Telephone interventions for physical activity and dietary behavior change: a systematic review
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CRD summary
This review, which assessed the effectiveness of telephone counselling interventions in changing physical activity and dietary behaviours, concluded that telephone interventions are effective in improving such behaviours. Broadly, the authors' conclusions appear to follow the results of the review, although they may be oversimplified.

Authors' objectives
To assess the effectiveness of telephone interventions for improving physical activity and dietary behaviours.

Searching
PubMed, MEDLINE and PsycINFO were searched from 1965 to January 2006 for English language publications; the search terms were reported.

Study selection

Study designs of evaluations included in the review
Randomised controlled trials (RCTs) or quasi-experimental studies with a comparison group were eligible for inclusion. Follow-up durations ranged from 6 weeks to 18 months.

Specific interventions included in the review
Studies involving telephone-delivered interventions aimed at improving physical activity and/or dietary behaviours were eligible for inclusion. Studies that included additional interventions were included as long as the telephone was the predominant method of intervention delivery. The included studies used the telephone alone or in conjunction with other components, including initial face-to-face contact or counselling, activity log, pedometer, tailored or non-tailored printed information, initial exercise prescription, feedback, workbook, or phone number for resource line. The intervention were delivered by various health professionals and varied in intensity. The interventions ranged in duration from 3 weeks to 12 months.

Participants included in the review
Studies involving adults of any health status were eligible for inclusion. The included studies identified healthy adult participants and adults with various chronic conditions, including type 2 diabetes, chronic heart disease, women diagnosed with early stage breast cancer in the previous 4 years, and patients recently completing cardiac rehabilitation.

Outcomes assessed in the review
Studies reporting outcomes relating to physical activity and/or dietary behaviour were eligible for inclusion. The included studies reported short-, medium- or long-term effect sizes for the following outcomes: amount of physical activity; adherence; dietary, total calorie or fat intake; and physiological or biological changes, measured using recall, logs/diaries, questionnaires, physiologic indices or biomarkers.

How were decisions on the relevance of primary studies made?
Two reviewers independently screened studies for relevance and any disagreements were resolved through discussion.

Assessment of study quality
Two reviewers independently assessed validity according to Cochrane Review guidelines, which included items on study design, randomisation procedures, use of validated measurement tools, allocation blinding and attrition levels.

Data extraction
Two reviewers independently extracted the data from the included studies. Effect sizes were calculated where possible. Where results were reported for more than one outcome in a study, the effect sizes were averaged across outcomes.
Methods of synthesis
How were the studies combined?
A narrative synthesis was provided, with mean effect sizes calculated were possible.

How were differences between studies investigated?
The studies were grouped by physical intervention studies, dietary behaviour intervention studies, or both.

Results of the review
Twenty-six RCTs (n=9,237; n=3,362 for physical activity, n=3,622 for dietary behaviour and n=2,253 combined) were included in the review.

Fifty-eight per cent of the included studies reported the use of appropriate methods for randomisation, 85% used validated measurement tools, while only 32% reported blinding.

Overall, 20 studies (77%) that evaluated telephone counselling showed positive changes in physical activity and/or dietary behaviour. Effect sizes ranged from 0.24 to 1.19, with a mean of 0.60 (moderate). Studies using the telephone plus additional components were reported as showing greater positive change. However, only 2 studies (reported as three) assessed telephone delivery alone. Interventions lasting between 6 and 12 months and that included 12 or more calls were the most effective.

Eleven (69%) of 16 studies on physical activity reported significant improvements in outcome, with a mean effect size of 0.50 (small to moderate). Six studies assessed long-term effects; all reported positive improvements in physical activity.

Five (83%) of 6 studies on dietary behaviour reported significant improvements, with 3 studies reporting positive long-term effects on behaviour change. The mean effect size was 0.74 (moderate).

Three of 4 studies on physical activity and dietary behaviour reported improvements, with one reporting long-term improvements for diet and physical activity. The mean effect size was 0.86 (large).

Authors' conclusions
Telephone counselling interventions to improve physical activity and dietary behaviour are effective.

CRD commentary
The review questions were clear and were supported by appropriate inclusion criteria relating to the participants, interventions, outcomes and study designs. Relevant literature searches were conducted using two electronic databases, however, as there was no apparent search for unpublished material, it is possible that relevant papers were missed. Publications were restricted to those in English, which means that language bias might also have been introduced. Validity was assessed according to published criteria, although the results were not presented for each study. Attempts were made to minimise errors and bias at each stage of the review process, and appropriate methods were used to present the results. Broadly, the authors' conclusions appear to follow the results of the review. However, there were differences in intervention components, participants, outcomes measured and measurement tools, which may make the conclusions oversimplified.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that future studies should investigate optimal intervention intensity and duration, implications for resource use and costs, and the use of technology such as text messaging. Furthermore, future research should include post-intervention follow-up to assess maintenance of behavioural change.

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