

# Leverages and Barriers within Sports Federations Implementation of Health Promotion Interventions: A Systematic Literature Review

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# Leverages and barriers within sports federations implementation of health promotion interventions: a systematic literature review

R. Mait<sup>1,2</sup>, M. Pendergast<sup>3</sup>, N. Bolger<sup>3</sup>, S. Geidne<sup>4</sup>, C. Woods<sup>3</sup> A. Van Hoyer<sup>3,4</sup>

<sup>1</sup> Friedrich-Alexander-Universität Erlangen-Nürnberg, Department of Sport Science and Sport, Erlangen, Germany

<sup>2</sup> The Association For International Sport for All (TAFISA), Frankfurt am Main, Germany

<sup>3</sup> Faculty of Medicine and Health, School of Health Sciences, Örebro University, Örebro

<sup>4</sup> APEMAC, Université de Lorraine, Nancy, France

<sup>5</sup> Physical Activity for Health research group, Health Research Institute, Physical Education and Sport Sciences department, University of Limerick

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## Corresponding author

Aurélie Van Hoyer, email: [aurelie.vanhoye@ul.ie](mailto:aurelie.vanhoye@ul.ie), Physical Education and Sport Sciences Department, University of Limerick V94T9PX, Limerick, Ireland *t.* +353 87 092 0144.

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## Abstract

Sports clubs play an important societal role by targeting social, health, and environmental issues, but its health promotion (HP) potential is underexploited. Formalized and systematic efforts are needed in sport organizations to implement HP programs. The present systematic literature review analyses barrier and leverage mechanisms of HP interventions implemented by international and national sports federations.

A systematic literature search on Medline, Embase, Scopus, Sportdiscus, and ISI Web of Knowledge was carried out, with sport federation and intervention as keywords. Articles were screened by 2 authors on Rayyan. Included articles described an intervention taking place in a sports federation published in a peer-reviewed journal. The leverages and barriers of intervention implementation were analyzed through an inductive coding process. Quality was assessed by the Standards for Reporting Qualitative Framework.

Of 1203 articles retrieved, 31 studies were included, representing 4,460 participants. Barriers and leverages were categorized according to the level of the setting: target group, intervention, implementers, organization, and environment. Analysis revealed four key themes: Aspects of the settings; Communication and collaboration between settings; Compatibility and tailoring of the intervention to multiple settings; Actions taken within implementation. Due to the variety of study design, the implementation barriers and leverages apply to a broad range of sport, health topic, intervention style, or population.

Sports federations and organizations have specific characteristics and use a variety of actions to accomplish health promotion interventions. Having qualified and competent personnel and resources, getting the intervention into policy, and providing education are key aspects of successful implementation. A more scientific approach is required in the collection and reporting of data by researchers working with sports federations and more intentions to include the target group as much as possible, as interventions compatible with them were a strength.

**Keywords:** sports federation, health promotion, corporate social responsibility

## Introduction

Over the last decade, researchers and policymakers have argued that the health and social potential of organized sport has been underexploited as underlined by the White Paper on Sport [1] and the Global Physical Activity Plan [2]. With a 13% Sports Club membership rate across the European population and a 6% volunteering rate (European 2022 Sport and Physical Activity Eurobarometer), whose ages and socioeconomic status are diverse, the societal role which sports clubs can play by targeting social, health, and environmental issues, beyond physical activity [3], could be improved [4]. The missions placed on sports organizations to achieve non-sporting objectives (e.g. social inclusion) is not new [5]. However, the path from passive settings providing physical activity opportunities to active organizations targeting wider health topics and determinants to achieve this aim is still long [6]. Previous work showed that formalized and systematic efforts were needed in sport organizations to collaborate with health sectors, but that sport organizations lacked strategic focus and related marketing tactics to implement social or health promotion (HP) programs [7], which are more complex than training programs [8]. The results of studies on HP by the International Olympic Sports Federation (IOSF) have shown that their priorities targeted mostly event safety and elite athlete health [9, 10]. Various studies have also described interventions on specific health topics, *e. g.* safeguarding children [10], doping prevention [11, 12], and injury prevention [13] implemented by National Sports Federations (NSFs). The main barriers for HP implementation among IOSF have been identified as political support and willingness, knowledge, time, and support from coaches [9], depicting a lack of expertise in designing and evaluating sport programs for population groups (*e. g.* health inequality groups), as well as in tackling wide-ranging health and social issues. This limited and narrow awareness of HP among IOSF and NSFs suggests a need to improve political lobbying,

project management, and management change theory skills within NSFs to develop health promoting sports clubs (HPSCs), and to be studied and documented [9].

Recently, researchers in implementation sciences have called for better documentation of the system supporting intervention implementation [14] and of the organizational capacity building of NSFs towards increased health or social capital [5]. The present systematic literature review analyses barriers and leverages of HP interventions implemented by sports federations within different settings, sports, and health outcomes.

## **Method**

### ***Systematic search***

A systematic literature review search was conducted, including quantitative and qualitative published articles. Systematic reviews are based on a systematic search for and an appraisal and synthesis of research evidence, often adhering to guidelines on the conduct of a review [15]. A literature search was carried out between 2013 and 9 February 2023 in the following databases: Medline, Embase, Scopus, SPORTdiscus, ISI Web of Knowledge. The search string used was “(‘sport federation’ OR ‘sport governing bodies’ OR ‘national sport organization’) AND (initiative OR program OR action OR intervention).”

### ***Inclusion and exclusion criteria***

The main inclusion criteria for study selection were: (a) to consider English peer-reviewed articles published in peer-reviewed journals and (b) to describe an intervention organized by an international or national sports federation. Such intervention could be focused on implementing policies, developing partnership, welcoming a specific population, targeting a specific health behavior, etc., and was understood in a wider sense: “*to disturb the “natural” order of things or a foreseeable sequence of events*” [16]. To refine the focus of our review, we have excluded studies mainly focused on: (a) other settings than NSF or not mentioning

key actions or levers from NSFs, (b) sport performance enhancement only, i.e. through skills training, (c) management process, focusing on governance of sports federation without mentioning health or social outcomes, or (d) protocols. The review was inclusive of all study designs, as it is not always feasible to conduct a randomized controlled trial among sports federations, and included studies' interventions could be implemented by actors and not researchers [17].

### **Selection process**

The second and last authors independently assessed all the titles and abstracts identified as a result of the search using rayyan. In the case of disagreement in abstract review, the decision was discussed between the two authors until a consensus was reached, whereas for full text, a decision was made by the last author and cross-checked by the fourth author. A PRISMA flow diagram [18] was used to describe the article selection process (Figure 1). The content was extracted and analyzed by the first and last author, reporting: title, year and country of study, characteristics of intervention (health/behavior outcomes, sport, public/topic targeted), theoretical frameworks (i.e., especially close to the setting-based model) [19], intervention description and mechanisms, barriers and facilitators of the intervention, practical implications, and study design and timeframe, on an Excel sheet.

