# 前 言

本刊一年四期收录Web of Sciencehe核心合集数据库等有关冰雪运动、奥林匹克教育、体育教育、体育人工智能、体医融合、文化与新闻传播的最新研究。

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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。本期选录冰雪运动方面的文献10篇，奥林匹克教育方面的文献8篇，体育教育方面的文献14篇，体育人工智能方面的文献12篇，体医融合方面的文献14篇，文化与新闻传播方面的文献8篇。

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# 冰雪运动

本期冰雪运动方面的研究共检索到英文相关文献10篇，研究热点：休息时间对冰球运动员轮滑能力的影响、花样滑冰双人半跳执行成绩等级的决定因素、不同地形下越野滑雪的生理和生物力学反应、冬季运动旅游城市、滑雪登山:对2026年冬季奥运会引入的一项新运动的展望、体格健全运动员平滑和上坡越野坐式滑雪的生理和生物力学反应比较、核心力量训练对优秀少年越野滑雪运动员滑雪经济性的影响等。

# Baron J, Gupta S, Bieniec A, et al. Effect of Rest Period Duration between Sets of Repeated Sprint Skating Ability Test on the Skating Ability of Ice Hockey Players[J].INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH, Oct 2021,vol.18,no.20.

**ABSTRACT**

The aim of this study was to determine the effects of two different rest periods, 2 min and 3 min, between consecutive sets of a repeated sprint skating ability (RSSA) test, on the skating ability of ice hockey players. Two RSSA tests, RSSA-2 and RSSA-3, were assessed on 24 ice hockey players. In RSSA-2, six sets of 3 x 80 m sprint skating, with 2 min passive recovery between two consecutive sets was allowed. In RSSA-3, the recovery period between the sets was 3 min. Average speed, average heart rate (HRaver), peak heart rate (HRpeak), blood lactate concentration ([BLa]), and rate of perceived exertion (RPE) were measured in both RSSA-2 and RSSA-3 tests. In all the sets, except set 1, the average speed of the subjects was significantly (p < 0.05) higher in RSSA-3 than the respective set in RSSA-2. Average HR and RPE were higher in RSSA-2 than RSSA-3 in most of the sets. For any given set, no difference in HRpeak was noted between RSSA-2 and RSSA-3. Post-sprint (Set 6) [BLa] was significantly (p < 0.05) higher in RSSA-3 than RSSA-2. This study concludes that the 3 min rest period is more beneficial than the 2 min rest period, for (1) increasing skating speed and (2) reducing overall cardiac workload and perceived fatigue.

# Hirosawa S, Watanabe M, Aoki Y ,et al. Determinant analysis and developing evaluation indicators of grade of execution score of double axel jump in figure skating. [J].JOURNAL OF SPORTS SCIENCES,Nov 2021.

**ABSTRACT**

A figure skating jump score is determined by the sum of the base value based on the difficulty and grade of execution (GOE) that indicates the performance quality. Therefore, performing a high-quality jump to obtain a high GOE is essential to win a competition. However, the relationship between the GOE and kinematic parameters remains unclear. We analysed the horizontal distance, vertical height, and landing speed of double axel jumps in the Ladies' Short Program at the 2019 World Championships. The highest GOE group had significantly larger horizontal distances than the middle and lower groups, while the landing speed and vertical height were not significantly different. A principal component regression analysis was conducted to clarify the contrast between the three variables affecting the GOE. The results showed that greater horizontal distance and landing speed compared to vertical height (component 1) and greater horizontal distance compared to landing speed (component 3) contributed to higher GOE. We divided skaters into four clusters using these two components and provided general GOE acquisition strategies for each cluster. Finally, to apply our results to the industry, we proposed two new evaluation indicators which are highly correlated with the two components and easy to interpret.

# Seeberg TM , Kocbach J, Danielsen J,et al. Physiological and Biomechanical Responses to Cross-Country Skiing in Varying Terrain: Low- vs. High-Intensity[J].FRONTIERS IN PHYSIOLOGY, Oct 11 2021,vol.12.

**ABSTRACT**

The purposes of our study were to investigate the physiological and biomechanical responses to low-intensity (LI) and high-intensity (HI) roller ski skating on varying terrain and compare these responses between training intensities. Nine elite male skiers performed treadmill roller skiing consisting of two 21 min sessions (7 x 3 min laps) at LI and HI with the same set inclines and intensity-dependent speeds (LI/HI: distance: 5.8/7.5 km, average speed: 16.7/21.3 km/h). Physiological and biomechanical variables were measured continuously, and each movement cycle and sub-technique employed were detected and classified with a machine learning model. Both the LI and HI sessions induced large terrain-dependent fluctuations (relative to the maximal levels) in heart rate (HR, 17.7 vs. 12.2%-points), oxygen uptake (V.O2, 33.0 vs. 31.7%-points), and muscle oxygen saturation in the triceps brachii (23.9 vs. 33.4%-points) and vastus lateralis (12.6 vs. 24.3%-points). A sub-technique dependency in relative power contribution from poles and skis exhibited a time-dependent shift from Lap 1 to Lap 7 toward gradually more ski power (6.6 vs. 7.8%-points, both p < 0.01). The terrain-dependent fluctuations did not differ between LI and HI for V.O2 (p = 0.50), whereas HR fluctuated less (p < 0.01) and displayed a time-dependent increase from Lap 2 to Lap 7 (7.8%-points, p > 0.01) during HI. Oxygen saturation shifted 2.4% points more for legs than arms from LI to HI (p > 0.05) and regarding sub-technique, 14.7% points more G3 on behalf of G2 was employed on the steepest uphill during HI (p < 0.05). Within all sub-techniques, cycle length increased two to three times more than cycle rate from LI to HI in the same terrains, while the corresponding poling time decreased more than ski contact time (all p > 0.05). In sum, both LI and HI cross-country (XC) skiing on varying terrain induce large terrain-dependent physiological and biomechanical fluctuations, similar to the patterns found during XC skiing competitions. The primary differences between training intensities were the time-dependent increase in HR, reduced relative oxygen saturation in the legs compared to the arms, and greater use of G3 on steep uphill terrain during HI training, whereas sub-technique selection, cycle rate, and pole vs. ski power distribution were similar across intensities on flat and moderately uphill terrain.

# Bichler,BF, Pikkemaat B.Winter sports tourism to urban destinations: Identifying potential and comparing motivational differences across skier groups[J].JOURNAL OF OUTDOOR RECREATION AND TOURISM-RESEARCH PLANNING AND MANAGEMENT, Dec 2021,vol.36.

**ABSTRACT**

Winter tourism is often associated with rural areas and snow-based sporting activities. However, urban destinations can also offer outdoor winter sports and an integrated set of urban tourism product bundles not only sports-related. Previous research has strongly focused on highly developed rural winter sports destinations but has barely explored the case of urban destinations offering winter sports as an integrated activity in their urban tourism product bundles. This paper, therefore, investigates the potential for market innovations that combine urban assets with winter sports activities by segmenting urban winter sports tourists and extending the understanding of urban tourism attractiveness. This paper identifies skiers' motivation factors for visiting urban destinations with a winter sports infrastructure. It builds on a three-step quantitative approach (N = 338) with factor analysis, cluster analysis and posthoc testing to compare cluster means. The results highlight five push (exciting, knowledge, relaxation, achievement and family) and six pull factors (basic assets, urban assets, natural scenery, social events, economic aspects and winter sports activities), which can be clustered into three unique and statistically different groups: "moderate skiers", "urban recreational skiers" and "focused skiers". Addressing these identified clusters highlights the market potential of bundling winter sports and urban tourism, thereby addressing customers who have not been of strategic relevance for winter destinations. Additionally, urban winter destinations can gain a unique selling proposition and help to counteract crowding tendencies in rural alpine winter sports while also improving urban destination attractiveness post-COVID-19.

Management implications: Our findings deliver empirical support for destination managers' efforts in establishing urban destinations as alternative skiing hotspots (cf. Grenoble and Innsbruck). Urban destination managers should evaluate destinations' profiles and consider including (winter) sports as an integrated activity in their urban tourism product bundles. Winter sports can help to diversify urban destinations and improve their strategic positioning. Segmentation studies help marketers to address specific target groups; in the urban winter tourism context, these often include "moderate skiers", "urban recreational skiers" and "focused skiers". Empirical findings show that skiers' request multi-optional holidays with urban assets and not only sports-related activities. An innovative combination of urban tourism with winter sports offers new experiences and helps to increase visibility and customer satisfaction in competitive markets. Urban areas offer touristic infrastructure and authentic local assets which contribute to the overall tourism experience of winter sports tourists

# Bortolan L，Savoldelli A，Pellegrini B，et al. Ski Mountaineering: Perspectives on a Novel Sport to Be Introduced at the 2026 Winter Olympic Games[J].FRONTIERS IN PHYSIOLOGY, Oct 21 2021,vol.12.

**ABSTRACT**

Ski mountaineering is a rapidly growing winter sport that involves alternately climbing and descending slopes and various racing formats that differ in length and total vertical gain, as well as their distribution of downhill and uphill sections. In recent years, both participation in and media coverage of this sport have increased dramatically, contributing, at least in part, to its inclusion in the 2026 Winter Olympics in Milano-Cortina. Here, our aim has been to briefly describe the major characteristics of ski mountaineering, its physiological and biomechanical demands, equipment, and training/testing, as well as to provide some future perspectives. Despite its popularity, research on this discipline is scarce, but some general characteristics are already emerging. Pronounced aerobic capacity is an important requirement for success, as demonstrated by positive correlations between racing time and maximal oxygen uptake and oxygen uptake at the second ventilatory threshold. Moreover, due to the considerable mechanical work against gravity on demanding uphill terrain, the combined weight of the athlete and equipment is inversely correlated with performance, prompting the development of both lighter and better equipment in recent decades. In ski mountaineering, velocity uphill is achieved primarily by more frequent (rather than longer) strides due primarily to high resistive forces. The use of wearable technologies, designed specifically for analysis in the field (including at elevated altitudes and cold temperatures) and more extensive collaboration between researchers, industrial actors, and coaches/athletes, could further improve the development of this sport.

# Carlsen CH,McGhie D,Baumgart JK, Sandbakk, O. Comparison of Physiological and Biomechanical Responses to Flat and Uphill Cross-Country Sit-Skiing in Able-Bodied Athletes[J].INTERNATIONAL JOURNAL OF SPORTS PHYSIOLOGY AND PERFORMANCE, Nov 2021,vol.16,no.11,pp.1596-1602.

**ABSTRACT**

Purpose: To compare peak work rate (WRpeak) and associated physiological and biomechanical performance-determining variables between flat and uphill cross-country (XC) sit-skiing. Methods: Fifteen able-bodied male XC skiers completed 2 test sessions, each comprising four 4-minute submaximal stages, followed by an incremental test to exhaustion and a verification test in a sit-ski on a roller-ski treadmill. The test sessions were counterbalanced by the incline, being either 0.5% (FLAT) or 5% (UPHILL). The authors compared WRpeak and peak oxygen uptake, as well as physiological variables, rating of perceived exertion, gross efficiency, and cycle characteristics at identical submaximal work rate, between FLAT and UPHILL. Results: In UPHILL, WRpeak was 35% higher compared to FLAT (P < .001), despite no difference in peak oxygen uptake (P = .9). The higher WRpeak in UPHILL was achieved through more work per cycle, which was enabled by the twice as long poling time, compared to FLAT (P < .001). Submaximal gross efficiency was 0.5 to 2 percentage points lower in FLAT compared to UPHILL (P < .001), with an increasing difference as work rate increased (P .001). Neither cycle rate nor work per cycle differed between inclines when compared at identical submaximal work rate (P .16). Conclusions: The longer poling times utilized in uphill XC sit-skiing enable more work per cycle and better gross efficiency, thereby allowing skiers to achieve a higher WRpeak compared to flat XC sit-skiing. However, the similar values of peak oxygen uptake between inclines indicate that XC sit-skiers can tax their cardiorespiratory capacity similarly in both conditions.

# Therell T, Jansson D, Theos A. Effects of Core Strength Training on Skiing Economy in Elite Junior Cross-Country Skiers,RESEARCH QUARTERLY FOR EXERCISE AND SPORT,Oct 2021.

**ABSTRACT**

Purpose: In cross-country (XC) skiing, the ability to use an efficient technique is essential for performance. The study aimed to compare the effects of supplemental static or dynamic core strength training on skiing economy in elite junior XC skiers. Methods: Twenty-four elite junior XC skiers (14 women, 10 men; 17.8 +/- 1.1 years; 67.8 +/- 10.0 kg, 173.7 +/- 6.4 cm) participated in this study. Participants were allocated either to a static core training (ST) group (n =12) or to a dynamic core training (DT) group (n = 12). Both groups continued their normal aerobic endurance and muscular strength training. Experimental groups performed a 15 minutes, 3 days/week core strength-training program for 9 weeks and in addition to their training. Submaximal and maximal roller ski testing was conducted before and after the 9-week training period. Results: Results showed no significant interaction between groups for energetic costs in any of the submaximal workloads (first, p = .33; second, p =.79; third, p = .25). Pooled data showed a significant improvement in energetic cost pre- to posttesting in the first and third workload (ES 0.40, p = .0006 and ES 0.42, p = .04 respectively). Nine weeks of static or dynamic core strength training in elite junior XC skiers had a small effect on energetic cost in submaximal roller skiing. Conclusion: The type of supplemental core strength training does not seem to affect economy in submaximal roller skiing.

