Effects of interventions outside the health services for increased physical activity among adults

This is an excerpt from the full technical report, which is written in Norwegian.

The excerpt provides the report's main messages in English.

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Systematic review

kunnskapssenteret

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Norwegian Knowledge Centre for the Health Services summarizes and disseminates evidence concerning the effect of treatments, methods, and interventions in health services, in addition to monitoring health service quality. Our goal is to support good decision making in order to provide patients in Norway with the best possible care. The Centre is organized under The Norwegian Directorate for Health, but is scientifically and professionally independent. The Centre has no authority to develop health policy or responsibility to implement policies.

We would like to thank all contributers for their expertise in this project. Norwegian Knowledge Centre for the Health Services assumes final responsibility for the content of this report.

Norwegian Knowledge Centre for the Health Services
Oslo, September 2010

Key Messages (in English)

Background

Physical inactivity is associated with a number of diseases, e.g. cardiovascular and respiratory diseases, type-2-diabetes, cancer, and osteoporosis. Worldwide, 17 % of the population is estimated to be physically inactive and 40 % are estimated to be insufficiently active. In Norway 20 % of the population are estimated to be physically active at the recommended level. It might thus be possible to enhance health by increasing the level of physical activity in the population.

Commission

In March 2009, the Norwegian Health Directorate commissioned the National Knowledge Centre for the Health Services to conduct a review of systematic reviews concerning effects of interventions outside the health services to increase physical activity among adults. The commission is part of the Health Directorate's contribution to a national strategy for increased physical activity in the population.

Main findings

We included nine systematic reviews of high methodological quality. We conclude, based on our summary of the results and the outcome of our appraisal of the quality of the evidence:

Individual-based interventions:

- Social support and remote support (Internet and telephone) probably increase physical activity levels in the short term.
- Advice, exercise and educational materials may increase physical activity levels slightly in the short and long term (> 12 months).
- Computer-tailored support, brief advice, pedometers, and programmes promoting active travel may increase physical activity levels slightly in the short term.
- We judged the quality of the documentation to be very low for interventions tailored to specific populations, for group-based education and exercise, and for initiatives to promote car sharing in neighbourhoods. We cannot draw conclusions about effects of these interventions.
- We lack good documentation about work-place interventions.

Effects of interventions outside the health services for increased physical activity among adults

What kind of report is this?

Systematic review
A systematic review is the result of gathering, critically evaluate and summarize relevant research findings by using pre-defined and explicit methods

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This report includes:

Systematic reviews of high methodological quality

Not included:

Non-systematic reviews and systematic reviews of moderate or low quality

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Who produced it?

The Norwegian Knowledge Centre for the Health Services on behalf of the Norwegian Directorate of Health

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When was it written?

Latest search for studies: March 2010

Population-based interventions:

- Local point-of-decision-prompts to use the stairs placed by elevators and escalators, campaigns in the community, and enhanced access to places for physical activity combined with informational outreach activities may possibly contribute to a small increase physical actcivity levels.
- We judged the quality of the evidence to be very low for campaigns in the media, for campaigns to promote walking and cycling to work, and for community-scale and street-scale urban design and land use policies, meaning that we cannot draw conclusions about effects of these interventions.
- We lack information about transportation and travel policies and practices, and interventions implemented through sporting organisations for increasing participation in sports.

We judge the conclusions to be valid for adults in general but not necessarily for groups in the population who are thought to, on average, have a lower level of physical activity and worse health, e. g. the elderly, immigrants from non-Western countries, and physically disabled people.

Executive summary (in English)

Effects of interventions outside the health services for increased physical activity among adults

BACKGROUND

Physical inactivity is associated with a number of diseases, e.g. cardiovascular and respiratory diseases, type-2-diabetes, cancer, and osteoporosis. Worldwide, 17 % of the population is estimated to be physically inactive and 40 % are estimated to be insufficiently active. In Norway 20 % of the population are estimated to be physically active at the recommended level. Physical inactivity is estimated to contribute to 3,1 % of the disease burden for men and 2,6 % for women in Norway. It might thus be possible to enhance health by increasing the level of physical activity in the population.

Current Norwegian recommendations say that all people should, every day, be physically active in aerobic activities for a minimum of 30 minutes. Time periods of at least 10 minutes can be gathered to 30 minutes. The intensity should be at least moderate, e. g. a brisk walk. In addition, exercises to maintain and improve muscular strength are recommended twice a week. Further health benefits may be achieved by increasing the daily amount or intensity of physical activity.

Summarized documentation about effects of interventions to increase physical activity mainly concerns interventions in health care settings, while interventions in the community and work-places, among the elderly and persons with physical functional limitations are not documented to the same extent.

We asked the following question:
What are the effects of different population-based and individual-based interventions outside the health services to increase physical activity among adults in general and among groups in the population who are thought to have a lower level of physical activity and worse health, e. g. the elderly, immigrants from non-Western countries, and physically disabled people?