### **Quality Assessment**

The Standards for Reporting Qualitative Research tool (SRQR) was identified as an appropriate quality assessment tool [20], and to capture and compare quality in the variety of study designs and methodologies in included studies, the checklist was modified slightly (see Appendix Table 2 for details). Using the 22 quality assessment items, the first author completed a quality assessment of the papers and data were inputted into Excel. For each item, a study could receive either 0 or 1, depending on if they fulfilled the criteria. Unclear answers were discussed among the first and last authors until consensus was reached.

## Data analysis

Studies' descriptive information was inputted into an Excel sheet. Barriers and leverages were then extracted from excel sheet for an inductive coding using thematic analysis by the first author, cross checked by the last author, before decision was made by all authors. Statements were first sorted according to the setting that was taking the action being perceived as a barrier or leverage by the researchers within the study. Further thematic analysis and inductive coding was applied for each setting.

## Results

### Descriptives

Of the 1203 articles retrieved from the databases, a total of 31 studies were included (see Figure 1 and Table 1). The number of studies published per year remains stable (2-5 per year). Europe (UK = 4; Belgium = 3, Netherlands = 2, Sweden = 2, Spain = 1, Ireland = 1, Germany = 1, Europe = 1) was the most represented continent, before Oceania (Australia = 7), and America (Pan-America = 1, Canada = 1) and Africa (Africa = 1). Six studies were globally focused, outside of one specific country or continent.

Studies focused on a broad variety of sport, the most common sport was swimming (n = 3), community Australian football (n = 3), and handball (n = 2) (see Table 1 for details). Three studies focused solely on women's investment in sport. The health topics targeted were injuries (n = 8), HP (n = 3), innovation (n = 2), but also child abuse, sport for peace, emotional abilities, and more. With regard to health dimensions, 19 studies aimed to improve physical health outcomes (injury, fitness, physical activity), five targeted social outcomes, three HP policy development, two were dedicated to environmental health, one to mental health and one to capacity building for HP.

There was a total of 4,460 participants (min = 3, max =1621) within the studies, six studies used solely document analysis, and two studies did not report the number of participants. Of

the 25 studies with participants, 13 studies focused on organization representatives, six focused on coaches and target groups close to the intervention, five focused on both previous groups, and one focused on outside stakeholders. Of the 8 studies that used document analysis, a total of 301 organizations were targeted for content analysis. Two studies looked at one organization and one study looked at 141 sport federations. Study designs were mostly cross-sectional (n = 21), where 10 used longitudinal design (3 months = 1, < 12 month = 2, > 24 months = 7).

There were a variety of research topics. Twelve studies focused on analyzing sport federations' activities and information, 7 looked at intervention evaluation, five documented intervention development and implementation, 3 looked at staff or coaches' perceptions and opinions, 2 implemented Action Research, and 2 identified facilitators at multiple stakeholder levels.

Studies used a variety of data collection measures. Five used strictly document and/or website content analysis, 4 used a combination of document analysis and questionnaire. Five used strictly quantitative questionnaires, one exclusively used qualitative questionnaire. Five used strictly qualitative interviews, two used qualitative program analysis combined with interviews, and two collected data via the Action Research process. Some studies did not follow data collection processes, five summarized the process of intervention development, and two used qualitative concept mapping.

The use of frameworks or models among 21 studies (10 did not mentioned any) was based on two main categories: theoretical frameworks (ecological model = 2; Institutional theory = 2; scaffolding theory = 1, Foucauldian conceptualization of power distribution = 1, social cognitive theory = 1; Zaharna's in awareness framework = 1, theory of change = 1, system theory = 1; Health Action Process Approach = 1, Van Mechelen model = 1, glass cliff theory



= 1) and intervention frameworks (RE-AIM = 4; Diffusion of innovation = 2; TRIPP framework = 2).

There was a range of outcomes measured, these included: information (i.e. implementation plans, current status of personnel, policy references, etc.; n = 11), attitudes (of coaches, representatives, coordinators; n = 9), health behaviors (n = 5), interpersonal relations (n = 2), services (implementation/program outcomes; n = 16), mental health (n = 2) and societal outcomes (n = 3).

### **Quality assessment results**

The studies' quality assessment global scores ranged from 9 (41%) to 21 (95%) (see Appendix 1 for details). Ten studies (32%) scored 80% or higher, 13 studies (42%) scored between 65% and 79%, five studies (16%) scored between 50% to 64%, and three studies (10%) scored less than 49%. Studies reported well (greater than 95%) on Title + abstract and Research question and poorly on Researcher characteristics (n=2, 6%) and Enhancing trustworthiness (n=11, 35%) indicators.

### **Leverages and barriers analysis**

The inductive thematic analysis identified five dimensional settings of intervention implementation: target group, intervention, implementation, organization, and environment, which structured further barriers and leverages analysis (see Table 2 for details). These categories came alive along four main categories of actions (see Table 3 and 4 for details): 1) Static aspects of the setting, 2) Actions taken in and around implementation, 3) Communication and collaboration, and 4) Compatibility and tailoring of the intervention with both the target group and other settings, such as implementers and organizations. As the cross-table between leverages and barriers and type of sport showed similar results across sports discipline, results will be considered as applicable for all types of sport, and details can be found in table 1.

## Leverages

### Aspects of the Settings

The full list of leverages is reported in supplementary file 2. The ‘target group’ setting did not have enough statements to provide themes across multiple studies. Within the intervention setting, the most reported leverages were evidence-based design (n=5) studies, addressing principally injury prevention. Also identified in five studies was the intervention as low barrier for target group and implementers (n=5), addressing a variety of health topics (physical activity, physical inactivity, injury surveillance and prevention, environmental sustainability). In the implementer setting, the most reported leverages were quality, enthusiastic implementers (n=4), addressing physical inactivity and injury prevention. In the organization setting the most reported leverages were dedicated and available program managers/coordinators (n=3), and addressing physical inactivity and coach education and development. In the environment setting, the most reported leverage was the popularity of the intervention sport (n=2) and addressing physical inactivity and gender-based initiatives.

### Leverage Actions

The actions taken in each setting revealed three sub-themes (see Table 3 for details): 1) actions in and around implementation, 2) communication and collaboration, and 3) compatibility/tailoring the intervention to both the target group and other stakeholders. These themes were consistent across the settings.

