前 言

本刊主要收录 Web of Science 核心合集数据库有关体育教育、奥林匹克教育、体育人工智能、体医融合、文化与新闻传播、冰雪运动等领域的最新研究成果。

Web of Science 核心合集包括 Science Citation Index Expanded (SCIE)、社会科学引文索引 (SSCI)、艺术和人文引文索引 (AHCI)、Emerging Sources Citation Index (ESCI)、Conference Proceedings Citation Index (CPCI)、Book Citation Index (BKCI) 等，是科学及学术研究的全球原创引证索引。其涵盖超过 250 个自然科学、社会科学、艺术和人文学科。

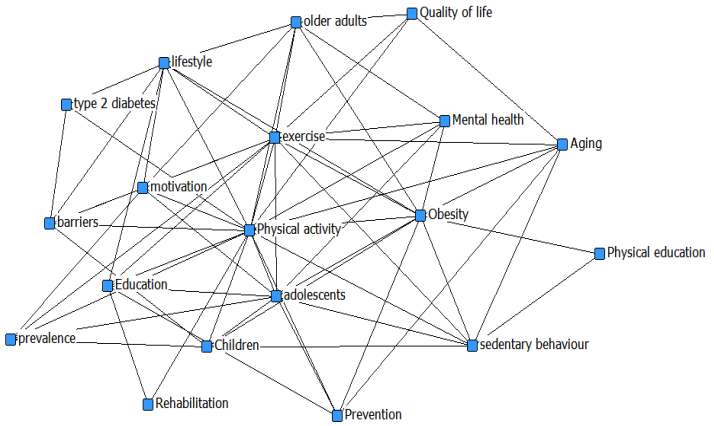
本刊旨在利用 Web of Science 核心合集平台为广大师生提供有关目前热点的最新研究内容。检索导出的数据采用书目共现分析系统（Bicomb V2021）对文献信息进行提取，包括期刊、关键词、标题、发文年份等，相同含义的字段去重且批量合并，同时去除没有实质意义的字段，对所提取的字段进行频次统计，形成高频矩阵，并使用社会网络分析软件 Ucinet 绘制成知识图谱，进行共词聚类分析。

本期选录体育教育方面的文献 14 篇，奥林匹克教育方面的文献 9 篇，体育人工智能方面的文献 13 篇，体医融合方面的文献 12 篇，文化与新闻传播的文献 12 篇，冰雪运动方面的文献 10 篇。

目　录

体育教育

本期体育教育学术研究共检索到英文相关文献 485 篇，研究热点主要集中在体育教师核心竞争力培养、健康和体育课程教学法、体育课程中的实践教学法、智能体育教学方法优化、体育教育中关于人工智能的批判性方法等。检索结果：1）关键词共词分析。提取关键词 1775 个，经过数据清洗后关键词有 1743 个，词频为 7 及以上的关键词有 19 个，累计百分比为 13.83%，高频关键词有体育活动、体育教育、儿童、锻炼、老年人、精神健康等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 273 种，其中载文 4 篇及以上的期刊有 21 种，累计百分比为 33.95%，刊载体育教育相关内容前三位的期刊分别为：FRONTIERS IN PUBLIC HEALTH（JCR 学科分区 Q1，Q1），PLOS ONE（JCR 学科分区 Q2），NUTRIENTS（JCR 学科分区 Q1）。3）交叉学科分析。引用文献总计 23668 篇，最多的频次为 31 次，排名前三位的文献分别为 *World Health Organization 2020 guidelines on physical activity and sedentary behavior*、*International physical activity questionnaire: 12-country reliability and validity*、*Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1.6 million participants*。4）学术关注度分析。文献级别用量最多的是 18 次，排名前三位的文献分别为 *Understanding the diverse needs for different pocket park types: a study based on visitor perception and park supply in Shanghai*、*Children's Well-Being of Physical Activity Space Design in Primary School Campus from the Perspective of Basic Psychological Needs*、*Digital media exposure and pediatric health: the recommendations from the Italian Society of Pediatrics Digital Dependency Commission*。



Liang YL, Gordon B, Egerton B. Systematic Review: Role of the Sport Education Model in Bridging Physical Literacy and Physical Education Policies in China[J]. JOURNAL OF TEACHING IN PHYSICAL EDUCATION, JAN 2026.

ABSTRACT

Purpose: This study evaluates the potential of the sport education (SE) model to foster physical literacy (PL) and align with China's national physical education policies. Method: Thirteen experimental studies of SE in mainland schools and universities were located via Chinese and international databases and appraised through an ecological dynamics lens. Results: Findings demonstrate that SE significantly enhances students' motivation, confidence, physical competence, knowledge, and understanding, all core components of PL. However, Chinese research primarily focuses on university settings, with limited evidence from primary/secondary schools, and issues with implementation fidelity. Discussion: SE appears to be a student-centered approach for enhancing PL particularly when adapted to China's challenges, such as large class sizes and exam-oriented culture. Its flexible design encourages autonomy, peer collaboration, and holistic development. To strengthen evidence for its impact, future research should develop culturally relevant PL assessments and track fidelity, and conduct longitudinal trials in primary and secondary contexts.

Greiner J, Wagner I. Virtual Reality in Physical Education: A Systematic Literature Review[J]. EUROPEAN PHYSICAL EDUCATION REVIEW, MAR 2026.

ABSTRACT

Virtual reality (VR) holds substantial potential for enhancing learning in physical education (PE), with applications ranging from exergames to more realistic sport simulations and motion-feedback systems. However, many assumptions regarding its usefulness in PE are derived from conceptual or laboratory-based research rather than from studies conducted in authentic school settings. This systematic review addresses this gap by examining the types of VR applications used in K-12 PE, including curricular and extracurricular contexts, modes of implementation, and the main outcomes reported in empirical studies. Following PRISMA guidelines, a systematic search was conducted across two databases (Web of Science and Scopus) and one meta-database (EBSCOhost). Eleven studies published between 2017 and 2024 met the inclusion criteria. The reviewed applications varied in their level of immersion and design features, including exertion interfaces, gamification elements, and degrees of sport-related realism. Proposed mechanisms of effectiveness primarily emphasized VR's engaging qualities and its potential to support personalized learning. In practice, low-immersive systems were frequently selected to address resource constraints such as limited facilities or instructional staff. The findings suggest that immersive VR can improve visual-perceptual and psychomotor skills and promote physical activity. While some evidence indicates benefits for beginners in sport-specific tasks, only a small number of studies integrated VR into established teaching practices. Overall, VR is predominantly used as an exercise-oriented tool to enhance general physical fitness and broader perceptual-psychomotor capabilities, rather than to support sport-specific skill learning or knowledge acquisition.

Bergentoft H, Kougioumtzis K. Preservice Teachers' Professional Socialisation in Physical Education: Negotiating Pedagogic Message Across University Coursework and School Practicum[J]. SPORT EDUCATION AND SOCIETY, MAR 2026.

ABSTRACT

This study examines how preservice physical education teachers conceptualise curriculum, pedagogy, and evaluation during their school practicum, drawing on Occupational Socialisation Theory (OST) and Bernstein's pedagogic message system. The study was conducted within the Swedish Physical Education Teacher Education programme and focused on Teaching Practicum courses 3 and 4, where preservice teachers apply university-based learning in school-based contexts. Semi-structured interviews with nine preservice teachers were thematically analysed through an integrated Bernsteinian and OST framework. The findings reveal asymmetrical classification of subject knowledge and uneven framing of pedagogic and evaluative practices as preservice teachers navigate between university-based and school practicum contexts. While sport-oriented preconceptions were broadened through engagement with movement, holistic health, and inclusion, these ideals were renegotiated within established school cultures shaped by accountability and traditional sport logics. Professional socialisation thus emerged as a process of ongoing negotiation rather than a linear transfer of knowledge from university to school. By introducing the concepts of hybrid pedagogic message, the study contributes to understanding how coherence and tension are produced across, curriculum, pedagogy, and evaluation in physical education teacher education.

Briggs S, Fletcher T, Chróinín DN. Teachers' Enactment of Contextualized Instruction in Primary Physical Education[J]. PHYSICAL EDUCATION AND SPORT PEDAGOGY, MAR 2026.

ABSTRACT

BackgroundPhysical education is frequently criticized for limited transfer of learning beyond school and for experiences that do not sufficiently reflect students' lives and communities. Grounded in sociocultural learning theory, contextualized instruction has been proposed as a pedagogical framework that supports teachers in being intentional in how they draw on students' identities and local resources. Silseth and Erstad ([2018]. 'Connecting to the Outside: Cultural Resources Teachers Use When Contextualizing Instruction.' Learning, Culture and Social Interaction 17: 56-68). offer five orientations for contextualized instruction: local community, everyday practices, personal issues, concrete objects, and knowledge from abroad.PurposeThis research examines how a sample of four primary physical education teachers enact contextualized instruction.MethodsA generic qualitative design was used to examine how four primary school physical education teachers (ages 5-13) in Canada enacted contextualized instruction. Following a professional development initiative focused on contextualized instruction, in which teachers developed a unit of work, data were generated from 20 non-participant observations and 8 semi-structured interviews gathered over seven months. Data were analyzed deductively using Silseth and Erstad's (2018) five orientations of contextualized instruction and inductively through reflexive thematic analysis within each orientation.FindingsTeachers most frequently enacted contextualized instruction by orienting their teaching practices toward students' local community resources, everyday movement practices, and personal issues related to students' interests and movement identities. Strategies included community mapping, photovoice tasks, partnerships with local organizations, and modifications to games using familiar or accessible equipment. Orientations involving concrete objects and knowledge from abroad were minimally evident.Discussion and ConclusionThese findings suggest that contextualized instruction offers practical pedagogical pathways centred on and relevant to students' lived realities, particularly through making explicit connections to local communities, everyday practices, and personal interests. In doing so, contextualized instruction acted as a guide for teachers

to create personally relevant learning experiences and conditions for transferable engagement with physical activity beyond school.

López LMG, Sánz-Remacha M, González-Martí I, et al. A Salutogenic and Activist Strengths-based Approach: Crossing Theoretical and Practical Borders in Physical Education[J]. SPORT EDUCATION AND SOCIETY, MAR 2026.

ABSTRACT

Salutogenic strengths-based approaches (SbAs) are progressively being introduced in Health and Physical Education curricula. A salutogenic SbA focuses more on the promotion of healthy living than on preventing illness, views healthy living as multi-dimensional (social, mental, spiritual, environmental and community), acknowledges humans as active agents, and considers health as an important prerequisite for living a good life. This article examines the use of the Activist Approach (AA) as the basis for a salutogenic SbA from a theoretical perspective, and explores the challenges faced by the participating teachers that enacted the initiative. The project was grounded in participatory action research whereby the researchers worked together with the teachers to enact an SbA in physical education. The participants in this study were five teachers (three in primary school and two from secondary school) and five researchers. This three-month experience involved between 18 and 22 lessons in the secondary schools (twice a week), and between 28 and 30 lessons in the primary schools (three times a week). The co-researchers enacted an SbA consisting of applying the AA and complementing it with salutogenic strategies. Data sources were debriefing sessions and the focus groups which were framed within a border crossing perspective, seeking to confront the perceptions of teachers and researchers regarding the enactment of the SbA between academic and non-academic communities of practice. The main challenges (themes) identified by the co-researchers were as follows: the journey of understanding and actually applying the salutogenic and activist SbA; effects of time constraints during the enactment of the SbA; and the emotional challenge of adopting the SbA. Together with the challenges, we discuss

the ways in which they overcame them.

Standal OF. AI-hype! A Critical Approach to Artificial Intelligence in Physical Education[J]. SPORT EDUCATION AND SOCIETY, MAR 2026.

ABSTRACT

The empirical status of artificial intelligence (AI) in physical education research is ambiguous. While some sources suggest that AI is still largely unexplored in this field, others highlight a significant and increasing research interest. The aim of this paper is to examine current ideas and assumptions about the application of AI in physical education as presented in the scholarly literature. The literature I have analysed and interpreted includes eight systematic reviews and 13 journal articles. The analytical focus is guided by a critical approach that views AI in education as a hype, where there is a lack of clarity about what AI actually is and what the real educational potential of these products is. At the same time, AI is surrounded by a narrative of inevitability that calls for change in education, but the exact direction and form of that change is unclear. There is limited research on AI in school physical education. Most existing studies are published in science and engineering journals, focusing on higher education in China. The literature often discusses AI technologies broadly, such as emphasising the importance of "leveraging" AI to "transform" physical education. However, the actual capabilities of AI remain largely unknown. Additionally, the purported effects of AI are frequently exaggerated due to a lack of proper references and reliance on sources that do not support the claims. A recurring theme in the literature is personalised learning. In my analysis, the assumption that AI-based teaching machines will soon provide efficient and equitable physical education environments does not stand up to scrutiny. In conclusion, I argue that, rather than presuming that AI will inevitably and radically change physical education, we should critically assess the real value of specific AI products and consider whether their introduction genuinely enhances the educational qualities we seek to foster.

Ovens A, Wang JL, Han JZ, et al. Doing Trans-National Research in Physical Education: Reflections on A China-New Zealand Research Collaboration[J]. SPORT EDUCATION AND SOCIETY, MAR 24 2026, vol.31, issue 3s, pp.465-479.

ABSTRACT

This paper examines the methodological challenges and issues that arose within a transnational research collaboration between physical education teacher education (PETE) researchers from China and Aotearoa New Zealand. The project sought to enhance school-based Physical Education through collaborative forms of practitioner research. Drawing on reflective journals, meeting transcripts, interviews, and email correspondence, we used thematic analysis to trace how methodological tensions emerged and evolved through the relational, institutional, and cultural dimensions of the research process. Four interconnected challenges were identified: negotiating equitable partnerships, navigating language and cultural differences, addressing issues of positionality, and challenging subject essentialism. These challenges revealed how transnational research collaborations demand sustained reflexivity around power relations, epistemic authority, and contextually embedded norms. Key points of tension included negotiating research design across different institutional and policy environments, managing communication across technological and cultural divides, aligning divergent ethics processes, and resisting dominant, often Eurocentric, framings of Physical Education. The central role of cultural brokers and bilingual team members emerged as crucial in enabling epistemic translation and fostering more equitable collaboration. We argue that transnational research is most productive when understood as a situated, ethical, and relational practice. Rather than proposing universal solutions, we foreground methodological humility, attentiveness to context, and dialogic engagement as essential principles for researchers working across national and cultural borders in Physical Education.

Guan TK, Chew RSY, Wen XM, et al. Core Competency Development of Physical Education Teachers in Artificial Intelligence-Driven STEAM Education[J]. JOURNAL OF TEACHING IN PHYSICAL EDUCATION, MAR 2026.

ABSTRACT

Objective: This study systematically examined how an artificial intelligence-driven STEAM teaching model influences the professional development of physical education teachers across the core domains of teaching practice, interdisciplinary instruction, and educational technology application. Methods: A 16-week, mixed-method intervention was conducted with 40 physical education teachers, who were randomly assigned to an experimental group using an artificial intelligence-assisted STEAM teaching system or a control group using conventional methods. Results: The study revealed that teacher competency development followed a nonlinear, four-stage trajectory (adaptation, development, integration, and stabilization), with a notable percentage of participants experiencing temporary regression, termed "integration fatigue." Structural equation modeling confirmed that educational technology competency significantly enhanced teaching practice, both directly and indirectly through interdisciplinary teaching, with novice and experienced teachers demonstrating distinct developmental patterns. Conclusion: These findings highlight the necessity for stage-sensitive and differentiated support systems to help teachers, particularly novices, effectively navigate the cognitive demands of integrating advanced technology and interdisciplinary instructional models.