# Hermann A, Senner V. Knee injury prevention in alpine skiing. A technological paradigm shift towards a mechatronic ski binding[J].JOURNAL OF SCIENCE AND MEDICINE IN SPORT,Oct 2021,vol.24,no.10,pp.1038-1043.

**ABSTRACT**

Background: Skiing can be beneficial for the sense of delight and wellbeing. Nonetheless, the risk of injury should not be ignored. The traditional ski binding, working solely on a mechanical principle, performs well with regards to a prevention of mid-shaft tibia fracture. However, with respect to knee injuries, it is not able to provide protection. Future concepts, such as mechatronic binding designs have the potential to decrease knee injuries that traditional bindings cannot prevent. In addition to mechanical loads, this kind of binding design uses additional parameters, e.g. knee kinematics and the skier's muscle state, to control the binding release. Methods: This paper provides a review about our knowledge of injury mechanisms in recreational alpine skiing and previous work regarding mechatronic ski binding concepts. Also, our own biomechanical approach towards a mechatronic ski binding is described. Four input variables for an algorithm are dis-cussed with respect to existing sensor solutions and designs of our own. A concept for an algorithm, based on our current knowledge in injury mechanisms is presented. Conclusions: Though first designs were described in the 80s, for decades the idea of a mechatronic ski bind-ing was not further pursued by research. Technological improvements in the field of micro-electronics and wearable sensors, as well as decreasing costs of these devices, make a mechatronic concept feasible. Main challenge is still the missing knowledge about injury mechanisms in alpine skiing and hence the quantification of the influence of possible input variables for the mechatronic system on those injuries. (c) 2020 Sports Medicine Australia. Published by Elsevier Ltd. All rights reserved.

# Ruedl G, Posch M, Greier K,et al. The Impact of Ski Geometry Data and Standing Height on the Risk of Falling in Recreational Alpine Skiers[J]. APPLIED SCIENCES-BASEL,Nov2021,vol.21.

**ABSTRACT**

The aim of this study was to evaluate the impact of individual, equipment-related and environmental factors associated with falls among adult recreational skiers. Individual, equipment-related (ski geometry data) and environmental data were collected by questionnaire among uninjured skiers with and without reported falls during the skiing day. Ski length, side cut radius, and width of the waist were directly recorded from the ski and standing height was measured using a digital sliding caliper. Absolute ski length was relativized to body height. A total of 1174 recreational skiers participated in this study, of whom 13.5% (n = 158) reported at least one fall during the skiing day. Results of the multiple logistic regression analysis found that a lower age, a very good/good fitness level, a moderate skiing speed, a lower relativized ski length, and fresh and grippy snow conditions decreased, while a lower skill level, a larger sidecut radius and an easy slope difficulty increased risk of falling on ski slopes. Besides individual and environmental factors, a lower relativized ski length and a lower sidecut radius decreased the risk of falling. Considering these ski geometry parameters when buying new skis could potentially decrease the risk of falling and thus prevent injuries in recreational skiers.

# Bottollier V, Cross MR, Coulmy N,et al. Reliability of Alpine Ski Racing-Specific Field Test: The 80s-Slide-Test[J]. INTERNATIONAL JOURNAL OF SPORTS PHYSIOLOGY AND PERFORMANCE, Oct 2021, vol.16,no.10,pp.1545-1550.

**ABSTRACT**

Purpose: The purpose of this study was to determine the test-retest reliability of the 80s-slide-test in well-trained alpine ski racers. Methods: The sample consisted of 8 well-trained alpine ski racers (age = 17.8 [0.7] y old; height = 1.80 [0.09] m; body mass = 72.1 [9.5] kg) who performed a lab-based maximal graded test on cycle ergometer and three 80s-slide-tests in 4 separate essions. The 80s-slide-test consisting of maximal push-offs performed for 80s on a 8-ft slide board. Oxygen uptake ((V)Over dotO(2)) and heart rate (HR) were recorded continuously. Blood lactate ([La](b)) was determined immediately prerun, followed by 3 minutes postrun. Three minutes after the completion of the session, the subjects were asked to indicate their rate of perceived exertion using Borg scale ranging from 6 to 20. Total and every 10s mean push-offs number were assessed by camera. Typical errors of measurement, intraclass correlation coefficients, and smallest worthwhile change were calculated. Results: The 80s-slide-test showed strong reliability for total push-offs number, (V)Over dotO(2peak), (V)Over dotO(2mean), HRpeak, and HRmean. Delta[La](b), fatigue index, and the rate of perceived exertion were moderately reliable. Conclusion: The 80s-slide-test is a reliable test for well-trained alpine ski racers and can be used easily by trainers.

# 奥林匹克教育

本期奥林匹克教育方面的研究共检索到英文相关文献8篇，研究热点：奥运反兴奋剂实验室的分析技术、挪威残奥运动员在连续五个残奥夏季和冬季奥运会周期内的疾病和伤害、战略规划中的奥运效应、由于COVID-19，西班牙奥运会游泳和划艇运动员在社会隔离中的训练条件和情绪影响、运动员退役适应与老龄化认知:奥林匹克退役运动员的质性研究、2020年东京奥运会的游泳成绩受到的影响。

# Saad K, Salama S, Horvatovich P,et al.Olympic anti-doping laboratory: the analytical technological road from 2016 Rio De Janeiro to 2021 Tokyo[J].BIOANALYSIS, Oct 2021,vol.13,no.19,pp. 1511-1527.

**ABSTRACT**

The summer Olympic Games is the major mega sports event since the first modern era Olympiad, held in Athens, Greece in 1896. International Olympic Committee (IOC) has the responsibility of the organization of the summer and winter Games ensuring the broadcast in all corners of earth. The World Anti-Doping Agency (WADA) is the responsible organization of the fight against doping in sports. IOC and WADA support the event's country WADA Accredited Laboratory to incorporate the maximum of the new analytical technologies to become applicable during the event's antidoping testing. The current study reviewed the last 5 years progresses of the antidoping system with emphasis on the laboratory field.

# Steffen K, Clarsen B, Gjelsvik H,et al. Illness and injury among Norwegian Para athletes over five consecutive Paralympic Summer and Winter Games cycles: prevailing high illness burden on the road from 2012 to 2020[J].BRITISH JOURNAL OF SPORTS MEDICINE, OCT 2021.

**ABSTRACT**

Objective To describe the illness and injury pattern of Norwegian Para athletes over five consecutive Paralympic Summer and Winter Games cycles and to identify which health problems should be targeted in risk management plans with respect to impairment types. Methods We monitored athletes from 12 to 18 months prior to each Game using a weekly online questionnaire (Oslo Sports Trauma Research Center-H2 (OSTRC-H2)). We asked them to report all health problems they had experienced in the preceding 7 days, irrespective of their consequences on their sports participation or performance and whether they had sought medical attention. Results Between 2011 and 2020, 94 candidate athletes were included in this monitoring programme and prepared to represent Norway; of these, 66 (71%) were finally selected for multiple Paralympic Games. The overall response rate to the weekly questionnaires was 87%. At any given time during the five observation cycles, 37% of the athletes (95% CI 36% to 38%) reported having at least one health problem. Athletes with neurological impairments (n=51) lost 10 days per year due to respiratory problems (95% CI 9 to 11) compared with 9 days (8-10) among those with musculoskeletal impairments (n=37). Gastrointestinal problems caused a time loss of on average 4 days per year in athletes with neurological impairments versus 1 day in athletes with musculoskeletal impairments (mean difference 2.7 days, 2.1-3.3). Musculoskeletal injuries generated a high burden for both athlete groups, in particular, to the elbow, shoulder and lumbosacral regions. Conclusion At any given time, nearly two out of five elite Norwegian Para athletes reported at least one health problem. Respiratory tract and other infections; gastrointestinal problems, injuries to the shoulder, elbow and lumbosacral regions represented the greatest health burden. Our findings can help guide the allocation of clinical resources, which should include a broad network of medical specialists, together with dieticians and physiotherapists, to meet the health challenges in Para athletes.

# dos Santos GL, Goncalves J. The Olympic Effect in strategic planning: insights from candidate cities[J].PLANNING PERSPECTIVES,Nov 2021.

**ABSTRACT**

Strategic planning was incorporated into urban planning processes towards the end of the twentieth century. It was propelled by the 'Barcelona model', intrinsically related with the hosting of the 1992 Summer Olympics. Since then, the Olympic Games have been increasingly seen as powerful tools to catalyse development. They are perceived as provoking an Olympic Effect that has been characterized in literature as an intensified impact of development policies when implemented in the context of the event. Furthermore, the catalytic character of the Games and its associated city-branding potential are often seen as the primary reasons why cities bid for hosting it. This paper argues that the definition of Olympic Effect shall be established in strategic planning practices before both the catalytic effect on development projects and the augmented impact in territories and communities. For that, candidatures of cities bidding to host the Games are qualitatively analysed. The results contribute to the recognition of the increased presence of a strategic vision in Olympic candidatures, the characterization of strategic planning in the context of the Olympic Games, the identification of its role in the city's overall strategic planning processes, and the definition of the Olympic Effect as a resource for urban strategic planning.

# Cooper DJ, Batt ME, O'Hanlon MS,et al. A Cross-Sectional Study of Retired Great British Olympians (Berlin 1936-Sochi 2014): Olympic Career Injuries, Joint Health in Later Life, and Reasons for Retirement from Olympic Sport[J].SPORTS MEDICINE-OPEN, Dec 2021,vol.7,no.1.

**ABSTRACT**

Background The relationship between Olympic career sport injury and the long-term musculoskeletal health of the elite athlete remains unclear. This study describes the lifetime prevalence of medical attention injuries that occurred during training and/or competition as part of the athlete's Olympic career, reasons for retirement from Olympic sport, and the point prevalence of pain and osteoarthritis (OA) among retired Great Britain's (GB) Olympians. Methods This cross-sectional study involved distributing a questionnaire to retired GB Olympians who had competed at 36 Olympic Games between Berlin 1936 and Sochi 2014. The questionnaire captured Olympic career injury history (lasting >= 1 month), sport exposure, musculoskeletal pain (last 4 weeks), physician-diagnosed OA, and joint replacement. Injury prevalence was calculated for sports with a minimal of 15 respondents. Adjusted odds ratios (aOR) were estimated in logistic regression for pain, OA, and joint replacement. Models were adjusted for age, sex, BMI, and career duration. Results Six hundred fifty (57.8% male; 42.2% female) retired athletes representing 40 sports (29 summer; 11 winter), aged 60.5 years (range 23-97), completed the questionnaire. Overall, 721 injuries (368 athletes) were self-reported equating to a lifetime Olympic career injury prevalence of 56.6%. Injury prevalence was highest in field athletics (81.0%), gymnastics (75.0%), and track athletics (67.7%). Injuries most frequently occurred at the knee (19.0%), lower back (15.4%), and shoulder (11.5%). Of those injured, 19.5% retired from sport due to injury. Pain was most prevalent at the lumbar spine (32.8%), knee (25.3%), and hip (22.5%), and OA at the knee (13.4%), hip (10.4%), and lumbar spine (4.6%). Injury was associated with pain at the hip (aOR 4.88; 95% CI, 1.87-12.72, p = 0.001), knee (aOR 2.35; 95% CI, 1.45-3.81, p = 0.001), and lumbar spine (aOR 2.53; 95% CI, 1.63-3.92, p < 0.001); OA at the hip (aOR 5.97; 95% CI, 1.59-22.47, p = 0.008) and knee (aOR 3.91; 95% CI, 2.21-6.94, p < 0.001); and joint replacement at the hip (aOR 8.71; 95% CI, 2.13-35.63, p = 0.003) and knee (aOR 5.29; 95% CI, 2.39-11.74, p < 0.001). Conclusion The lifetime prevalence of Olympic career injury was 56.6%, with those injured more likely to self-report current pain and/or OA at the hip, knee, and lumbar spine and joint replacement at the hip and knee.

# Lystad RP, Alevras A, Rudy I,et al. Injury incidence, severity and profile in Olympic combat sports: a comparative analysis of 7712 athlete exposures from three consecutive Olympic Games[J].BRITISH JOURNAL OF SPORTS MEDICINE, Oct 2021,vol.55,no.19,pp.1077-+.

