

Non-pharmacological interventions to reduce the risk for cardiovascular disease: a summary of systematic reviews

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

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

No. 19-2008

Systematic reviews

Title	Non-pharmacological interventions to reduce the risk for cardiovascular disease: a summary of systematic reviews
Norwegian title	Ikke-medikamentelle tiltak for å redusere risiko for hjerte- og karsykdommer: en oppsummering av systematiske oversikter.
Institution	Norwegian Knowledge Centre for the Health Services (Nasjonalt kunnskapssenter for helsetjenesten) John-Arne Røttingen, <i>Director</i>
Authors	Signe Flottorp, <i>Research manager, Project leader</i> Mohamed Guled Farah, <i>Researcher</i> Hanne Thürmer, <i>department Director</i> Marit Johansen, <i>Librarian</i> Atle Fretheim, <i>Research manager</i>
ISBN	978-82-8121-236-7
ISSN	1890-1298
Report	No. 19 – 2008
Project number	206
Type of report	Systematic reviews
No. of pages	123 (incl. attachments)
Client	The Norwegian Directorate of Health
Subject heading (MeSH)	Cardiovascular Diseases
Citation	Flottorp S, Farah MG, Thürmer H, Johansen M, Fretheim A. Non-pharmacological interventions to reduce the risk for cardiovascular disease: a summary of systematic reviews. Report from Kunnskapssenteret no. 19–2008. Oslo: Norwegian Knowledge Centre for the Health Services, 2008.

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 contributors 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, November 2008

Key messages

Non-pharmacological interventions to reduce the risk for cardiovascular disease: a summary of systematic reviews

- Many interventions to quit smoking, increase physical activity, reduce weight and improve diet can reduce risk factors for cardiovascular disease. The interventions seem to produce only small effects, if any, and there is a lack of evidence regarding effects on morbidity and mortality. A small or moderate effect may be important, though, both for the individual but particularly at population level.
- Several interventions support smoking cessation: mass media campaigns targeted at young people and adults, advice from health professionals both in primary care and hospitals, self help programs, group therapy, telephone advice, interventions in the workplace, nicotine replacement, bupropion and varenicline.
- Mass media campaigns aimed at adult established smokers seemed to have similar effects regardless of age, gender, ethnicity or education.
- Biomedical risk assessments and hypnosis are unlikely to help smokers to quit.
- We can not draw conclusions on the effects on smoking rates of training of health professionals, school-based or family-based programs, acupuncture, physical activity, interventions for preventing tobacco sales to minors or relapse prevention.
- Physical activity interventions moderately improve self-reported physical activity and cardio-respiratory fitness, and help achieving a predetermined activity level.
- Exercise for overweight and type 2 diabetes supports weight reduction and reduces cardiovascular disease risk factors even if no weight is lost.
- Calorie restricted diets in overweight hypertensive persons can give modest weight loss and blood pressure decreases.
- Weight loss strategies in prediabetes may reduce weight and diabetes incidence.
- Dietary advice, advice to reduce or modify fat intake and reduce intake of salt may have a small, but important effect on cardiovascular risk factors.
- There are no high quality data on the efficacy of the dietary treatment of type 2 diabetes or familial hypercholesterolaemia.
- An organized system of regular review may reduce blood pressure.
- We have not assessed cost effectiveness of the interventions.
- We need more evidence on effects of interventions to reduce social inequalities in risk for and incidence of cardiovascular disease.
- We need evidence from studies of high quality and longer follow-up measuring morbidity and mortality, for several of the interventions that we have assessed.

Executive summary

Non-pharmacological interventions to reduce the risk for cardiovascular disease: a summary of systematic reviews

BACKGROUND

The Norwegian Directorate for Health asked the Norwegian Knowledge Centre for the Health Services to perform a health technology assessment related to the development of national guidelines for the pharmacological prevention of cardiovascular disease. The last of three issues in the request was:

”Norwegian Knowledge Centre for the Health Services is asked to briefly refer to the evidence regarding the effects of non-pharmacological prevention. Both individual interventions and intervention at the population level should be discussed.”

In this report we summarise Cochrane reviews on the effects of non-pharmacological interventions to reduce risk factors for cardiovascular diseases, together with pharmacological interventions to support smoking cessation, weight reduction and diabetes prevention. In contrast to the main report outcomes were not limited to morbidity and mortality.

