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# Effectiveness of physical activity promotion interventions in primary care: A review of reviews ☆

Alvaro Sanchez *, Paola Bully, Catalina Martinez, Gonzalo Grandes

*Primary Care Research Unit of Bizkaia, Basque Health Service-Osakidetza, Bilbao, Spain*

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ABSTRACT

*Objective.* The present review aims to summarize the evidence about the effectiveness of physical activity (PA) promotion interventions in primary care (PC) and the intervention or sample characteristics associated with greater effectiveness.

*Methods.* MEDLINE, EMBASE, and Cochrane Library were searched to identify systematic reviews and meta-analyses published from 2002 to 2012 that assessed the effectiveness of PA-promoting interventions in PC. Information was extracted and recorded about each of the selected studies and their reported results. Methodological and evidence quality was independently rated by two reviewers using the nine-item OQAQ scale and the SIGN classification system.

*Results.* Ten of the 1664 articles identified met the inclusion criteria: five meta-analyses, three systematic reviews, and two literature reviews. Overall, PA promotion interventions in PC showed a small to moderate positive effect on increasing PA levels. Better results were obtained by interventions including multiple behavioral change techniques and those targeted to insufficiently active patients. No clear associations were found regarding intervention intensity or sample characteristics.

*Conclusion.* Although several high-quality reviews provided clear evidence of small but positive effects of PA intervention in PC settings, evidence of specific strategies and sample characteristics associated with greater effectiveness is still needed to enhance the implementation of interventions under routine clinical conditions.



## Background

The numerous health benefits of regular physical activity (PA) are well known. Accordingly, it is recommended that adults perform at least 150 min/week of moderate-intensity PA, 75 min/week of vigorous PA, or a combination of moderate and vigorous PA (Haskell et al., 2007). However, a majority of the population in developed countries does not follow these recommendations, making PA promotion a public health priority (Tucker et al., 2011; Hallal et al., 2012).

Primary care (PC) practitioners can play a key role in promoting PA and improving population health in developed countries because of the ongoing care they provide to a large sector of the population (Estabrooks et al., 2003). It is estimated that up to 80% of adults in these countries visit their general practitioner (GP) at least once a year (van Doorslaer et al., 2006). Until recently, evidence about the effectiveness of interventions promoting PA in routine PC practice, especially in the long term, has been considered inconclusive (Foster et al., 2005; Muller-Riemenschneider et al., 2008). Newer studies have concluded in favor of PA interventions in the primary care setting, and recent meta-analyses indicate that the evidence appears to be shifting in this direction (Lin et al., 2010; Orrow et al., 2012; Hillsdon, 2013).

The high prevalence of inactivity in the population and the many obstacles faced by PC professionals in a setting characterized by work overload and a shortage of time and specialized training (Estabrooks and Glasgow, 2006; Grandes et al., 2008) combine to support the need for clear evidence of what can be achieved in PA promotion within primary care settings. Nonetheless, several challenges exist. First, there is no clear agreement among PC organizations and evidence-gathering agencies on the recommendations for PA promotion within the PC context. For example, the United States Preventive Services Task Force (USPSTF) currently recommends selective PA counseling rather than incorporating the message into routine practice in the general population (Moyer and U.S. Preventive Services Task Force, 2012); the United Kingdom's National Institute for Health and Clinical Excellence (NICE) also recommends that the National Health Service provides brief advice to adults who have been assessed as being inactive (National Institute for Health and Care Excellence, 2013), but the Royal Australian College

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* Corresponding author at: Unidad de Investigación de Atención Primaria, Osakidetza, Luis Power 18, 4ª planta, E-48014 Bilbao, Spain. Fax: +34 946006639.
*E-mail address:* alvaro.sanchezperez@osakidetza.net (A. Sanchez).

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of General Practice (Royal Australian College of General Practice, 2012) proposes that all adults and children should receive advice (Table 1). Second, the specific content and delivery format and the most effective elements of PC interventions promoting PA remain unclear (Hillsdon, 2013). And third, clarification is needed about supporting evidence to guide GPs in prioritizing their behavioral counseling efforts. Certain patients may be predisposed to benefit from these efforts based on, for example, their risk factor profile or readiness for change (as suggested in USPSTF guidelines) or their inactive lifestyle habits (as stated in the NICE recommendations).

The aim of this descriptive review is to summarize the evidence of the effectiveness of PA promotion interventions in the PC setting designed to increase PA levels of adult patients, as presented in systematic reviews and meta-analyses published from 2002 to 2012. Further, it attempts to determine the intervention components or strategies that have proven to be the most effective and the patient characteristics that could guide PC professionals to prioritize their efforts or maximize the impact of interventions. Finally, the implications of incorporating the available evidence into practice will be discussed.