**ABSTRACT**

Objectives To describe and compare the epidemiology of competition injuries in unarmed combat sports (ie, boxing, judo, taekwondo and wrestling) in three consecutive Olympic Games. Methods Prospective cohort study using injury data from the IOC injury surveillance system and exposure data from official tournament records at three consecutive Olympic Games (ie, Beijing 2008, London 2012 and Rio de Janeiro 2016). Competition injury incidence rates per 1000 min of exposure (IIRME) were calculated with 95% CIs using standard formulae for Poisson rates. Results The overall IIRME was 7.8 (95% CI 7.0 to 8.7). The IIRME in judo (9.6 (95% CI 7.8 to 11.7)), boxing (9.2 (95% CI 7.6 to 10.9)) and taekwondo (7.7 (95% CI 5.6 to 10.5)) were significantly higher than in wrestling (4.8 (95% CI 3.6 to 6.2)). The proportion of injuries resulting in >7 days absence from competition or training was higher in wrestling (39.6%), judo (35.9%) and taekwondo (32.5%) than in boxing (21.0%). There was no difference in injury risk by sex, weight category or tournament round, but athletes that lost had significantly higher IIRME compared with their winning opponents (rate ratio 3.59 (95% CI 2.68 to 4.79)). Conclusion Olympic combat sport athletes sustained, on average, one injury every 2.1 hours of competition. The risk of injury was significantly higher in boxing, judo and taekwondo than in wrestling. About 30% of injuries sustained during competition resulted in >7 days absence from competition or training. There is a need for identifying modifiable risk factors for injury in Olympic combat sports, which in turn can be targeted by injury prevention initiatives to reduce the burden of injury among combat sport athletes.

# Moscoso-Sanchez D, Alarcon-Rubio D, Trujillo-Carmona M,et al.Training Conditions and Emotional Impact on Spanish Olympic Swimmers and Rowers in Social Isolation Due to COVID-19. Results of a Survey[J]. Oct2021SUSTAINABILITY,vol.13,no.20.

**ABSTRACT**

This article analyzes the results of a survey conducted in 2020 with Spanish Olympic swimmers and rowers, who were confined to their homes due to the epidemiological crisis. The questionnaire was administered between 23 April and 25 May. Responses to the questionnaire on emotional and adaptive reactions during the COVID-19 confinement (REACOVID-19) were received from 88 subjects, who represented 100% of the total population of Spanish Olympic swimmers and rowers. Through this questionnaire, they were asked about their living conditions, their daily training habits and their psychological, cognitive and emotional adaptation during the confinement. The results show the commitment of these athletes to their sports goals and their responsibility in respecting the confinement rules. Sixty-seven per cent of them stated that they had not left their homes for 96 days. In these extreme circumstances, the majority trained an average of 11 to 13 h a week and coped with the confinement with a positive attitude, in spite of the inconveniences of social isolation, the lack of equipment and technical support for training and the limitations of their physical space. The article analyzes which emotional and social factors influenced both their motivation and their hours of training.

# Silver MP. Adaptation to Athletic Retirement and Perceptions About Aging: A Qualitative Study of Retired Olympic Athletes[J].JOURNAL OF AGING AND PHYSICAL ACTIVITY,Oct 2021,vol.29,no.5.

**ABSTRACT**

Self-perceptions about aging have implications for health and well-being; however, less is known about how these perceptions influence adaptation to major life transitions. The goal of this study was to examine how high-performance athletes' perceptions about aging influenced their adaptation to athletic retirement. In-depth interviews conducted with 24 retired Olympic athletes using thematic analysis yielded three key themes: (a) perceptions about aging influenced participants' postretirement exercise habits, (b) perceptions about aging motivated participants to engage in civic activities, and (c) participants who lacked formative perceptions about aging associated their athletic retirement with their own lost sense of purpose. These findings provide evidence that perceptions about aging influence athletes' adaptation to retirement by directing their subsequent engagement in postretirement activities. Furthermore, this research highlights theoretical implications for the literature regarding embodied processes, retirement transitions, role models, and adaptation to new physical states.

# Costa MJ, Garrido ND, Marinho DA, Santos CC. How Much the Swimming Performance Leading to Tokyo 2020 Olympic Games Was Impaired Due to the Covid-19 Lockdown? [J].JOURNAL OF SPORTS SCIENCE AND MEDICINE, Dec 2021vol.20,no.4,pp. 714-720.

**ABSTRACT**

The aim of this study was to analyze the progression and stability in the performance of world-ranked swimmers from 2015 to 2020, and the impairment induced by the COVID-19 lockdown. An observational retrospective design over five consecutive com-petitive seasons was selected. FINA ' s male Top-50 who were qualified for the Tokyo Olympic Games were considered in free-style, backstroke, backstroke, and butterfly events. A total of 515 male swimmers and 2060 season-best performances were ana-lyzed. All data was retrieved from two open-access and public websites (Swimrankings and Swimcloud). Repeated measures ANOVA followed by the Bonferroni post-hoc test was performed to analyze the variation between seasons. Stabilization in perfor-mance was assessed using spearman correlation coefficients. A significant improvement in performance approximate to 0.5-2.5% was found in most of the strokes and race distances until the 2018-2019 season. The 2020 lockdown impaired the performance by 1-2%. Moder-ate to high associations were found in the 2017-2018 season when considering the 2019-2020 performance. The breaststroke was the only stroke with a moderate-high stability (r > 0.40) in all race distances considering the overall time period. It can be concluded that world-ranked swimmers' performance was impaired by 1-2% due to the COVID-19 lockdown, returning to levels that were reached two years earlier.

# 体育教育

本期体育教育方面的研究共检索到英文相关文献14篇，研究热点：冠状病毒疫情爆发后中学体育老师的线上或线上线下混合教学方法及教师相关态度看法、体育教师教育改革及其对体育教育的影响、初中体育课程改革及教师看法、体育教学中学习策略与自我调节的混合方法的文献综述、综合阶梯训练引入智障儿童体育课程的影响、青少年循环训练项目的设置标准、中学体育高强度间歇训练的体育教育研究、体育教育中的运动能力评估、游戏化体育教学法对提高学生的内在动机、基本心理需求和锻炼身体的意愿等心理变量的作用、由体育和健康教育老师生态化监督的日常体育活动的益处、建立和维持长期健康生活方式的条件。

# Lopez-Fernandez Ivan, Burgueno Rafael, Gil-Espinosa Francisco Javier. High School Physical Education Teachers' Perceptions of Blended Learning One Year after the Onset of the COVID-19 Pandemic[J]. International Journal of Environmental Research and Public Health, Nov 2021, vol.18, issue21.

**ABSTRACT**

The COVID-19 pandemic has altered the educational landscape worldwide. One year after the disease outbreak, blended learning, which combines distance and face-to-face learning, became an alternative to fully online learning to address the demands of ensuring students' health and education. Physical education teachers faced an additional challenge, given the experiential nature of their subject, but research on teachers' perspectives is scarce. This study aims to explore high school physical education teachers' perceptions of the potential, advantages, and disadvantages of the blended learning model of instruction. An online survey was used to register the views of 174 Spanish high school physical education teachers (120 men and 54 women). The main findings revealed that physical education teachers considered that blended learning, compared with full face-to-face learning, implied a work overload, worsened social relationships, and did not help to increase students' motivation. Likewise, most teachers considered the physical activity performed by students during the blended learning period as being lower than usual. Furthermore, teachers reported that the students from lower-income families were the ones that experienced a lack of technological means the most. These results may guide both present and future policies and procedures for blended physical education. More research is needed to analyze the usefulness of blended learning in high school physical education.

# Han Yeon-Oh, Lee Byung-Sun, ShinSeon-Yeong. Setting Criterion for Adolescent Circuit Exercise Program[J]. International Journal of Environmental Research and Public Health, Oct 2021, vol.18, issue19.

**ABSTRACT**

The purpose of this study was to develop criteria for an adolescent circuit exercise program. The subjects of this study were 5268 middle- and high-school students. It consisted of three types of circuit exercise programs which were conducted in the physical education class. In the result of this study, we have found two significant finding. First, there were statistically significant differences by grade level and gender in three types of circuit exercise programs. Second, in order to improve the utilization rate and convenience of various adolescents' physical activity environments and the field of school physical education, the gender of each circuit exercise program was classified and the five-grade evaluation criteria were presented. The criteria for circuit exercise program developed in this study will be utilized for various youth physical activities to contribute to improving health and physical fitness. In addition, physical education teachers are expected to use this criteria as a standard for evaluating the physical fitness level of adolescents.

# BackmanErik, Tolgfors B, Nyberg G, et al. How does physical education teacher education matter? A methodological approach to understanding transitions from PETE to school physical education[J]. Physical Education and Sport Pedagogy, Oct 2021.

**ABSTRACT**

Background In this paper, we will address the question of how physical education teacher education (PETE) matters and suggest one way to explore the potential impact of PETE. A distinguishing feature of the studies of PETE's impact on physical education is that they either include perspectives from preservice teachers involved in PETE courses or perspectives from physical education teachers in schools looking back at their education. Longitudinal attempts to follow preservice teachers' journey from education to workplace, in order to grasp how they perceive the relation between teacher education and teaching practice in schools, and the transition between these contexts, are few and far between. This gap of knowledge is a missing piece of the puzzle to further develop PETE, and to inform life-long professional development for teachers. Purpose The purpose of this paper is twofold. First, we develop and present a methodological approach for investigating the transition of content areas from courses in PETE into teaching practice in school physical education. Second, we will illustrate the potential utility of this methodological approach in longitudinal studies by showing how one particular content area, Assessment for Learning (AfL), was investigated through the use of methods and theories described in the first part of this paper. Methodology The suggested longitudinal approach involves Stimulated Recall (SR) interviews with pre- and postservice teachers, observations and communication with groups of students and teachers through social media. The construction, recontextualisation and realisation of pedagogic discourses regarding content areas are suggested to be analysed through a combination of Bernstein's concept of the pedagogic device and Ball's concept of fabrication. Results and Conclusions The longitudinal design and the suggested methodology can provide answers to how content areas are transformed in and between PETE and school physical education. A combination of the theoretical perspectives of Bernstein and Ball enables us to say something not only about how pedagogic discourses regarding content areas are constructed, recontextualised and realised in PETE and school physical education, but also about what content areas become in terms of fabrications in the transition between these contexts. To conclude, we argue that the methodological research design can be used to explore different content areas in PETE and that this methodology can contribute to knowledge about how PETE matters for school physical education.

# Chen Senlin, Liu Yang, Androzzi Jared, et al. High-Intensity Interval Training-Based Fitness Education in Middle School Physical Education: A Limited-Efficacy Study[J]. Journal of Teaching in Physical Education, Oct 2021, vol.40, issue4, pp.566-576.

**ABSTRACT**

Purpose: The purpose of this study was to evaluate the limited efficacy of a high-intensity interval training (HIIT)-based fitness education unit in middle school physical education (PE). Method: The study took place in six PE classes at one middle school located in the southern United States. The authors conveniently assigned the classes to treatment (n = 3 classes; 113 students) or control (n = 3 classes; 119 students) groups. Two trained PE specialists implemented the HIIT lessons two to three times per week for 8 weeks. The authors collected mixed methods data at the student, class, and teacher levels for the evaluation. Results: The focus group teacher interview with the teachers, field observations, and accelerometer-determined in-class physical activity data revealed sound implementation fidelity. The HIIT-based fitness education condition also showed greater improvement in physical activity and fitness knowledge and attenuated decline in curl-up scores compared with the control. Conclusion: The findings support the limited efficacy of implementing HIIT for fitness education in middle school PE programs.

# Kermarrec Gilles, Regaieg Ghada, Clayton Rebecca. Mixed-methods approaches to learning strategies and self-regulation in Physical Education: a literature review[J]. Physical Education and Sport Pedagogy, Nov 2021.

**ABSTRACT**

Introduction Students' learning strategies and self-regulation processes are considered highly important in academic and Physical Education contexts. Educational researchers have called for mixed-method designs to investigate how students learn and not only what they learn. The aim of this literature review was to analyze the use of mixed-method designs in self-regulated learning research in a physical education setting. Methods The following databases were searched for relevant articles: ERIC, Persee, PsycInfo and Scopus. No date range was specified and keywords for the search included learning strategies, self-regulated learning, Physical Education, mixed-method, qualitative and quantitative analysis. Thirteen articles were selected and classified according to their theoretical framework. The last stage of selection extended the literature review in each theoretical framework. Results The results show that mixed-method design is relevant when researchers need findings on how students learn, and not only on what they learn. The use of mixed methods is well suited to the Information Processing, Self-Regulated Learning and Student Approaches of Learning theoretical traditions.

# O'Sullivan Mary, Moody Brigitte, Moody Brigitte , et al . A three-legged stool: Teachers' views of Junior Cycle Physical Education curriculum change[J]. European Physical Education Review, Nov 2021.