*Actions in and around implementation.* The most common leverages were the intervention being adopted into policy and standard practice (n=8), as shown in one study: “*This suggests that clear policy statements and education development at the club and organizational level are needed to facilitate injury prevention training among youth handball players.*” (#11 p.283). This has been seen in the organization and environment setting, addressing physical inactivity, injury prevention, environmental sustainability, health promotion and health

protection, and target group inclusion. This was followed by education/training of implementers (n=5), seen in implementer and organization settings, and organizations supporting implementers (n=3), seen in organization setting.

*Actions on communication and collaboration.* A major leverage was also communication and collaboration between the different settings, as illustrated in one study: “*The coaches considered collaborations, through partnerships across community, with coach associations, leagues and clubs as well as input from injury experts, such as researchers, was a strategy for change on a larger scale.*” (#10, p. 6). Eight studies cited direct contact with and including the target group, seen in the target group, implementer, and organization settings, addressing a large diversity of health topics. Five studies cited working in collaboration and partnerships, seen in the implementer, organization, and environment settings, and (n=3) identified organization personal and direct communication with stakeholders seen in the organization setting.

*Compatibility/Tailoring the intervention.* A major leverage was the compatibility and tailoring of intervention design and actions both to the target group and other stakeholders, especially being able to adapt over time: “*Program adaptation was another program design factor enhancing programs’ long-term sustainability. During the years, sporting programs were adapted (i.e. with regard to content or organizational aspects) both by NSF’s and sports clubs, to constantly meet the needs of the (previously) inactive target group and the sports clubs.*” (#6, p. 10). It was identified as a leverage when there was compatible intervention design and tailoring of the intervention to the target group (n=9), seen in the intervention, implementer, and organization settings, addressing a large range of health topics. It was also beneficial when the target group enjoys the intervention (n=2), seen in the target group setting, and when

the target group is given roles to communicate their opinions (n=1), seen in the organization setting.

It was also identified as a leverage when the intervention was compatible with and/or supported by those outside of the target group, such as when implementers and organizations support the intervention (n=8), seen in the implementer and organization setting, addressing a large diversity of health topics. Other identified leverages were when the intervention supported or benefitted those outside the target group (n=4), seen in the intervention, implementer, and environment setting, and when organizations see the importance of the intervention (n=4), seen in the organization setting.

## **Barriers**

### **Aspects of the Settings**

The full list of setting barriers is reported in Table 3. The 'target group' setting did not have enough statements to provide themes across multiple studies.

In the intervention setting, the most reported barrier was costs (n=5), addressing four different health topics. Intervention complexity/poor design (n=4) was also identified, among studies on football, sport organizations, and sport stadium design, which addressed a diversity of health topics.

In the implementer setting, the most reported barrier was a lack of competent and enthusiastic implementers (n=6) and the second most was a lack of financial resources (n=4), addressing a large diversity of health topics.

In the organization setting the most reported barrier was a lack of committed personnel (n=5), before lack of financial resources (n=5), addressing a large diversity of health topics. Other identified barriers were structural (n=4) and cultural (n=4) challenges.

In the environment setting, the most reported barrier was lack of qualified personnel in the area (n=2), addressing physical inactivity, and the geographic spread limiting activities (n=2), addressing child abuse in sport.

### **Barrier Actions**

*Actions in and around implementation.* Six studies, addressing various health topics, identified a lack of information as a barrier during implementation, seen in the implementer, organization, and environment setting, as shown in one study: *“Unfortunately, the current concussion guidelines in Australian combat sports are not fit for purpose. None of the eight governing bodies provided information on the development process of their concussion guidelines, making it unclear whether current scientific evidence and appropriate subject experts were consulted during the guideline development process.”* (#1, p. 803). Other barriers identified were implementers not doing intervention/delays (n=4), seen in the implementer setting, lack of knowledge/skills/education to implement (n=3), seen in the intervention and implementer settings, and time challenges (n=3), seen in the environment setting.

*Actions on communication and collaboration.* Lack of or poor communication between settings (n=4) was reported as a barrier, seen in the implementer and organization setting, among studies on various sports and addressing a large diversity of health topics. For example, a study reports: *“FIFA (2015c) touted its collaboration with Brazilian stakeholders as it planned its CSR initiatives, yet data indicate that it considered the LOC, federal government, and the like, not attendees and community members, to be key stakeholders.”* (#15, p.67). Other identified barriers in the communication and collaboration theme were no consultation or collaboration between settings (n=2), seen in the implementer and organization setting and complex language challenges (n=2), seen in the target group and organization setting.

*Compatibility/Tailoring the intervention to the target group and other settings.* The lack of compatibility, support, and tailoring the intervention specifically with and to the target group wishes and needs was identified in 4 studies. One example of this category was “*However, in qualitative terms, the federations and their projects often lack the intention to include specific disadvantaged groups, such as participants with a migration background and lower SES-groups.*” (#22, p. 8). These studies included different target group and intervention setting, addressing general physical health, physical inactivity, and corporate social responsibility. Four studies identified that intervention actions did not serve the target group, both present in the target group and organization settings, addressing a large diversity of health topics. Also identified was a lack of intentions to include the target group (n = 2), seen in the implementer setting.

Lack of intervention compatibility with organizations and with implementers was present in 8 and 6 studies respectively, seen in the intervention and organization settings, addressing a large diversity of health topics.

### **Commonalities between barriers and leverages**

Within the aspects of the settings, there were several instances of reflectivity between barriers and leverages. In the implementer setting, the two most common aspects were quality implementers as a leverage and lack of competent and enthusiastic implementers as a barrier. This was also a key factor in the organization level, as a dedicated and available program manager was the most common leverage and lack of committed personnel was the most common barrier. The factor of qualified personnel was even present in the environment, with availability of implementers locally identified as a leverage and lack of qualified personnel in the area identified as a barrier.

Another aspect present in both leverages and barriers of the intervention setting was the intervention design. Evidence-based design was the most common leverage, while poor design was the second highest barrier. Within the identified intervention leverages, and related to design, the other leverage of the intervention being low barrier for both the target group and the implementers, using a combination of methods to deliver, having educational opportunities within, and the location and technology working well for the stakeholders are all inter-related into the intervention design, including intervention programming and implementation. Intervention design can also be seen in the category of the intervention being compatible and supported by implementers and organizations.

Lack of resources, both financial and general, were present in all four settings of the barriers. Sufficient resources were also cited by organizations as a leverage and was classified as part of the intervention being low barrier.

### **Discussion**

The present study identified several barriers and leverage for HP implementations, which were similar across sport discipline and across health topics, suggesting there are commonalities in terms of HP implementation and suggest the importance of using a settings-based and holistic approach to health [21] beyond health behavior change techniques [22, 23].