## Methods

The present review has been registered in PROSPERO: CRD42013004413.

### *Review questions*

1) What is the current state of evidence regarding the effectiveness of PA-promoting interventions in the PC setting to increase the PA level of adult patients?
2) Which intervention components or strategies have been shown to be most effective?
3) Which sample characteristics are associated with higher effects?

### *Data sources and search strategy*

A search was performed in MEDLINE, EMBASE, and Cochrane Library databases to identify systematic reviews and meta-analyses published from 2002 to 2012 that assessed the effectiveness of PA-promoting interventions in the PC setting. A search strategy was developed using free text and subject heading terms related to the behavior or habit studied (physical activity, exercise, leisure or motor activities), to interventions that offered counseling or assistance (counseling, patient education, behavior change, health promotion), and to the specific study design (meta-analysis or systematic review) that was the object of the search. In order to maximize search sensitivity, we did not initially filter reviews by terms related to "primary care." Instead, we thoroughly applied the inclusion/exclusion criteria to each study referenced. The search was not limited to any language or country of origin. In addition to the databases searched, the reference lists for all of the selected reviews/meta-analyses were consulted to identify potentially eligible studies. Furthermore, a rapid Web search ("physical activity" and "primary care") was performed. The year 2002 was selected as the starting point in order to focus on newer reviews that may better represent current working conditions, trends, and procedures in PC.

### *Inclusion criteria*

1) Participants/population: adults aged 18 years and older; 2) Intervention: any intervention performed or initiated in a PC setting with the goal of increasing the PA level or participation of sedentary or insufficiently active adults; 3) Comparison group: no intervention control, usual care control, or alternative intervention control; and 4) Context: interventions initiated in a PC context with PC professionals as main intervention agents. The present study follows the definition of PC as "level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere by others" (Starfield, 1998); 5) Types of study: literature reviews, systematic reviews, meta-analyses; and 6) Primary outcome: increase in PA level or proportion of patients meeting predefined PA level, with at least one post-intervention follow-up measurement.

### *Exclusion criteria*

1) Clinical practice guidelines or recommendations involving no literature search and review of studies analyzing evidence; 2) Reviews in which primary studies carried out in PC did not constitute at least 50% of the included articles; 3) Studies conducted in settings that were not generalizable to primary care, including inpatient care, emergency departments, or occupational settings; 4) Reviews of secondary or tertiary prevention, or population studies focused only on pathology, as the presence of chronic illness may cause patients to be more

**Table 1**
Recommendations for physical activity promotion within the Primary Health Care context from organizations and evidence-gathering agencies.

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| Royal Australian College of General Practitioners (Royal Australian College of General Practice, 2012) | All adults should be advised to participate in 30 min of moderate activity on most, preferably all, days of the week | Interventions that have shown short-term benefit in changing physical activity include:<br>a) patient screening to identify current level of activity (including use of a pedometer) and readiness to be more active<br>b) provision of brief advice or counseling on exercise<br>c) supporting written materials and/or written prescription for exercise<br>d) pedometer step target of 10 000 steps per day, or 2000 more than at baseline |
| US Preventive Services Task Force (Moyer and U.S. Preventive Services Task Force, 2012) | Existing evidence indicates that the health benefit of initiating behavioral counseling in the primary care setting to promote physical activity is small. Clinicians may choose to selectively counsel patients rather than incorporate counseling into the care of all adults in the general population | Studies of medium- and high-intensity behavioral counseling interventions have shown beneficial effects on behavioral and intermediate health outcomes.<br>Medium-intensity interventions involved a range of 3 to 24 phone sessions or 1 to 8 in-person sessions. High-intensity interventions involved a range of 4 to 20 in-person group sessions and were the only interventions to report sustained benefits beyond 12 months.<br>No high-intensity interventions and few medium-intensity interventions involved primary care clinicians as the providers of the intervention |
| NICE (National Institute for Health and Care Excellence, 2013) | Advise adults who have been assessed as being inactive to do more physical activity | Tailored advice to: a) motivations and goals; b) current level of activity and ability; c) circumstances, preferences and barriers to being physically active; d) health status<br>Provide information about local opportunities to be physically active for people with a range of abilities, preferences and needs.<br>Consider giving a written outline of the advice and goals that have been discussed.<br>Follow up when there is another appointment or opportunity. |