Regan G, Dillon M, Bowles R. Restorative Practice in PE? Implementing Restorative Approaches in the Irish Primary Physical Education Classroom[J]. EUROPEAN PHYSICAL EDUCATION REVIEW, MAR 2026.

ABSTRACT

In recent years, there has been growing recognition of physical education (PE) as a vital platform for fostering holistic child wellbeing and thus supporting the physical, social, emotional, and cognitive elements of wellbeing. However, the approaches to promoting such development must continuously evolve in response to changing societal needs. While there is an increasing educational discourse on the effects of restorative practice (RP) on school communities and child learning, its potential impact within PE has not been sufficiently explored. This article explores how one Irish primary school teacher used RP to support children's social wellbeing in PE and considers the implications for the teacher's own professional practice. Framed as an autoethnographic self-study approach, Gr & aacute;inne (the lead researcher) reflects on her two-year journey, drawing on critical incidents and personal reflections to explore the challenges and successes of integrating RP into PE. The findings highlight how RP shaped both student experiences and the teacher's evolving identity and development, requiring sustained self-reflection and emotional awareness. Contributing to the limited literature on RP in Irish PE settings, this research illustrates the potential of RP to positively impact children's social wellbeing and thus could be used to effectively support holistic development.

Jung JS, Park H , Choi E. Exploring Core Practices for Dance Educators: Towards a Practice-Based Pedagogy in Korean Dance Education[J]. PHYSICAL EDUCATION AND SPORT PEDAGOGY, FEB 2026.

ABSTRACT

BackgroundTraditional Korean dance education has long relied on a master-apprentice model centered on tacit knowledge. As global physical education (PE) curricula increasingly prioritize 'pedagogies of embodiment', emphasizing sensory awareness and relational attunement, there is a critical need for systematic frameworks that translate specialized dance expertise into transferable pedagogical tools.PurposeThis study aimed to identify and categorize the core practices used by

Korean dance educators to develop a practice-based pedagogical typology designed to inform expressive movement teaching in PE and Physical Education Teacher Education (PETE).MethodsA collective case study design was employed involving 12 experienced educators and 6 adult practitioners. Data were collected through surveys, a 28-item core practice checklist, and semi-structured interviews. Analysis was guided by Heimann's Didaktik Triangle, focusing on the relational dynamics between teacher, learner, and content.ResultsFifteen core practices of Korean dance (CP-KDs) were identified and categorized into three pedagogical types: Transmission, Facilitation, and Co-construction. This typology represents a non-linear continuum where educators fluidly transition between modes to scaffold embodied learning, providing a sophisticated alternative to purely directive pedagogical models.ConclusionsThe findings provide a systematic framework that makes the ephemeral nature of dance pedagogy observable and repeatable. This study offers a practical bridge between dance pedagogy and contemporary PE, supporting the professional judgment of educators by operationalizing 'embodied' theories into teachable, concrete actions.

Yang J, Qiu C, Du XX, et al. From Policy Ambition to Classroom Practice: Health Education in China's Physical Education and Health Curriculum Reform[J]. PHYSICAL EDUCATION AND SPORT PEDAGOGY, JAN 2026.

ABSTRACT

BackgroundReforms in physical education and health (PEH) increasingly speak the language of holistic health, prevention, and wellbeing. In China, these holistic ambitions have been sharpened through Healthy China 2030. The 2022 PEH curriculum reform reflects this policy moment, formally elevating health education as a core learning area. Yet PEH has long been shaped by healthism, where health is understood primarily as an individual responsibility. What remains less clear is how the holistic policy vision is interpreted, produced, and lived out in everyday

practice.PurposeThis study examined how health education is understood and enacted within China's new PEH curriculum, focusing on how teacher educators and in-service teachers interpret the health education learning area and how these interpretations shape classroom practice.MethodsThis study used conversational inquiry to explore participants' perspectives and experiences through thirteen semi-structured interviews with PEH teacher educators and secondary school PEH teachers in Shanghai. Interview data were analysed using concept and structural coding, supported by analytic memo writing, and deductive theoretical analysis using healthism.FindingsThree interrelated findings emerged. First, teacher educators strongly endorsed the curriculum's alignment with Healthy China 2030, framing PEH as a vehicle for early intervention. Second, despite policy ambition, health education remained marginalised in practice due to gaps in teacher preparation, entrenched professional identities, limited time, and scarce resources. Third, teachers adapted the curriculum in pragmatic ways, reducing health education to manageable reminders and risk-avoidance practices. Through these stages, health was gradually redefined through individual responsibility, motivation, and self-management - shifting away from the holistic policy intent.ConclusionThe PEH curriculum was reshaped as it moved through interpretation, preparation, and practice. Holistic health was not sustained but displaced by healthism, narrowing what health education could become. These findings highlight the limits of curriculum reform when underlying assumptions about health remain unexamined.Impact statementThis study shows how healthism can settle in as 'common sense', shaping policy intentions and classroom practice alike, even within reforms framed as holistic. It suggests that meaningful change in health education requires attention not just to the content added to the curriculum, but to how health itself is imagined and lived in schools.

Dempsey N, Cronin C. Reorientating Grassroots Coach Education - the Selection-Box Metaphor for Curriculum Design[J]. SPORT EDUCATION AND SOCIETY, JAN 2026.

ABSTRACT

Formal coach education provision, particularly those courses targeted at participation and grassroots coaches, often resembles a linear, time-bound pathway, somewhat devoid of choice for coaches who are typically presented with a predetermined curriculum. To advance beyond such approaches, this conceptual paper presents our 'Selection-Box' (S-B) metaphor. Rooted in our personal experiences, empirical evidence, and Bernsteinian theory (i.e. classification and framing), the S-B seeks to depict the image of an excited coach, eagerly choosing what coach education provision to access, when, and in what order. Through this metaphor, we seek to prompt a discussion and potentially a reorientation of formal coach education design. Specifically, the S-B metaphor encourages policy makers and course designers to imagine and potentially move beyond a primary focus on content or assessment and (re)orientate towards a focus on the process of learning within the coach's biographical, temporal, and spatial contexts. To operationalise the metaphor, the paper explains how choice, time, and knowledge may facilitate greater learner agency such that coaches can begin to select, sequence, and pace learning that they deem relevant to them and their coaching context. To illustrate, we cautiously provide examples not as prescriptions, but as further aids to policy makers and course designers. In doing so, the paper moves beyond deconstruction and towards reconstruction by (1) challenging existing content or assessment-led coach education to move towards a more process-focused approach to coach learning; (2) highlighting theoretically informed ways that policy and course design could empower coaches to frame and classify material; and (3) providing a discursive tool (i.e. the S-B metaphor) to prompt internal and external discussions and action within policy makers' and course designers' context.

Jin Z, Wu H, Cai YJ, et al. Effects of the Know It, Do It, Love It Curriculum on Fundamental Movement Skills and Behavioral Self-Regulation Abilities of Children Aged 7-8 Years[J], JOURNAL OF TEACHING IN PHYSICAL EDUCATION, JAN 2026.

ABSTRACT

Purpose: This study explored the application of the "Know It, Do It, Love It" (KDL) curriculum in physical education classes and its impact on fundamental movement skills and behavioral self-regulation in children aged 7-8 years. Method: A quasiexperimental design was used to recruit 140 children (7-8 years old), who were divided equally into a KDL and control group. The control group followed a traditional physical education curriculum while the KDL group received instruction based on the KDL curriculum. Results: After the 12-week intervention, the KDL group showed a significant improvement in fundamental movement compared with the control group. Similarly, the behavioral self-regulation scores in the KDL group increased significantly compared with those of the control group. Conclusion: The KDL curriculum can effectively improve the basic motor skills and behavioral selfregulation ability of children aged 7-8, which verifies the positive role of the KDL curriculum in cultivating children's core literacy.

Ouyang Y, Shi Y. Construction of Intelligent Evaluation Model for Physical Education Classroom in Primary and Secondary Schools Based on Posture Estimation and Motion Recognition[J]. SCIENTIFIC REPORTS, JAN 19 2026, vol.16, issue 1.

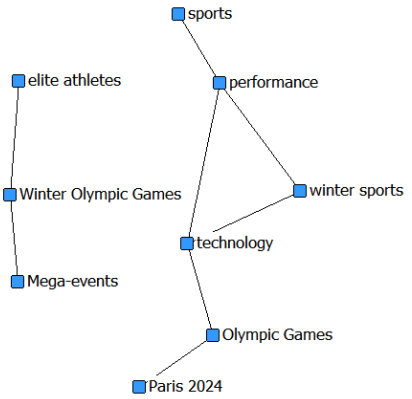
ABSTRACT

In the evolving landscape of intelligent education systems, there is an urgent need to develop adaptive, transparent, and robust classroom analytics solutions that align with the priorities of human-centered artificial intelligence and multimodal interaction, as emphasized by the scope of this special issue. Existing physical activity evaluation

tools for educational settings often lack scalability, context sensitivity, and the capacity to extract meaningful temporal patterns from high-dimensional behavior streams. Traditional methods tend to oversimplify the complexities of pedagogical dynamics, resulting in feedback that is static, ambiguous, or divorced from instructional intent. These challenges are met through an integrated solution that combines semantic alignment with hierarchical attention-where spatial-temporal patterns are first captured through layered attention modeling, and then adaptively contextualized to align with instructional objectives. Our system, built upon the KINEVAL architecture and the Pedagogical Contextualization Strategy (PCS), fuses motion trajectory embeddings, instructional state encoding, and environment-aware modulation to generate structured, interpretable evaluations of student performance. The inclusion of attention-based dilated GRUs, transformer-based pedagogical modeling, and peer-aware regularization not only enhances robustness and interpretability but also enables cross-domain generalization across diverse school contexts. Experimental validation shows substantial improvements over conventional baselines in accuracy, fairness, and alignment with expert annotations. This study contributes a scalable and pedagogically informed approach to classroom behavior analysis, directly supporting the special issue's themes of intelligent sensing, adaptive learning, and multimodal system design.

奥林匹克教育

本期奥林匹克教育学术研究共检索到英文相关文献 59 篇，研究热点主要集中在运动表现、冬奥会、科学技术、优秀运动员等方面。检索结果如下：1）关键词共词分析。提取关键词 280 个，经过数据清洗后关键词有 260 个，词频为 3 及以上的关键词有 2 个，累计百分比为 5.00%，高频关键词有多层级政府管理、时间连贯性、制度的持久性、东京 2020 奥运会等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 73 种，其中载文 2 篇及以上的期刊有 17 种，累计百分比为 46.2%，刊载奥林匹克教育相关内容前三位的期刊分别为：SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS (JCR 学科分区 Q1）、INTERNATIONAL JOURNAL OF SPORTS SCIENCE & COACHING(JCR 学科分区 Q2、Q3）、FRONTIERS IN PSYCHOLOGY (JCR 学科分区 Q1）。3）交叉学科分析。引用文献总计 3600 篇，最多的频次为 5 次，频次排名前三的文献分别为 *Developing Rigor in Qualitative Research: Problems and Opportunities within Sport and Exercise Psychology*、*Qualitative Quality: Eight "Big-Tent" Criteria for Excellent Qualitative Research*、*Defining Training and Performance Caliber: A Participant Classification Framework*。4）学术关注度分析。文献级别用量最多的是 18 次，排名前三位的文献分别 *Oxygenated Organic Molecules in Urban Beijing: Contrasting Summer-Winter Composition, Sources, and Roles in Secondary Organic Aerosol Formation*、*The Inclusion of eSports in the Olympic System: From Neglect to eSports Games*、*Olympic Snow Sports: Current Insights and Future Directions for Milano Cortina 2026 and Beyond*。



Hwang, B. Sustaining Olympic Education Beyond the Games: Multilevel Governance, Temporal Coherence, and Institutional Endurance[J]. INTERNATIONAL REVIEW FOR THE SOCIOLOGY OF SPORT, Feb 2026.

ABSTRACT

Olympic education has traditionally focused on transmitting the values of Olympism, yet its governance and sociological dynamics remain underexplored. While recent studies interpret International Olympic Committee (IOC) governance through networked governance, less is known about how Olympic education is institutionalised across levels of governance and translated into enduring policies. This article analyses the governance of Olympic and Paralympic education for Tokyo 2020 through the multilevel governance framework, revealing a multilevel system in which the IOC sets normative and contractual imperatives, national authorities embedded them in statutory frameworks, and regional actors adapd delivery to local contexts. While vertical and horizontal coordination fostered coherence, tensions emerged between the symbolic, time-limited leadership of the Tokyo Organising Committee and the enduring responsibilities of ministries, education boards, and schools. This temporal and organisational asymmetry demonstrates that legacy depends not only on programme implementation, but also on institutional endurance and continuity. Sustainability of Olympic education, therefore, requires anchoring values-based learning in permanent policy frameworks, strengthening professional and organisational capacities, and establishing durable coordination mechanisms that persist after the Games.

Chappelet, JL. The Inclusion of eSports in the Olympic System: From Neglect to eSports Games [J]. INTERNATIONAL JOURNAL OF THE HISTORY OF SPORT, Jan 2026.

ABSTRACT

Although relatively rapid from the late 2010s onward, the inclusion of organized video

game competitions - commonly known as eSports - in the Olympic world did not happen overnight. Three phases are distinguished. After an initial phase marked by indifference or rejection, several experiments were conducted in a second phase by international sports federations (IFs) and the International Olympic Committee (IOC), ultimately leading to the IOC decision to announce creation the Olympic eSports Games in 2023, a new cycle of Olympic competitions in the making. The inclusion of eSports in the Olympic system is explained by two main strategic reasons (economic and political). Olympic public documents on the subject, media articles and discussions with key decision makers highlight the salient facts of each of these three phases and their motivations, providing a better knowledge of the origins of the Olympic eSports Games and enabling stakeholders to follow and understand their future development from 2026 onwards.

Uhm JP, Chang K, Kim S, et al. Digitalization of the Olympics and Legitimacy of the Olympic Virtual Series: An Environmental Psychology Perspective[J]. TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE, Apr 2026.

ABSTRACT

Olympic virtual series made its inaugural debut as the first Olympic-licensed virtual sports, yet whether audiences will perceive them as legitimate official Olympic events is unknown. Drawing on the environmental psychology model and transportation theory, we examined the relationship between the audience's perceived virtual gaming atmosphere, sense of presence, positive emotions, and perceived legitimacy of the Olympic virtual series. 339 Olympic virtual series spectators were included in the analysis of a serial mediation model using PROCESS macro. The findings revealed that game atmosphere was a significant factor in establishing audiences' sense of presence, positive emotion, and perceived legitimacy. The mediation effects of presence and positive emotion on the relationship between the game atmosphere and perceived legitimacy were also significant. This study contributed to the media

communication literature and provided useful practical implications for the International Olympic Committee regarding how to enhance spectators' Olympic digital experience.