**ABSTRACT**

The purpose of this paper was to examine Irish Physical Education teachers' views on curriculum change at the beginning of its implementation stage, with a particular focus on revision to the Physical Education curriculum and the new Wellbeing programme. In the light of these revisions, teachers were asked to make considerable changes to their beliefs and pedagogical approaches. Teacher change theory provided a lens through which to examine teachers' views. We reimaged the three aspects of teacher change as a triangle or 'three-legged stool' where the three elements of curriculum materials/resources, pedagogy, and beliefs combine to offer a sense of security to sustain the impending changes. A survey and a series of semi-structured interviews provided data and in total 119 second level Physical Education teachers participated. Analysis was conducted using descriptive statistics of quantitative data and inductive and deductive analysis of qualitative data. Three themes were developed: A Learning Focus, Embracing Change, and Curriculum Enactment. Contrary to recent findings in the change literature, the teachers in this study welcomed curriculum changes as their beliefs aligned with the purpose of the reform of Physical Education. The results indicated that the new curriculum was catching up with teachers' core beliefs about the purpose of Physical Education. However, in line with recent research, teachers were sceptical about ongoing support for resourcing and continued professional development. In conclusion, the 'three-legged stool of sustained change has the potential to be unbalanced thereby maintaining teacher buy-in to the new reforms is potentially fragile.

# Calderon Antonio, MacPhail Ann. Seizing the opportunity to redesign physical education teacher education: blending paradigms to create transformative experiences in teacher education[J]. Sport Education and Society, Nov 2021.

**ABSTRACT**

The COVID-19 pandemic has encouraged many to engage with determining what is most effective in the realm of teaching and learning and how we can negotiate what we have done in the past with what makes sense for the future. In proposing a framework in which to encourage the community of physical education teacher educators to redefine physical education teacher education (PETE) practices, we argue that we need to start by revisiting, embedding and challenging Zeichner's [(1983). Alternative paradigms of teacher education. Journal of Teacher Education, 34(3), 3-9] paradigms at a programmatic level. Drawing on Rink's [(1993). Teacher education: A focus on action. Quest (Grand Rapids, Mich), 45(3), 308-320] main thesis of considering the different philosophical orientations as complementary, and not competing ideologies, this paper is a response to the call of Carmi and Tamir [(2020). Three professional ideals: Where should teacher preparation go next? European Journal of Teacher Education] to improve strategies for blending paradigms in teacher preparation programmes, by providing some specific directions and reflective prompts for PETE programmes. We introduce the reader to the consideration that decisions made around the paradigms and the blending of paradigms across a programme may be essential to provide pre-service teachers (PSTs) with transformative experiences that enable their understanding of the different contexts and ontologies to succeed in their pedagogical and professional endeavours. We develop a double-pyramid approach evidencing how more than one paradigm of teacher education can co-exist to create a holistic and comprehensive plan to facilitate PETE. We convey that a programmatic structure with decisions around the paradigms and their blending, and how those might shape PSTs' educational experience will provide a starting point if teacher educators are to re-define PETE practices.

# O'Brien Wesley, Philpott Conor, Lester Diarmuid, et al . Motor competence assessment in physical education - convergent validity between fundamental movement skills and functional movement assessments in adolescence[J]. Physical Education and Sport Pedagogy, Oct 2021.

**ABSTRACT**

Background The meaningful assessment of motor competence is well positioned for school-based curricular emphasis, through the integration of motor skills and movement patterns in both primary, and second level school physical education. Aligned with the growing interest in holistic motor competence assessment in physical education, the aim of this study was to assess the convergent validity between fundamental movement skills and functional movement assessments in a large cohort of adolescent youth. Method A sample of 583 adolescents, aged between 12 and 16 years old participated in the study. Ten fundamental movement skills were assessed in line with the behavioural components from the Test of Gross Motor Development, and the Get Skilled Get Active resource. Seven specific functional movements were also assessed, using the existing protocol from the widely established Functional Movement Screen. All data were analysed using Bayesian procedures, in which the Bayes factors provided information about the probability of a hypothesis being true. Findings The results indicate that it is very probable (BF10 > 10,000:1) that boys show higher actual motor competence levels in the object control subset of fundamental movement skills, when compared to girls. Moreover, a positive association between the total scores of the Functional Movement Screen and the locomotion subset of fundamental movement skills was found to be very probable (BF10 = 7.737). Discussion This study provides evidence of convergent validity between functional movement and fundamental movement skill assessments in adolescence. This study presents an evidence-informed rationale for physical education pedagogues to move beyond traditional perceptions of movement as being exclusively pertaining to physical skills, to a more holistic concept of motor competence comprising of both movement skills and movement patterns. Conclusion The current study broadens the assessment perspectives of motor competence within physical education, by specifically heightening physical education teachers' awareness towards the possible complementarity of both locomotion and movement patterns in the psychomotor domain of adolescent learning in physical education.

# Centeio Erin, Mercier Kevin, Garn Alex, et al . The Success and Struggles of Physical Education Teachers While Teaching Online During the COVID-19 Pandemic[J]. Journal of Teaching in Physical Education, Oct 2021, vol.40, issue4, pp.667-673.

**ABSTRACT**

The purpose of this study was to investigate physical education teachers' perceptions of implementing online physical education during the COVID-19 pandemic as well as to explore their needs with regard to support for future teaching experiences. A total of 4,302 teachers completed four open-ended questions as part of a larger survey. Deductive and inductive qualitative analysis led to three themes: (a) Teachers' Proud Moments, (b) Help! So Many Obstacles, and (c) Future Challenges. Teachers stated many successes and challenges that they experienced through the COVID-19 pandemic. Many items specifically focused on use and access to technology, student participation, and meeting students' needs in various ways. Results can provide guidance for how to address the essential components of physical education in the online environment. In addition, results may provide insight to those who educate, train, and prepare teachers to teach in a virtual and/or physically distanced environment.

# Fernandez-Rio Javier, Zumajo-Flores Marc, Flores-Aguilar Gonzalo. Motivation, basic psychological needs and intention to be physically active after a gamified intervention programme[J]. European Physical Education Review, Oct 2021.

**ABSTRACT**

The aim of the present study was to compare the possible effects of a gamified programme and a traditional instructional approach in secondary physical education at the level of intrinsic motivation, autonomy satisfaction, competence satisfaction, relatedness satisfaction, and intention to be physically active. A total of 54 year-nine students (14 +/- 0.1 years) enrolled in two classes in the same high school participated. The school administration (totally anonymous to the study) distributed all the students among the two classes and the research team randomly considered one the experimental group (n = 27, 13 boys, 14 girls), which experienced a gamified learning unit, and the other the comparison group (n = 27, 15 boys, 12 girls), which followed a traditional instructional approach. Both study groups had the same physical education teacher with training and experience on several pedagogical approaches, including gamification. The study followed a pre-test, post-test quasi-experimental research design (the time lag between pre-test and post-test was nine weeks). The results showed significant differences at post-tests favouring the experimental group in all the variables assessed. In conclusion, the results from the present study provided support for the use of gamification in physical education since it was associated with increased levels of students' intrinsic motivation, basic psychological needs and intention to be physically active more than a traditional approach. Therefore, gamification could be considered a positive pedagogical framework for secondary physical education. Nevertheless, more studies with larger variability in contexts, participants and content are needed.

# Berrigan Felix, Beaudoin Sylvie, Dubuc Marie-Maude, et al .Benefits of a daily physical activity program supervised by a physical and health education teacher: utility of a mixed methods study using an ecological approach[J]. Physical Education and Sport Pedagogy, Nov 2021.

**ABSTRACT**

Background: The implementation of a quality daily physical activity program in school is influenced by a multitude of factors. Considering the characteristics and possible interactions of factors when choosing the study methods is likely to influence the interpretation of the results. Mixed methods approach, by collecting both quantitative and qualitative data, can lend a more comprehensive understanding of a physical activity intervention and its effects.

Purpose: This paper aims to assess the benefits of a daily physical activity program and underline the theoretical and methodological interrelationships of this project based on an ecological approach and using a mixed methods design.

Method: A semi-structured interview was used to collect the perceptions of a physical and health education teacher and self-administered questionnaires were used to survey classroom teachers and parents, while the quantification of the benefits of the program on students was based on an attention test, accelerometer measurements and a motor skills evaluation.

Results: This mixed methods study provided an opportunity to measure the benefits of a daily physical activity program at the intrapersonal level (students' attention, PA intensity, and motor skills) and compare these results with findings at the interpersonal level (parents' perceptions), and institutional level (PHE teacher and classroom teachers' perceptions). Examining the benefits associated with the daily physical activity program using qualitative and quantitative measurement tools at different levels of the ecological approach enabled the convergence and corroboration of findings but also the elaboration, enhancement, and clarification of findings.

Conclusion: A mixed methods design has helped to make an optimal use of the ecological approach despite the presence of methodological limits but has also helped to increase the effectiveness of classroom teachers and physical and health education teacher delivering the daily physical activity program, and ultimately to reap greater benefits.

# Couture-Wilhelmy Laurence, Chaubet Philippe, Gadais Tegwen. Winning Conditions for the Adoption and Maintenance of Long-Term Healthy Lifestyles According to Physical Activity Students[J]. International Journal of Environmental Research and Public Health, Nov 2021, vol.18, issue21.

**ABSTRACT**

The literature has not yet well documented the relative elements of the adoption of healthy lifestyle habits (HLHs) over the long term. More especially, researchers are calling to complete the corpus with qualitative or mixed estimates that would allow them to better explain the conditions necessary for the adoption or maintenance of HLHs over the long term. The present study seeks to understand the winning conditions for the adoption and maintenance of HLHs. Semi-structured group interviews were conducted with three groups of university students (two in Bachelor's degree in physical education (PE) and one in Master's degree in physical activity science), all in favor with HLHs. The results identify some dominant winning conditions in the adoption and maintenance of HLHs, such as the role of the family environment, the role of diversity and choice in physical activities during youth, the physical and social environment, autonomy and also mental health, which is closely linked with physical health. Results were modelled in the form of an ideal pathway, which traces the impact of winning conditions from childhood to adulthood. The originality of this study stands out, among other things, because of its innovative methodology; therefore, this study opens the door to future qualitative research in the field. Investigating pathways, considering the different phases of development of children and adolescents to identify factors of change and maintenance of HLHs now seems to be an interesting and necessary avenue for research in the field.

# Wu Pei-Fung, Chang Yu-Wei, Chen Tai-Been, et al. The Effects of Integrated Step Training into the Physical Education Curriculum of Children with Intellectual Disabilities[J]. International Journal of Environmental Research and Public Health, Nov 2021, vol.18, issue21.

**ABSTRACT**

 (1) Background: This study investigated the changes in step frequency, walking ability, and standing posture of students with intellectual disabilities by integrating step training into the students' physical education curriculum; (2) Methods: The centroid formula was used to estimate the geometric center of the students' bodies in video footage of each participant. Each participant's stepping frequency per minute was recorded. After training, the teachers involved were interviewed regarding the participants' everyday activities in school. Each step training session was recorded by two video cameras. Each step training session was observed and photographed by a senior physical education teacher with special education qualifications; (3) Results: The step training increased the stability of the participants' body axes. The participants' average steps per minute of the participants significantly improved from 24.200 & PLUSMN; 7.554 to 28.700 & PLUSMN; 8.629. Additionally, despite the students exhibiting anxious behavior (e.g., squeezing their hands and grasping at their clothes) at baseline, the frequency of these behaviors decreased significantly from week 4. Overall, the students' daily activities, motivation, interpersonal interaction, self-confidence, and anxiety behaviors improved; (4) Conclusions: After the 8-week step program, the participants with intellectual disabilities improved their step frequency, movement stability, ability to perform daily activities, walking speed, motivation, interpersonal interaction, and self-confidence, and they exhibited a lower level of anxiety-related behaviors.

# Quintas Alejandro, Bustamante Juan-Carlos. Effects of gamified didactic with exergames on the psychological variables associated with promoting physical exercise: results of a natural experiment run in primary schools[J]. Physical Education and Sport Pedagogy, Oct 2021.

