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Interventions implemented through sporting organisations for increasing participation in sport (Review)

Priest N, Armstrong R, Doyle J, Waters E

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[Intervention Review]

Interventions implemented through sporting organisations for increasing participation in sport

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ABSTRACT

Background

There is now compelling scientific evidence that increased levels of physical activity can bring wide-ranging health benefits. These benefits can extend beyond physical health to include other positive impacts relating to mental health and personal development. The sport and recreation sector is viewed as a priority area for increasing rates of physical activity. Participation rates in organised sport have been shown to be lower in females and to decline with age, and are reduced in lower socio-economic and minority groups including people from non-English speaking and Indigenous backgrounds. It is important to determine the most effective interventions that sporting organisations can use to increase people's participation.

Objectives

To update a review of all controlled studies evaluating interventions implemented through sporting organisations to increase participation.

Search methods

We updated the original (2004) searches in May 2007. We searched: The Cochrane Central Register of Controlled Trials (CENTRAL, *The Cochrane Library,* Issue 2 2007); MEDLINE and MEDLINE In-Process and Other Non-Indexed Citations (2004 to Week 3 April 2007); EMBASE (2004 to Week 17 2007); PsyclNFO (2004 to April Week 1 2007); CINAHL (2004 to Week 1 May 2007); SPORTDiscus (2004 to April 2007); Sociological Abstracts (2004 to 2007); Dissertation Abstracts (2004 to May 2007), and a number of freely-available online health promotion and sports-related databases. We used the internet extensively to search for studies and locate information generated by sporting bodies throughout the world.

Selection criteria

Controlled studies evaluating any intervention designed to increase active and/ or non-active participation in sport by people of all ages. Interventions could include: mass media campaigns; information or education sessions; management or organisational change strategies; policy changes, for example to improve the socio-cultural environment to encourage people of specific age, gender or ethnicity to participate; changes to traditional or existing programs, for example club or association-initiated rule modification programs; provision of activities beyond traditional or existing programs, for example 'Come and Try' initiatives (teaser or taster programs); skill improvement programs; volunteer encouragement programs.

Uncontrolled studies which met other inclusion criteria were to be reported in an annex to the review.

Data collection and analysis

We assessed whether identified citations met the inclusion criteria. Two review authors independently inspected abstracts (NP, RA). We obtained full papers where necessary. As we located no controlled evaluation studies, we did not undertake data collection or analysis. We found no uncontrolled studies meeting other inclusion criteria, and therefore present no annex to the review.

Main results

Despite a thorough review of the published and unpublished literature, we found no rigorous studies evaluating the effects of interventions organised through sporting organisations to increase participation in sport.

Authors' conclusions

There is an absence of high quality evidence to support interventions designed and delivered by sporting organisations to increase participation in sport. Interventions funded and conducted in this area must be linked to a rigorous evaluation strategy in order to examine overall effectiveness, socio-demographic differentials in participation and cost-effectiveness of these strategies.

PLAIN LANGUAGE SUMMARY

Interventions implemented through sporting organisations for increasing people's participation in sport

The sport sector is viewed as a priority area for increasing rates of physical activity. Participation rates in organised sport have been shown to be lower in females and to decline with age, and are reduced in lower socio-economic and minority groups. It is important to determine the most effective interventions that sporting organisations can use to increase people's participation and reduce inequalities. In this systematic review of the literature we did not find any controlled studies assessing the effects of interventions to increase participation in sport.

BACKGROUND

In both developed and developing countries internationally, increasing participation in sport is identified as a priority for policy makers, funding bodies and service providers as a key strategy for increasing rates of physical activity (Driscoll 2001). It is estimated that over 60% of adults globally do not participate in an adequate amount of sport and physical activity (UN 2003). For improved health, thirty minutes of moderate physical activity on most days of the week is recommended (Stephenson 2000; USSGR 1996).