Scott D, Steiger R, Orr M. Advancing Climate Change Resilience of the Winter Olympic-Paralympic Games [J]. CURRENT ISSUES IN TOURISM, Jan 2026.

ABSTRACT

Winters are changing and reshaping winter sport worldwide. The paper identiifes a range of strategies to advance the climate resilience of the Winter Olympics-Paralympics and examines the challenges associated with two vital climate adaptations. (1) Selecting climate reliable hosts is essential to de-risk future Games. It also raises the question whether the current 'one bid, one city' Winter Games partnership can survive in an era of climate change? (2) Criticism of the reliance on snowmaking at the Winter Games is widespread. How integral is snowmaking to the future of the Winter Games and how can it be made more sustainable?

Ekkelboom, M. From Voices to Silence: A Comparative Analysis of Athlete Activism at Tokyo 2020 and Paris 2024[J]. JOURNAL OF SPORT & SOCIAL ISSUES, Feb 2026.

ABSTRACT

This study examines why Team USA athletes who had been publicly engaged in activism at the Tokyo 2020 Olympic Games largely refrained from protest at Paris 2024. Drawing on Sidney Tarrow's framework of contentious politics, it analyses political opportunities, networks, framing, and institutional environments to explain shifting patterns of athlete expression. Using a comparative qualitative design, the study synthesizes media statements, institutional documents, and policy communications from 2020-2024 to trace changes in the political and organizational context. Findings show that the decline of activism was not driven by new repression

or formal rule changes but by the erosion of public legitimacy, institutional support, and collective framing infrastructures that once legitimized protest. The analysis extends Tarrow's framework by showing how athlete activism unfolds as institutionally embedded contention, shaped less by formal access to power than by the symbolic permission and elite endorsement that determine when expression is tolerated. The study concludes that athlete activism rises and falls with the institutional and cultural environments that make dissent possible.

Muñoz-Helú H, Núñez PDP, Morales KNC, et al. Critical Re-signification of Olympic Values by Youth Facilitators: Friendship, Respect and Peace with Children and Adolescents in Refugee Situations [J]. SPORT EDUCATION AND SOCIETY, Jan 2026.

ABSTRACT

Olympic values such as friendship, respect, and excellence are frequently promoted as universal ethical principles within Olympic education. Yet this framing often overlooks how values take shape through lived experience, particularly in contexts marked by displacement and precarity. This article examines how fourteen university facilitators re-signified these values during a seven-day sport-based intervention with children and adolescents in a refugee shelter in Nogales, Sonora, Mexico. Using a constructivist grounded theory approach and drawing on open-ended reflective questionnaires and concluding focus groups, the study explores how facilitators interpreted and enacted the values through their daily interactions in the shelter. Findings show that friendship, respect, and peace were not applied as predefined moral categories but emerged through relational encounters characterised by attentiveness, emotional negotiation, and shared vulnerability. Friendship was understood as mutual reliance in uncertain conditions; respect developed through dialogic engagement and the careful navigation of conflict; and peace appeared as a fragile, everyday practice grounded in presence and care. These situated

interpretations challenge universalist approaches within Olympic education and highlight the importance of relational, context-responsive pedagogies. By centring facilitators' reflections, the study contributes to critical sport pedagogy by demonstrating how values gain meaning through affective, situated practice, and how young educators engage in processes of unlearning and ethical re-orientation when working in humanitarian settings.

Jewett R, Durand-Bush N, Primeau C, et al. The Role of Sport Culture in Supporting or Hindering Mental Health and Performance: Voices of Canadian High-Performance Athletes [J]. SPORT PSYCHOLOGIST, March 2026.

ABSTRACT

We know that athlete mental health (MH) is influenced by a range of stressors, however, the impact of sport culture is less understood. The purpose of this study was to explore Canadian athletes' experiences regarding the interplay between their sport culture, sport performance, and mental triad profile (MH, mental performance, mental illness symptoms). Semistructured interviews were conducted with 22 athletes who were training for the Tokyo (n = 13) or Beijing (n = 9) Olympic/Paralympic Games. Using a reflexive thematic analysis, characteristics of sport cultures perceived as supportive and nonsupportive of favorable mental triad and sport performance profiles were identified. Themes were woven into four composite vignettes representing the perspectives of athletes with varying profiles and performance experiences. Vignettes underscore the importance of integrating MH literacy as a core educational component within sport environments, linking MH and mental performance, and establishing sport cultures that prioritize transparency, communication, and support.

Daoud A, Gasmi S, Chanzy E, et al. Stade de France: Review of 25 Years of Medical Workload in View of the Paris 2024 Olympic Games[J]. DISASTER MEDICINE AND PUBLIC HEALTH PREPAREDNESS, March 27 2026.

ABSTRACT

Introduction As the 2024 Paris Olympic Games approach, it seemed relevant to analyze 25 past years of medical workload at the Stade de France to better predict future needs by identifying the determinants of workload levels.Methods Site : Stade de France, the largest French stadium, in the Greater Paris area. Inclusion : Events from 1998 to 2022. Parameters : Nature of event; level of event; competition finals; number of spectators, weather, and medical workload. End-points : Number of patient presentations.Methods Site : Stade de France, the largest French stadium, in the Greater Paris area. Inclusion : Events from 1998 to 2022. Parameters : Nature of event; level of event; competition finals; number of spectators, weather, and medical workload. End-points : Number of patient presentations.Methods Site : Stade de France, the largest French stadium, in the Greater Paris area. Inclusion : Events from 1998 to 2022. Parameters : Nature of event; level of event; competition finals; number of spectators, weather, and medical workload. End-points : Number of patient presentations.Methods Site : Stade de France, the largest French stadium, in the Greater Paris area. Inclusion : Events from 1998 to 2022. Parameters : Nature of event; level of event; competition finals; number of spectators, weather, and medical workload. End-points : Number of patient presentations.Results 459 events were studied: 167 (36%) football matches, 142 (31%) rugby matches, 111 (24%) artistic performances, 26 (6%) athletics competitions, 11 (2%) motor sports competitions, and 2 (0.5%) other types of events. Median attending spectators: 72,057 [56,825-78,500]. Median patient presentations: 29 (15-59) or 5 (2-9) per 10,000 spectators. Median transports to hospital: 2 (1-3) per event, or 0.3 [0.1-0.5] per 10,000 spectators. Median medicalized transports to hospital: 0 [0-0] per event. The nature of the event, rugby (OR = 7.97 [1.65-46.80]), international event (0.18 [0.04-0.76]), and temperature (OR

= 0.86 [0.77-0.96]) were associated with a greater frequency of high medical workload in multivariate analysis.Conclusion Rugby matches, level of event, and outdoor temperature were independent determinants of medical workload. Number of spectators and duration of the event had no influence.

Zoppirolli C, Fornasiero A, Spörri J, et al. Olympic Snow Sports: Current Insights and Future Directions for Milano Cortina 2026 and Beyond[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb 2026.

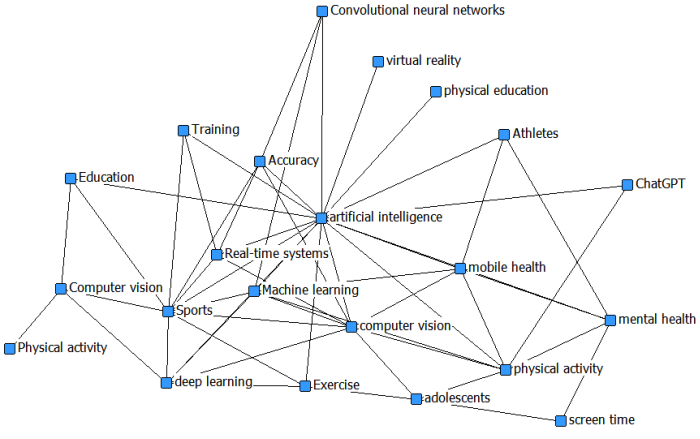
ABSTRACT

As the Milano Cortina 2026 Winter Olympic Games approach, a comprehensive understanding of performance determinants across Olympic snow sports is increasingly important to further evolve training and performance. However, the scientific literature remains unevenly distributed, with well-established knowledge in cross-country skiing, biathlon, and alpine skiing, and limited data in disciplines such as ski mountaineering, freestyle skiing, snowboarding, ski jumping, and Nordic combined. This narrative review synthesizes current evidence to (1) identify key performance-determining factors, (2) describe discipline-specific training characteristics, and (3) highlight critical knowledge gaps. Regarding performance determinants, Olympic snow sports can be broadly categorized into endurance-dominant disciplines (e.g., cross-country skiing, biathlon, ski mountaineering), which rely on high aerobic capacity and movement efficiency, and the gravity and technical disciplines (e.g., alpine skiing, freestyle skiing, snowboarding, ski jumping), which emphasize neuromuscular power and technical precision. Nordic combined represents a hybrid of these categories. In terms of training characteristics, elite athletes' training models reflect sport-specific demands through tailored combinations of endurance, strength-power, technical, tactical, and psychological preparation. Finally, regarding knowledge gaps, sex-specific analyses of physiological profiles, biomechanics, and

training responses remain scarce, particularly in gravity and technical sports. Furthermore, standardized documentation of training structure, integration of on-snow monitoring technologies, and research on energy availability remain underdeveloped. Addressing these gaps through holistic, multidisciplinary research is essential to develop individualized, sex-informed, and evidence-based frameworks that support athlete development and performance optimization in the lead-up to Milano Cortina 2026 and future Olympic cycles.

体育人工智能

本期体育工程学术研究共检索到英文相关文献 359 篇，研究热点主要集中在基于人工智能的、用于智能体育的机器学习辅助摩擦纳米发电机技术、6G 支持多虚拟网络用于虚拟现实中的可扩展体育教育教学与训练、基于 GABP 神经网络和人工智能的运动训练效果研究等。检索结果：1）关键词共词分析。提取关键词 1714 个，经过数据清洗后关键词有 1698 个，词频为 5 及以上的关键词有 22 个，累计百分比为 13.26%，高频关键词有人工智能、机器学习、体育活动、深度学习、运动等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 241 种，其中载文 4 篇及以上的期刊有 15 种，所载文献累计百分比为 26.18%，刊载体育人工智能前三位的期刊分别为：SCIENTIFIC REPORTS（JCR 学科分区 Q1），FRONTIERS IN PSYCHOLOGY （JCR 学科分区 Q2），IEEE ACCESS（JCR 学科分区 Q2、Q2、Q2）。3）学科交叉分析。引用文献总计 23044 篇，最多的频次为 11 次，排名前三位的分别为 *PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation* 、 *Diagnostic Applications of AI in Sports: A Comprehensive Review of Injury Risk Prediction Methods*、*The PRISMA 2020 statement: an updated guideline for reporting systematic reviews*。4）学术关注度分析。文献级别用量最高的是 34 次，排名前三位的分别为 *Wearable hand gesture sensors based on triboelectric nanogenerators: A fabrication method perspective* 、 *3D-printed customizable TPU/ANF/CNT interpenetrating-network composites with synergistic energy absorption and real-time pressure sensing for smart protective applications*、*Translating UNESCO Artificial Intelligence Guidelines to Chemical Education and Its Intersection with Sustainable Development Goals*。



Kim D, Kwon Y, Cho GS, et al. Development and Implementation of A MediaPipe-Based AI Teaching-Learning Model in School Physical Education for Health Promotion[J]. FRONTIERS IN PUBLIC HEALTH, MAR 20 2026, vol.14.

ABSTRACT

Introduction Artificial intelligence (AI) technologies are increasingly used in school physical education (PE) to provide real-time feedback and support instruction that promotes youth physical activity and health. However, many AI applications remain top-down and expert-driven, focusing on technical validation in controlled settings and paying little attention to everyday school contexts or the needs of lower-fitness students. This study aimed to develop and implement a MediaPipe-based AI teaching-learning program for health-oriented middle school PE.Methods A participatory action research (PAR) design with rapid prototyping was conducted over three months in one public middle school. PE teachers and 9th-grade students participated as co-researchers and co-developers. A web-based program using MediaPipe Pose was iteratively designed to recognize selected fitness movements and provide immediate visual and auditory feedback, with QR-code access and automatic logging. Data from semi-structured group interviews, observations, teachers' reflective journals, and student-created artifacts were analyzed using thematic analysis.Results Across three PAR cycles, the prototype evolved from a simple elbow-angle counter into a system that incorporated body alignment, tracking for isometric exercises, multimodal feedback, and automatic data recording. Teachers used the program to design lesson-specific recognition rules, monitor students' exercise participation, and support individual growth. Students deepened their understanding of exercise principles and engaged in computational thinking while experimenting with movements and refining feedback conditions.Conclusions A participatory, school-based approach enabled MediaPipe-based pose estimation to be reconfigured into a pedagogically meaningful, health-oriented program for middle school PE, suggesting that AI-supported PE can contribute to more inclusive, data-supported school health promotion.

Lv M, Wang J, Yang YQ, et al. An AI-Based Algorithm for Analyzing Physical Activity and Health-Related Fitness in Youth[J]. SCIENTIFIC REPORTS, JAN 13 2026, vol.16, issue 1.

ABSTRACT

In recent years, with the country's emphasis on national fitness, the health status of primary and secondary school students has become the focus of social attention. As one of the important means to measure students' physical fitness, physical examination results are closely related to students' physical fitness. However, there are some problems in the traditional physical examination management, such as subjective influence, complicated manual calculation, and difficulty in retaining and making full use of data. Based on the physical fitness test data of primary schools in the past five years from 2018 to 2022, this study aims to apply machine learning and deep learning methods to deeply analyze and mine data information, provide automatic classification methods and accurate performance prediction models, and then expand to provide students with personalized training suggestions to assist teachers in making reasonable teaching plans and other applications. The first research method is the classification method based on BP neural network, which realizes automatic comprehensive grade classification and achieves 98.448% classification performance, and explores students' physical health and grade classification. The second research method is the performance prediction model based on CNN-LSTM neural network, which combines CNN feature matrix and LSTM continuous time series information to provide more accurate performance prediction for various physical test items, and provides a new method for the management and evaluation of physical test results of primary and secondary school students through data analysis and prediction model. These methods not only solve the problems of traditional evaluation methods, but also provide scientific guidance for schools and promote the healthy development of students and the optimization of physical education.

Song WB, Wang XJ, Gao S, et al. Trustworthy Smart Athletic Performance Enhancement Through 6G Internet of Things: Ultrareliable Low-Latency Athletic Intelligence, Computing, and Control Framework[J]. IEEE INTERNET OF THINGS JOURNAL, MAR 1 2026, vol.13, issue 5, pp.8220- 8231.