Results identified successful interventions and implementations relied not only on compatibility with the target group, but also with implementing partnerships and strong involvement of stakeholders [24]. Previous work has highlighted the challenges of partnership between health and sport organizations [7] [24], as well as the impact of economic determinants of health weighting on these types of relationships especially in regard to unhealthy sponsorship [25, 26]

As shown by the limited numbers of statements in the Target group setting, researchers didn't often record target group opinions and thoughts, or a lack of compatibility is mentioned, which is in contrast to context adaptation of interventions [27], which has been highlighted as a key factor by implementation scientists [14]. These results also emphasize the importance of co-construction of intervention and participative research [28] in intervention development, based both on a theory of action [29], as well as on citizen sciences [30], to enhance both intervention adherence, but also sustainability [31].

The results of the present study are in line with recent guidelines for HPSCs, focusing on a settings-based approach that requires tailoring and adapting to local contexts and cultures, as well as taking into account the different levels of the settings in interaction [32]. It also aligns with findings of organizational factors involved in implementing corporate social responsibility in sports federations: financial autonomy, knowledge and human resources, with a base requirement of organizational innovation capacity [5]. This could be indicative of the issue of translating scientific literature and findings into media that can both be easily understood and contextualized in its presentation to possible implementers. This also highlights the need to better consider practice based research contribution to the literature [33, 34].

### **Limitations**

Due to our ability to locate full texts of studies, some studies were not in their final published form, and this may have affected their quality assessment scores due to missing information. The modified SRQA was created for the purposes of this literature review and has not been validated or tested. The differing levels of research design within some of the studies also affected their scores. Studies scored well on introduction and discussion measures, but not as well on method and data analysis measures. This could be due to the lack of scientific



approach in some included studies, as well as indicative of a larger issue in the field [35].

When categorizing organizations and implementors, this was not standardized within the studies, rather it was interpreted in each study. This could bias results as this implementor/organization relationship is different in different countries, organization size, and even government structure. Studies did not report well on researcher characteristics and enhancing trustworthiness of data. This is especially cumbersome as we do not know if implementors, organization, or the target group felt comfortable to give honest answers to the research teams, and researchers did not take extra measures to make sure that their data was truly representative of respondents.

### **Conclusion**

Sports federations and organizations have specific characteristics and use a variety of actions to accomplish health promotion interventions. Having qualified and competent personnel and resources, getting the intervention into policy, low-barrier and evidence-based designed interventions, and providing education and training are key aspects of successful implementation. Communicating and collaborating between settings and tailoring the intervention to the target group and other stakeholders are key actions to implementation success. In the future, researchers should take care to apply scientific methodology and speak with stakeholders at all levels, especially the intervention target group.

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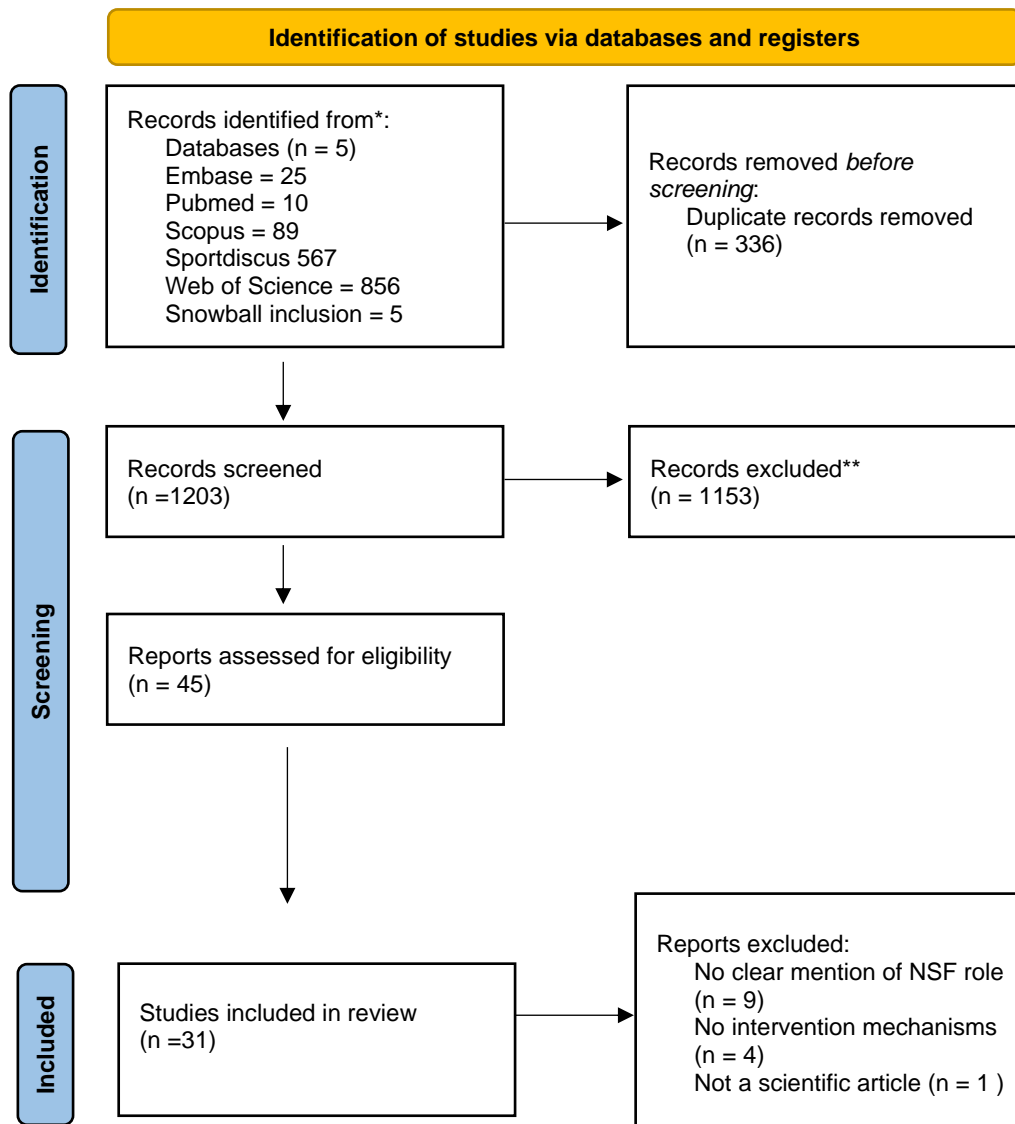
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Figure 1. PRISMA diagram