The contribution of physical inactivity to ill health has been well documented, and is estimated to be among the top three preventable causes of morbidity, mortality and disability in developed countries (Stephenson 2000; USSGR 1996). The strongest evidence exists for coronary heart disease, non-insulin dependent diabetes mellitus, and colon cancer; with evidence also existing for breast cancer, stroke, depression, and obesity. Conversely, physical activity has also been shown to reduce the risk of dying prematurely (PHAA 1998; Stephenson 2000; USDHHS 2002).

The benefits of sports participation also extend beyond physical activity and physical health to include mental health, community wellbeing and social capital (Steptoe 1996; Stone 2001). Playing sport and belonging to a sports club has been found to provide a sense of achievement and personal empowerment (Brunton 2003; Dionigi 2002; Nies 1998; Pederson 2002; Rees 2001); develop self-esteem and respect for others (Murphy 2002); reduce stress (Rees 2001); and teach self-discipline, team cooperation. and coping mechanisms (Brunton 2003; Murphy 2002; UN 2003). Participation in sport and recreation activities can provide opportunities for socialisation and development of friendship networks, thus reducing social isolation and enhancing community wellbeing (Driscoll 1999). It has also been posited to reduce levels of substance abuse and self-harm, and to improve social cohesion in Indigenous communities (Cairnduff 2001; Walker 2001 as cited in Beneforti 2002). The Council of Europe defines sport as "all forms of physical activity that, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels (Council 1993).

This focus on sports participation, and on sporting clubs and organisations, reflects the strong social and cultural role sport plays

in many countries and communities (Eime 2007; Gray 2004). Participation rates in sport vary across and within countries. In Australia a 2006 survey reported that almost 43% of Australians participate in sport three or more times a week (ERASS 2006). In Canada, surveys have identified a marked decline in sports participation among adults from 45% to 34% between 1992 to 1998 (Salmon 2000) and to 31% in 2004 (Bloom 2005). In contrast, participation rates in England have remained broadly unchanged over the last twenty years (Sport England 2004).

Participation in sport is characterised by considerable inequities. Participation rates are lower amongst women, decline with age, and are reduced in lower socio-economic and minority groups such as people from Indigenous and culturally diverse backgrounds (ABS 2003; Armstrong 2000; Dale 2002; USDHHS 2002). Data from diverse countries reflect this trend. For example, in the UK men in managerial and professional households report higher sports participation and exercise (45% to 49%) than those in other work categories (30% to 35%) (DoH 2004). In South Africa, approximately 30% of citizens participate in sport, but poorer communities are still largely excluded (SRSA 2007).

Potential barriers to participation in sport include cost, family and work responsibilities, and safety concerns (Alexandris 1997; Booth 2002; Brunton 2003; Rees 2001; Richter 2002; Salmon 2003; VicHealth 2003). Poor transport options (Rees 2001), a lack of childcare (Richter 2002) and limited opportunities and age- or skill-specific options (particularly in rural and regional areas) (Brunton 2003; Rees 2001; VicHealth 2003) have also been identified as limiting sports participation. Furthermore, language barriers, potential threat or experience of racism or discrimination, and barriers and perceived cultural irrelevance within communities or sporting organisations have also been found to have an impact (Oliver 2006; Richter 2002; Seefeldt 2002); as has a lack of family support Brunton 2003; Nies 1998) and an intimidating club culture, particularly for women, older people or people from diverse cultural or Indigenous backgrounds (Oliver 2006; VicHealth 2003). The weather (Burton 2003; Nies 1998; Salmon 2003); self consciousness (Brunton 2003); lack of confidence due to real or perceived inadequacy of physical or social skills (Brunton 2003); and injury or poor health (Booth 2002), have also been found to influence participation in sport.