ABSTRACT

The convergence of sixth-generation (6G) wireless networks and Internet of Things (IoT) technologies creates unprecedented opportunities for revolutionizing physical education through intelligent, athletic performance monitoring and enhancement systems. This article presents a novel framework called ultrareliable low-latency athletic intelligence, computing, and control (uRLLAIC3) that addresses the critical need for real-time physiological monitoring, performance analytics, and safety assurance in modern sports training environments. Our approach introduces two groundbreaking metrics: athletic information age (AIA) for measuring the freshness of biometric data from wearable sensors and athletic information criticality (AIC) for evaluating the time-sensitive importance of physiological status updates during training sessions. Evaluation encompassed both simulation studies comparing uRLLAIC3 against six established baseline methods and real-world validation with 48 athletes across five sports disciplines over six weeks. Simulation results demonstrate that uRLLAIC3 achieves 23.7% better AIA performance than the strongest baseline method. The framework maintains superior scalability when monitoring up to 200 athletes simultaneously. Real-world validation reveals a 73% reduction in false positive emergency alerts. Emergency detection accuracy reaches 98.7% compared to 78% for conventional systems. Emergency response time improves by 94% from 10.5 to 0.7 s. The framework achieved 99.8% system reliability while delivering 41% better energy efficiency than existing approaches.

Cheng XR, Liu JM ,Liu Y, et al. Research on Spinal Characteristics and Exercise Intervention in 6-18 Year Old Adolescents Based on Computer Vision Recognition[J]. FRONTIERS IN PUBLIC HEALTH, JAN 15 2026, vol.13.

ABSTRACT

Introduction: Spinal health significantly impacts adolescents' posture, athletic performance, mental well-being, and quality of life. It provides data support for promoting the physical and mental health of adolescents and implementing the construction of a strong education country.

Methods: This study employed computer vision recognition technology to screen and evaluate the spinal health status of 4,534 adolescents aged 6-18. Through a 12-week exercise intervention, the study compared the effects of different exercise programs on adolescents' spinal health.

Results: (1) The spine characteristics of 4,534 children and adolescents aged 6 similar to 18 years old showed that there were more middle and high risk people with neck forward tilt, neck roll, overall spine roll, high and low shoulder and pelvic rotation, and the tilt or rotation angle of boys was larger than that of girls. (2) From the perspective of age, the tilt angle of children and adolescents in the low age group and 18 years old is larger. (3) Football, badminton and dance can improve the spine tilt angle of adolescents, but different sports have different effects on different parts of the spine.

Conclusion: (1) Children and adolescents aged 6-18 have different degrees of problems in the neck, chest, waist, spine, shoulder joint and pelvis. (2) There are age and gender differences in spine health of adolescents aged 6-18 years old, and the problems of low age group and 18 years old are more prominent. (3) When using exercise to improve spinal health issues, it is essential to select different types of sports

based on the tilt of different body parts and arrange the exercise intensity reasonably according to individual health conditions and physical capabilities.

Lin HJ, Guo ZJ. A Study on the Application of Multimodal Technologies in Personalized Training Systems for the Integration of Physical Education and General Education[J]. BMC SPORTS SCIENCE MEDICINE AND REHABILITATION, FEB 12 2026, vol.18, issue 1.

ABSTRACT

Background With the deepening implementation of the "Physical Education and Teaching Integration" strategy, the role of physical education in the modern educational system has been increasingly emphasized. In the context of the "Double Reduction" policy, the transformation toward personalized, scientific, and information-driven teaching has become a key challenge. Methods This paper proposes a personalized instructional support system for physical education based on multimodal artificial intelligence technologies. The system is designed to deliver precise instructional interventions through action recognition, error analysis, and stratified feedback mechanisms.The system integrates video imagery and skeletal pose data, adopting Video MAE V2 as the core recognition framework. To enhance inference efficiency and real-time responsiveness, progressive knowledge distillation (PKD) and weighted inference with scaled ensemble (WISE) are introduced. Furthermore, a personalized feedback mechanism is developed that analyzes error vectors and generates stratified training recommendations tailored to individual students, thereby promoting differentiated instruction. Results The proposed method achieves excellent performance on the UCF101 and HMDB51 datasets. Additionally, the model exhibits strong engineering applicability, maintaining efficient operation on edge computing platforms such as Raspberry Pi and Jetson Nano. Conclusion The system holds promise for scalable applications in intelligent physical education.

Lun QZ, Li BY, Zhou YH. Towards Equitable and Immersive Outdoor Orienteering: an Artificial Intelligence-Driven Multi-Objective Route Planning Framework with Augmented Sand Cat Swarm Optimization[J]. PLOS ONE, MAR 11 2026, vol.21, issue 3.

ABSTRACT

Outdoor orienteering has emerged as a globally popular recreational activity and competitive sport, combining navigational challenges with physical endurance across diverse natural terrains. Despite its growing popularity, the design of optimal orienteering routes presents significant challenges for recreation planners, requiring careful consideration of both competitive fairness and participant engagement. To address these challenges, this study establishes five fundamental design principles that systematically balance competitive equity with user experience enhancement. Building upon these principles, we develop a novel computational framework that integrates mathematical modeling techniques with intelligent optimization algorithms. Specifically, our methodology reformulates the route design challenge as a constrained multi-objective optimization problem and introduces an enhanced sand cat swarm optimization (SCSO) algorithm for efficient solution generation. Through comprehensive simulations across 50 distinct terrain profiles representing varying levels of complexity, we demonstrate the efficacy of our approach. Quantitative results show consistent performance improvements in route optimality metrics compared to conventional methods, which contribute to both the theoretical understanding of recreational route optimization and practical applications in outdoor activity planning.

Liu P, Zhao C, Zang B, et al. Advancing Sports Image Classification and Analysis: Effective Data Augmentation and Feature Alignment Strategies[J]. TSINGHUA SCIENCE AND TECHNOLOGY, FEB 28 2026, vol.31, issue 1, pp.577-589.

ABSTRACT

Sport plays a crucial role in society, influencing physical health, entertainment, and community engagement. As artificial intelligence advances, the ability to classify sport images accurately becomes increasingly crucial. Effective sport image classification enhances applications, such as performance analysis, athlete tracking, and fan engagement. Despite its significance, current methods face challenges due to limited labeled datasets and issues with feature misalignment. This paper introduces a novel Contrastive Language-Image Pre-training (CLIP) based framework specifically designed for sport image classification. By incorporating data augmentation techniques, the approach addresses data sparsity and enriches the diversity of image-text pairings, reducing the need for extensive manual annotation. Additionally, feature alignment strategies tackle text-image misalignment issues that affect classification accuracy. This approach fills a significant research gap and offers practical solutions to improve classification performance in sport image analysis. The results of extensive experiments validate the effectiveness of the framework, demonstrating its potential to advance sports analytics and contribute to more precise and scalable solutions in sport image classification.

WangYK, Feng XH, Wu YJ, et al. CoachXNet: an Artificial Intelligence and Internet of Things Integrated Platform for Personalized Training and Feedback in Digital Sports[J]. INTERNATIONAL JOURNAL OF COMPUTATIONAL INTELLIGENCE SYSTEMS, JAN 19 2026, vol.19, issue 1.

ABSTRACT

The recent rise in the popularity of digital sports training tools has brought into focus the need to have intelligent, real-time, and personalized performance analysis. The traditional methods of coaching are not very scalable, flexible, or correct, particularly in remote or resource-constrained locations. The combination of Artificial Intelligence (AI) and Internet of Things (IoT) can be used to overcome these weaknesses by providing continuous surveillance and feedback. However, the challenges of low-

latency data processing, scalable deployment, and personalization to an athlete are yet to be addressed. The paper suggests and analyzes a proposal of an AI-IoT integrated system, CoachXNet, which is proposed to deliver personalized digital training and instant corrective feedback in sports. It leverages deep learning algorithms based on hybrid algorithms to predict the pose and produce suggestions, and takes advantage of edge-cloud cooperation to balance the latency, scalability, and resource usage. In order to test the system, the SportsPose and AthletePose3D datasets were incorporated into the experiments. Motion capture was carried out through IoT-based wearable and vision-based sensors, and preprocessing and augmentation were applied to enhance model generalization. The low-latency inference was done via a server on the edge, but the model updates were done on the cloud resources on a large scale. The metrics used to evaluate were the accuracy of the action recognition, Mean Per Joint Position Error (MPJPE), the latency, and the efficiency of providing the feedback. CoachXNet performed better than the baseline frameworks with an accuracy of 94.1%, an MPJPE of 35.2 mm, and an average end-to-end latency of 32 ms. Individualized training recommendations resulted in better outcomes of athlete performance by 18-23% than non-individualized training recommendations. CoachXNet shows that it is possible to implement an AI-IoT integrated feedback loop in sports training and increase accuracy, responsiveness, and personalization of the system significantly. The results indicate its capabilities in developing scalable athlete-centered digital coaching systems for the future generation of sports ecosystems.

Sun YZ, Wu TC, Li ZX, et al. SDTP-VA: an AI-Resistant Visualization and Secure Data Transmission Framework for Wearable Consumer IoT in Sports Training[J]. IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, FEB 2026, vol.72, issue 1, pp.1489-1503.

ABSTRACT

Wearable consumer electronics are transforming sports performance training by allowing real-time physiological monitoring, analysis, and feedback. Along with the

increasing IoT integration of wearable devices comes a serious concern regarding the security and privacy of sensitive biometric data from AI-driven cyberattacks. The purpose of this work is to establish a novel framework that integrates Secure Data Transmission Protocols with Visualization Approaches (SDTP-VA) that is resistant to AI-driven adversaries. This work aims to improve both the security and interpretability of wearable IoT systems deployed in sports environments. The proposed system incorporates lightweight cryptographic algorithms designed specifically for resource-constrained wearable devices to protect the integrity and confidentiality of data while maintaining device performance. Our organization has applied visualization techniques to provide an AI-resistant transform that convey raw data in tamper-proof, robust representations to protect ourselves from adversarial attacks. Distinct pattern representations allow for human-in-the-loop validation and disrupt the automated AI systems from subtly exploiting the data for malign inference. Both of these goals could be achieved. The framework is tested across various sport contexts using wearable sensors that measure mobility, heart rate, and muscle activation. This is achieved through wireless technology. Furthermore, scaling efficiencies decreased by 95.81%, while reaction times decreased by 96.88%, resulting in significant gains. The experimental results indicate a strong amount of resistance against spoofing and data injection attacks, suggesting the ability to achieve secure data interpretation with accuracy above 95% while achieving real-time performance characteristics.

Waddell TF. A New Age for (Generative) Sports Reporting: Testing the Effect of AI Ethics Policies on the Perceived Trustworthiness and Financial Value of AI-Generated Sports News[J]. JOURNALISM, FEB 2026.

ABSTRACT

It is becoming more common for established news organizations to begin using generative AI for the production of news. How do readers respond to these news organizations when AI has first been introduced, and can AI news disclosures be used

to improve the trustworthiness and financial value of AI content? An online experiment (N = 713) was conducted in the immediate aftermath of ESPN introducing AI generated news to their web site. Study results found that exposure to an AI disclosure before exposure to sports news written by AI improved perceptions of news trustworthiness relative to sports news without preceding AI disclosure. Mediation analyses reveal that perceptions of AI disclosure, supervision, helpfulness and ethicality mediated effects of the AI disclosure on message trustworthiness and the perceived financial value of AI-written news. Theoretical and practical implications are discussed.

Song XR, Shang ML, Khosravi R. Adaptive Rescaling Technique for Portable Vision Devices in IoMT Toward Swimming Workouts Training and Safety[J]. JOURNAL OF CLOUD COMPUTING-ADVANCES SYSTEMS AND APPLICATIONS, JAN 30 2026, vol.15, issue 1.

ABSTRACT

In sports, intelligent multimedia models deployed through edge-cloud networks are widely used to build Internet of Things (IoT) capabilities. In amateur sports, however, the rapid use of personal devices, cameras, and sensors has made implementation problems increasingly significant, particularly for athlete health monitoring and basic sports training. In swimming training and amateur workouts, there is a growing need for unsupervised findings with tiny artificial intelligence (TinyAI) algorithms that can enhance image quality and perform content classification, enabling trainers to quickly and effectively provide on-site feedback to swimmers. In this paper, we propose a novel algorithm capable of improving the quality of rescaled images while preserving visual edges in swimming pool environments under various conditions, such as wavy water surfaces. The proposed method is lightweight and can be rapidly deployed on commercial sports IoT devices at the network edge. Experimental comparisons with existing approaches demonstrate that our method outperforms state-of-the-art

techniques in terms of both quantitative performance and visual edge preservation.

Yang ZY, Zhang X, Li HS, et al. More Details, Less Variability? A Crossover Design Study on the Impact of Information Granularity on ChatGPT's Training Program Stability[J]. BIOLOGY OF SPORT, 2026, vol.43, issue 1, pp.379-392.

This study aimed to evaluate how varying levels of information granularity affect the output variability and multidimensional quality - including Personality, Effectiveness, Safety, and Feasibility - of ChatGPT-generated training programs. A crossover design was used to compare simple and detailed input prompts, with each prompt input into GPT-4 (accessed via ChatGPT) four times to generate eight training programs. The training programs were anonymized by the research team and subsequently evaluated in a blinded manner by 11 experts (mean age = 35.4 years, average of 18.1 years of practical experience in the field of sport and exercise science). Output variability was assessed using the coefficient of variation (CV%), and quality ratings were based on a custom 15-item scale covering Personality, Effectiveness, Safety, and Feasibility. CV% was generally lower under the detailed input prompts, indicating more stable outputs. Significant main effects of information granularity were found in Personality, Safety, Feasibility, and overall scores (all $p < 0.05$), though not in Effectiveness. Notably, repeated inputs of the same information granularity still yielded structurally and qualitatively different outputs, highlighting residual variability even under controlled conditions. Information granularity plays a crucial role in shaping the quality and stability of AI-generated training programs. Providing detailed, structured input enhances personalization, reduces output fluctuation, and improves alignment with exercise science principles.

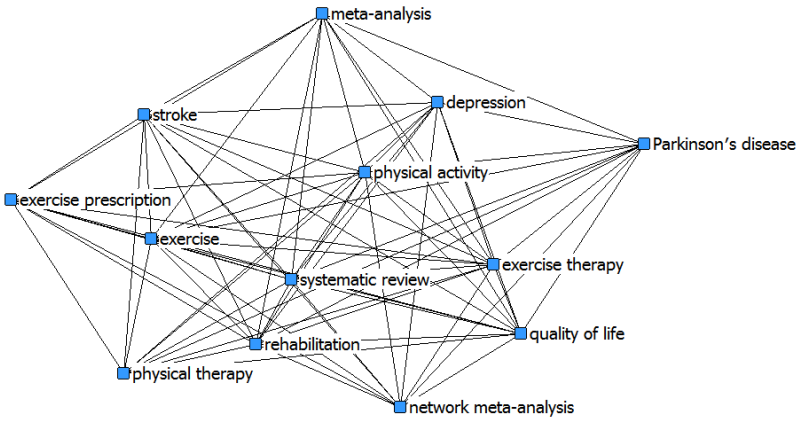
Cheng WM, Yu ZL, Cheng WD. The Role of Computer Technology in Motion Tracking Method of Basketball Shot[J]. PLOS ONE, MAR 19 2026, vol.21, issue 3.