**Table 2. Aspects of the Settings**

Leverages	# of Statements	# of unique studies	Setting	Barriers	# of Statements	# of unique studies		
Low barrier for target group and implementers	8	5	Intervention	Costs of intervention	5	5		
Evidence-based design	5	5						
Uses combination of methods	5	5						
Social/community aspect	5	4		Intervention complexity/difficulty/poor design	6	4		
Ideal intervention location	4	3						
Part of policy	3	2						
Educational components	2	2						
Program evaluation	2	2		Lack of trialability	1	1		
Has knowledgeable implementers	2	2						
Good promotion/marketing strategy	1	1						
Role models within	1	1	Requires time schedule not available to implementers	1	1			
Quality, enthusiastic implementers	4	4				Implementer	6	6
See intervention as part of their role	2	2						
						Associated with organization	1	1
Open to change and growth	1	1						
						Implementer policy includes intervention	1	1
Dedicated and available program manager/coordinator	5	3						
			Open to change/new services/norms	5	2	Not able to take on more programs	2	2
Has programs to facilitate intervention	1	1						
			Sufficient financial resources	1	1	Lack of committed personnel	7	5
Organization	Lack of financial resources	6						
			Cultural challenges	4	4			
Structural challenges	4	4						
			Lack of resources/utilization	2	2			
Sees role as limited	2	2						
			Behavior not matching goals	2	2			

Organizational technology	1	1		Individual motivations	1	1
Popularity of the intervention sport	2	2	Environment	Lack of qualified personnel in the area	2	2
Availability of implementers locally	1	1		Geographic spread limits contact	2	2
				Low exposure/popularity of sport	2	1
Availability of additional activities locally	1	1		Competing programs in area	1	1
				Lack of additional funding in area	1	1
Conducive social environment	1	1		Lack of follow-up activities outside of intervention	1	1
Technological advances	1	1		Gender bias in sport	1	1



**Table 3. Leverages Actions**

Major Themes	Specific Action	# of unique studies	# of statements
Actions taken in implementation	Intervention adopted/required in policy/practice	8	OR(5), EN(3)
	Education/training/resources of implementers	5	IM(5), OR(3)
	Organizations supporting implementers	3	OR(3)
	Social/environmental pressure/support for the intervention	2	EN(4)
	Organizations providing program financing and resources	2	OR(2)
	Implementation flexibility	1	IM(1)
	Multi-level and multi-dimensional action	1	OR(1)
	Motivating coaches with pedagogical skills	1	IM(1)
Communication and collaboration	Direct contact with/inclusion of target group	8	TG(1), IM(4), OR(3)
	Working in collaboration and partnerships	5	IM(2), OR(3), EN(1)
	Organization personal and direct communication with stakeholders	3	OR(3)
	Regular contact and meetings	1	IN(1)
Compatibility/tailoring to target group	Compatible intervention design and tailoring of intervention to target group	9	IN(8), IM(2), OR(4)
	Target group supports and enjoys intervention	2	TG(2),
	Target group is given roles to communicate their opinions	1	OR(2)
Compatibility/support of intervention by those outside of intervention	Implementers/organizations support the intervention	8	IM(3), OR(7)
	Intervention supports/benefits/ those outside the target group	4	IN(7), IM(1), OR(1)
	Organizations see the importance of the intervention	4	OR(5)
	Citizens support the intervention	1	EN(2)

TG=target group, IN=intervention; IM=implementers; OR=organization; EN=environment

**Table 4. Barriers Actions**

Major Themes	Specific Action	# of unique studies	# of statements
Actions taken in implementation	Lack of information: Organization not providing information, best practice in policies, or program evaluation	6	IM(1), OR(7), EN(2)
	Implementers not doing intervention/delays	4	IM(4)
	Implementers lack of knowledge/skills/ education to implement intervention	3	IN(1), IM(4)
	Time challenges	3	EN(3)
	Location/technical issues	2	IN(3)
	Organizations believe that the target group is not interested/equipped	2	OR(3)
	Lack of systematization of the intervention at all levels including policy	2	OR(2)
	Implementers lack of strategy and/or flexibility in strategy	2	IM(2)
	Low participant numbers/intervention does not reach participants	2	IN(2)
	Implementer difficulty recruiting target group	2	IM(2)
	Organizations lack belief or requirement for/in education	1	OR(3)
	Different levels of motivation and commitment to program	1	IM(1), OR(1)
	Intervention has negative effects for TG	1	TG(1), IN(1)
	Intervention actions not aligned with intervention goals	1	IN(1)
	Lack of support for additional testing	1	IM(1)
	Organization does not support implementers	1	OR(1)
	Covid-19	1	EN(1)
	Volunteer turnover	1	IN(1)
Lack of outside influence over implementer choices	1	EN(1)	
Lack of communication and collaboration	Lack of/poor communication between settings	4	IM(3), OR(6)
	No consultation/collaboration between settings	2	IM(4), OR(2)
	Complex language challenges between partners	2	TG(1), OR(2)
	Tension in partner relationships	1	OR(1)
Lack of intervention compatibility/ support/tailoring to target group	Lack of intervention compatibility/tailoring with target group	4	TG(3), IN(32)
	Intervention actions did not serve the target group	4	IN(3), OR(3)
	Lack of intentions to include target group	2	IM(3)
	Target group is not familiar with the sport	1	TG(1)

Lack of intervention compatibility/ support/tailoring with those outside the target group	Intervention is not compatible with/supported/benefits by organizations	8	IN(2), OR(9)
	Intervention does not match/benefit/supported by implementers	6	IN(4), IM(3)

TG=target group, IN=intervention; IM=implementers; OR=organization; EN=environment

**Table 1. Descriptives**

Paper #	Author, Year	Title	Country	Type of sport	Health topic targeted	Study objective	Type of study	Participant characteristics	Theoretical framework
1	du Preez et al., 2022 [36]	Availability and content of concussion guidelines in Australian combat sports.	Australia	Combat sports	Concussions	To examine availability and content of concussion information published by amateur and professional sport governing bodies.	Cross-sectional study; document analysis	The publicly available concussion information from the websites of 11 combat sports governing bodies: 10 amateur, 1 professional	Global Rating Scale for quality assessment
2	Crespo et al., 2021 [37]	Coaches' perceptions of innovation programs of the Royal Spanish Tennis Federation.	Spain	Tennis	Innovation	To fill the gap of knowledge and insights about the innovative processes of sports organizations by analyzing the perception of Spanish coaches regarding the different programs offered by the RFET as part of its innovation strategy.	Quantitative cross-sectional; Content analysis	132 certified tennis coaches: 52.7% < 20 years experience, 47.3% > 20 years. Content (relevant books, articles, and press cuttings, among other documents available in the RFET website) produced by the RFET 2016-2020.	NM
3	Mackintosh, 2013 [38]	An evaluation of the outdoor table tennis initiative pilot programme in London: "ping pong in the fresh air how does that work?"	England	Table tennis	General physical health	1. To establish what works and why by evaluating the effectiveness of the Outdoor Table Tennis Initiative (OTTI) 2. To identify processes and pathways that can improve the initiative for future developments 3. To examine patterns of usage, how users feel about the tables and why they use them."	Program evaluation; Qualitative analysis	User groups at half of the 41 outdoor table tennis sites in parks. (n=7) key stakeholders from local authorities and English Table Tennis Association (ETTA).	NM