**ABSTRACT**

Background Exergames are a new socio-technological phenomenon consisting of digital motor games that aim to stimulate players' motor skills. The physical-motor component of exergames has been well studied, but knowing more about their possible psychological effects in the school context is interesting to promote physical exercise practice. Gamification refers to the use of game-based elements in non-game contexts, whose aim is to motivate action by making activities more game-like. Gamification seems an innovative strategy to promote physical exercise habits at schools whose real effects are still poorly unknown. Physical education has significant direct and indirect influences on students' physical exercise. Exergames and gamification are associated with psychological benefits related to physically active behaviour. Purpose The aim of this study was to analyse the effects of a gamified exergaming school intervention on the psychological variables associated with physical exercise (PEx) promotion. We hypothesised that the gamified exergaming school intervention will produce more achievement motivation, more enjoyment, a more positive attitude towards exergames, and more exergame and PEx intention in students. Participants and setting A natural experiment with a non-randomised controlled design. The participants were 417 Primary Education students (53.2% girls, n = 222; 46.8% boys, n = 195) recruited from two public and two non-public schools (control group, n = 191; experimental group, n = 226). Their mean age was 11.1 (SD = 1.7), and 50.4% of the sample studied Primary Education Year 6 (aged 10-11 years; n = 210) and 49.6% studied Primary Education Year 7 (11-12 years; n = 207). The control treatment (traditional didactic intervention) was designed based on usual didactic dance teaching in Spain. Another similar experimental treatment was designed as the control treatment, but with a gamified climate and an exergame (gamified exergaming intervention). The Just Dance Now exergame was used. The Mechanics-Dynamics-Aesthetics framework was applied to achieve mastery-oriented motivational climates and an inclusive gamified atmosphere for all student-player types. Moreover, to gamify each class the ClassDojo application was used. Data collection The students completed: the Achievement Motivation in Physical Education Test (AMPET); the Sport Satisfaction Instrument (SSI); the 'Attitudes Toward Exergames' scale; the 'Exergame intention' scale; the 'Exercise Intention' scale. Statistical analyses In order to test the research hypotheses, both study groups were compared using factorial ANOVAs 2 (time; pre-treatment condition vs. post-treatment condition) x 2 (treatment; traditional didactic intervention vs. gamified exergaming intervention). Findings As the analysis threshold was set at <= 0.0125 with Bonferroni adjustment, the results showed better positive gamified exergaming effects on enjoyment and attitude towards exergames. No interaction effects on achievement motivation, exergame intention or PEx intention were found. Conclusions This is the first study to examine an intervention combining Mechanics-Dynamics-Aesthetics (MDA) gamification framework as a didactic method and exergame as an educational resource, adopted as a strategy to promote the variables associated with encouraging PEx in primary schools.

A gamified exergaming educational intervention might have some positive effects on variables associated with physical exercise promotion but its ability as an exercise promotion strategy is still unclear and future research should be conducted.

# 体育人工智能

本期体育人工智能方面的研究共检索到英文相关文献12篇，研究热点：基于物联网智能数据聚合处理的运动训练模型研究、用于按需交互式数据探索的体育数据可视化认知方法、使用运动学和动力学数据的生物力学反馈机制提高运动表现的方法、电子竞技中的安静注视和计算机化精确任务、基于神经网络的瑜伽动作识别大数据模型、计算机视觉领域的有效健身动作分析框架、结合了长短期记忆网络与注意力机制的排球视频智能化描述技术研究、虚拟现实技术对改进屏幕视频刺激促进年轻球员感知认知技能的研究、三维无标记运动学的Pose2Sim终端到终端工作流程、虚拟现实技术在运动损伤康复训练中的临床效果、运动损伤康复训练轨迹监测系统的设计、应用可穿戴MEMS传感器数据的实时评估系统对精英网球运动员训练的评估可靠性研究。

# Dan Juan, Zheng Yanjun, Hu Jianping. Research on sports training model based on intelligent data aggregation processing in internet of things[J]. Cluster Computing-The Journal of Networks Software Tools and Applications, Nov 2021.

**ABSTRACT**

In order to improve the visual level of physical training and promote the optimization of sports training, the computer multimedia technology and Internet of things (IoT) are used to simulate the sports training model. Traditionally, the design complexity and control performance of the high-dimensional spatial sports training model are high, and the control performance is poor. A design method of computer multimedia simulation sports training model is proposed based on attitude change space fast exploration control, and computer multimedia simulation method is adopted to construct human body sports training and body movement mathematical model. In the physical training and kinematics model of human body, the position and pose feature information of human body is extracted quickly. Multimedia image analysis and intelligent control are used to simulate the process of human sports training and analyze the constraint parameters of motion planning in attitude change space to realize the optimal control of physical training and body motion planning. The simulation results show that the design of sports training model based on computer multimedia simulation is more controllable, the prediction error of motion attitude parameter is lower, and the multimedia control ability of sports training model is stronger, the effect of physical training is improved. In addition, the simulation results verify the effectiveness of in IoT.

# Li Wenji, Liu Nana, Song Pengbo, et al. A Cognitive Approach to Sports Data Visualization for Interactive Data Exploration On-Demand[J]. Arabian Journal for Science and Engineering, Nov 2021.

**ABSTRACT**

Sports scientists are keen to learn how a group of participants compete at a particular sports event together. Much as in other science fields, scholars turned their attention to computers to gain useful information to respond to their basic study questions. Consequently, an evolving subject, which has produced important publications in recent years, is computerized team strategies research. Various scholars have attempted to explanate group actions in sports using various methods from a statistical viewpoint. Therefore, this study proposes a Cognitive Approach to Sports Data Visualization Framework (CA-SDVF)for interactive data exploration on-demand. This proposed framework explores cloud computing properties in an efficient decision-making system for sports management. The feasibility study resulted in the highest acceptance level interactive data model among athletes and trainers. The big data handling efficiency is further evaluated and well-suited for the proposed framework's real-time deployment.

# Glazier Paul S. Beyond animated skeletons: How can biomechanical feedback be used to enhance sports performance?[J]. Journal of Biomechanics, Dec 2. 2021, vol.129.

**ABSTRACT**

Biomechanical feedback technologies are becoming increasingly prevalent in elite athletic training environments but how the kinematic and kinetic data they produce can be best used to improve sports techniques and enhance sports performance is unclear. This paper draws on theoretical and empirical developments in the motor control, skill acquisition, and sports biomechanics literatures to offer practical guidance and strategic direction on this issue. It is argued that the information produced by biomechanical feedback technologies can only describe, with varying degrees of accuracy, what patterns of coordination and control are being adopted by the athlete but, crucially, it cannot prescribe how these patterns of coordination and control should be modified to enhance sports performance. As conventional statistical and theoretical modelling paradigms in applied sports biomechanics provide limited information about patterns of coordination and control, and do not permit the identification of athlete-specific optimum sports techniques, objective criteria on which to base technical modifications that will consistently lead to enhanced performance outcomes cannot reliably be established for individual athletes. Given these limitations, an alternative approach, which is harmonious with the tenets of dynamical systems theory and aligned with the pioneering insights of Bernstein (1967) on skill acquisition, is advocated. This approach involves using kinematic and kinetic data to channel the athlete's search towards their own unique 'optimum' pattern of coordination and control as they actively explore their perceptual-motor workspace during practice. This approach appears to be the most efficacious use of kinematic and kinetic data given current biomechanical knowledge about sports techniques and the apparent inability of existing biomechanical modelling approaches to accurately predict how technique changes will impact on performance outcomes for individual athletes.

# Dahl Mats, Tryding Marten, Heckler Alexander, et al. Quiet Eye and Computerized Precision Tasks in First-Person Shooter Perspective Esport Games[J]. Frontiers in Psychology, Nov 8. 2021, vol. 12.

**ABSTRACT**

The gaze behavior in sports and other applied settings has been studied for more than 20 years. A common finding is related to the "quiet eye" (QE), predicting that the duration of the last fixation before a critical event is associated with higher performance. Unlike previous studies conducted in applied settings with mobile eye trackers, we investigate the QE in a context similar to esport, in which participants click the mouse to hit targets presented on a computer screen under different levels of cognitive load. Simultaneously, eye and mouse movements were tracked using a high-end remote eye tracker at 300 Hz. Consistent with previous studies, we found that longer QE fixations were associated with higher performance. Increasing the cognitive load delayed the onset of the QE fixation, but had no significant influence on the QE duration. We discuss the implications of our results in the context of how the QE is defined, the quality of the eye-tracker data, and the type of analysis applied to QE data.

# Wang Hui. Neural Network-Oriented Big Data Model for Yoga Movement Recognition[J]. Computational Intelligence and Neuroscience, Oct 30. 2021.

**ABSTRACT**

The use of computer vision for target detection and recognition has been an interesting and challenging area of research for the past three decades. Professional athletes and sports enthusiasts in general can be trained with appropriate systems for corrective training and assistive training. Such a need has motivated researchers to combine artificial intelligence with the field of sports to conduct research. In this paper, we propose a Mask Region-Convolutional Neural Network (MR-CNN)- based method for yoga movement recognition based on the image task of yoga movement recognition. The improved MR-CNN model is based on the framework and structure of the region-convolutional network, which proposes a certain number of candidate regions for the image by feature extraction and classifies them, then outputs these regions as detected bounding boxes, and does mask prediction for the candidate regions using segmentation branches. The improved MR-CNN model uses an improved deep residual network as the backbone network for feature extraction, bilinear interpolation of the extracted candidate regions using Region of Interest (RoI) Align, followed by target classification and detection, and segmentation of the image using the segmentation branch. The model improves the convolution part in the segmentation branch by replacing the original standard convolution with a depth-separable convolution to improve the network efficiency. Experimentally constructed polygon-labeled datasets are simulated using the algorithm. The deepening of the network and the use of depth-separable network improve the accuracy of detection while maintaining the reliability of the network and validate the effectiveness of the improved MR-CNN.

# Li Jianwei, Hu Qingrui, Guo Tianxiao, et al. What and how well you exercised? An efficient analysis framework for fitness actions[J]. Journal of Visual Communication and Image Representation, Oct 2021, vol. 80.

**ABSTRACT**

Human action analysis has been an active research area in computer vision, and has many useful applications such as human computer interaction. Most of the state-of-the-art approaches of human action analysis are data driven and focus on general action recognition. In this paper, we aim to analyze fitness actions with skeleton sequences and propose an efficient and robust fitness action analysis framework. Firstly, fitness actions from 15 subjects are captured and built to a fitness action dataset (Fitness-28). Secondly, skeleton information is extracted and made alignment with a simplified human skeleton model. Thirdly, the aligned skeleton information is transformed to an uniform human center coordinate system with the proposed spatial-temporal skeleton encoding method. Finally, the action classifier and local-global geometrical registration strategy are constructed to analyze the fitness actions. Experimental results demonstrate that our method can effectively assess fitness action, and have a good performance on artificial intelligence fitness system.

# Gao Yuhua, Mo Yong, Zhang Heng, et al. Research on Volleyball Video Intelligent Description Technology Combining the Long-Term and Short-Term Memory Network and Attention Mechanism[J]. Computational Intelligence and Neuroscience, Oct 14. 2021.

**ABSTRACT**

With the development of computer technology, video description, which combines the key technologies in the field of natural language processing and computer vision, has attracted more and more researchers' attention. Among them, how to objectively and efficiently describe high-speed and detailed sports videos is the key to the development of the video description field. In view of the problems of sentence errors and loss of visual information in the generation of the video description text due to the lack of language learning information in the existing video description methods, a multihead model combining the long-term and short-term memory network and attention mechanism is proposed for the intelligent description of the volleyball video. Through the introduction of the attention mechanism, the model pays much attention to the significant areas in the video when generating sentences. Through the comparative experiment with different models, the results show that the model with the attention mechanism can effectively solve the loss of visual information. Compared with the LSTM and base model, the multihead model proposed in this paper, which combines the long-term and short-term memory network and attention mechanism, has higher scores in all evaluation indexes and significantly improved the quality of the intelligent text description of the volleyball video.

# Fortes Leonardo S., Almeida Sebastiao S., Praca Gibson M. , et al. Virtual reality promotes greater improvements than video-stimulation screen on perceptual-cognitive skills in young soccer athletes[J]. Human Movement Science, Oct 2021, vol. 79.

**ABSTRACT**

Background The literature has shown the positive effect of virtual reality (VR) in percepto-cognitive skills. However, the literature lacks findings about at what extent VR would be better than video. Purpose This study aimed to analyze the chronic effect of VR and video-stimulation screen training on passing decision-making, visual search behavior, and inhibitory control performance in young soccer athletes. Method A total of 26 young soccer players underwent an 8-week training protocol after being randomly assigned to the VR (n = 13) or video-screen (VID, n = 13) group. Passing decision-making, visual search behavior, and inhibitory control performance were measured before and after both interventions. Results A group x time interaction was found for decision-making performance (p < 0.01) and visual search behavior (p < 0.01). Both groups improved both decision-making performance (p < 0.01) and visual search behavior (p < 0.01); however, greater improvements were verified in VR (p < 0.01). Both VR and VID improved inhibitory control (p < 0.01), but no group interaction effect was observed (p > 0.05). Conclusion Our results suggest that VR leads to greater improvements in decision-making and visual search behavior in young soccer athletes than VID.

# Pagnon David, Domalain Mathieu, Reveret Lionel. Pose2Sim: An End-to-End Workflow for 3D Markerless Sports Kinematics-Part 1: Robustness[J]. Sensors, Oct 2021, vol.21, no.19.