For the purposes of this review participation is defined as "not just confined to a role as a player, but includes involvement as a coach, instructor, teacher, administrator, manager, official and volunteer, etcetera" (SRMC 1997). Thus, we will include 'active' and 'non-active' participation. 'Non-active' roles in sport are considered important as they may influence mental and social as well as physical health. A sporting organisation is defined as any organisation that controls sports or sporting events; organises or administers sports or sporting events; accredits people to take part in sporting competition; provides teams to compete in sporting competition; or trains, or provides finance for people to take part in sporting competition. It encompasses professional and amateur sporting bodies (modified, ASCAB 1999).

Numerous reviews have sought to assess the effects of various approaches to increasing physical activity (e.g. Brunton 2003; Foster 2005; Kahn 2002; Rees 2001). However, questions remain about the role of sporting organisations in attracting and maintaining active and non-active participants. A thorough review of the evidence base is necessary, as policy emphasises the importance of sport and recreation sectors for increasing physical activity. This review has broadened the definition of participation to reflect other potential health benefits and we are interested in extracting process and contextual factors. This review will be of particular interest to policy makers, the sport and recreation and health promotion sectors, health promotion and public health practitioners, researchers, sporting organisations, individuals and families.

This is an update of the original version of this review (Jackson 2005). We also refer interested readers to a related Cochrane systematic review of policy interventions implemented through sporting organisations for promoting healthy behaviour change (Priest 2008).

OBJECTIVES

Primary objective

- To determine the effects of interventions implemented through sporting organisations to increase (active and non-active) participation in organised sport.

Secondary objectives

- To determine if interventions are more successful with particular participants, grouped by (for example) socio-economic status, gender, age, ethnicity, geographical location and individual or team sports.
- To determine if the success of the interventions is dependent on particular process indicators (that is, those that describe why and how a particular intervention has worked).
- To determine if the success of the interventions is dependent on particular contextual factors (such as concurrent media campaigns at the time of implementation).
- To determine if multiple intervention strategies are more effective than single interventions in increasing participation.
- To determine if different types of interventions are more effective than others.
- To determine if short-term changes are maintained at 12 months and beyond.

METHODS

Criteria for considering studies for this review

Types of studies

- Randomised controlled trials (RCTs)/cluster RCTs
- 'Quasi-randomised' trials
- Controlled before and after studies

The search strategy aimed to find controlled studies, and uncontrolled studies with pre-and post-intervention data (as it was likely that a great deal of the literature was not in the form of controlled evaluations). Uncontrolled studies, which met the other inclusion criteria, were to be described and presented in an annex to the review.

Types of participants

People of all ages.

Types of interventions

Any intervention designed to increase active and/or non-active participation in sport. These could include:

- mass media campaigns;
- information or education sessions;
- management or organisational change strategies;
- policy changes, for example to improve the socio-cultural environment to encourage people of specific age, gender or ethnicity to participate;
- changes to traditional or existing programs, for example club- or association-initiated rule modification programs;
- provision of activities beyond traditional or existing programs, for example 'Come and Try' initiatives (teaser or taster programs), skill improvement programs, volunteer encouragement programs.

Exclusion criteria

- Programs designed specifically for treatment or as therapy for specific medical conditions (for example, rehabilitation programs).
- Programs designed specifically to increase paid active or paid non-active participation.
- Interventions utilising role models (this area has been previously reviewed; Payne 2003).

Types of outcome measures

Primary outcomes

- Change in the number of (active and non-active) participants in organised sport.
- Change in status from non-participating to non-active or active participation.
- Change in status from non-active to active participation.

Secondary outcomes

- Sustainability of participation, such as the length of new or continuing memberships, or length of involvement in the organisation.
- Physical, social and mental health outcomes (both positive and negative).

Search methods for identification of studies

In Appendix 1 we present details of the searches we conducted in 2004 for the original iteration of this review (Jackson 2005).

May 2007 updated searches

We updated the searches in May 2007. We used the following strategy to identify both published and unpublished studies that were either controlled, or reported both pre-intervention and post-intervention data. There were no language or date restrictions for the electronic database searches.