ABSTRACT

With the rapid development of modern science and technology, with the gradual maturity of computer-aided training system, it has also been applied in sports training, and has achieved good results. The application of new technology can not only clearly see the mastery of sports technical skills and the training level of athletes, but also provide a more systematic basis for the next training plan of trainer system, and provide a set of scientific and reliable guidance for the development of athletes ' sports potential. However, in complex scenes, there are some problems, such as occlusion object interference, which affect the tracking accuracy of target action. To address this problem, a basketball shooting action tracking method for complex scenes is proposed. Through the visual measurement system, the motion of the target in the scene is detected, and the spatial node corresponding to the detected action is treated as the initial tracking point. An ant colony algorithm is then employed to construct an ant-colony tracking model, enabling robust tracking of the basketball shot-release motion under complex scene conditions. Simulation results demonstrate that the proposed method achieves strong tracking performance, with high accuracy, reduced tracking deviation, and improved preservation of motion details.

体医融合

本期体医融合学术研究共检索到英文相关文献 1195 篇，研究热点主要集中为轴性脊柱关节炎的运动处方、运动治疗神经病理性疼痛的机制及临床应用进展、血友病患者的运动方案等方面。检索结果如下：1）关键词共词分析。提取关键词 6111 个，经过数据清洗后关键词有 4000 个，词频为 4 及以上的关键词有 176 个，累计百分比为 27.82%，高频关键词有锻炼、康复、运动疗法、生活质量、元分析等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 591 种，其中载文 5 篇及以上的期刊有 42 种，所载文献累计百分比为 32.55%，刊载体医融合前三位的期刊分别为：JOURNAL OF CLINICAL MEDICINE（JCR 学科分区 Q1、Q1），FRONTIERS IN MEDICINE（JCR 学科分区 Q1、Q1），HEALTHCARE（JCR 学科分区 Q2、Q2）。3）学科交叉分析。引用文献总计 68705 篇，最多的频次为 82 次，其次是 76 次，这两篇文献分别为 *The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews*、*RoB 2: a Revised Tool for Assessing Risk of Bias in Randomised Trials*。4）学术关注度分析。文献级别用量最多的是 88 次，排名前三位的文献分别为 *Neuronal Plasticity and Its Role in Alzheimer's Disease and Parkinson's disease*、*Targeting the Glymphatic System to Promote α-synuclein Clearance: a Novel Therapeutic Strategy for Parkinson's Disease*、*Short Bouts of Accumulated Exercise: Review and Consensus Statement on Definition, Efficacy, Feasibility, Practical Applications, and Future Directions*。



Haghi FAE, Jahromi MK. Exercise as Precision Medicine: Targeting HER2/CD44-Driven Therapy Resistance in Breast Cancer (A Mini Review)[J]. INTEGRATIVE CANCER THERAPIES, 2026, vol.25.

ABSTRACT

Despite advances in HER2-targeted therapies and CSC-directed agents, resistance remains a major barrier in breast cancer. Synthesize evidence for exercise as a precision strategy to disrupt HER2/CD44-driven resistance circuits. Preclinical and clinical data demonstrate that physical activity: (1) downregulates HER2/PI3K signaling via myokine-mediated pathways (IL-6/SPARC), (2) reduces CD44 through NK-dependent immune surveillance, and (3) synergizes with biologics to overcome cardiotoxicity and chemoresistance. Molecular subtype-specific exercise prescriptions are defined. Exercise reprograms the tumor-immune microenvironment to target therapy-resistant pathways, establishing a paradigm for exercise as adjuvant precision medicine.

Yu CH, Guo LN, Gao XX, et al. Exercise Prescription for Axial Spondyloarthritis: a Systematic Review and Meta-analysis of Randomized Controlled Trials[J]. FRONTIERS IN MEDICINE, Feb 2026, vol. 13.

ABSTRACT

Background Axial spondyloarthritis (axSpA) is a chronic inflammatory rheumatic condition that significantly impacts patients' quality of life. Exercise therapy serves as a core non-pharmacological treatment modality, yet its overall efficacy and optimal prescription parameters require further clarification through high-quality evidence. This study aims to systematically evaluate the efficacy of exercise interventions for axSpA patients. Methods Computerized searches were conducted across databases including PubMed, Embase, Web of Science, and the Cochrane Library, covering the period from inception to September 2025. Randomized controlled trials (RCTs) comparing exercise interventions with conventional treatments for axSpA were

included. Two researchers independently performed literature screening, data extraction, and quality assessment. The heterogeneity of the research results was assessed using the I2 statistic. Continuous variables were presented as weighted mean differences or standard mean differences, with confidence intervals set at 95%. Stata 15.0 was utilized to conduct a meta-analysis. Results Fifteen RCTs involving 1,699 patients were included. Meta-analysis revealed that exercise intervention significantly improved disease activity in axSpA patients compared with controls (BASDAI: SMD = -0.75, 95% CI: -1.19 to -0.31; ASDAS: SMD = -0.91, 95% CI: -1.54 to -0.29), physical function (BASFI: SMD = -0.37, 95% CI: -0.47 to -0.26), spinal mobility (BASMI: SMD = -0.26, 95% CI: -0.49 to -0.04), thoracic expansion (SMD = 0.35, 95% CI: 0.04-0.65), and fatigue levels (SMD = -0.53, 95% CI: -0.78 to -0.28). Subgroup analyses indicated that different exercise modalities and intervention durations influenced treatment efficacy. Conclusion This meta-analysis confirms that exercise interventions significantly improve core outcome measures including disease activity, physical function, spinal mobility, and fatigue in patients with axial spondyloarthritis, with statistically significant effects. The findings support the incorporation of individualized exercise prescriptions as a key component of standard axSpA treatment, providing evidence-based guidance for clinical practice. Future research should further optimize exercise prescription parameters and validate their long-term efficacy.

Ye GC, Gao LY, Liu CP, et al. The Effectiveness of Different Exercise Mode Interventions in Improving Disease Activity in Patients with Ankylosing Spondylitis: a Network and Dose-dependent Meta-analysis[J]. FRONTIERS IN PHYSIOLOGY, Jan 2026, vol.16.

ABSTRACT

Background Ankylosing spondylitis (AS) is a chronic inflammatory disease that impairs physical function, reduces quality of life, and is associated with psychological

burdens such as anxiety and depression. While non-steroidal anti-inflammatory drugs (NSAIDs) and biologic therapies are standard treatments, exercise therapy is crucial for maintaining mobility and function. This study aimed to comprehensively compare the effects of 12 exercise interventions on AS patients' disease activity and chest expansion (CE) via network meta-analysis (NMA) and dose-response meta-analysis, and explore dose-dependent effects to inform personalized exercise prescriptions.Methodology Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, randomized controlled trials (RCTs) were searched from PubMed, Cochrane Library, Embase, and Web of Science until December 31, 2024. Eligible studies included adults with American College of Rheumatology/European League Against Rheumatism (ACR/EULAR)-diagnosed AS, comparing exercise with conventional treatment/placebo/no intervention, with outcomes of Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Metrology Index (BASMI), and CE. Two reviewers screened literature, extracted data, and assessed bias using the Cochrane Handbook. NMA and dose-response analysis (expressed as metabolic equivalents of task (MET) minutes/week) were performed (Prospero: CRD420251001511).Results Thirty-two RCTs with 1757 participants were included. NMA showed hippotherapy simulation (HS) was most effective for reducing BASFI; aerobic exercise (AE) + Pilates was superior for BASDAI and BASMI; AE + Stretching Exercise (SE)+Supervise best improved CE. Dose-response analysis revealed non-linear relationships, with specific effective dose ranges identified for each outcome. Subgroup and sensitivity analyses confirmed result robustness.Conclusion Exercise interventions, especially HS, AE + Pilates, and AE + SE + Supervise, effectively improve AS patients' disease activity and CE. Non-linear dose-response relationships emphasize personalized prescriptions, providing evidence-based guidance for integrating exercise into AS management, with future large-scale RCTs needed to validate dose effects.

Li XM, Bai JZ. Mechanisms and Clinical Application Progress of Exercise in the Treatment of Neuropathic Pain[J]. CELLULAR AND MOLECULAR NEUROBIOLOGY,Jan 2026, vol. 46,issue 1.

ABSTRACT

Neuropathic pain has a complex pathogenesis and poses significant treatment challenges. In recent years, exercise has garnered increasing attention as a nonpharmacological intervention for the management of neuropathic pain. This review systematically examines the research progress on the neurobiological mechanisms of exercise in the treatment of neuropathic pain, including its effects on improving neuroinflammation, alleviating oxidative stress, modulating neuroplasticity, influencing the descending pain modulation system, and regulating gene expression and epigenetic modifications. Additionally, this review summarizes the application and therapeutic effects of various exercise interventions in different types of neuropathic pain, such as neuropathic pain after spinal cord injury, chemotherapy-induced peripheral neuropathy, diabetic peripheral neuropathy, and neuropathic pain in multiple sclerosis, on the basis of current clinical research. It also explores future research directions and trends in this field. By integrating basic research and clinical evidence, this review aims to provide a theoretical basis and practical guidance for exercise therapy in patients with neuropathic pain. Although existing evidence supports the analgesic potential of exercise, future high-quality clinical studies are needed to optimize individualized exercise prescriptions and further explore its molecular and neural circuit mechanisms.

Salisbury DL, Burt MA, Pergolski AL, et al. Exercise Modality and Supervised Exercise Therapy Outcomes for Peripheral Artery Disease: a 5-Year Retrospective Chart Review[J]. JOURNAL OF CARDIOPULMONARY REHABILITATION AND PREVENTION, Mar 2026, vol. 46, issue 2, pp.148-154.

ABSTRACT

Purpose: Centers for Medicare and Medicaid Services-reimbursed clinical supervised exercise therapy (SET) programs for the treatment of peripheral artery disease (PAD) are in their infancy. This study evaluated the clinical effectiveness of guideline-directed exercise prescription that reflects current recommendations in SET and the influence of exercise modality on outcomes. Methods: A retrospective chart review of patients with PAD enrolled in a Midwest clinical SET program between October 1, 2017 and December 31, 2022 was conducted. Patient demographic and medical characteristics, SET participation (including exercise modality, number of sessions completed, and attrition), and outcomes (6-minute walk test distance and Vascular Quality of Life Questionnaire-6) were abstracted. Outcomes were evaluated overall and by exercise modality (ie, treadmill only, total body recumbent stepping, and multimodality aerobic exercise). Results: Four hundred patients with PAD completed >= 1 SET session during this period and were included in the present study. The enrolled sample was 88% non-Hispanic White, 39% female, and had a mean age of 71.2 +/- 9.6 years and a mean ankle brachial index of 0.67 +/- 0.23. Participants attended 17.6 (50%) of 36 sessions. Attendance (P = .52) and attrition (P = .15) were not significantly different among modalities. All groups experienced significantly increased 6-minute walk test distance (53.5 +/- 4.5 m; P < .01) and Vascular Quality of Life Questionnaire-6 (3.03 +/- 0.31, P < .01); baseline-adjusted between-group differences were not significant (P = .77 and P = .80, respectively). Conclusions: Clinically implemented SET programs that follow current guidelines for exercise prescription improve walking capacity and quality of life in persons with symptomatic

PAD. This study represents the first steps in the generation of program benchmarks for clinical SET programs.

Verſssimo M, Kuhn T, Ricciardi J, et al. Exercise Programmes for People With Haemophilia: A Scoping Review[J]. HAEMOPHILIA, Mar 2026, vol.32, issue 2, pp.381-401.

ABSTRACT

Background Advances in haemophilia treatment have enabled safe exercise practice as recommended by disease management guidelines, yet there is no gold-standard protocol for optimal dose. Emerging therapies could influence exercise recommendations, highlighting the need for evidence-based guidelines tailored to people with haemophilia to ensure better safety and health outcomes.Aims To provide an updated comprehensive mapping of the literature, exploring the modalities, frequency, duration and intensity of exercise programmes for PwH.Methods A scoping review was conducted following JBI methodology and PRISMA-ScR guidelines (PubMed, BVS, Scopus, Web of Science, EMBASE, Cochrane, PEDro, SPORTDiscus and grey literature). Inclusion criteria were defined using 'PCC' (population, concept and context), and the research question was 'What modalities, duration, frequency and intensity are being utilised in exercise programmes for PwH in any context?'Results Out of 5.579 references, 36 studies were included, with 15 reported in a single source. Exercise frequency was mainly set at 3 days/week in primary studies, with a median of 2-4 days/week reported in systematic reviews. Training intensity was mainly defined by repetition maximum or maximum heart rate. Interventions generally lasted 6 weeks, with a median duration of 4-30 weeks in systematic reviews. Strengthening, flexibility, and aerobic exercise were the most common modalities, whereas endurance and proprioceptive training were rarely employed.Conclusions Exercise dosages in this review align with current evidence for people with haemophilia, but individualised prescriptions remain critical to

optimising health outcomes. Future research should prioritise standardised, evidence-based protocols.

Wright AJ, Panza GA, Fernandez AB, et al. Feasibility and Acceptability of a Novel Algorithm for Physicians to Prescribe Personalized Exercise Prescriptions to Patients with Cardiovascular Disease Risk Factors: Study Protocol for an Exploratory Randomized Controlled Crossover Trial[J]. HEALTHCARE, Jan 2026, vol. 14, issue 2.

ABSTRACT

Background: Approximately half of U.S. adults have >= 1 cardiovascular disease (CVD) risk factors. Exercise is universally recommended as a first-line lifestyle therapy to prevent and treat CVD. Objective: We will conduct a feasibility and pilot efficacy randomized controlled trial to test the usability and user satisfaction of an evidence-based digital health tool we developed for physicians-the Prioritizes Personalizes Prescribes EXercise algorithm (P3-EX)-to treat patients with CVD risk factors (ClinicalTrials.gov: NCT07238556). Methods: We will recruit 24 physicians who do not prescribe written exercise prescriptions (ExRx) from two local CT hospitals. Physicians will recruit two patients each (N = 48); both patients must have CVD risk factors. Each physician will deliver a P3-EX ExRx to one patient (n = 24) and the Physical Activity Vital Sign ExRx to the other patient (n = 24) in a random sequence crossover design. Physicians and patients will rate the feasibility and acceptability of each ExRx method using validated questionnaires. Patients will perform their ExRx for 12 weeks and complete an exercise diary to monitor exercise adherence with weekly virtual oversight by Research Assistants. Before and after the exercise intervention, we will measure patient CVD risk factors and physical activity levels via accelerometry. Results: This trial has received Institutional Review Board approval (E-HHC-2025-0198) and will begin in January 2026, with findings published in 2027. Conclusions: This protocol provides the scientific rationale and

methodology to test P3-EX within a real-world clinical setting, to inform the feasibility of using P3-EX as a digital health support tool by physicians, and preliminary efficacy of P3-EX to improve patient cardiovascular health and physical activity levels.

Yin J, Li J, Chen H, et al. Effects of Six Traditional Exercise Therapies on Key Clinical Outcomes in Patients with Chronic Heart Failure: A Systematic Review and Network Meta-analysis[J]. MEDICINE, Jan 2026, vol.105, issue 5.