**ABSTRACT**

Being able to capture relevant information about elite athletes' movement "in the wild " is challenging, especially because reference marker-based approaches hinder natural movement and are highly sensitive to environmental conditions. We propose Pose2Sim, a markerless kinematics workflow that uses OpenPose 2D pose detections from multiple views as inputs, identifies the person of interest, robustly triangulates joint coordinates from calibrated cameras, and feeds those to a 3D inverse kinematic full-body OpenSim model in order to compute biomechanically congruent joint angles. We assessed the robustness of this workflow when facing simulated challenging conditions: (Im) degrades image quality (11-pixel Gaussian blur and 0.5 gamma compression); (4c) uses few cameras (4 vs. 8); and (Cal) introduces calibration errors (1 cm vs. perfect calibration). Three physical activities were investigated: walking, running, and cycling. When averaged over all joint angles, stride-to-stride standard deviations lay between 1.7 & DEG; and 3.2 & DEG; for all conditions and tasks, and mean absolute errors (compared to the reference condition-Ref) ranged between 0.35 & DEG; and 1.6 & DEG;. For walking, errors in the sagittal plane were: 1.5 & DEG;, 0.90 & DEG;, 0.19 & DEG; for (Im), (4c), and (Cal), respectively. In conclusion, Pose2Sim provides a simple and robust markerless kinematics analysis from a network of calibrated cameras.

# Chen Jing. Clinical Effect of Virtual Reality Technology on Rehabilitation Training of Sports Injury[J]. Journal of Healthcare Engineering, Oct 11, 2021.

**ABSTRACT**

In order to make most patients recover most of their limb functions after rehabilitation training, virtual reality technology is an emerging human-computer interaction technology, which uses the computer and the corresponding application software to build the virtual reality environment. Completing the training tasks in the virtual environment attracts the patients to conduct repeated training in the game and task-based training mode and gradually realizes the rehabilitation training goals. For the rehabilitation population with certain exercise ability, the kinematics of human upper limbs is mainly analyzed, and the virtual reality system based on HTC VIVE is developed. The feasibility and work efficiency of the upper limb rehabilitation training system were verified by experiments. Adult volunteers who are healthy and need rehabilitation training to participate in the experiment were recruited, and experimental data were recorded. The virtual reality upper limb rehabilitation system was a questionnaire. By extracting the motion data, the system application effect is analyzed and evaluated by the simulation diagram. Follow-up results of rehabilitation training showed that the average score of healthy subjects was more than 4 points and 3.8 points per question. Therefore, it is feasible to perform upper limb rehabilitation training using the HTC VIVE virtual reality rehabilitation system.

# Li Wang, Cheng Xin, Cai Xian Feng. The Design of a Track Monitoring System for Sports Injury Rehabilitation Training[J]. Journal of Healthcare Engineering, Oct 6, 2021.

**ABSTRACT**

To realize the remote monitoring design in the process of rehabilitation training for athletes after an injury using computer technology, using Visual Studio 2010 development platform, and using ASP as the development language, NET as the development framework, the injury rehabilitation of injured athletes for dynamic monitoring of information management system, and its functions, system architecture and other detailed design. This article identified six laboratory workers outside the sample as experimental subjects. The experimental subjects' blood oxygen flow, degree, and rate were measured in the normal condition, and the pulse wave was recorded. Then, the upper and lower limbs rehabilitation training robot developed by the laboratory was used for about 15 minutes of rehabilitation training with 3-gear difficulty. The results show that the data measured by the system are the same as the data measured by the Lu Yue brand finger clip type YX301 blood oxygen saturation detector and meet the design requirements. Conclusion. The monitoring accuracy of the system is high, the resistance signal waveform is basically consistent with the actual waveform, and the monitoring effect is good.

# Wu Mingyue, Wang Ran, Hu Yang, et al. Invisible experience to real-time assessment in elite tennis athlete training: Sport-specific movement classification based on wearable MEMS sensor data[J]. Proceedings of the Institution of Mechanical Engineers Part P-Journal of Sports Engineering and Technology, Oct 2021.

**ABSTRACT**

This study examined the reliability of a tennis stroke classification and assessment platform consisting of a single low-cost MEMS sensor in a wrist-worn wearable device, smartphone, and computer. The data that was collected was transmitted via Bluetooth and analyzed by machine learning algorithms. Twelve right-handed male elite tennis athletes participated in the study, and each athlete performed 150 strokes. The results from three machine learning algorithms regarding their recognition and classification of the real-time data stream were compared. Stroke recognition and classification went through pre-processing, segmentation, feature extraction, and classification with Support Vector Machine (SVM), including SVM without normalization, SVM with Min-Max, SVM with Z-score normalization, K-nearest neighbor (K-NN), and Naive Bayes (NB) machine learning algorithms. During the data training process, 10-fold cross-validation was used to avoid overfitting and suitable parameters were found within the SVM classifiers. The best classifier was achieved when C = 1 using the RBF kernel function. Different machine learning algorithms' classification of unique stroke types yielded highly reliable clusters within each stroke type with the highest test accuracy of 99% achieved by SVM with Min-Max normalization and 98.4% achieved using SVM with a Z-score normalization classifier.

# 体医融合

本期体医融合方面的研究共检索到英文相关文献14篇，研究热点：青少年时期的久坐行为和身体活动与成年后的睡眠时间之间的前瞻性联系、一名男性篮球运动员在跟腱断裂后仅3个月内通过组织内注射冻干血小板衍生因子浓缩物和手术治疗后过早的康复治疗恢复了原来的运动的案例报告、小儿肥胖症和运动医学相关的叙述性评论和临床建议、在体育和运动科学中使用基因组技术的当前状况和未来机遇、美国心脏病学会杂志上运动诱导的心血管适应性和运动与心血管疾病的方法的最新评论、医护人员对前交叉韧带损伤后的骨关节炎风险干预机会、运动员的镇痛常用的口服和注射方式、运动员全面康复具体而有目的的方法、对以运动为基础的减少运动损伤风险方案的英文网站的系统回顾、用于减少与运动有关的头颈部伤害发生率的减少伤害计划、患有脊柱溶解症的青少年运动员的即时功能进展计划、早期定向心率有氧运动与安慰剂拉伸治疗青少年运动性脑震荡随机对照试验等。

# Li LF, Sheehan MC, Petrov EM,et al. Prospective Associations between Sedentary Behavior and Physical Activity in Adolescence and Sleep Duration in Adulthood[J]. Preventive Medicine, Dec. 2021.

**ABSTRACT**

The purpose of this prospective study was to investigate whether sedentary screen time (SST) and physical activity in adolescence were related to sleep duration in adulthood and whether these associations varied by sex. We analyzed data from 9279 adolescents who participated in Waves I and V of the National Longitudinal Study of Adolescent Health (Add Health) in the United States. SST was measured by reported hours spent watching television/videos or playing video/computer games per week. Physical activity was measured with participation in school team club sports and frequency (times/week) of moderate to vigorous physical activity (MVPA). Results from multinomial regression models indicated that adolescents with more SST, particularly 15-21 h (Relative Risk Ratio [RRR] = 1.18, 95% CI: 1.02-1.36) or 22 or more hours (RRR = 1.19, 95% CI: 1.06-1.35) compared to 0-7 h per week SST, had significantly higher relative risk of short sleep (six or fewer hours) in adulthood, after controlling for demographic characteristics, socioeconomic status and health behaviors at Waves I and V, sleep duration at Wave I, and SST and MVPA at Wave V. The association between 22 or more hours per week SST in adolescence and later short sleep varied by sex (RRR = 0.75, 95% CI: 0.58-0.95) and was significantly stronger among males. Measures of physical activity in adolescence did not predict sleep duration. Decreasing adolescents' SST to prevent suboptimal sleep later in development may be a target for further investigation, particularly for males.

# Morimoto S, Iseki T, Nakayama H,et al. Return to the Original Sport at Only 3 Months after an Achilles Tendon Rupture by a Combination of Intra-tissue Injection of Freeze-dried Platelet-derived Factor Concentrate and Excessively early rehabilitation after operative treatment in a male basketball player: A case report[J]. Regenerative Therapy, Dec. 2021, vol 18 , pp.112-116.

**ABSTRACT**

Background: Achilles tendon rupture is one of the most common serious injuries in athletes. Various studies to accelerate the healing process of the Achilles tendon have been performed as it takes a longer time to repair the tissue compared to other tendons. Here, we report a case of an acute Achilles tendon rupture in a male basketball player treated by a combination of an intra-tissue injection of freeze-dried platelet-derived factor concentrate, which included a platelet-derived growth factor with an early rehabilitation protocol after the operative treatment to facilitate the biological healing of the injured tendon tissue. To the best of our knowledge, this case is the first instance that enabled the athlete to return to original sport activity at only 3-months after the injury.

Case report: A23-year-old male basketball player who belonged to a university basketball team sustained an Achilles tendon rupture during running in a training match. The remaining time period until the final tournament of the university league as a senior player was only 3 months. The patient received a combination o f an intra-tissue injection of freeze-dried platelet-derived factor concentrate and early rehabilitation protocol afteroperative treatment. Surgery was performed 4 days after the injury and the early rehabilitation protocols were applied postoperatively. A freeze-dried platelet-derived factor concentrate was injected into the ruptured site of the Achilles tendon under ultrasound guide at 4 weeks postoperatively. The patient could return to play at the pre-injury level without any symptoms and disfunctions at 3 months after surgery. At two years postoperatively, the patient could play basketball without symptoms or rerupture.

Conclusions: We reported a case of an Achilles tendon rupture which was treated by a combination of intra-tissue injection of freeze-dried platelet-derived factor concentrate and an early rehabilitation protocol after the operative treatment. The patient could return to play basketball at the pre-injury activity level at only 3-months after the injury, suggesting that the role of applying excessively early rehabilitation of mechanical loading could facilitate tendon tissue healing when combined with an intratissue injection of freeze-dried platelet-derived factor concentrate.

# Confroy K, Miles C, Kaplan S,et al. Pediatric Obesity and Sports Medicine: A Narrative Review and Clinical Recommendations[J].Clinical Journal of Sport Medicine, Nov. 2021. vol.31,no.6, pp.E484-E498.

**ABSTRACT**

Objective: To review what is known about sports medicine and pediatric obesity, with a focus on injuries and MSK concerns. Data Sources: Systematically searched MEDLINE (PubMed) for all years, using search combinations to best identify potential publications. Manuscripts were reviewed, summarized, and discussed in detail. Experienced clinicians in sports medicine and pediatric obesity reviewed the final searches for substantive content. Inclusion criteria include English language publications, children <= 18 years old, related to the practice of sports medicine and pediatric obesity. Publications excluded that dealt with non-sports medicine aspects of pediatric obesity, such as increasing physical activity or exercise, or the prevention or treatment of obesity. Main Results: Twenty-eight publications were included for review. Papers fell into 5 groupings: (1) MSK-increased incidence of MSK injury in children with obesity, hypothesized to be a result of changes in biomechanics; (2) weight management-gradual loss while maintaining proper hydration and nutrition for sports performance; (3) fitness/conditioning-children with overweight/obese showed decreased fitness measures and cardiopulmonary conditioning; (4) exertional heat illness-a concern for adolescent athletes with obesity, specifically in football; and (5) differential diagnoses-3 key differential diagnoses were identified for increased awareness: slipped capital femoral epiphysis, Blount's disease, and pes planus. Clinical topics pertinent to sports medicine and pediatric obesity were discussed. Conclusions: Sports medicine clinicians should be aware of the common MSK and sports-related conditions in children with obesity. Few studies have focused investigations on issues related to children with obesity participating in sports and other physical activities.

# Griswold AJ, Correa D, Kaplan LD,et al. Using Genomic Techniques in Sports and Exercise Science: Current Status and Future Opportunities[J].Current Sports Medicine Reports, Nov. 2021, vol.20,no.11, pp.617-623.

**ABSTRACT**

The past two decades have built on the successes of the Human Genome Project identifying the impact of genetics and genomics on human traits. Given the importance of exercise in the physical and psychological health of individuals across the lifespan, using genomics to understand the impact of genes in the sports medicine field is an emerging field. Given the complexity of the systems involved, high-throughput genomics is required to understand genetic variants, their functions, and ultimately their effect on the body. Consequently, genomic studies have been performed across several domains of sports medicine with varying degrees of success. While the breadth of these is great, they focus largely on the following three areas: 1) performance; 2) injury susceptibility; and 3) sports associated chronic conditions, such as osteoarthritis. Herein, we review literature on genetics and genomics in sports medicine, offer suggestions to bolster existing studies, and suggest ways to ideally impact clinical care.

# Zhou ML, Haley CC. The Team Physician: Return to Play Considerations and Outcomes[J]. Sports Medicine and Arthroscopy Review, Dec. 2021,vol.29, no.4, pp.E65-E70.

**ABSTRACT**

Successful rehabilitation of sports-related orthopedic injuries remains a challenge for both orthopedic surgeons and their patients. Team physicians are tasked with the complex problem of minimizing time away from competition, while simultaneously mitigating the risk of reinjury. Varying levels of expectation and demand between recreational and competitive athletes coupled with the already complex nature of sports-related injuries present a multifactorial challenge for the even the most experienced physicians. In the realm of sports medicine, timing of return to sport has become a controversial yet ubiquitous criterion by which treatment outcomes are measured. While accelerated rehabilitation may be desired in many cases, surgeons must also recognize the identifiable risk factors for potential reinjury. With these principles in mind, we present a summary of the available literature on data pertaining to return to sport, with coverage of injuries commonly seen within an orthopedic sports medicine practice.