Electronic database searching

We searched the following databases:

- The Cochrane Central Register of Controlled Trials (CENTRAL, *The Cochrane Library*, Issue 2 2007)
- MEDLINE and MEDLINE In-Process and Other Non-Indexed Citations (2004 to Week 3 April 2007)
- EMBASE (2004 to Week 17 2007)
- PsycINFO (2004 to April Week 1 2007)
- CINAHL (2004 to Week 1 May 2007)
- SPORTDiscus (2004 to April 2007)
- Sociological Abstracts (2004 to 2007)
- Dissertation Abstracts (2004 to May 2007)
- ERIC (2000 to 2007)

We used the search strategy presented at Appendix 2 to identify relevant studies in MEDLINE (Ovid) and then modified it as necessary to search the other listed databases. (Note: for many of the databases the study design filter (lines 28-50 of the MEDLINE search) was not used, in order to increase the sensitivity of the search).

Freely available internet databases

We also searched the following internet databases (in English only) in May 2007:

- BiblioMap, the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI Centre) database of health promotion research, http://eppi.ioe.ac.uk;
- The Health Evidence Bulletins, Wales, http://hebw.uwcm.ac.uk;
- The Effective Public Health Practice Project, http://www.city.hamilton.on.ca/sphs/EPHPP/ephppSumRev.htm;
- National Institute for Health and Clinical Excellence http://www.nice.org.uk
- The Community Guide - Guide to Community Preventive Services - Systematic reviews and evidence-based recommendations, http://www.thecommunityguide.org;
- C2-SPECTR, the social, psychological, educational, and criminological trials register of the Campbell Collaboration, http://www.campbellcollaboration.org;
- Leisure Information Network website (http://www.lin.ca) using the National Recreation Database (Canada);
- National Sport Information Centre - SportScan, http://www.ausport.gov.au/nsic/sportscan;
- National Sport Information Centre - NSIC full text archive, http://www.ausport.gov.au/fulltext/default.asp;
- SportLit, South African Sports Commission database, http://www.sasc.org.za/Library.asp.

We also conducted an internet search using the Google search engine (www.google.com). We used the following keywords to locate studies; sport, participation, organisation, sport association, club-based, sport program, teaser sport, taster and sport, come and try and sport. We also used links from relevant websites to locate national sporting bodies with likely knowledge in this area to identify unpublished reports, internal reports and conference proceedings. We also searched the WHO International Clinical Trials Registry for studies currently underway in this area.

Data collection and analysis

Selection of studies

The original searches (2004) produced a total of 12, 835 citations. The updated search in 2007 retrieved a total of 1414 citations. Using Endnote (version 9) software, two review authors (NP, RA) independently assessed all the titles and abstracts identified as a result of the search. We assessed full reports of all possibly eligible trials against the selection criteria. Review authors were not blind to the names of authors, institutions and journals.

Assessment of methodological quality

It was planned that the two review authors would independently assess each study using the Quality Tool for Quantitative Studies, developed by the Effective Public Health Practice Project, Canada (http://www.city.hamilton.on.ca/phcs/EPHPP/). Construct validity for this tool has been established (Thomas 2001). The criteria in the tool are 1) selection bias; 2) study design (allocation bias); 3) control of confounders; 4) blinding (whether intervention providers and assessors were aware of the research question); 5) data collection methods; 6) follow-up participation rates; 7) statistical analysis; and 8) integrity of intervention (implementation of the intervention). Criterions 1-6 are rated as strong, moderate, or weak; criterions 7 and 8 are used to inform the judgement of methodological quality.

Data extraction

Planned data extraction included: study population (e.g. number and description of participants), study methods (e.g. instruments used and assessment intervals), the type of intervention (including length, duration of follow-up, success/failure of implementation), the outcomes evaluated, the results, conclusions and limitations. Contextual data were also to be extracted, if reported in the primary studies.