ABSTRACT

Background: Previous research on traditional exercise interventions for chronic heart failure (CHF) has primarily concentrated on single exercise modalities in isolation, providing scant insight into the ideal exercise regimen for this patient population. This study aims to assess the effects of 6 traditional exercise therapies - specifically Liuzijue, Tai Chi, Baduanjin, yoga, Wuqinxi, and meditation - on CHF outcomes using the Minnesota living with heart failure questionnaire (MLHFQ), six-minute walk test (6MWT), N-terminal pro-brain natriuretic peptide (NT-proBNP), and left ventricular ejection fraction (LVEF). Methods: A comprehensive search was conducted across databases including CNKI, Wanfang, VIP, PubMed, Embase, Web of Science, and the Cochrane Library. After applying the inclusion and exclusion criteria, relevant studies were screened, and data were extracted. A network-meta-analysis (NMA) was then performed to compare and rank the effectiveness of different outcome measures. Results: This NMA included 34 studies with a total sample size of 2521 participants (intervention group: 1268; control group: 1253). For MLHFQ, Liuzijue combined with usual care showed the greatest improvement (MD = -18.14, 95% CI [-24.61, -11.67]; P < .05), with the highest surface under the cumulative ranking (SUCRA) ranking (0.5%). For 6MWT, Liuzijue was most effective (MD = 69.89, 95% CI [21.32, 118.45]; P < .05). In reducing NT-proBNP levels, Baduanjin had the strongest effect (MD = -309.81, 95% CI [-550.86 to -68.76];

P < .05). For LVEF, Tai Chi ranked highest (MD = 4.15, 95% CI [2.40 to 5.90]; P < .05). Overall, Liuzijue and Baduanjin emerged as the most beneficial exercise therapies across multiple outcomes. Conclusions: When used as adjunctive therapies, traditional exercise modalities demonstrate clinically meaningful benefits for patients with CHF, particularly in improving 4 different clinical outcomes. In clinical practice, personalized exercise prescriptions can be tailored to the individual needs of patients.

Mitake Y, Yabe H, Yamaguchi T, et al. Differences in Circulatory Dynamics and Skeletal Muscle Blood Flow During Exercise Between Post-dialysis and Non-dialysis Days in Hemodialysis Patients[J]. INTERNATIONAL UROLOGY AND NEPHROLOGY, Jan 2026.

ABSTRACT

Purpose: Patients undergoing hemodialysis often experience impaired exercise tolerance and circulatory instability due to fluid removal and metabolic alterations during dialysis. Although rehabilitation is recommended for this population, the physiological effects of exercise performed after dialysis remain unclear. This study aimed to compare circulatory dynamics and skeletal muscle oxygenation during exercise performed post-dialysis and on non-dialysis days in maintenance hemodialysis patients, to characterize physiological differences that may inform rehabilitation timing. Methods: Twelve stable hemodialysis patients from Seirei Sakura Citizen Hospital participated in this cross-sectional study. After a graded exercise test to determine peak work rate (Peak WR), participants performed constant-load cycling exercise at 40% of Peak WR for 20 min on both a non-dialysis and a post-dialysis day. Heart rate, blood pressure, and perceived exertion (RPE) were measured, while NIRS assessed relative changes in skeletal muscle oxygenation saturation (SmO2) and microvascular blood volume (intramuscular local hemoglobin concentration:tHb (muscle)). Results: Heart rate at rest and during exercise was significantly higher after dialysis than on non-dialysis days ($p < 0.05$). The change in

tHb (muscle) (Delta tHb (muscle)) during exercise was significantly smaller post-dialysis ($p < 0.05$), indicating reduced skeletal muscle blood flow. Post-exercise RPE values for both lower limbs and respiration were significantly higher after dialysis ($p < 0.05$). No significant differences were observed in SmO2 between conditions. Conclusions: Exercise performed after dialysis results in greater cardiovascular load and perceived exertion, accompanied by reduced skeletal muscle blood flow compared to non-dialysis days. These findings emphasize the need to tailor post-dialysis exercise prescriptions by adjusting intensity or extending warm-up periods to accommodate altered circulatory dynamics. This study provides important physiological evidence for optimizing post-dialysis rehabilitation in hemodialysis patients.

Fan DD, Deng FQ, Ji Y, et al. Meta-analysis and Systematic Review of the Impact of Different Exercise Intervention on Emotional Symptoms in Patients with Bipolar Affective Disorders[J]. FRONTIERS IN PSYCHOLOGY, Jan 2026, vol.16.

ABSTRACT

Objective: This study systematically evaluates the effects of diverse exercise and combined interventions on patients with bipolar disorder (BD), identifies optimal intervention parameters through subgroup analyses, explores dose-response relationships, and delivers evidence-based support for exercise interventions in this population. Methods: Randomized controlled trials (RCTs) examining exercise interventions for BD patients were retrieved from domestic and international databases. Literature screening and data extraction adhered to standard criteria. Study quality was assessed via the Cochrane Risk of Bias Tool 2.0. Meta-analyses were conducted in RevMan 5.4, while subgroup analyses (stratified by intervention type, duration, frequency, and age) and dose-response analyses were performed in Stata 15. The Benjamini-Hochberg method was used to apply false discovery rate (FDR)

correction, controlling false positive risks in multiple comparisons (statistical significance was defined as corrected $P < 0.05$). Results: Exercise interventions significantly improved depression, anxiety, and mania symptoms and health questionnaire outcomes in BD patients (all corrected $P < 0.05$). No significant improvements were observed in quality of life questionnaire scores or systolic blood pressure (all corrected $P > 0.05$). For diastolic blood pressure, the pooled effect lacked statistical significance (SMD = -0.113, 95% CI: -0.665-0.439, $P = 0.688$), with only one individual study showing significant improvement after correction (corrected $P = 0.0224$). Subgroup analyses revealed the following: Exercise combined with psychological or mindfulness training improved all three symptoms (depression, anxiety, mania; all corrected $P < 0.05$), whereas exercise alone improved only mania (corrected $P < 0.05$). Interventions lasting <= 12 and >12 weeks both improved depression, anxiety, and mania (all corrected $P < 0.05$). Exercise performed <= 2 sessions/week improved only anxiety (corrected $P < 0.05$), while >2 sessions/week improved only depression and mania (all corrected $P < 0.05$). Single sessions lasting <= 60 and >60 min both improved mania (all corrected $P < 0.05$), but only sessions >60 min improved anxiety (corrected $P < 0.05$). Patients aged <= 40 and >40 years both derived benefits (all corrected $P < 0.05$). Dose-response analyses indicated that anxiety and depression scores were lowest with two exercise sessions per week ($P < 0.01$). Conclusion: Exercise interventions significantly improve depression, anxiety, and mania symptoms as well as health questionnaire outcomes in BD patients, with exercise combined with psychotherapy or mindfulness training producing superior effects. Improvements in diastolic blood pressure warrant cautious interpretation, as they are supported by only one study. The recommended protocol consists of exercise combined with psychotherapy or mindfulness training, with a duration of >= 12 weeks, 2-3 sessions/week, and single-session length <= 90 min; this protocol exerts a positive impact on patients' emotional symptoms. Future RCTs with larger samples and longer follow-up periods are needed to further validate these

findings. Systematic review registration: https://www.crd.york.ac.uk/PROSPERO/view/CRD420251032877, identifier: CRD420251032877.

Choi M, Park J, Lee M, et al. AI-Generated Exercise Prescriptions for At-Risk Populations: Safety and Feasibility of a Large Language Model Assessed by Expert Evaluation[J]. JOURNAL OF CLINICAL MEDICINE, Mar 2026, vol.15, issue 6.

ABSTRACT

Background/Objectives: In exercise science and sports medicine, the potential use of large language models for generating personalized exercise programs is being explored. However, the practical applicability of AI-generated exercise prescriptions has not yet been sufficiently validated, particularly in complex clinical contexts. This study aimed to evaluate their practical utility under expert supervision. Methods: Exercise prescription outputs generated by a large language model (Gemini 2.5, Google LLC) were analyzed using clinical cases incorporating complex exercise-related considerations. Three levels of prompt structuring were applied. Experts evaluated the outputs using a structured rubric assessing safety, feasibility, guideline alignment, and personalization. Inter-expert agreement was assessed using intraclass correlation coefficients (ICC), and expert-specific internal consistency was evaluated using Cronbach's alpha. Results: AI-generated exercise prescriptions demonstrated a certain level of structural completeness. However, inter-expert agreement was low (ICC (2,3) = 0.139), whereas expert-specific internal consistency was high (Cronbach's alpha > 0.92). Prompt structuring from Stage 1 to Stage 2 was associated with improved mean scores in safety and guideline alignment. Additional structuring did not consistently yield further improvements. Conclusions: AI-generated exercise prescriptions may have practical potential as supportive decision-making tools when expert involvement is assumed. Nonetheless, expert judgments did not converge

toward a single evaluative standard, reflecting the inherently expert-dependent nature of exercise prescription.

Morillas-Mingorance A, Gómez AG, Garcʃa IG, et al. Effectiveness of a Medical Exercise Prescription to Promote Physical Activity in Children: a Pragmatic Randomized Trial in Primary Care[J]. FRONTIERS IN PEDIATRICS, Feb 2026, vol.14.

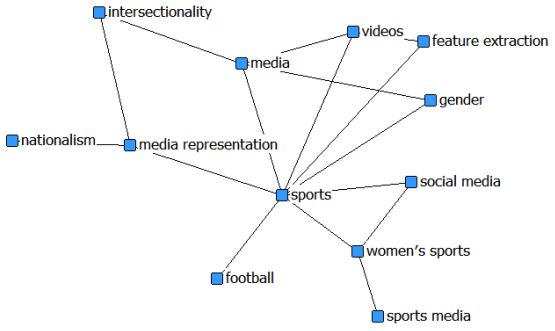
ABSTRACT

Objectives Most children fail to meet international physical activity (PA) recommendations. Can a single pediatric visit help reverse this trend? Brief counseling is infrequently used in clinical practice and its actual impact on children's activity levels remains uncertain. This study evaluates the impact of medical exercise prescriptions on children's PA levels compared to standard health advice. It also explores whether these prescriptions contribute to reducing daily screen time.Study design A randomized controlled trial was conducted with 130 children aged 6-14 years. Participants were randomized into two groups: one received brief standard health advice (HA, 2 min), and the other received a 10-minute intervention including a written medical exercise prescription (MEP). All sessions were delivered by three trained pediatricians following a standardized protocol. PA levels (duration and intensity), screen time, and anthropometric data were collected through the same questionnaires. Physical activity was assessed at 3 and 12 months by the same investigator. Multivariate analyses were performed to evaluate changes over time.Results Both interventions increased the duration and intensity of physical activity, with a significant increase in the number of children classified as physically active. An inverse relationship was observed between physical activity and screen time, indicating that promoting exercise may help reduce sedentary behavior. Parental satisfaction was high and similar in both groups, suggesting good acceptance of the interventions regardless of their format or duration.Conclusions A short, focused

message from a pediatrician-delivered in just a few minutes-can lead to lasting improvements in children's activity levels and screen habits. Brief health advice was as effective as personalized prescriptions, offering a simple, feasible and low-cost strategy to promote healthier lifestyles in primary care.Clinical Trial Registration https://register.clinicaltrials.gov/prs/beta/studies/S000F96J00000036/recordSummary, identifier NCT06765460.

文化与新闻传播

本期文化与新闻传播学术研究共检索到英文相关文献 294 篇，研究热点主要集中在纪录片中的性别呈现、社交媒体在运动员饮食失调及康复经历中的作用、体育文化在促进或阻碍心理健康与竞技表现中的作用等方面。检索结果如下：1）关键词共词分析。提取关键词 1558 个，经过数据清洗后关键词有 1350 个，词频为 3 及以上的关键词有 38 个，累计百分比为 10.65%，高频关键词有体育、社交媒体、性别体育、女性体育运动、足球等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 171 种，其中载文 3 篇及以上的期刊有 23 种，累计百分比为 42.58%，刊载文化与新闻传播前三位的期刊分别为：COMMUNICATION & SPORT（JCR 学科分区 Q1、Q2），INTERNATIONAL JOURNAL OF THE HISTORY OF SPORT（JCR 学科分区 Q1、Q1），INTERNATIONAL JOURNAL OF SPORTS SCIENCE & COACHING（JCR 学科分区 Q2、Q2）。3）交叉学科分析。引用文献总计 18544 篇，最多的频次为 12 次，其次是 11 次，这两篇文献分别是：*Reflecting on Reflexive Thematic Analysis*、*Developing Rigor in Qualitative Research: Problems and Opportunities within Sport and Exercise Psychology*。4）学术关注度分析。文献级别用量最多的是 23 次，排名前三位的文献分别为 *Mathematics Teachers Using Generative AI to Pose Math Problems Related to Students' Interests*、*Gender-moderated Personal Growth and Rest Intolerance among Chinese Athletes: a Sequential Explanatory Mixed-methods Study*、*Exploring Representations of Ethnicity, Racism, and Gender in Australian Sports News: A corpus-based Critical Discourse Analysis*。



Chen RY, Wang JY,Pu HZ, et al. Social Media Branding with Sportainment: a Case Study of Burnley FC's Creative Player Announcement Videos on X[J]. INTERNATIONAL JOURNAL OF SPORTS MARKETING & SPONSORSHIP, Feb 2026.

ABSTRACT

PurposeIn this case-based research, we empirically examine whether integrating entertainment, pop culture content into creative advertising on social media can effectively influence various sport consumers' brand awareness and brand attitudes toward the Burnley F.C. team brand.Design/methodology/approachSport consumers' brand awareness and attitude after exposure to different types of videos are compared with pre-exposure using t-test. Adopting a 3 & times; 5 between-subjects experimental design, we then perform a two-way MANOVA to assess the effects of the sport consumer group and video condition on brand awareness and attitude.FindingsBoth sportainment and traditional player announcement videos can enhance consumers' brand awareness and attitudes. Traditional videos yield slightly higher brand awareness overall, while sportainment videos are better at improving sport consumers' attitudes toward a team brand. These effects are also contingent upon specific categorizations of sport consumers.Originality/valueOur research sheds light on how sport teams can leverage sportainment initiatives in designing and implementing innovative marketing practices to construct and polish an idiosyncratic team brand, fulfilling specific financial conditions, needs and long-term sustainability.

Arsova I, Crowe P, Dzikus L, et al. Framing Masculinity in the Mountains: Gender Representation in the Documentary Films Free Solo and 14 Peaks[J]. INTERNATIONAL REVIEW FOR THE SOCIOLOGY OF SPORT, Feb 2026.

ABSTRACT

Sports documentaries have become integral to sports culture and cinema internationally, with adventure sport films gaining significant acclaim in the past two

decades. Iconic films like Academy Award-winning Free Solo (2018) and 14 Peaks: Nothing is Impossible (2021) have brought climbing into the global spotlight. However, representations in these films often marginalize women athletes and reinforce hegemonic masculinity. This study examines the framing of protagonists in 14 Peaks: Nothing is Impossible, and Free Solo through Entman's framing theory, analyzing how filmmakers' choices in selection, salience and moral evaluation influence audience perceptions. By critically exploring the intersection of gender, power dynamics, and ideologies in mountaineering narratives, this research sheds light on the mediated coverage of the sport. Findings suggest that both films rely heavily on hypermasculine tropes and individual heroism, often sidelining collaborative efforts and diverse perspectives. The study aims to inform scholars and practitioners in outdoor recreation and education about the role of media in shaping perceptions of gender and politics in mountaineering, fostering more inclusive and empowering narratives.