# Martinez MW, Kim JH, Shah ANB,et al. Exercise-Induced Cardiovascular Adaptations and Approach to Exercise and Cardiovascular Disease JACC State-of-the-Art Review[J].Journal of the American College of Cardiology, Oct. 2021, vol.78,no.14,pp.453-1470.

**ABSTRACT**

The role of the sports cardiologist has evolved into an essential component of the medical care of athletes. In addition to the improvement in health outcomes caused by reductions in cardiovascular risk, exercise results in adaptations in cardiovascular structure and function, termed exercise-induced cardiac remodeling. As diagnostic modalities have evolved over the last century, we have learned much about the healthy athletic adaptation that occurs with exercise. Sports cardiologists care for those with known or previously unknown cardiovascular conditions, distinguish findings on testing as physiological adaptation or pathological changes, and provide evidence-based and "best judgment" assessment of the risks of sports participation. We review the effects of exercise on the heart, the approach to common clinical scenarios in sports cardiology, and the importance of a patient/athlete-centered, shared decision-making approach in the care provided to athletes.

# Davis A, Wong R, Steinhart K,et al. Limiting the Risk of Osteoarthritis After Anterior Cruciate Ligament Injury: Are Health Care Providers Missing the Opportunity to Intervene?[J]. Osteoarthritis and Cartilage, Dec 2021, vol.73, no.12 , pp.1754-1762.

**ABSTRACT**

Objective To understand what sports orthopedic surgeons (OS), primary care physicians (PCPs) with sports medicine training, and physical therapists (PTs) managing nonelite athletes with anterior cruciate ligament (ACL) injury tell their patients about their osteoarthritis (OA) risk. Methods An electronic survey was distributed by the Canadian Academy of Sport and Exercise Medicine (PCPs, OS), the Sports and Orthopedic Divisions of the Canadian Physiotherapy Association (PTs), and to OS identified through the Royal College of Physicians and Surgeons and the Canadian Orthopaedic Association. The survey included 4 sections: demographics, factors discussed, timing of discussions, and discussion of risk factors and their management. Proportions or means with 95% confidence intervals were calculated. Results A total of 501 health care professionals (HCPs) responded (98 PCPs, 263 PTs, and 140 OS). Of those responding, 70-77% of physicians reported always discussing OA risk, but only 35% of PTs did. All HCPs reported that patient activities perceived as detrimental to knee health, ACL reinjury, and simultaneous injury to other structures in the knee were most often the reason for discussing OA risk. OA risk was discussed at initial management post-injury (65-94%), with few discussing risk subsequently. Eighty percent of physicians and 99% of PTs indicated that PTs were suited to provide OA risk and management information. Conclusion HCPs routinely managing people with ACL injury do not consistently discuss OA risk post-injury with them. Educational strategies for HCPs are urgently needed to develop care pathways inclusive of support for OA risk management following ACL injury.

# Bedrin MD, Putko RM, Dickens JF,et al. Analgesia in Athletes: A Review of Commonly Used Oral and Injectable Modalities[J]. Sports Medicine and Arthroscopy Review, Dec. 2021, vol.29,no.4 , pp.E71-E76.

**ABSTRACT**

Pain is common among athletes at all levels and the treatment of pain can be a challenging and frustrating task. The team physician needs a fundamental knowledge of analgesic strategies as it relates to athletes. It is important to understand the mechanism of action, side effect profile/associated complications, incidence of and indications for use, as well as the controversies associated with the most common analgesic medications used in sports medicine. Several "in vogue" treatment modalities, including cannabidiol, are also becoming more commonly used and are worth discussion.

# Carreno L, Thomasma E, Crowell M,et al. Comprehensive Rehabilitation of the Athlete: A Specific and Purposeful Approach[J]. Sports Medicine and Arthroscopy Review, Dec. 2021,vol.29,no. 4 , pp.E57-E64.

**ABSTRACT**

There is a need to improve the quality of rehabilitation in sports medicine to return athletes to optimal function safely and quickly, reducing the risk of reinjury. This paper describes a planning paradigm to guide clinical reasoning during individual treatment sessions and a model for planning the rehabilitation program from acute injury to return to play. The design of a rehabilitation program should be a collaborative, team effort, and accounting for the specific needs of the athlete. As the athlete progresses from acute injury management all the way back to full competition, the rehabilitation professional emphasizes the components of pain management, motion, motor control, and force production in varying degrees based upon phases of tissue healing and the athlete's response. Utilizing high-value, evidence-based treatments maximize both the effectiveness and efficiency of rehabilitation to restore and improve upon preinjury levels of physical performance.

# Macznik AK, Mehta P, Kaur M, et al. Can We Go Online for Sports Injury Prevention? A Systematic Review of English-Language Websites with Exercise-Based Sports Injury Risk Reduction Programmes[J].Sports Medicine-Open, Dec. 2021, vol.7,no.1

**ABSTRACT**

Background Preventing sports injuries is at the forefront of sports medicine. Although effective preventive strategies in scientific literature exist, their implementation is lagging behind. The Internet could support the translation of knowledge from the literature to end-users, but the quality of the online resources would have to be assured. This online-based systematic review is to assess availability, readability, quality, and content of the websites presenting exercise-based sports injury risk reduction (prevention) programmes. Moreover, the quality of reporting and contents of the exercise programmes were assessed. Methods Google, Yahoo, and Bing were searched on 2 September 2018. We used 'sports injury prevention program\*' and 'sports injury prevention warm-up' as search phrases. The owners/authors of the included websites were asked for further recommendations on online resources. Search updates were run in DuckDuckGo on 15 May 2020 and 22 August 2021. Eligible websites were active, in English, and contained instructions for the exercise/s aiming at sports injury prevention. Two reviewers independently screened the links and previews and performed an in-depth appraisal of included websites. The website quality was assessed using JAMA framework criteria and Health on the Net Foundation Code of Conduct (HONcode) certification. The readability of websites was assessed using the Flesch-Kincaid Reading Ease score. The reporting appraisal of exercise programmes was done using the modified Consensus on Exercise Reporting Template (CERT). Results Among 480 websites screened, 16 were eligible with an additional four recommended and nine found in search updates (29 in total). None of the websites was certified by HONcode. The overall quality of websites was low 2.1 +/- 1.0/4, but overall readability was high 67 +/- 17/100. The average quality of reporting of exercise programmes was low 5.79 +/- 3.1/12. Websites with community input had the lowest readability, but the highest quality, and vice versa websites run by businesses had the highest readability, but the lowest quality. Eight websites presented programmes tested for effectiveness. Conclusions Overall, the quality of the websites was low, but their readability was high. Improvements required are relatively easy to implement (i.e. including the date when the website was updated, applying for HONcode certification) and extremely important (e.g. providing resources on which the website's content is based). There are some sports injury risk reduction programmes reported with high quality and effectiveness-tested available online for team sports, but none for individual sports. Trial Registration This review has been registered in the PROSPERO (CRD42019107104).

# Elliott J, Heron N, Peek K,et al. Injury Reduction Programs for Reducing the Incidence of Sport-Related Head and Neck Injuries Including Concussion: A Systematic Review[J]. Sports Medicine, Nov. 2021,vol.51, no.11 , pp.2373-2388.

**ABSTRACT**

Background Sport-related head and neck injuries, including concussion, are a growing global public health concern with a need to explore injury risk reduction strategies such as neck exercises. Objectives To systematically review the literature to investigate: (1) the relationship between neck strength and sport-related head and neck injuries (including sport-related concussion (SRC); and (2) whether neck exercise programs can reduce the incidence of (a) sport-related head and neck injuries; and (b) SRC. Methods Five databases (Ovid MEDLINE, CINAHL, EMBASE, SPORTDiscus, and Web of Science) and research lists of included studies were searched using a combination of medical subject headings and keywords to locate original studies which reported the association between incidence of head and/or neck injury and neck strength data, or included a neck exercise intervention either in isolation or as part of a more comprehensive exercise program. Results From an initial search of 593 studies, six were included in this review. A narrative synthesis was performed due to the heterogeneity of the included studies. The results of two observational studies reported that higher neck strength, but not deep neck flexor endurance, is associated with a lower risk of sustaining a SRC. Four intervention studies demonstrated that injury reduction programs that included neck exercises can reduce the incidence of sport-related head and neck injuries including SRC. Conclusion Consideration should be given towards incorporating neck exercises into injury reduction exercise programs to reduce the incidence of sport-related head and neck injuries, including SRC. Systematic Review Registration PROSPERO (registration number: 194217).

# Selhorst M, MacDonald J, Fischer A,et al. Immediate Functional Progression Program in Adolescent Athletes with a Spondylolysis[J].Physical Theraphy in Sport, Nov. 2021,vol.52, pp.140-146.

**ABSTRACT**

Objective: To assess the preliminary evidence for the efficacy and safety of an immediate functional progression program to treat adolescent athletes with an active spondylolysis. Design: Prospective single-arm trial. Setting: Hospital-based sports medicine and physical therapy clinic. Participants: Twelve adolescent athletes (14.2 +/- 2 years, 25% female) with an active spondylolysis. Main outcome measures: Clinical outcomes included time out of sport, Micheli Functional Scale (Function and Pain) and adverse reactions. Clinical outcomes were assessed at baseline, 1 month, 3 months and 6 months. Magnetic resonance imaging was performed at baseline and 3 months to confirm diagnosis and assess healing of lesion. Results: Eleven participants (92%) fully returned to sport in a median time of 2.5 months (75 days; interquartile range 55 days, 85 days). All participants demonstrated marked improvements in pain and function by the end of the program. One participant (8%) had an adverse reaction during care with a significant recurrence of LBP and had not returned to sport by 6 months. Magnetic resonance imaging demonstrated improvement of the spondylolytic lesion in all but one participant. Conclusion: The immediate functional progression program appears a viable method for treating active spondylolysis and warrants future research.

# Leddy JJ, Master CL, Willer BS,et al. Early Targeted Heart Rate Aerobic Exercise Versus Placebo Stretching for Sport-related Concussion in Adolescents: a Randomised Controlled Trial[J]. Lancet Child & Adolescent Health,Nov 2021, vol.5,no.11 , pp.792-799.

**ABSTRACT**

Background Sport-related concussion is a public health problem, particularly in adolescents. Quality of life is reduced in adolescents with persistent post-concussive symptoms (symptoms >28 days). We replicated a previous randomised controlled trial to validate the safety, efficacy, and generalisability of, and objective adherence to, prescribed early targeted heart rate subsymptom threshold aerobic exercise compared with placebo-like stretching exercise for adolescent recovery from sport-related concussion and for reducing the risk of persistent post-concussive symptoms.

Methods This randomised controlled trial was done at three community and hospital-affiliated sports medicine concussion centres in the USA. Male and female adolescent athletes (aged 13-18 years) presenting within 10 days of sport-related concussion were randomly assigned to individualised subsymptom threshold aerobic or stretching exercise at least 20 min daily, for up to 4 weeks after injury. Exercise adherence and intensity were measured by heart rate monitors. The primary outcome was clinical recovery (ie, return to baseline symptoms, normal exercise tolerance, and a normal physical examination) within the 4-week intervention period, and development of persistent post-concussive symptoms beyond 28 days after injury. This study is registered with ClinicalTrials.gov, NCT02959216.

Findings Between Aug 1, 2018, and March 31, 2020, 118 adolescents were recruited (61 were randomly assigned to the aerobic exercise group and 57 to the stretching exercise group) and included in the intention-to-treat analysis. On survival analysis, controlling for sex, site, and mean daily exercise time, patients assigned to aerobic exercise were more likely to recover within 4 weeks after injury compared with those assigned to stretching exercise, with a 48% reduced risk of persistent post-concussive symptoms (hazard ratio for stretching vs aerobic exercise of 0.52 [95% CI 0.28-0.97], p=0.039). No adverse events were reported.

Interpretation This multicentre study found that early treatment with subsymptom threshold aerobic exercise safely speeds recovery from sport-related concussion and reduces the risk for persistent post-concussive symptoms, an important result given the impact of delayed recovery on adolescent quality of life. Adherence was good and there were no adverse events from this non-pharmacological treatment. These results suggest that physicians should not only permit, but consider prescribing, early subsymptom threshold physical activity to adolescents as treatment for sport-related concussion and to reduce the risk of persistent post-concussive symptoms.

# Battista S, Sansone LG, Testa M. Prevalence, Characteristics, Association Factors of and Management Strategies for Low Back Pain Among Italian Amateur Cyclists: an Observational Cross-Sectional Study[J].Sports Medicine-Open, Dec 2021,vol.7,no. 1.