Data synthesis

Given the likely heterogeneity with respect to the interventions, we planned to employ a narrative synthesis of results.

Consumer participation

For systematic reviews to be relevant to policy and practice, potential users of the review must be involved in key stages of the review process (Oliver 1997). This involvement can ensure that the review will address the key questions that policy-makers and practitioners consider important; consider all relevant outcomes; and present its findings and recommendations in an accessible way (Oliver 2004).

This review was originally conceived by the Sport and Active Recreation Team of the Victorian Health Promotion Foundation (VicHealth), an independent health promotion organisation in Victoria, Australia. An advisory panel consisting of members from VicHealth, VicSport, the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre and the Victorian Little Athletics Association was consulted during the development of the protocol. We also sought feedback from individuals from South Africa and Germany who we identified as having knowledge in this area.

RESULTS

Description of studies

We found no controlled studies that met the inclusion criteria. We identified no uncontrolled studies, with pre- and post-test data, suitable to be included in a annex to this review.

Risk of bias in included studies

We identified no controlled studies meeting the review inclusion criteria, and therefore assessed no studies for methodological quality.

Effects of interventions

Despite using the most comprehensive search methods to date, no studies were identified that employed a controlled evaluation design.

DISCUSSION

The purpose of the original review (Jackson 2005) and the current update was to determine the effects of interventions organised through sporting organisations to increase participation in sport. This is best achieved by comparing the results of well-designed, controlled studies. However, we found no studies meeting the inclusion criteria. This may be due to a number of reasons: the difficulties of developing a sensitive search strategy, the likelihood that the only available evidence to answer this question is located in uncontrolled case studies held by the bodies that typically carry out such interventions, the fact that very few evaluations are carried out on these interventions, or publication bias. The latter includes the non-publication of results with negative findings. Investigators should be encouraged to publish the results of their studies, regardless of whether the outcome is positive or negative (Howes 2004). We conducted an internet search of health promotion and sporting bodies throughout the world and a number were contacted by email. However it was not possible to search systematically via the internet as methods have not been developed, and we could only conduct internet searches in English.

Many and varied initiatives from a wide range of settings aiming to increase participation in sport were identified in the initial literature search. However, we are reluctant to identify or highlight particular programs or strategies currently being utilised, given the absence of high quality and rigorous data regarding the effectiveness of interventions.

Given the wide array of interventions being implemented throughout the world in order to increase participation in sport, it is essential that any studies examining the effects of participation interventions be published and evaluated. This will enable future review authors (and practitioners) to access more readily the available evidence. Adherence to reporting standards, such as the TREND statement for public health studies (Des Jarlais 2004), will help ensure that fewer intervention studies are missing information that is critical for the conduct of high quality systematic reviews, in order to determine effectiveness and applicability of findings to other settings. Information on interventions that we retrieved from the internet and from sporting bodies was always in the form of case studies, with no baseline data provided. Case studies reported a variety of methods to increase participation, including 'Come and try' days and programs, age-, gender-, and ethnic-specific competitions and programs, modifications to the rules and equipment, flexible delivery options, and improved club management. A recent survey reported by (Eime 2008) found that 97.2% of State Sporting Association Executive Officers in Victoria, Australia, believed that creating healthy and welcoming environments within sporting clubs would facilitate increased participation but that limited capacity within clubs and limited statewide support meant that developing such environments was difficult.

Sport England (Sport England 2004) reports that in order to overcome the barriers (both real and perceived) that reinforce inactive behaviour patterns, interventions to promote participation need to be better connected with people's motivations, their lifestyle preferences and with the realities of their day-to-day life circumstances. It was apparent from the large number of citations retrieved by both the original and updated searches that there is an abundance of qualitative information available relating to these barriers (and facilitators) to participation in sport. This information should be reviewed and used by sporting organisations to design interventions most appropriate to their target group. More appropriately, sporting organisations could conduct their own surveys in order to match the interventions to the needs of future participants.