METHODS

We searched systematically for literature in the following databases: CDSR Cochrane Library, CRD DARE, CRD HTA, MEDLINE, EMBASE, PsychInfo, Sociological

Abstracts, SCI – EXPANDED, and in reference lists of included reviews. We searched for literature with the following study designs: systematic reviews of high methodological quality that included controlled studies (randomized controlled trials, quasi-randomized trials, controlled before-and-after studies, cluster-randomized trials, cluster quasi-randomized trials, controlled interrupted time series analyses or interrupted time series analyses).

Two authors independently assessed reviews for inclusion and assessed methodological quality by using inclusion schemes and check lists. The quality of the evidence was assessed using GRADE.

RESULTS

We identified 1461 publications, and after having assessed titles, abstracts, and full text publications and assessed methodological quality we included nine systematic reviews.

The interventions included: Advice, exercise and educational materials; intervenetions targeting specific populations; computer-tailored support; brief advice; social support, remote support (Internet and telephone); group-based education and exercise; pedometers; programmes to promote active travel; initiatives to promote car sharing in neighbourhoods; point-of-decision prompts to use the stairs placed by elevators and escalators; individual marketing (IndiMark®) of environmental friendly ways of transportation to households; campaigns in the media; campaigns in the society; enhanced access to places for physical activity; community-scale and street-scale urban design and land use policies.

The systematic reviews reported outcome of interventions to increase physical activity as net change in absolute (percentage points, minutes used for physical activity) or relative (percent) figures.

After integrating the results reported in the systematic reviews with the result of our assessment of the quality of the evidence using GRADE, two individual-based interventions probably increase physical activity: 1) social support, and 2) remote support (Internet or telephone). We judged the quality of the evidence for these interventions as moderate, meaning it is likely that further research will influence our confidence in the population effect estimate and may change the estimate. Five individual-based interventions may increase physical activity slightly: 1) advice, exercise and educational materials, 2) computer-tailored support, 3) brief advice, 4) pedometers, and 5) programmes to promote active travel. We judged the quality of the evidence for these interventions as low, meaning it is very likely that further research will have an important impact on our confidence in the population effect estimate and is likely to change the estimate. Three population-based interventions may increase physical activity slightly: 1) point-of-decision prompts to use the stairs placed by elevators and escalators, 2) campaigns in the society, and 3) enhanced access to places for physical activity. The quality of the evidence for these interventions and outcomes was judged as low. For the remaining interventions and outcomes the

quality of the evidence was judged to be very low which means that all estimates are uncertain.

DISCUSSION

Our review of systematic reviews has answered questions about individual-based and population-based interventions outside the health services to increase physical activity among adults. In total, there were more than 120 studies included in the systematic reviews we included in our review, which is a substantial evidence base. There are mainly two conditions across studies that have contributed to our downgrading of the quality of the evidence: study quality, and lack of precision in the effect estimates.

CONCLUSIONS

We conclude, based on our summary of the results and the outcome of our appraisal of the quality of the evidence:
Individual-based interventions:

- Social support and remote support (Internet and telephone) probably increase physical activity levels in the short term.
- Advice, exercise and educational materials may increase physical activity levels slightly in the short and long term (> 12 months).
- Computer-tailored support, brief advice, pedometers, and programmes promoting active travel may increase physical activity levels slightly in the short term.
- We judged the quality of the documentation to be very low for interventions tailored to specific populations, for group-based education and exercise, and for initiatives to promote car sharing in neighbourhoods. We are uncertain whether these interventions increase physical activity.
- We lack good documentation about work-place interventions.

Population-based interventions:

- Local point-of-decision-prompts to use the stairs placed by elevators and escalators, campaigns in the community, and enhanced access to places for physical activity combined with informational outreach activities may possibly contribute to a small increase physical actcivity levels.
- We judged the quality of the evidence to be very low for campaigns in the media, for campaigns to promote walking and cycling to work, and for community-scale and street-scale urban design and land use policies, meaning that we cannot draw conclusions about effects of these interventions.
- We lack information about transportation and travel policies and practices, and interventions implemented through sporting organisations for increasing participation in sports.

We judge the conclusions to be valid for adults in general but not necessarily for groups in the population who are thought to, on average, have a lower level of physi-

cal activity and worse health, e. g. the elderly, immigrants from non-Western countries, and physically disabled people.

Further research should:

- continue to include adults in general because the quality of the evidence is weak, but particularly groups in the population who are thought to, on average, have a lower level of physical activity and worse health, e. g. the elderly, immigrants from non-Western countries, and physically disabled people
- have long-term follow-up and, if possible, target both uptake and maintenance of physical activity
- study effects of interventions based on community-scale and street-scale urban design and land use policies with stronger research designs than those constituting the current evidence base.

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