star S. Governance challenges in esports: a best practice framework for addressing integrity and wellbeing issues. *Int J Sport Policy Politics.* (2022) 14(1):151–68. doi: 10.1080/19406940.2021.1976812
19. Peng Q, Dickson G, Scelles N, Grix J, Brannagan PM. Esports governance: exploring stakeholder dynamics. *Sustainability.* (2020) 12(19):8270. doi: 10.3390/su12198270
20. Wong D, Meng-Lewis Y. Esports: an exploration of the advancing esports landscape, actors and interorganisational relationships. *Sport Soc.* (2023) 26(6):943–69. doi: 10.1080/17430437.2022.2086458
21. Hong HJ. Esports: the need for a structured support system for players. *Eur Sport Manag Q.* (2023) 23(5):1430–53. doi: 10.1080/16184742.2022.2028876
22. Dominteanu T, Smidu N, Voinea A, Dinciu CC, Porfireanu MC, Iacobini A. Player exploitation in esports organizations policies and business strategies. *Proc Int Conf Bus Exc.* (2023) 17(1):1413–20. doi: 10.2478/picbe-2023-0127
23. Mangat HS, Griffiths MD, Yu SM, Felvinczi K, Ngetich RK, Demetrovics Z, et al. Understanding esports-related betting and gambling: a systematic review of the literature. *J Gamb Stud.* (2024) 40(2):893–914. doi: 10.1007/s10899-023-10256-5
24. Slyk S, Zarzycki M, Grudzień K, Majewski G, Jasny M, Domitrz I. The prevalence and outlook of doping in electronic sports (esports): an original study and review of the overlooked medical challenges. *Cureus.* (2023) 15(11):e48490. doi: 10.7759/cureus.48490
25. Czako A, Király O, Koncz P, Yu SM, Mangat HS, Glynn JA, et al. Safer esports for players, spectators, and bettors: issues, challenges, and policy recommendations. *J Behav Addict.* (2023) 12(1):1. doi: 10.1556/2006.2023.00012
26. Schubert M, Güre A, Haller N. Performance-enhancement in esports—Players' perspectives on prevalence, legitimacy, governance and regulations. *Perform Enhanc Health.* (2024) 12(3):100290. doi: 10.1016/j.peh.2024.100290
27. Witkowski E. On the digital playing field: how we “do sport” with networked computer games. *Games Cult.* (2012) 7(5):349–74. doi: 10.1177/1555412012454222
28. Taylor TL. *Raising the Stakes: E-Sports and the Professionalization of Computer Gaming*. Cambridge, MA, USA: MIT Press (2012). p. 336.
29. Ekdahl D. Mechanical keyboards and crystal arrows: incorporation in esports. *J Conscious Stud.* (2021) 28(5–6):30–57.
30. van Hilvoorde I, Pot N. Embodiment and fundamental motor skills in eSports. *Sport Ethics Philos.* (2016) 10(1):14–27. doi: 10.1080/17511321.2016.1159246
31. Osler L, Zahavi D. Sociality and embodiment: online communication during and after COVID-19. *Found Sci.* (2022) 21:1–18. doi: 10.1007/s10699-022-09861-1
32. Dreyfus HL. *On the Internet*. 2nd ed. Milton Park, Abingdon, Oxon; New York, NY: Routledge (2008). p. 192.
33. Chalmers DJ. *Reality+: Virtual Worlds and the Problems of Philosophy*. New York, NY: W. W. Norton & Company (2022). p. 544.
34. Baggs E, Grabarczyk P, Rucińska Z. The visual information available in virtual reality. *Ecol Psychol.* (2024) 36(1):24–38. doi: 10.1080/10407413.2024.2322992
35. Fuchs T. The virtual other: empathy in the age of virtuality. *J Conscious Stud.* (2014) 21(5–6):152–73.
36. Fuchs T. Understanding Sophia? On human interaction with artificial agents. *Phenomenol Cogn Sci.* (2022) 23:21–42. doi: 10.1007/s11097-022-09848-0
37. Ekdahl D, Ravn S. Embodied involvement in virtual worlds: the case of eSports practitioners. *Sport Ethics Philos.* (2019) 13(2):132–44. doi: 10.1080/17511321.2018.1475418
38. Osler L, Ekdahl D. Learning to walk and talk (again): what developmental psychology can teach US about online intersubjectivity. *Philos Explor.* (2024) 27(2):237–50. doi: 10.1080/13869795.2024.2344981
39. John JM, Riatti P, Thiel A. How real is virtual reality? Reflections on sport in virtual realities. In: *Critical Perspectives on Esports*. 1st ed. Milton Park, Abingdon-on-Thames, Oxfordshire, England, UK: Routledge (2024). p. 36–49. doi: 10.4324/9781003383178-5
40. Holt J. Virtual domains for sports and games. *Sport Ethics Philos.* (2016) 10(1):5–13. doi: 10.1080/17511321.2016.1163729
41. Naraine ML. Actually, esports is sport: a response to parry's (2019) misguided view. *Sports Innov J.* (2021) 2:33–44. doi: 10.18060/24812
42. Ketelhut S, Martin-Niedecken AL, Zimmermann P, Nigg CR. Physical activity and health promotion in esports and gaming—discussing unique opportunities for an unprecedented cultural phenomenon. *Front Sports Act Living.* (2021) 3:693700. doi: 10.3389/fspor.2021.693700
43. DiFrancisco-Donoghue J, Werner WG, Douris PC, Zwibel H. Esports players, got muscle? Competitive video game players' physical activity, body fat, bone mineral content, and muscle mass in comparison to matched controls. *J Sport Health Sci.* (2022) 11(6):725–30. doi: 10.1016/j.jshs.2020.07.006
44. Giakoni-Ramirez F, Merellano-Navarro E, Duclos-Bastías D. Professional esports players: motivation and physical activity levels. *Int J Environ Res Public Health.* (2022) 19(4):2256. doi: 10.3390/ijerph19042256
45. Trotter MG, Coulter TJ, Davis PA, Poulus DR, Polman R. The association between esports participation, health and physical activity behaviour. *Int J Environ Res Public Health.* (2020) 17(19):7329. doi: 10.3390/ijerph17197329
46. Ekdahl D, Osler L. Expressive avatars: vitality in virtual worlds. *Philos Technol.* (2023) 36(2):24. doi: 10.1007/s13347-023-00628-5
47. Ekdahl D, Ravn S. Social bodies in virtual worlds: intercorporeality in esports. *Phenomenol Cogn Sci.* (2021) 21:293–316. doi: 10.1007/s11097-021-09734-1
48. Riatti P, Thiel A. The role of the body in electronic sport: a scoping review. *German J Exerc Sport Res.* (2023) 53(4):369–83. doi: 10.1007/s12662-023-00880-z
49. Frias FJL. The “big red bull” in the esports room: anti-doping, esports, and energy drinks. *Perform Enhanc Health.* (2022) 10(1):100205. doi: 10.1016/j.peh.2021.100205
50. Migliore L. *Esports Player Health and Wellness*. Milton Park, Abingdon-on-Thames, Oxfordshire, England, UK: Routledge Handbook of Esports (2024). p. 225–39.
51. Friehs MA, Klarkowski M, Frommel J, Phillips C, Mandryk RL. Enhanced esports: community perspectives on performance enhancers in competitive gaming. *Proc ACM Hum Comput Interact.* (2022) 6:1–29. doi: 10.1145/3549494