METHODS

We searched for systematic reviews in these databases in the Cochrane Library:

- Cochrane Database of Systematic Reviews (CDSR)
- Database of Abstracts of Reviews of Effects (DARE)
- Health Technology Assessment Database (HTA)

We searched for systematic reviews examining non-pharmacological interventions for primary prevention of cardiovascular diseases, as diet, physical activity, weight control and weight reduction, smoking cessation, complementary and alternative treatments in persons without diagnosed cardiovascular disease, and also Cochrane reviews of pharmacological interventions to support weight reduction, smoking cessation and diabetes prevention. Relevant outcomes were mortality and morbidity and important outcomes in life style interventions as quit rate, increased physical

activity, weight reduction, and reduction in level of risk factors. Two persons independently read all unique titles and abstracts identified in the literature search, and assessed them towards the inclusion criteria.

We made a simple summary of the included Cochrane reviews, mainly based on information in the abstracts in the summaries and the authors' conclusions.

Two persons independently assessed and sorted the effects of the interventions in:

- Interventions likely to be effective
- Interventions unlikely to be effective
- Interventions with unknown effect

RESULTS

- We identified 81 reviews from the Cochrane Database of Systematic Reviews, and 159 potentially relevant reviews in the DARE and HTA databases.

We have listed all identified reviews in the appendices, but we have not further analysed the reviews from DARE and the HTA databases.

The 81 Cochrane reviews dealt with (number of reviews in parenthesis):

- smoking cessation (42)
- physical activity (6)
- weight reduction and dietary advice to reduce the risk for cardiovascular disease (27)
- other interventions (6)

The main conclusions based on these reviews are:

- Many interventions to quit smoking, increase physical activity, reduce weight and improve diet can reduce risk factors for cardiovascular disease. The interventions seem to produce only small effects, if any, and there is a lack of evidence regarding effects on morbidity and mortality. A small or moderate effect may be important, though, both for the individual but particularly at population level.
- Several interventions support smoking cessation: mass media campaigns targeted at young people and adults, advice from health professionals both in primary care and hospitals, self help programs, group therapy, telephone advice, interventions in the workplace, nicotine replacement, bupropion and varenicline.
- Mass media campaigns aimed at adult established smokers seemed to have similar effects regardless of age, gender, ethnicity or education.
- Biomedical risk assessments and hypnosis are unlikely to help smokers to quit.
- We can not draw conclusions on the effects on smoking rates of training of health professionals, school-based or family-based programs, acupuncture, physical activity, interventions for preventing tobacco sales to minors or relapse prevention.

- Physical activity interventions moderately improve self-reported physical activity and cardio-respiratory fitness, and help achieving a predetermined activity level.
- Exercise for overweight and type 2 diabetes supports weight reduction and reduces cardiovascular disease risk factors even if no weight is lost.
- Calorie restricted diets in overweight hypertensive persons can give modest weight loss and blood pressure decreases.
- Weight loss strategies in prediabetes may reduce weight and diabetes incidence.
- Dietary advice, advice to reduce or modify fat intake and reduce intake of salt may have a small, but important effect on cardiovascular risk factors.
- An organized system of regular review may reduce blood pressure.
- We have not assessed cost effectiveness of the interventions.
- We need more evidence on effects of interventions to reduce social inequalities in risk for and incidence of cardiovascular disease.
- We need evidence from studies of high quality and longer follow-up measuring morbidity and mortality, for several of the interventions that we have assessed.

DISCUSSION

There is evidence that several interventions may have positive effects on lifestyle factors related to risk for cardiovascular diseases, as smoking, physical activity, overweight and diet. The interventions seem to have a small or moderate effect, if any. A small but lasting change in lifestyle and other risk factors may be important both at individual and at population health level.

We have not assessed the quality of the evidence for the outcomes. We have not assessed the cost-effectiveness of the interventions, and not the degree to which it is feasible or desirable to implement the interventions in daily practice.

CONCLUSION

The incidence of cardiovascular disease in Norway may be additionally reduced by using and acting upon evidence of effects of non pharmacological interventions to influence the risk factors for cardiovascular diseases. It seems sensible to implement simple interventions supported by high quality evidence for effect on smoking cessation, physical activity, overweight and diet, rather than complex and less cost-effective interventions, or interventions with unknown effects.

We need more evidence of the effects of interventions to reduce socioeconomic inequalities in risk for and incidence of cardiovascular diseases.

Several of the reviews examined interventions for which there were lacking or low quality evidence. We need more and better studies to assess the effects of non pharmacological interventions to prevent the risk for cardiovascular diseases. The studies

should be well designed, with sufficient sample sizes and long enough follow up, and preferably measuring cardiovascular morbidity and mortality.

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 Directorate for Health and Social Affairs, but is scientifically and professionally independent. The Centre has no authority to develop health policy or responsibility to implement policies.

Norwegian Knowledge Centre for the Health Services

PB 7004 St. Olavs plass

N-0130 Oslo, Norway

Telephone: +47 23 25 50 00

E-mail: post@kunnskapssenteret.no

Full report (pdf): www.kunnskapssenteret.no