**ABSTRACT**

Background Low back pain (LBP) is a burdensome problem affecting amateur cyclists. This cross-sectional study analysed Italian amateur cycling cohort's demographic and sport-specific characteristics, the prevalence and characteristics of LBP among this population, its possible association factors, the management strategies adopted to deal with LBP and the sample's beliefs among possible LBP triggers. A web-based cross-sectional survey was created. The questionnaire included 56 questions divided into six sections, querying the sample's demographic, clinical, and cycling characteristics. Binomial logistic regression with a Wald backward method was performed to ascertain the effects of some covariates ("Sex", "Age", "Body Mass Index", "Sleep hours", "Work type", "Cycling year", "Number of training sessions per week", "Stretching sessions", "Being supervised by a coach or following a scheduled training", "Other sports practised regularly", "Number of cycling competitions per year", "Past biomechanic visits", "Specific pedal training", "LBP before cycling") on the likelihood of developing LBP in the last 12 months. Results A total of 1274 amateur cyclists answered the survey. The prevalence of LBP appeared to be 55.1%, 26.5% and 10.8% in life, in the last 12 months and the last 4 weeks, respectively. The final model of the logistic regression included the covariates "Sex", "Work type", "Cycling year", "Being supervised by a coach or following a scheduled training", "Other sports practised regularly", "Specific pedal training", "LBP before cycling", among which "Cycling year" (variable "Between 2 and 5 years" vs. "Less than 2 years", OR 0.48, 95% CI [0.26-0.89]), "Being supervised by a coach or following a scheduled training" (OR 0.53, 95% CI [0.37-0.74]), "Specific pedal training" (OR 0.69, 95% CI [0.51-0.94]), and "LBP before cycling" (OR 4.2, 95% CI [3.21-5.40]) were found to be significant. Conclusions The prevalence of LBP among Italian amateur cyclists seems to be less frequent compared to the general population. Moreover, undergoing previous specific pedal training and being supervised by a coach or following scheduled training drew a negative association with LBP development. This evidence highlights the importance of being overseen by specific sport figures that could offer a tailored evidence-based training to reach good physical level and to practise sports safely.

# 文化与新闻传播

本期文化与新闻传播方面的研究共检索到英文相关文献8篇，研究热点：对美国国家橄榄球联盟因伤退役的数字新闻故事的叙事分析、女子和男子澳式足球的电视评论专题分析、内部记者如何将自己融入体育媒体系统、在不同类型的媒体上展示场内社交氛围对媒体消费者对新体育联盟的反应的影响、数字体育观看行为中的幸福感理论、体育消费者的品牌忠诚度研究、电视体育转播中的专业知识和足球比赛分析员的工作等。

# McGannon KR, Staden TG, McMahon, J,et al. From Superhero to Human: A Narrative Analysis of Digital News Stories of Retirement from the NFL due to Injury[J]. Journal of Applied Sport Psychology,Oct 2021.

**ABSTRACT**

Within research on retirement due to injury, transitional difficulties (e.g., mental health issues, identity loss) have been identified and linked with a singular athlete identity, early or forced retirement, and difficulty comprehending life beyond sport. More research is needed to learn further about the socio-cultural context of athlete retirement and injury. The present study builds on media research in sport sociology and sport psychology, to explore retirement and injury in a cultural context, using relativist narrative inquiry. In this study, the media was explored as a cultural site circulating stories within narratives that convey meanings (e.g., injury is normal) and values (e.g., playing through pain, playing sport as long as one can) that impact athlete's lives. A thematic narrative analysis was conducted on 60 digital news stories of one incident surrounding a high profile athlete in the National Football League (NFL): Andrew Luck's retirement due to injury. A central narrative identified was "football's toll on athlete health." Three small storylines shaped nuanced meanings of Luck's injury and retirement within the central narrative: "defending the retirement," "from superhero to human," and "athlete communities of pain and injury." The theoretical and applied contributions of the findings are outlined. We conclude with what a narrative approach to media stories affords sport psychology, and suggest future research. Lay Summary: In this study, media stories and narratives that frame them are explored as cultural resources to learn more about athlete retirement due to injury. The findings provide valuable insight into media stories as entry points of awareness, concerning pain and injury linked to mental health, and vulnerability shown through a high profile athlete's stories.

# LeCouteur A, Yong A. Television Commentary on Women's and Men's Australian Rules football: A thematic Analysis[J].International Review for the Sociology of Sport,Oct 2021.

**ABSTRACT**

Commentators are reported to describe male and female players in different ways across a range of sports. The present study examines televised commentary on men's and women's games in the Australian Football League during the inaugural season of the women's professional competition. A two-phase thematic analysis was applied to television commentary on 10 men's and 10 women's Australian Rules football games. Semantic thematic analysis of the broad descriptive categories used by commentators for men's and women's matches indicated greater similarity than had been reported for televised commentary of other sports like tennis, in line with recent reports of progress towards greater gender equality in sports media reporting. Although technical descriptors were used slightly more frequently in describing men's play, there were no major differences in frequency for a number of other descriptive categories (mental, physical, personal or tactical) that have previously been observed as discriminating commentary on men's and women's sport. More in-depth, discursive thematic analysis did indicate some specific patterns of difference: terms, features and details used in commentary resulted in a greater focus on women's athletic weaknesses, and negative aspects of their skills and mentality. Identification of subtle linguistic features that minimise the athleticism and accomplishments of female players suggests that continued examination of media reporting on women's increasing involvement in traditional male sports can contribute important insights for promoting gender equality.

# Mirer M. Just How They Drew It Up: How In-House Reporters Fit Themselves Into the Sports Media System[J].Communication & Sport, Dec. 2021.

**ABSTRACT**

This paper explores how in-house sports reporters-those who write for team- and league-branded websites-locate themselves within the sports media production complex. It builds from perspectives on professionalism that view it as a dynamic process of defining boundaries and building relationships between systemic stakeholders. The interview data presented here find that in-house reporters accentuate professional similarities to beat reporters and use this identity to build unique roles in sports organizations' corporate structures. This push to define themselves as a distinct job category within the constellation of sports media professions speaks to the active work occupational groups engage in, and is reshaping the media system. The paper argues for a broader reconsideration of professional definitions, actors, and relationships within the sports media system as digital technology and other changes have altered preexisting relationships.

# Ferreira AG, Crespo CF, Mendes C,et al. Effects of Athletic Performance and Marketable Lifestyle on Consumers' Engagement with Sport Celebrity's Social Media and their Endorsements[J].International Journal of Sports Marketing & Sponsorship, Oct. 2021.

**ABSTRACT**

Purpose In this study, we empirically analyse the effects of sports celebrities' image on consumers' engagement with them via social media and with their endorsed brand. In particular, we focus on the sport celebrity's athletic performance and marketable lifestyle image dimensions. Design/methodology/approach An online consumer survey was conducted regarding sports celebrities' endorsement campaigns and consumers' ad recall. The data were analysed using partial least squares structural equation modelling (PLS-SEM). Moderation and mediation effects were examined, and a multigroup analysis was used to test the existence of significant differences between groups. Findings The motivation to engage with sports celebrities' social media platforms transcends athletic performance and is positively related with the marketable lifestyle. Sports celebrities who highly engage consumers through social media can promote stronger engagement with the endorsed brand, and this effect is positively moderated by the perceived level of congruence between the sport celebrity and the endorsed brand. The effect of the sport celebrity's marketable lifestyle on the endorsed brand is partially mediated by their social media engagement with consumers. Moreover, a multigroup analysis shows no statistically significant differences among gender and age groups. Originality/value This study's contribution is a better understanding of the effect of sport celebrities' image dimensions on consumers' engagement with the celebrities' social media platforms. The marketable lifestyles of celebrities are an important asset that promotes engagement with their social media platforms by consumers that in turn, raises their marketing value in terms of endorsement contracts.

# Behrens A, Uhrich S. You'll Never Want to Watch Alone: the Effect of Displaying in-Stadium Social Atmospherics on Media Consumers' Responses to New Sport Leagues across Different Types of Media[J].European Sport Management Quarterly, Oct 2021.

**ABSTRACT**

Research question This paper examines how displaying fans in the stadium using different types of visual content (pictures and videos) influences media consumers' responses to sport leagues previously unknown to them. Specifically, we investigate how high versus low displays of social atmospherics in pictures and videos affect consumers' cognitive (attributions of attractiveness to the league) and affective (emotional arousal) responses. In addition, we analyze how these responses transfer to intentions to watch future broadcasts. Research methods The hypotheses are tested in two online experiments using one-factorial (social atmospherics: high versus low) between-subjects designs. The research context is German sport media consumers and promotional material of the Australian Football League (AFL). Results and findings The findings suggest that displaying high (versus low) social atmospherics in pictures can increase the perceived attractiveness that consumers attribute to a new sport league, while such content in videos increases consumers' emotional arousal. These cognitive and affective processes transfer to intentions to view future broadcasts of the league. Implications Our findings imply that while on-site fans are declining in relative numbers in media-dominated professional team sport markets, these fans are highly relevant for the success of team sport-related media offers and the attraction of new consumers.

# Rejikumar G, Jose A , Mathew S,et al. Towards a Theory of Well-being in Digital Sports Viewing Behavior[J].Journal of Services Marketing, Nov. 2021.

**ABSTRACT**

Purpose Social television (Social TV) viewing of live sports events is an emerging trend. The realm of transformative service research (TSR) envisions that every service consumption experience must lead to consumer well-being. Currently, a full appreciation of the well-being factors obtained through Social TV viewing is lacking. This study aims to gain a holistic understanding of the concept of digital sports well-being obtained through live Social TV viewing of sports events. Design/methodology/approach Focus group interviews were used to collect data from the 40 regular sports viewers, and the qualitative data obtained is analyzed thematically using NVivo 12. A post hoc verification of the identified themes is done to narrow down the most critical themes. Findings The exploration helped understand the concept of digital sports well-being (DSW) obtained through live Social TV sports spectating and identified five critical themes that constitute its formation. The themes that emerged were virtual connectedness, vividness, uncertainty reduction, online disinhibition and perceived autonomy. This study defines the concept and develops a conceptual model for DSW. Research limitations/implications This study adds to the body of knowledge in TSR, transformative sport service research, digital customer engagement, value co-creation in digital platforms, self-determination theory and flow theory. The qualitative study is exploratory, with participants' views based on a single match in one particular sport, and as such, its findings are restrained by the small sample size and the specific sport. To extend this study's implications, empirical research involving a larger and more diversified sample involving multiple sports Social TV viewing experiences would help better understand the DSW concept. Practical implications The research provides insights to Social TV live streamers of sporting events and digital media marketers about the DSW construct and identifies the valued DSW dimensions that could provide a competitive advantage. Originality/value To the best of the authors' knowledge, the exploration is the first attempt to describe the concept of DSW and identify associated themes.

# Akoglu HE, Ozbek, O. The Effect of Brand Experiences on Brand Loyalty through Perceived Quality and Brand Trust: a Study on Sports Consumers[J]. Asia Pacific Journal of Marketing and Logistics, Dec. 2021.

**ABSTRACT**

Purpose Adopting the brand resonance approach, this research aimed to reveal the effect of emotional (perceived quality) and rational (brand trust) factors between brand experience and brand loyalty. Design/methodology/approach This article uses the brand resonance model to examine the above-mentioned relationship. The sample of the study consisted of 385 sports consumers between the ages of 18 and 65 years. An online survey was used to collect data and surveys were delivered to sports consumers via social media. Using SmartPLS 3.0 software, a partial least squares structural equation modeling analysis was conducted in this study. Findings The results support the hypotheses and demonstrate the importance of quality and trust in building customer loyalty for companies in the sports industry. Brand experience has a positive direct effect on perceived quality, brand trust and brand loyalty. It has been revealed that there is an important intermediary role of perceived quality and brand trust that manages the relationship between customers' brand experience and brand loyalty. Practical implications The findings of this study are essential for brands that want to develop and are included in the sports industry in the online shopping environment, which increases with the development of technology to create long-term loyalty in customers. Originality/value It reveals two mediating roles in the relationship between brand experience and brand loyalty, namely perceived quality and brand trust. These research results help to understand the processes of shaping the loyalty of sports consumers towards sports brands. Unlike previous studies, it examines this relationship in the sports industry by adding new mediator variables and contributes to the development of the model.

# Fele G, Campagnolo GM. Expertise and the Work of Football Match Analysts in TV Sport Broadcasts[J].Discourse Studies, Oct 2021,vol.23,no.5,pp.616-635.

**ABSTRACT**

In this paper we describe expertise as a way of seeing. We use match analysis `punditry' as a setting to show how professional vision is interactionally achieved in TV sport broadcasts through environmentally coupled gestures enhanced by camera actions and a new technology of vision called telestrator. The paper is based on data from video sequences of (English) football TV broadcasts where the pundit shows to the TV host in the studio and to the non-expert audience at home what happened during a football match. We argue that the transparency of seeing is the product of an artfully instructed process whereby the pundit shows what should be seen, how it should be made accountable, and what the audience should expect in order to fully appreciate what they see. The paper shows how broadcasted match analysis expertise interactionally achieves this through the time-critical linking of talk, gesture, and technological environment.