Feng OLV, Duncan LR. “I Was Just Like a Sponge, Absorbing All the Wrong Information”: Examining the Role of Social Media in Athletes' Eating Disorder and Recovery Experiences[J]. INTERNATIONAL JOURNAL OF EATING DISORDERS, Mar 2026.

ABSTRACT

Objective Within sport environments, athletes are exposed to norms that circulate narrow meanings about the body and food, contributing to the high prevalence of eating disorders (EDs). While social media can support ED recovery, it can also further constrain food- and body-related messages for athletes. The purpose of this study was to examine the role of social media in athletes' ED and recovery experiences.Method Data were drawn from a broader study on athletes' support networks during ED recovery, where 29 participants (17 athletes, 12 social agents) completed one-on-one semi-structured interviews. For the present study, all

discussion of social media was extracted from the interviews and analyzed using reflexive thematic analysis.Results We identified four themes. The first theme, Positive Aspects of Social Media Undermined by Harmful ED Content, describes how, despite facilitating connection, social media often exacerbates existing food- and body-related pressures for athletes. The second theme, Establishing a New Relationship With Social Media to Protect ED Recovery, showcases how athletes applied social media literacy skills. The third theme, Using Social Media to Challenge ED Stigma and Diet Culture, describes how some athletes initiated conversations about EDs and countered harmful diet culture messages through their platforms. The fourth theme, Online Visibility as a Recovery Stressor, depicts how increasing pressures for athletes to curate a personal brand on social media may reexpose them to ED-related content.Discussion Findings highlight the need for athlete-specific social media literacy within ED prevention and treatment programs, and for sport organizations and media platforms to support safer online environments.

Mirer M. The Box Score as Boundary Object: How a Data Table Built the Sports-Media System[J]. COMMUNICATION & SPORT, Feb 2026.

ABSTRACT

A boundary object is an item or idea or that solidifies relationships between stakeholders in a social system. A boundary object has local meaning within a single group and maintains relationships between actors. Using textual and secondary analysis, this paper argues that the formulation of the newspaper box score during the late 19th century created a boundary object that helped bring the sports media system into coherence. In its earliest days, the nascent sports reporting profession used data to define a professional identity and then enroll media organizations, sports organizations, and readers into what we understand as the sports media system. This understanding of the history of sports journalism has important implications for the study of the changing media system within sports and beyond.

Jewett R, Durand-Bush N, Primeau C, et al. The Role of Sport Culture in Supporting or Hindering Mental Health and Performance: Voices of Canadian High-Performance Athletes[J]. SPORT PSYCHOLOGIST, Mar 2026.

ABSTRACT

We know that athlete mental health (MH) is influenced by a range of stressors, however, the impact of sport culture is less understood. The purpose of this study was to explore Canadian athletes' experiences regarding the interplay between their sport culture, sport performance, and mental triad profile (MH, mental performance, mental illness symptoms). Semistructured interviews were conducted with 22 athletes who were training for the Tokyo (n = 13) or Beijing (n = 9) Olympic/Paralympic Games. Using a reflexive thematic analysis, characteristics of sport cultures perceived as supportive and nonsupportive of favorable mental triad and sport performance profiles were identified. Themes were woven into four composite vignettes representing the perspectives of athletes with varying profiles and performance experiences. Vignettes underscore the importance of integrating MH literacy as a core educational component within sport environments, linking MH and mental performance, and establishing sport cultures that prioritize transparency, communication, and support.

Scovel S, Niedling K. The Ethics of Embedding: Journalists' Engagement with Athlete Social Media Content in Women's Sports Reporting[J]. JOURNALISM & MASS COMMUNICATION QUARTERLY, Jan 2026.

ABSTRACT

Using the theory of boundary work, this project explores journalists' relationship with women athletes' social media content and if, how, and when they elect to embed such content in their reporting. Previous research has emphasized the adversarial relationship between journalists and athlete content creators. Through 19 qualitative semistructured interviews with sports journalists covering women's sports, this article,

however, demonstrates that journalists perceive athlete social media content to be selectively complimentary in their reporting. This finding complicates understandings of the practice of covering women's sports by unpacking this decision-making process regarding embedding within the context of blurred journalistic boundaries.

Du WH, Shen XY, Zhou SY, et al. Social Image Presentation of Virtual Sports in Social Media Through the Analysis of Twitter Data[J]. SCIENTIFIC REPORTS, Jan 2026, vol. 16, issue 1.

ABSTRACT

Virtual sports have become an important site for shaping public value alignment through its social representation on digital platforms, particularly within social media environments. The current study examines public discourse on X(Twitter) surrounding virtual sports during the period from the 2021 olympic virtual series to the 2023 olympic esports week. Informed by framing theory, our methodology integrates computational approaches to analyze a dataset of 15,585 tweets. We employed topic modeling to identify salient thematic patterns and conducted sentiment analysis leveraging large language models to evaluate affective dimensions within public discourse. The study identifies six core thematic dimensions that characterize the social image of virtual sports. Although overall sentiment leans positive, the distribution across themes is uneven. Notably, the themes related to event-based mobilization exhibit a marked tendency toward negative sentiment. Overall, the study offers a systematic account of how the social image of virtual sports is presented in social media discourse, providing a valuable reference point for the future construction and communication of virtual sports' public identity.

Evens T, Smith P. Public Service Media and Sport in the Age of Platforms: The Cases of Flanders, South Africa and the United Kingdom[J]. CONVERGENCE-THE INTERNATIONAL JOURNAL OF RESEARCH INTO NEW MEDIA TECHNOLOGIES, Mar 2026.

ABSTRACT

In Europe and beyond, coverage of sporting events and competitions has long been a highly valued part of the programming mix offered by public service media. For PSM, sport (and particularly live sports coverage) provides a way to bring communities and/or the nation together, as well to reach audiences that are otherwise often under-served by PSM, such as lower-income groups. However, over the last decade or so, the ability of PSM organisations to utilise sport to enhance cultural citizenship in these ways has increasingly come under threat, due to a combination of budget cuts and escalating rights fees. Using examples from Flanders (VRT), South Africa (SABC) and the United Kingdom (UK) (BBC), this article details some of the main ways that PSM organisations, who continue to see sports coverage as an important part of their remit, have responded to this twin challenge. The article begins by outlining why sport remains such a key genre for PSM and their viewers. The second and main part then analyses how the PSM organisations examined here have adopted three sports media rights buying and distribution strategies, namely: increased coverage and promotion of women's sport; a renewed focus on minority sports; and, the growing use of their online platforms to enhance the attractiveness of PSM for both viewers and sports organisations. The final part of the article highlights the need to update major events legislation (sometimes referred to as 'listed events' or anti-siphoning' legislation), which, in many countries/regions with PSM, including Belgium/Flanders, South Africa and the UK, is designed to ensure that certain key national and/or international sporting events (e.g. the Olympic Games; FIFA World Cup football tournaments) remain universally available via free-to-air television.

Li J. The Illusion of Interaction: How Emotional Connection, Not Functional Engagement, Drives Viewer Loyalty in Social Sports Broadcasting[J]. COMMUNICATION & SPORT, Mar 2026.

ABSTRACT

Sports broadcasters invest heavily in interactive features on social media, assuming that functional engagement (likes, shares, comments) builds viewer loyalty. This study challenges that assumption. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) on survey data from 450 active sports viewers, we test a model that separates the effects of functional, emotional, and communal engagement on loyalty, mediated by social presence and channel commitment. Results reveal that functional engagement significantly enhances social presence but fails to translate into loyalty, as higher perceived social presence is associated with lower channel commitment. Instead, viewer loyalty is strongly and significantly driven by channel commitment, which itself is primarily fostered by emotional connection and, to a lesser extent, communal engagement. Theoretically, this study demonstrates the primacy of affective bonds over transactional interactions in the contemporary sports media economy and provides empirical evidence that questions the utility of Social Presence Theory as a direct predictor of loyalty in this context. The findings suggest a critical re-evaluation of how audience engagement is conceptualized and measured by both scholars and practitioners.

Violin E , Naraine ML. The Sports Gambling Novice Experience: an Autoethnography of a Woman Bettor[J]. SPORT MANAGEMENT REVIEW, Jan 2026.

ABSTRACT

Guided by scholarship on fandom, gendered leisure, and sports gambling, this study examines a woman's novice experience with legalized sports betting in North America. Employing an analytic autoethnography, the study documents the lead author's first-

time engagement with sports betting during the 2024-2025 National Football League season and playoffs. Data were collected through structured, reflexive journaling across weekly wagers placed on two major online sportsbooks, and an iterative coding analysis led to five interrelated themes: (1) emotional volatility across wins, losses, and near-misses; (2) platform design as both an enabler and barrier to participation; (3) shifting social dynamics and inclusion within a male-dominated betting culture; (4) a learning trajectory from hesitant newcomer to confident participant; and (5) financial decision-making as an ongoing negotiation of risk, responsibility, and confidence. Findings demonstrate that while novice sports betting exposes women to emotional strain and escalating risk, it can also function as a mechanism for legitimacy and inclusion within contemporary sport fandom. Practically, the findings suggest that sportsbooks should implement novice-oriented onboarding programs that combine betting education with emotional regulation and financial risk-management tools to reduce harm while fostering sustainable engagement.

Toffoletti K, McGrane C, Reddan S. Not Just Trolls: The Experiences and Effects of Online Harm on Elite Women ' s Sport Athletes[J]. COMMUNICATION & SPORT, Jan 2026.

ABSTRACT

Online abuse directed toward elite athletes is a recognised problem, with research beginning to document its gendered impacts. While much of the debate about online abuse in sport focuses on identifying abusive behaviours, the perspectives of athletes themselves remain under examined. This article investigates the experiences of professional and elite women's sport athletes exposed to online harm, with the aim of understanding their experiences and foregrounding athlete voice. Survey (n = 138) and in-depth interview (n = 8) responses were thematically analysed to understand how Australian athletes competing in women's sport experience and respond to online harm and its effects. Taking an approach informed by feminist theories of embodiment,

we identify several major areas of concern raised by athletes, including the extent of online harm, reporting pathways, and limited support. Findings indicate that online harm is a serious workplace issue with impacts on the wellbeing, performance and economic opportunities for athletes competing in women's sport. We advocate for greater inclusion of athlete voice for improving supports and protections for athletes experiencing online harm.

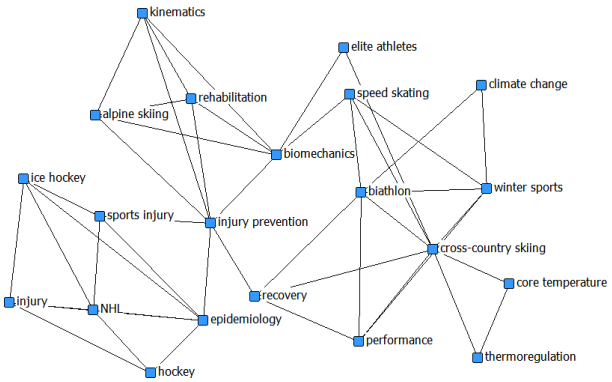
Karlsson J, Wenell L. The Middle East through a Western Lens: the (re) Production of Imaginaries in the Qatar World Cup Media Coverage[J]. SPORT IN SOCIETY, Feb 2026.

ABSTRACT

This study aims to illustrate how the Swedish TV broadcasts (re)produce postcolonial imaginaries of Qatar and the Middle East and of Sweden and the West, during the Qatar World Cup. Using a visual discourse analysis, the article analyses how such imaginaries of Qatar and the Middle East are presented as a cultural and political contrast to Sweden and the West. This contrast is portrayed as a threat to 'Western' values, while Sweden and the West are depicted as an exceptional society. Finally, we discuss the consequences of these postcolonial imaginaries and problematise the role of sports media.

冰雪运动

本期冰雪运动学术研究共检索到英文相关文献 224 篇，研究热点主要集中在运动表现、身体功能、运动损伤等方面。检索结果如下：1）关键词共词分析。提取关键词 1058 个，经过数据清洗后关键词有 949 个，词频为 3 及以上的关键词有 27 个，累计百分比为 8.98%，高频关键词有流行病、越野滑雪、高山滑雪、伤病预防等，生成可视化知识图谱（见下图）。2）来源期刊分析。涉及期刊 158 种，其中载文 3 篇及以上的期刊有 14 种，累计百分比为 28.13%，刊载冰雪运动前三位的期刊分别为：SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS（JCR 学科分区 Q3）、SCIENTIFIC REPORTS (JCR 学科分区 Q1）、SENSORS（JCR 学科分区 Q1）。3）交叉学科分析。引用文献总计 10829 篇，最多的频次为 11 次，频次排名前三的文献分别为 *Defining Training and Performance Caliber: A Participant Classification Framework*、*SThe elite cross-country skier provides unique insights into human exercise physiology*、*The Training of Olympic Alpine Ski Racers*。4）学术关注度分析。文献级别用量最多的是 27 次，排名前三位的文献分别 *Modulating the ice friction of 304 stainless steel utilizing ionic ice and regulating wettability, AI-assisted and Big-Unit teaching enhance speed-skating performance through psychological mechanisms in adolescents: evidence from a three-arm intervention study, Anthocyanin accumulation differences in European pears caused by Phytochrome-interacting factor 3 (PcPIF3) promoter mutations under UV-B*。



Sperlich B, Zoppirolli C, Hettinga F, et al. Olympic Ice Sports: A Narrative Review and Perspectives Toward Milano-Cortina 2026[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb 18 2026.

ABSTRACT

As the Milano-Cortina 2026 Winter Olympics approach, a consolidated understanding of performance determinants across the diverse spectrum of ice sports is crucial, yet the scientific literature remains unevenly distributed. This structured narrative review synthesizes available evidence on key performance-determining factors and contemporary training characteristics for Olympic ice sports, based on topic-driven literature searches and qualitative synthesis. Disciplines are grouped according to their primary performance demands. (1) High-volume gliding sports (long- and short-track speed skating): Performance balances biomechanical efficiency (e.g., aerodynamic posture) against physiological constraints. This necessitates high annual training volumes (900-1100 h & centerdot; year-1), polarized, mixed-modal training, with short-track adding critical tactical and pack-dynamic elements. (2) Exposure-driven gravity sports (bobsleigh, skeleton, luge): Performance is overwhelmingly determined by start velocity, with the initial 15-65 m contributing disproportionately to overall race outcome. Bobsleigh and skeleton training mirrors sprint athletes, prioritizing lower-body power, while luge demands explosive upper-body strength. (3) Arena-

based sports (ice hockey, figure skating, curling): These sports show varied demands. Ice hockey requires managing high-intensity intermittent efforts, with 40%-50% of on-ice distance performed at high skating speeds; figure skating hinges on the power and precision of high-value jumps (e.g., triple and quadruple rotations); and curling relies on delivery accuracy and sweeping strength-endurance. Sex-specific differences, often related to absolute power output (skating, sliding) and biomechanics, are evident, although evidence remains limited or uneven across several disciplines. Rather than providing prescriptive training models, this review identifies discipline-specific training priorities and key gaps in the current evidence base relevant to athlete preparation for Milano-Cortina 2026.