4	Shilbury & Ferkins, 2015 [39]	Exploring the utility of collaborative governance in a national sport organization.	Australia	Sport governance	Collaborative governance	To enact collaborative governance to overcome a perceived cultural malaise and enhance government capability in the governance of the sport by: a) identifying what meaning members of a sport board attach to the concept of governance capability, b) identifying what factors both constrain and enable governance capability of sport boards, c) identifying what actions can be taken to develop capability of sport boards, and d) considering the implications of such action for governance theory and practice.	Action research; Collaborative governance intervention	15 staff members of the Bowls Australia Board	Collaborative governance; interpretive-constructivist paradigm
5	Allen & Reid, 2019 [40]	Scaffolding women coaches' development: A program to build coaches' competence and confidence.	Scotland	Field hockey	Coach education and development	To describe the process undertaken by a National Governing Body of Sport (NGB) to deliver a learning and development program (Women in Coaching (WiC) program) to support women hockey coaches in Scotland and to share understanding about this example of good practice to provide insight and direction for change that can enhance the experiences and provisions of coach	Development and implementation of an intervention	Phase 1: (n=1,617) Scottish Hockey members Phase 2: (n=10) women coaches	Scaffolding

						education and development for women coaches.			
6	Ooms et al., 2019 [41]	Sporting programs aimed at inactive population groups in the Netherlands: Factors influencing their long-term sustainability in the organized sports setting	The Netherlands	Various types of sporting programs	Physical Inactivity	To examine factors influencing the long term sustainability of sporting programs, considering both the perspectives of the National Sport Federations and sports clubs, to identify similarities and differences between these two groups.	Qualitative Interviews	Coordinators (n=14) and representatives (n=28) from 14 sport programs	Sustainability; Ecological model
7	Ooms et al., 2015 [42]	Sporting programs for inactive population groups: factors influencing implementation in the organized sports setting.	The Netherlands	Various types of sporting programs	Physical Inactivity	To study the main factors influencing implementation of HEPA programs in the organized sports setting	Qualitative Interviews	n=12 program coordinators	Ecological model
8	Everley, 2020 [43]	The Child Protection in Sport Unit–Supporting national governing bodies in hearing the voices of children: an evaluation of current practice	United Kingdom	31 different sports	Child abuse in sport	To study the extent to which sports governing bodies currently work with their clubs in order to provide the opportunity for children to express their voices	Cross-sectional questionnaire	(n=34) National governing bodies working with the National Society for the Prevention of Cruelty to Children's Child Protection in Sport Unit	Foucauldian conceptualization of power distribution
9	Donaldson et al., 2017 [44]	We have the programme, what next? Planning the implementation of an injury prevention programme.	Australia	Community Australian football	Lower limb injury prevention	To describe a systematic, evidence-informed approach used to develop the implementation plan for a lower limb injury prevention programme in community-AF.	Implementation plan development; Case study	(n=7) League-specific FootyFirst Implementation Advisory Group, comprised of project manager (author AD), a league administrator, a regional game development	Ecological model; Social cognitive theory; Diffusion of Innovations theory; Implementation drivers framework

								officer, a community club administrator, two community club senior coaches and a community club high performance manager (who was also a player)	
10	McGlashan et al., 2018 [45]	Working towards more effective implementation, dissemination and scale-up of lower-limb Injury-Prevention programs: insights from community Australian football coaches	Australia	Community Australian football	Lower limb injury prevention	To explore coaches' insights into strategies that could be used to enhance the planning of Lower limb injury Injury-prevention exercise programs (LL-IPEP) implementation, dissemination and scale-up into community-AF coach practices and settings.	Cross-sectional qualitative collective case study	(n=3) senior or head, male coaches aged 31-35 of adult male community level (i.e., non-elite, grassroots) Australian football teams (Division I and II leagues) in regional and rural Victoria, Australia.	NM
11	Ageberg et al., 2019 [46]	Facilitators to support the implementation of injury prevention training in youth handball: a concept mapping approach	Sweden	Youth handball	Injury prevention	To identify facilitators among stakeholders at multiple levels of the sport delivery system, that could help make injury prevention training part of regular training routines in community youth handball.	Cross-sectional ecological participatory study using Concept Mapping	(n=196) stakeholders of two community team handball clubs (29% players, 13% coaches, 38% caregivers, 11% club, district and national handball administrators, 9% unknown)	Translating Research into Injury Prevention Practice (TRIPP) stage 5; Step 3 of the seven steps for Implementing Injury Preventive Training
12	Ekegren et al., 2014 [47]	Implementing injury surveillance systems alongside injury prevention programs: evaluation of an online surveillance system in a community setting.	Australia	Community Australian football	Injury surveillance	1) evaluate use of an online injury surveillance system following delivery of an implementation strategy and 2) investigate factors influencing the implementation of the system in community sports clubs.	Qualitative evaluation using the RE-AIM framework; quantitative semi-structured interviews	RE-AIM analysis: (n=78) club representatives; Interviews: (n=12) participants (10 trainers, 1 head coach, 1 manager)"	RE-AIM

13	Crespo et al., 2022 [48]	How do International Olympic Sport Federations innovate? The use of crowdfunding and the impact of COVID-19.	Global	Various; International Sports Federations	Innovation; Crowdfunding; Covid-19	To address the research questions of: 1) the perceptions of the International Olympic Sport Federations (IFs) on the implementation of their innovation programs during the last four years (2016–2020) 2) the impact of COVID-19 on the IFs capability to innovate 3) the crowdfunding strategies of the IFs by looking at four hypotheses: (H1) IFs with more funding would be more innovative than those with lesser funds (H2) the innovation capability of the IFs would be significantly affected by the COVID-19 pandemic (H3) sport-specific programs would be often more implemented as innovations by IFs than non-sport ones (H4) that their use of crowdfunding would certainly be limited among the IFs	Cross-sectional mixed methods; Online quantitative questionnaire; Qualitative content/Document analysis	(n=22) executive professional staff representing 22 IFs; Content analysis of: "internet, emails, memorandums, meeting minutes, brochures, reports, etc"	NM
14	O'Connor et al., 2021 [49]	The implementation of a national strategy to encourage injury prevention program uptake in a community	Ireland	Camogie	Injury prevention in youth female camogie athletes	To detail how a community sport in Ireland, the Camogie Association, is seeking to develop and implement a strategy surrounding the	Case study of program development and implementation	(n=98) coaches (n=187) players (n=6) administrators	RE-AIM SSM (sports setting matrix)