AUTHORS' CONCLUSIONS

Implications for practice

The lack of evidence on interventions to increase participation in sport creates difficulty in providing clear directions or strategies for future health promotion interventions. Until high-quality controlled evaluations are carried out it is not possible to make recommendations for practice or to understand the relative impact of the large programs across the population, or their cost effectiveness. Funding for evaluation needs to be built into sporting programs. However, as noted in the review by Payne (Payne 2003) there is limited capacity to carry out evaluation in sporting organisations. Payne suggests that academic-based researchers work in partnership with the sport and recreation industry to ensure that sporting programs are evaluated in a useful way. This may sim-

ply involve the introduction of data collection tools/databases in order to evaluate programs in a quasi-experimental manner. Practitioners therefore need to form relationships with the university research sector.

Implications for research

This review update has again highlighted the absence of credible and reliable controlled studies of effectiveness in the area of interventions organised in sporting settings to increase participation in sport. Future research in this area must be rigorously designed and analysed. Design issues of particular importance in this area include the following:

- Adequate control group: there should be a matched sporting organisation (e.g. matched by size, geographical area, demographics, etc) which does not receive the intervention.

- Baseline data, post-intervention data, and longer term follow-up data should be collected. This data should include the number of new participants, volunteers, coaches, etc.

- As cluster designs are most commonly used in this area there should be a sufficient number of clusters (sporting organisations) in each comparison group to allow for generalisable results and to enable detection of significant differences between comparison groups. Furthermore, studies should recognise the cluster as the unit of intervention in the analysis and determination of sample size.

- If no control group is used, studies should ensure there are repeated measurements before and after the intervention to control for secular changes in the outcome (Ukoumunne 1999).

- Studies must include both a process evaluation (to measure the integrity of the implementation and contribution to effectiveness of each component of the intervention) in addition to an outcome evaluation of participation rates.

- Studies must report on information relating to context (e.g. social, political and cultural factors relating to the setting of the intervention and evaluation).

- Sustainability of the interventions and outcomes must be measured. Sustainability is likely to depend on sufficient numbers of volunteers, given that sporting associations and bodies rely heavily on their volunteer base for the development of the sport. Future design and evaluation of participation initiatives should include some assessment of potential sustainability if (or when) the funding source is removed.

It may be more useful to investigate which interventions are effective to increase participation in sport, regardless of the types of institutions that employ them (government, sports groups, educational institutions, work places). For example, primary research or reviews could investigate the use of mass media campaigns or inducements to participate in sport.

Literature in the sports area recommends an increase in the amount of research and evaluation of the activities conducted in sports settings (Corti 1996). This includes:

- Evaluation of effectiveness: a) comprehensively evaluate health promotion activities in consultation with the tertiary education sector, b) collaboration to evaluate supportive environments;

- Consistent use of indicators: nationally consistent minimum set of process and impact factors

- Determining research priorities: determine the role that sports settings may play as a culturally-appropriate vehicle for reaching people from culturally-diverse backgrounds (e.g. Indigenous people).

Improvements in the research in this area are essential to move towards providing evidence-based interventions.

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* *Indicates the major publication for the study*

DATA AND ANALYSES

This review has no analyses.

APPENDICES

Appendix 1. 2004 search strategy

The following searches were conducted to identify both published and unpublished studies that were either controlled, or reported both pre-intervention and post-intervention data. There were no language or date restrictions for the electronic database searches.