Zoppirolli C, Fornasiero A, Spörri J, et al. Olympic Snow Sports: Current Insights and Future Directions for Milano Cortina 2026 and Beyond[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb 7 2026.

ABSTRACT

As the Milano Cortina 2026 Winter Olympic Games approach, a comprehensive understanding of performance determinants across Olympic snow sports is increasingly important to further evolve training and performance. However, the scientific literature remains unevenly distributed, with well-established knowledge in cross-country skiing, biathlon, and alpine skiing, and limited data in disciplines such as ski mountaineering, freestyle skiing, snowboarding, ski jumping, and Nordic combined. This narrative review synthesizes current evidence to (1) identify key performance-determining factors, (2) describe discipline-specific training characteristics, and (3) highlight critical knowledge gaps. Regarding performance determinants, Olympic snow sports can be broadly categorized into endurance-dominant disciplines (e.g., cross-country skiing, biathlon, ski mountaineering), which rely on high aerobic capacity and movement efficiency, and the gravity and technical

disciplines (e.g., alpine skiing, freestyle skiing, snowboarding, ski jumping), which emphasize neuromuscular power and technical precision. Nordic combined represents a hybrid of these categories. In terms of training characteristics, elite athletes' training models reflect sport-specific demands through tailored combinations of endurance, strength-power, technical, tactical, and psychological preparation. Finally, regarding knowledge gaps, sex-specific analyses of physiological profiles, biomechanics, and training responses remain scarce, particularly in gravity and technical sports. Furthermore, standardized documentation of training structure, integration of on-snow monitoring technologies, and research on energy availability remain underdeveloped. Addressing these gaps through holistic, multidisciplinary research is essential to develop individualized, sex-informed, and evidence-based frameworks that support athlete development and performance optimization in the lead-up to Milano Cortina 2026 and future Olympic cycles.

Walter AM. Remoteness on a Vertical Axis - Social Dynamics of Ski Touring in the Alps[J]. ETHNOS, Feb 2026.

ABSTRACT

This paper examines the relationship between nature-based winter sports, social distinction and the concept of remoteness along the vertical axis of the German Alps. It explores how ski tourers, through their ascent of the mountains, actively labour to achieve isolation and authenticity, despite the proximity to urban centres. The study highlights the physical, social and ecological aspects of ski touring, emphasising the social hierarchies that emerge based on one's ability to navigate the demanding landscape. A patchwork ethnographic approach ties together field visits, interviews, online media and historic sources to explore the nuances of ski touring culture and its broader implications for access to the mountainous winter landscape. As an anthropological intervention in tourism studies, the paper confronts the inner paradoxes of sustainable leisure activities and ideas of authentic nature experience.

By analysing the verticality of remoteness, it adds to discussions on mobility and the rural-urban/centre-periphery continuum in the Alps.

Edholm P, Bouten LJL, Holmberg H, et al. Mind-Muscle-Environment Interactions: Psychophysiological Determinants of Optimal Pacing in Olympic Winter Endurance Sports[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb10 2026.

ABSTRACT

Pacing is a critical determinant of performance in Olympic endurance winter sports such as cross-country skiing, biathlon, and speed skating. Although the physiological ("engine") and psychological ("operator") determinants of pacing have frequently been examined in isolation, growing evidence highlights the need for an integrated psychophysiological perspective. This structured narrative review first outlines the defining characteristics of Olympic winter sports and, within this context, synthesizes current knowledge on the psychophysiological mechanisms governing pacing to inform optimal preparation strategies. We describe how the physiological engine, encompassing energy systems, fatigue, and afferent feedback, and the psychological operator, involving self-regulation, expectations, and cognitive-affective processes, interact to shape pacing behavior. Moreover, the distinctive demands of winter endurance events necessitate consideration of environmental factors such as head-to-head racing formats, variable weather conditions, and undulating terrain. The affordance competition hypothesis is proposed as a unifying framework for understanding pacing as a continuous decision-making process driven by dynamic mind-muscle-environment interactions. Finally, practical recommendations for athletes and coaches preparing for the Milano-Cortina 2026 Winter Olympic Games are presented, advocating a phased training approach that integrates physiological and psychological development within ecologically valid environments. Future research should prioritize real-world competition settings, neurocognitive mechanisms, and

underrepresented populations, including women and para-athletes. We conclude that Olympic success in modern endurance winter sports depends on mastering an integrated psychophysiological control system, where performance is determined by both physical capacity and its effective regulation under varying environmental conditions.

Runciman P, Boer P, Derman W, et al. A High Rate of Acute Injuries in Para Alpine Skiing-A Combined Prospective Study of Injuries Reported at the Sochi 2014, PyeongChang 2018, and Beijing 2022 Paralympic Winter Games[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Jan 11 2026.

ABSTRACT

Para Alpine skiing is one of the largest sports at the Paralympic Winter Games. Recent studies report high injury rates in this sport. However, limited evidence exists regarding sport-specific injury characteristics, which is essential for targeted prevention. The aim of this study was to describe the overall incidence proportion and incidence of injuries reported by athletes participating in Alpine skiing at the Sochi 2014, PyeongChang 2018, and Beijing 2022 Paralympic Winter Games, and to describe injuries by sex, age, impairment, competition period, onset (chronicity), anatomical area, and estimated injury burden. Prospective epidemiological data regarding injuries at the three Paralympic Games (including 486 athletes and 6002 athlete days) were reported by medical staff through the validated web-based injury and illness surveillance system (WEB-IISS) and Paralympic polyclinics. Data were coded and analyzed according to the IOC Para consensus statement using descriptive and analytical statistics (incidence, incidence proportion with 95% CIs, and generalized linear Poisson's regression modeling). The overall injury incidence was 29.4 (95% CI 24.9-34.6) injuries per 1000 athlete days, with an incidence proportion of 28.4%. Injury incidence was significantly higher in the pre-competition period

(54.4; 95% CI 42.5-69.7) compared with the competition period (21.2; 95% CI 17.2-26.1). Acute injuries predominated, with 24% of athletes sustaining at least one acute injury during the Games. The head/face/neck (24%) and knee (20%) were most affected. Common mechanisms included collisions and loss of control. Ten percent of injuries resulted in > 28 days of expected time loss, and the overall injury burden was 70.6 days lost per 1000 days. No difference in injury incidence was found with regards to sex and age. Athletes with limb deficiency reported the highest injury proportions, followed by those with spinal cord injury. Across three Paralympic Games, nearly one-third of Para Alpine skiers sustained an injury. These findings highlight a need for enhanced prevention strategies, particularly those targeting the high-risk pre-competition period and focusing on mechanisms to protect the head/face/neck and knee.

Sperlich B, Holmberg H. Endurance Training in Olympic Winter Sports: A Narrative Review of the Current Literature and Future Research Priorities[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb 2026.

ABSTRACT

The Milano-Cortina 2026 Winter Olympics present an opportunity to synthesize evolving paradigms in endurance training within the broader context of long-term athlete development. As Olympic winter sports span from endurance-limited events to disciplines in which aerobic fitness primarily serves as a feeder capacity, a single training model is insufficient. In this narrative review, we propose a dual framework: (1) a demand-driven, athlete-centered, data-supported model for Endurance-Limited sports (e.g., cross-country skiing, biathlon) and (2) a Feeder-Function model for sports in which endurance primarily supports recovery, training tolerance, and resilience (e.g., freestyle skiing, snowboarding, sliding sports). Within this framework, we narratively synthesize and critically evaluate the literature across key domains,

including individualized volume-intensity architectures, the integration of concurrent strength training, and the strategic use of multimodal stress stacking (e.g., hypoxia, heat). We further address the operationalization of emerging performance constructs such as durability, fatigability, resilience, and repeatability. We also present a heuristic tier framework describing when endurance acts as a primary performance limiter versus a supporting capacity across Olympic winter sports. Subsequently, we examine the role of advanced technologies, from multisensor wearables and analytics to mechanistic approaches (e.g., multiomics), highlighting their potential to shift practice from passive monitoring to active, individualized modeling. Future research priorities include validating field-based operational metrics, defining minimal effective endurance doses for feeder-function sports, and developing interpretable, athlete-centered decision-support tools. By aligning sport-specific demands with individualized, evidence-informed prescription, this dual-framework approach offers a perspective to guide interpretation and future applied work for scientists, coaches, and athletes preparing for Milano-Cortina 2026 and beyond.

Schöffl V, Stoll AL, Küpper T, et al. Ski Mountaineering as a Competitive Sport: Anthropometry, Injuries and Illnesses[J]. SPORTVERLETZUNG-SPORTSCHADEN, Mar 2026.

ABSTRACT

Background Ski mountaineering (skimo) is an evolving competitive sport with a long tradition and has recently been included in the 2026 Winter Olympics. Previous research focused on physiology and performance analysis, while data on injuries in competitive skimo are not yet available. Purpose This study aimed to determine the anthropometric and demographic characteristics as well as the rates and distribution of injuries and illnesses in competitive skimo and to compare them between World Cup and recreational athletes. Study Design Cross-sectional study Methods Data were collected using a detailed trilingual questionnaire administered either face-to-face or

online at two major ski mountaineering events. Injury locations were classified according to the Orchard Sports Injury and Illness Classification System, and the severity of injuries was determined. A statistical data analysis was performed, and correlations were calculated. Results Out of 196 participants (78.6% male, 21.4% female), 111 were recreational athletes (RA), and 85 were World Cup athletes (WC). RA (median age 42) were significantly older than WC (median age 22). WC had significantly lower height and body weight than RA and a lower BMI. The incidence of exercise-induced bronchial asthma was significantly higher in WC (16.5%) than in RA (2.7%). More training hours, a lower BMI, younger age, and fewer recovery days were associated with a higher incidence of colds and respiratory infections per season. The prevalence of anorexia athletica was 17.9% in female WC, 5.3% in male WC, and 0% in RA. Fifty-nine injuries were reported by 43 individuals (21.9%). Thirty-six injuries (59.3%) were acute, 23 (40.7%) were chronic. The knee was the most commonly injured body part, followed by the lower leg and ankle. The most common type of injury involved the ligaments and joint capsule. The average injury score was 1.6 +/- 0.6 (UIAA classification). Most acute injuries (90.3%) occurred during descent, whereas most overuse injuries (90.9%) occurred during ascent. Most acute injuries involved the knee during descent, whereas most chronic injuries were skin lesions and ulcers caused by full-carbon racing boots. Conclusion This study presents the first data on ski mountaineering injuries. A high incidence of respiratory infections and exercise-induced bronchospasm has been reported and should be addressed in prophylaxis. Similarly, relative energy deficiency in sports and anorexia athletica should be addressed. Most acute injuries resemble those in alpine skiing, and prevention is difficult. Chronic skin wounds caused by carbon boots should be addressed in collaboration with the manufacturing industry. Overall, further research on injury surveillance is needed.

Almqvist A, Supej M, Düking P, et al. Technology on Snow and Ice: Innovation, Monitoring, and Performance for the Olympic Winter Games Milano Cortina 2026[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Feb 2026.

ABSTRACT

Elite performance in Olympic winter sports depends on the interplay among the athlete, equipment, and the snow or ice. This naturally evolves with temperature, humidity, wind, preparation, and contact between the equipment and its surface. Together, these factors continuously rebalance the forces of gravity, aerodynamic drag, and friction, requiring athletes, coaches, and organizers to adapt technique, equipment, and surface management, e.g., snow grooming and salting, ice resurfacing or pebbling, and rink climate control. This narrative review (SANRA-guided) synthesizes the scientific literature across four domains: (i) the evolution of equipment and athlete-surface interaction; (ii) the physics of resistive forces and targeted countermeasures; (iii) sensing and monitoring with robust, field-validated technologies and analytics; and (iv) the digitalization of coaching, officiating, and broadcasting. We integrate design and validation with sport regulations and governance. This includes the ban on fluorinated waxes, geometry and mass limits, and principles for data stewardship, model transparency, and fairness. A central component of this review is the assessment of quality aspects of technologies, including the assessment of ecological validity under field-specific conditions before their use in high-stakes coaching, medical, or officiating decisions. We conclude with actionable recommendations for Milano-Cortina 2026: (i) align equipment and surface preparation with expected regimes of drag and friction; (ii) deploy sensors and analytics with demonstrated accuracy, precision, and reliability; (iii) quantify uncertainty in key performance indicators; and (iv) treat federation rules as a priori design constraints. This approach enables innovation to deliver faster, safer, and more equitable outcomes in winter sport at Milano-Cortina 2026 and beyond.

Hallmann K, Wittmann F, Schumann J, et al. From Snow-curious Explorers to Die-hard Snow Devotees: Segmenting Winter Sport Tourists [J]. INTERNATIONAL JOURNAL OF SPORTS MARKETING & SPONSORSHIP, Jan 2026.

ABSTRACT

Purpose This study aims to segment winter sport tourists based on involvement variables and create winter sport personas characterized by additional descriptor variables rooted in socioeconomics and behavioral variables. Design/methodology/approach This study employs a quantitative research paradigm using cross-sectional data derived from an online survey (n = 2,500). Using the four stages of involvement of the psychological continuum model (PCM), four distinct involvement segments were created and tested with various descriptor variables using a multinomial probit regression. Findings Segmentation results revealed four unique winter sport personas: (1) snow-curious explorers, (2) laid-back adventurers, (3) powder chasers and (4) snow devotees. Each segment differed in its involvement profile and was characterised by specific socio-demographic attributes, behavioural patterns, and expenditure levels. The data suggested that higher levels of involvement are associated with participation in a wider range of winter sports and increased spending across various categories. Originality/value Involvement was used as the primary segmentation criterion, encompassing hedonic, symbolic and centrality dimensions. In contrast to previous approaches, which tested for group differences, a probit regression analysis revealed determinants of consumer segment membership. Finally, the PCM was utilised in a multi-sport setting for the first time.

Sandbakk O, Spörri J, Fridén C, et al. From Biological Foundations to Optimizing Performance and Health in Elite Female Winter Olympians[J]. SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS, Mar 2026 .

ABSTRACT

The Milano Cortina 2026 Olympic Winter Games are projected to be the most gender-balanced Winter Games to date, with women comprising an estimated 47% of athletes. However, this numerical balance has outpaced the scientific evidence base informing the training and health support of elite female winter sport athletes. Biological divergence emerging at puberty, particularly in hemoglobin mass, cardiac dimensions, skeletal muscle mass, and body composition, underpins persistent sex differences in absolute performance. When normalized to body mass or lean mass, many physiological differences are attenuated, with hemoglobin concentration and body fat percentage remaining as primary determinants of the performance gap. Despite these differences, contemporary evidence indicates that when training is prescribed relative to individual capacity, women exhibit comparable physiological adaptations to men after puberty. Thus, the principles of effective training are largely shared across sexes, emphasizing the need for sport-specific and individualized training prescriptions. Health is a critical enabler of performance. Female athletes face elevated risks of iron deficiency, relative energy deficiency in sport (REDs), and menstrual dysfunction, conditions that can compromise adaptation, increase injury risk, and threaten career longevity. Addressing these challenges requires integrated, sex-specific monitoring and prevention strategies. By translating biological insights into individualized training and health practices, this review provides evidence-based support to enhance the performance and health of elite female winter Olympians at Milano Cortina 2026 and beyond.