		female sport in Ireland: A Camogie case study				uptake of injury prevention programs nationally across the lifespan, targeting children and adults			
15	Woods & Stokes, 2019[50]	'For the game, for the world': An analysis of FIFA's CSR initiatives.	South Africa; Brazil	Sport mega-events	Corporate social responsibility	To explore how FIFA tailored its CSR initiatives for the 2010 World Cup in South Africa and 2014 event in Brazil to the cultural context of the host nation.	Cross-sectional multi-case study	From FIFA and the media: organization and media accounts, news releases and other organizational documents, media reports	Zaharna in-awareness framework
16	Perez-Diaz et al., 2018 [51]	Health promotion by African swimming federations.	African countries	Swimming	Health promotion and health protection	The purpose of the study was to address the medical structure of African National Swimming Federations and their priority activities in the area of protection of health and health promotion.	Descriptive cross-sectional questionnaire	(n=32) representatives of African National Swimming Federations	NM
17	Ricour et al., 2023 [52]	The logic behind the initiatives of national governing bodies in Flanders to improve organised youth sport: A theory-based evaluation approach.	Belgium	Various; Organized youth sport	Participation rates and quality of youth sport in sport clubs	(1) What are the initiatives that NGBs employ via the stimulus of government sport policy to increase youth sport participation on the one hand and the quality of organised youth sport on the other hand? (2) How and why will these initiatives, according to NGBs, deliver the desired results (i.e., the assumptions and presumed causal mechanisms behind such initiatives)?	Cross-sectional instrumental case study using questionnaire and focus group	Policy documents of all Flemish national governing bodies (NGBs) (n=41) with an approved youth sport project in 2020; (n=19) representatives of NGBs in interview	theory of change; explanatory model

18	Schreiner et al., 2021 [53]	National "Sport for Development and Peace" -programmes in light of UN recommendations and national sports organisations' endeavours. A document analysis of the role of 'Sports' in Germany's development policy	Germany	Various; National Sport for Development and Peace programs	Sport for development and peace programs	To understand the extent to which national SDP-programs may be influenced by UN recommendations and by cooperation with national sports organizations is the subject of this research. To this end, the following key questions will be answered: 1. What are the forms of the integration of sport into development policy at the normative, strategic, and operative levels? 2. What UN recommendations are to be found in the projects and programs already implemented? 3. Which role do endeavours of national sports organisations play in the projects and programs? 4. To what extent can steering influences on SDP-programs by the UN and national sports organizations be reconstructed?	Qualitative content analysis	(n=63) documents published on the subject of 'Sport for Development and Peace' (SDP) by the two key German development policy bodies, BMZ and GIZ, between 2011-mid-2016	Systems theory
19	Hugaerts et al., 2022 [54]	Are sport organisations environmentally sustainable? - A website analysis of sport federations in Belgium	Belgium	Sport federations	Environmental sustainability	To examine the commitment of Sport Federations (SFs) by analyzing their environmental initiatives and environmental strategy and to detect and discuss progression opportunities. RQ1: What is the profile of the environmental	Cross-sectional website content analysis	(n=141) Sport Federation websites	Institutional theory; environmental wave typology

						sustainability (ES) initiatives that are communicated on the websites of the SFs? RQ2: What is the profile of the ES strategies that are communicated on the websites of the SFs? RQ3: What is the institutionalized environmental behavior of the SFs and which pressures might influence this behavior?			
20	Wagstaff et al., 2013 [55]	Developing emotion abilities and regulation strategies in a sport organization: An action research intervention	United Kingdom	Sport organizations	Emotion abilities and adaptive emotional regulation strategies	To improve the practice of individuals operating in a sport organization by providing an intervention to promote emotion abilities and strategies	Action research intervention	Phase 1: (n=25) individuals from three tiers of governance and management, identified by the CEO and senior management team as essential to successful change and/or the future of the organization; Phase 2: (n=3) national managers operating at the middle level of governance.	positive psychology; action research
21	Donaldson et al., 2021 [56]	The challenges of partnering to promote health through sport	Australia	Regional sport assemblies; Community sport	Partnerships	To explore the partnership-related challenges that the Regional Sports Assemblies (RSAs) in Victoria, Australia experienced while working in partnerships to create more opportunities for Victorians to be physically active in	Concept-Mapping	(n=31) participants from all nine of the funded Regional Sports Assemblies (RSAs) contributed CM data. Idea generation (n=30), statement sorting (n=26), (n=27) importance rating (n=27), and capacity to manage rating (n=24).	Concept-Mapping

						sport and active recreation settings		(n=24) participants contributed data in all phases, while (n=4) contributed to the idea generation only.	
22	De Bock et al., 2022	Stuck between medals and participation: An institutional theory perspective on why sport federations struggle to reach Sport-for-All goals	Belgium	Sport-For-All projects and high performance sport	Amount of Sport-for-all programs and reaching target groups	<p>RQ1: How many Sport-for-All projects are sport federations currently supporting?</p> <p>RQ2: Does the underlying institutional logic of the federations (being a Sport-for-All logic or a high-performance logic) have an impact on the outcomes of their Sport-for-All project (e.g., in terms of target groups these projects aim at)?</p> <p>RQ3: What implications does the underlying logic have on sport federations' current responses to their institutional environment?</p>	Cross-sectional qualitative document analysis; quantitative questionnaire	(n=47) Flemish sport federations subsidized by the Flemish government; Document analysis: All policy plans, annual reports, reports of board meetings, and reports of the regulatory agency, websites of the sport federations; Questionnaire: (n=40) chief executives of sport federations"	Institutional theory
23	Ageberg et al., 2020 [57]	Planning injury prevention training for youth handball players: application of the generalisable six-step intervention development process	Sweden	Youth handball	Injury prevention	To describe the planning/process of developing the I-PROTECT model	Describe process of developing model/program	Research team, (n=2) community handball clubs in a city in southern Sweden, and the district handball federation	Health Action Process Approach (HAPA); RE-AIM SSM framework; Translating Research into Injury Prevention Practice (TRIPP) framework