Electronic database searching

We searched the following databases:

- The Cochrane Central Register of Controlled Trials (CENTRAL), (*The Cochrane Library* Issue 2, 2004)
- MEDLINE and MEDLINE In-Process and Other Non-Indexed Citations (1966 to 19 February 2004)
- EMBASE (1985 to 2004 Week 4)
- CINAHL (1982 to May Week 1 2004)
- PsycINFO (1872 to May Week 2 2004)
- Sociological Abstracts (1963 to April 2004)
- SPORTDiscus (1973 to June 2004)
- Dissertation Abstracts (1997 to April 2004)
- The Health Technology Assessment (HTA) database (*The Cochrane Library* Issue 2, 2004)

The following search strategy was used to identify relevant studies in MEDLINE (Ovid) and then modified as necessary to search the other listed databases: (Note: for many of the databases lines 28-50 were not used, in order to increase the sensitivity of the search):

1. exp health promotion/
2. primary prevention/
3. preventive medicine/
4. public health/
5. health education/
6. (prevent$ or promot$ or program$ or project$ or educat$ or campaign$ or intervent$ or strateg$).tw.
7. or/1-6
8. exp sports/
9. exp recreation/
10. leisure activities/
11. physical fitness/
12. exercise/
13. exertion/
14. (physical adj5 (fit$ or train$ or activ$ or endur$)).tw.
15. (exercise$ or game$ or sport$ or leisure$ or recreation$).tw.
16. ((lifestyle or life-style) adj5 activ$).tw.
17. ((lifestyle or life-style) adj5 physical$).tw.
18. or/8-17
19. fitness centers/
20. (gym$ or club$ or swimming pool$).tw.
21. (wellness centre$ or wellness center$).tw.
22. (organi?ed adj1 sport$).tw.
23. (sport$ adj1 (body or bodies)).tw.
24. (sport$ adj1 organi$).tw.

25. ((sport$ or physical$ or exercise$ or game$ or leisure$ or recreation$ or fitness) adj5 (event$ or setting$ or sector$ or program$ or venue$ or site$ or centre$ or center$ or facility or facilities)).tw.
26. or/19-25
27. 7 and 18 and 26
28. randomized controlled trial.pt.
29. controlled clinical trial.pt.
30. randomized controlled trials.sh.
31. random allocation.sh.
32. double blind method.sh.
33. single blind method.sh.
34. or/28-33
35. animals/ not (human/ and animals/)
36. 34 not 35
37. clinical trial.pt.
38. exp clinical trials/
39. (clin$ adj25 trial$).ti,ab.
40. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab.
41. placebos.sh.
42. placebo$.ti,ab.
43. random$.ti,ab.
44. research design.sh.
45. or/37-44
46. 45 not 35
47. 36 or 46
48. (time adj series).tw.
49. (pre test or pretest or (post test or posttest)).tw.
50. 47 or 48 or 49
51. 27 and 50

Freely available internet databases

The following internet databases were also searched (in English only) in June 2004:

- BiblioMap, the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI Centre) database of health promotion research, http://eppi.ioe.ac.uk;
- The Health Evidence Bulletins, Wales, http://hebw.uwcm.ac.uk/;
- The Effective Public Health Practice Project, http://www.city.hamilton.on.ca/sphs/EPHPP/ephppSumRev.htm;
- HealthPromis, the public health database for England through the Health Development Agency, http://www.hda-online.org.uk/;
- The Community Guide - Guide to Community Preventive Services - Systematic reviews and evidence-based recommendations, http://www.thecommunityguide.org/;
- C2-SPECTR, the social, psychological, educational, and criminological trials register of the Campbell Collaboration, http://www.campbellcollaboration.org;
- Leisure Information Network website (http://www.lin.ca/) using the National Recreation Database (Canada);
- National Sport Information Centre - SportScan, http://www.ausport.gov.au/nsic/sportscan/;
- National Sport Information Centre - NSIC full text archive, http://www.ausport.gov.au/fulltext/default.asp;
- SportLit, South African Sports Commission database, http://www.sasc.org.za/Library.asp.

We also checked reference lists of relevant studies, and contacted authors of relevant studies to identify additional published and unpublished trials.

