

INTERVENTIONS ON DIET AND PHYSICAL ACTIVITY: WHAT WORKS

METHODOLOGY



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Recognizing the heavy and growing burden of chronic noncommunicable diseases (NCDs), the *Global Strategy on Diet, Physical Activity and Health (DPAS)* was endorsed by the World Health Assembly in 2004 (1). DPAS describes the responsibilities of many stakeholders to take action to improve diet and promote physical activity. One of the responsibilities of the World Health Organization (WHO) is to "*identify and disseminate information on evidence-based interventions, policies and structures*". This priority is further underlined in the NCD Action Plan that was endorsed by the World Health Assembly in May 2008.

A review of the evidence of effective diet and physical activity interventions was undertaken, the results of which are summarized in *Interventions on diet and physical activity: what works - Summary Report*.

This publication provides policy-makers and other stakeholders with a summary of tried and tested diet and physical activity interventions aimed at reducing the risk of chronic NCDs (accessible via the DPAS website at www.who.int/dietphysicalactivity/whatworks).

As the *Summary Report* is written for policy-makers, it only contains a short overview of the methodology of the review. The purpose of the current online document is to give more detailed information on the five stages of the methodology used.

The review evaluated existing evidence on the effectiveness of diet and physical activity interventions at group, community and population levels, with a focus on disadvantaged communities and low- and middle-income countries. In addition to the peer-reviewed studies, it also made use of grey literature on policy interventions and promising initiatives that had not yet undergone rigorous evaluation. The methodology was adapted from the guidelines provided by the Centre for Reviews and Dissemination of the University of York (2), Rychnetik and Frommer (3) and Flynn et al. (4).

**Phase 1:
Search
strategy**

The search strategy was restricted to studies on diet and/or physical activity that included human participants and were published in English between January 1995 and June 2006. The interventions described in the studies, however, could have taken place before 1995.

The following databases were searched: Cochrane Library, EMBASE and PubMed. The search strategy focused on four constructs for diet and physical activity: behaviour, intervention, objectives, and outcome (Tables 1 and 2).

The final yield of this process, after duplicates were removed, was 937 diet studies and 776 physical activity studies. Annexes 1 and 2 provide details of the search strategies for diet and physical activity respectively.

Table 1. Search strategy schema for diet interventions

Behaviour	Intervention	Objective	Outcome measure
Diet*	Campaign	Health	Best practice
Diet* habit	Initiative	Health behavio(r)	(Cost-)effective
Diet* intake	Intervention	Health education	Decision-analysis
Diet* knowledge	Program(me)	Health knowledge	(Economic) evaluation
Diet* practice(s)	Project	Health practice	Environment
Nutrition intake	Strategy	Health promotion	Guideline
Food habit*			Outcome measure

Table 2. Search strategy schema for physical activity interventions

Behaviour	Intervention	Objective	Outcome measure
Exercise	Campaign	Disease prevention	Best practice
Physical activity	Initiative	Health	(Cost-)effectiveness
Physical fitness	Intervention	Health Behaviour	Decision-analysis
Sport(s)	Program(me)	Health education	(Economic) evaluation
	Project	Health knowledge	Environment
	Strategy	Health practice	Guideline
		Health praomotion	Outcome measure

Inclusion criteria

The review included studies on interventions:

- 1. aimed at reducing risk for NCDs.**
 - Interventions designed to increase levels of participation in physical activity or to improve dietary habits and/or prevent obesity;
 - Interventions targeting changes in awareness, knowledge and/or attitudes towards diet and/or physical activity, improving self-efficacy, skill or competency concerning these behaviours;
 - Interventions targeted at changes in policy and/or the physical and/or social environment;
 - Interventions that were part of larger chronic NCD prevention strategies.
- 2. aimed primarily at “apparently healthy” adults and children.**
 - High-risk groups for chronic NCDs, such as overweight persons or those with high cholesterol or a family history of chronic NCDs, were, however, included.
- 3. targeting groups or communities.**
 - Interventions aimed at individuals were not included unless the individuals were counselled as part of a population-based programme.
- 4. with a sample size greater than fifty.**
- 5. that were clearly described.**
 - Studies were not included if the intervention was not clearly described and therefore outcomes could not be attributed to either physical activity or dietary intervention strategies.
- 6. cited in primary references only.**
 - Review articles that met the criteria for inclusion were however “hand-searched” for any additional references that had not been found in the previous database searches.

Interventions had to meet all six of the above criteria. All study designs were accepted, ranging from quasi-experimental and community-controlled trials to randomized controlled trials, to process or programme evaluations.

Phase 2:
Selection of
studies for
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Inclusion results

A total of 395 peer-reviewed publications met the inclusion criteria, describing 261 different interventions. Of these 261 interventions, 64 focused on disadvantaged communities and 13 took place in a low- or middle-income country.

The 395 peer-reviewed publications were grouped into categories by setting or life-course stage (Table 3). This categorization is intended to assist the reader to find interventions of relevance and facilitate an initial analysis. This said, interventions are only truly effective when national policies are aligned, coherent and supportive (portfolio approach).

Table 3. Overview of interventions by category

Category	Total number of peer-reviewed studies	Total number of interventions	Interventions focusing on disadvantaged communities	Interventions in low- or middle-income countries
Policy and environment	30	23	3	2
Mass media	36	24	2	3
School settings	107	55	14	1
The workplace	49	38	5	1
The community	75	65	22	3
Primary health care	67	29	5	0
Older adults	18	17	3	3
Religious settings	13	10	10	0
Total	395	261	64	13

The 395 full-text articles underwent a quality assessment by a panel of internal reviewers, including four dietitians and three physical activity specialists. The purpose of the quality assessment was to judge how far any firm recommendations could be made based on the evidence. The quality of each study was assessed on the criteria used to select participants, the study design, data collection methods, intervention integrity, and withdrawals and drop-outs. Annex 3 provides details of the criteria used. This quality assessment instrument was adapted from Pomerleau et al. (5). Each peer-reviewed study received an overall rating of 1 to 3 for quality, with 1 being the highest quality. Ten peer-reviewed studies did not receive a quality score, concerning mainly process evaluations. A summary of the quality scores per category, as well as the average and median ratings within each intervention setting, are presented in Table 4.

Table 4. Quality scores by category

Category	Quality			Mean	Median
	Low (3)	Medium (2)	High (1)		
Policy and environment	7	13	8	2.0	2.0
Mass media	7	20	8	2.0	2.0
School settings	18	46	42	1.8	2.0
The workplace	9	25	13	1.9	2.0
The community	19	32	21	2.0	2.0
Primary health care	11	37	19	1.9	2.0
Older adults	3	10	5	1.9	2.0
Religious settings	0	7	5	1.6	2.0

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