24	Perez-Diaz et al., 2019 [58]	The role of the European Swimming Federations in the protection of athletes' health and the promotion of health in the general population	Europe	Swimming	Health promotion and health protection	To understand the medical structure personnel and priorities and activities of the European Swimming Federation (ESF) in the area of health protection and health promotion.	Cross-sectional quantitative questionnaire	(n=39) national swimming federations	NM
25	Donaldson et al., 2018 [59]	Awareness and use of the 11+ injury prevention program among coaches of adolescent female football teams.	Australia	youth female football	Injury prevention	To explore the 11+ knowledge and implementation behavior of coaches of adolescent female football teams in Victoria, Australia.	Cross-sectional online survey based on the RE-AIM framework	(n=64) coaches currently coaching a team of adolescent female football players in Victoria	RE-AIM
26	Stefaniuk & Bridel, 2018[60]	Anti-bullying policies in Canadian sport: An absent presence	Canada	Peer-to-peer sport	Youth Anti-bullying	To determine how Canadian national sport organizations (NSOs) address peer-to-peer bullying through policy. (1) What anti-bullying policies have Canadian sport organizations developed? (2) What are the key messages in these policies and are they more reactive or preventative in nature?	Cross-sectional content analysis	(n=57) NSO websites with policy information online (n=118) documents	Short's (2013) conceptualization of bullying as a social issue
27	Diaz et al., 2017 [61]	Health initiatives in national Pan-American swimming federations	Pan-American region	Swimming	Health promotion and health protection	1) To determine if the health professionals, the priorities, activities, and research of the Pan-American NFs are focused on protecting athletes' health and promoting the health of the population in general. 2) To determine if the International Swimming	Cross-sectional descriptive survey	(n=45) health representatives or designated person from Pan-American National Swimming Federations (NFs)	NM

						Federations (FINA) rules, projects, and programs are applied.			
28	Kellison & Hong, 2015 [62]	The adoption and diffusion of pro-environmental stadium design	Global	Sport Stadium design	Environmental sustainability	To highlight the key influencers and factors contributing to the decision to adopt pro-environmental initiatives and designs in stadiums and to examine whether such perception-management considerations are made during the planning phase of a new sport facility (e.g., are owners incentivized to adopt sustainable design to improve their organizations' images?) by identifying: (1) the individuals and groups involved in the decision to adopt sustainable facility designs and (2) the incentives for owners and design firms to support pro-environmental initiatives.	Cross-sectional qualitative interviews	(n=13) senior architects whose portfolios collectively contained over 25 eco-friendly sport facilities spanning Europe, Australia, Africa, and North America	Rogers' diffusion-of-innovations framework
29	Harmer, 2015 [63]	Preventing penetrating hand injuries in Sabre fencing: An application and critique of the van Mechelen model by the Federation Internationale d'Esgrime.	Global	Sabre fencing	Hand injuries	To document the use of the van Mechelen model to guide the FIE response to the previously unrecognized problem of unbroken blade penetration causing hand injuries in sabre fencing.	Case study report	(n=34) hand injury cases	van Mechelen model of the 'sequence of prevention'

30	Ahn & Cunningham, 2020 [64]	Standing on a glass cliff?: A case study of FIFA's gender initiatives	Global	Sports associations	Gender-based initiatives	RQ1: What made FIFA promote gender-based initiatives in the decision-making processes, including female leadership development program (FLDP)? RQ2: What is the linkage between the glass cliff phenomenon and FIFA's recent gender diversity initiatives in times of crisis? "	Cross-sectional qualitative case study	(n=16) female participants of the first and second edition of FLDP	Interpretivist paradigm; glass cliff theory
31	Al Attar et al., 2022 [65]	The Copenhagen adduction exercise is not applied by the majority of professional and Semi-Professional soccer players and coaches	Global	Soccer	Groin injuries	To assess the professional and semi-professional soccer players and coaches' awareness, implementation, and opinion of the Copenhagen Adduction Exercise (CAE).	Cross-sectional survey	(n=1621) soccer players and coaches	NM

## Appendix

### Appendix Table 1. Study identifier information

During data collection and analysis, the original numbers of the studies (ranging from 1-37) were used. Six studies were excluded from the data collection, but the numbers were not adjusted. Table 1 in the text uses a simplified list of the studies has been adjusted to range from 1-31. In order to avoid errors during adjustment of study numbers in all data collection statements and analysis, the numbers in the appendix have not been changed. The following table reports the study numbers used in Table 1 and the literature review manuscript and the corresponding numbers used here in the appendix during data collection and analysis.

Updated study number	Original study number				
1	1	10	14	21	27
2	2	11	15	22	28
3	3	12	16	23	29
4	4	13	18	24	30
5	6	14	19	25	31
6	9	15	20	26	32
7	10	16	22	27	33
8	11	17	23	28	34
9	13	18	24	21	35
		19	25	30	36
		20	26	31	37

### Appendix Table 2. Adaptation of the SQRS

“S1 - Title” and “S2 - Abstract” were combined into one measure, “S1- Title and abstract.” “S3 - Problem formation” was divided into “S2 - intervention description” and “S3 - study description” to better fit the aims of the paper in understanding the programs/interventions being studied, as well as the study backgrounds. “S16 - Synthesis and interpretation” was clarified to measure that findings were contextualized within the original research question. Lastly, “S18 - Integration with prior work, implications, transferability, and contributions to the field,” was expanded into two measures, “S18 - Integration with prior work” and “S19 - Implications/contributions/recommendations for future work and change” in order to highlight the evidence-based and practical usefulness of included studies. The modified SRQR was evaluated on 4 studies with varied methodology





32 Stefaniuk & Bridel, 2018	1	0	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	<b>16</b>
33 Diaz et al., 2017	1	1	0	1	1	0	1	1	1	1	0	1	1	1	0	0	1	1	1	0	1	0	<b>15</b>
34 Kellison & Hong, 2015	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	1	1	0	0	0	<b>14</b>
35 Harmer, 2015	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	1	1	1	1	1	1	1	<b>15</b>
36 Ahn & Cunningham, 2020	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	<b>21</b>
37 Al Attar et al., 2022	1	1	1	1	0	0	1	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	<b>16</b>
<b>Measure Total</b>	<b>31</b>	<b>25</b>	<b>26</b>	<b>30</b>	<b>21</b>	<b>2</b>	<b>20</b>	<b>21</b>	<b>21</b>	<b>27</b>	<b>19</b>	<b>23</b>	<b>19</b>	<b>23</b>	<b>11</b>	<b>29</b>	<b>28</b>	<b>29</b>	<b>29</b>	<b>19</b>	<b>20</b>	<b>19</b>	

### Modified SRQR Checklist

S1	Title + Abstract	S20	Limitations
S2	Intervention description	S21	Conflicts of interest
S3	Study description	S22	Sources of funding
S4	Purpose/Research question		
S5	Study design rationale		
S6	Researcher characteristics/relationship		
S7	Context of data collection		
S8	Sampling strategy		
S9	Ethical issues		
S10	Data collection methods		
S11	Data instruments/technologies		
S12	Units of study		
S13	Data processing		
S14	Data analysis		
S15	Enhancing trustworthiness		
S16	Contextualized results		
S17	Links to empirical data		
S18	Integration to prior work		
S19	Implications/contributions to future		