We conducted an internet search using the Google search engine (www.google.com). The following keywords were used to locate studies; sport, participation, organisation, sport association, club-based, sport program, teaser sport, taster and sport, come and try and sport. Links from relevant websites were also used to locate national sporting bodies with likely knowledge in this area to identify unpublished reports, internal reports and conference proceedings. Where sporting body publications were not available online the sporting body was contacted by email.

Appendix 2. MEDLINE (Ovid) search strategy

1. exp health promotion/
2. primary prevention/
3. preventive medicine/
4. public health/
5. health education/
6. (prevent$ or promot$ or program$ or project$ or educat$ or campaign$ or intervent$ or strateg$).tw.
7. or/1-6
8. exp sports/
9. exp recreation/
10. leisure activities/
11. physical fitness/
12. exercise/
13. exertion/
14. (physical adj5 (fit$ or train$ or activ$ or endur$)).tw.
15. (exercise$ or game$ or sport$ or leisure$ or recreation$).tw.
16. ((lifestyle or life-style) adj5 activ$).tw.
17. ((lifestyle or life-style) adj5 physical$).tw.
18. or/8-17
19. fitness centers/
20. (gym$ or club$ or swimming pool$).tw.
21. (wellness centre$ or wellness center$).tw.
22. (organi?ed adj1 sport$).tw.
23. (sport$ adj1 (body or bodies)).tw.
24. (sport$ adj1 organi$).tw.
25. ((sport$ or physical$ or exercise$ or game$ or leisure$ or recreation$ or fitness) adj5 (event$ or setting$ or sector$ or program$ or venue$ or site$ or centre$ or center$ or facility or facilities)).tw.
26. or/19-25
27. 7 and 18 and 26
28. randomized controlled trial.pt.
29. controlled clinical trial.pt.
30. randomized controlled trials.sh.
31. random allocation.sh.
32. double blind method.sh.
33. single blind method.sh.
34. or/28-33
35. animals/ not (human/ and animals/)
36. 34 not 35
37. clinical trial.pt.
38. exp clinical trials/
39. (clin$ adj25 trial$).ti,ab.
40. ((singl$ or doubl$ or trebl$ or tripl$) adj25 (blind$ or mask$)).ti,ab.
41. placebos.sh.
42. placebo$.ti,ab.
43. random$.ti,ab.
44. research design.sh.
45. or/37-44
46. 45 not 35
47. 36 or 46
48. (time adj series).tw.
49. (pre test or pretest or (post test or posttest)).tw.
50. 47 or 48 or 49

51. 27 and 50

WHAT'S NEW

Last assessed as up-to-date: 28 May 2007.

Date	Event	Description
9 May 2008	Amended	Converted to new review format.
9 May 2008	New citation required but conclusions have not changed	The citation reflects new authorship of the updated review.
8 May 2008	New search has been performed	Searches were updated in May 2007. No new studies were identified for inclusion

HISTORY

Protocol first published: Issue 2, 2004

Review first published: Issue 2, 2005

CONTRIBUTIONS OF AUTHORS

For the 2008 update

NP: Revised protocol, revised search strategy, screened titles and abstracts, judged full text articles, wrote complete review.

RA: Screened titles and abstracts, judged full text articles, edited complete review.

JD: Revised and contributed to complete review.

EW: Revised and contributed to complete review.

For the original review (Jackson 2005)

Nicki Jackson: Revised protocol, co-developed search strategy, screened titles and abstracts, judged full-text articles, wrote complete review.

Faline Howes: Wrote protocol, co-developed search strategy.

Sabrina Gupta: Conducted search strategy, screened titles and abstracts, judged full-text articles.

JD: Revised and made contributions to protocol.

EW: Revised protocol, edited complete review.

DECLARATIONS OF INTEREST

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- Cochrane Public Health Review Group, Australia.

External sources

- VicHealth (Victorian Health Promotion Foundation), Australia.

INDEX TERMS

Medical Subject Headings (MeSH)

*Health Behavior; *Organizations; *Sports; Exercise; Health Promotion [*methods]

MeSH check words

Humans