Changing the environment to promote health-enhancing physical activity

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CRD summary
This review looked at studies that attempted to change people’s health-enhancing activity behaviour by changing the physical or working environment, or by encouraging people to make changes such as using stairs. It found that there were some benefits to changes in the environment and to encouraging people to use stairs, however, the evidence was weak and more research is needed.

Authors’ objectives
To review the evidence on the potential for the environment to affect health-enhancing physical activity (HEPA), and the effects of changing the environment.

Searching
MEDLINE, EMBASE, CINAHL, AMED, PsycLIT, SciSearch, GEOBASE, SIGLE and SPORTDiscus were searched from inception to December 2001; the search terms were reported. The reference lists of identified studies and reviews were checked. The search was limited to studies reported in the English language.

Study selection
Study designs of evaluations included in the review
Observational studies that used an experimental design were eligible for inclusion. These had to have a comparator group or be of a pre-test post-test design.

Specific interventions included in the review
Studies that looked at changing any aspect of the environment, or used a man-made or natural element of the environment as a mechanism to change HEPA behaviour, were eligible for inclusion. The studies had to use a control group or non-intervention group as a comparator, or use a pre-test post-test design. Environment was defined as any aspect of the physical or natural environment, or urban or constructed environment, that unconsciously or consciously related to an individual’s HEPA behaviour. Studies were excluded if the environmental changes were not the principal component of the intervention. The included studies were divided into two groups:

the environment was physically changed or new opportunities for activity were developed and promoted (educational or training combined with changes to the environment infrastructure, access to facilities, new staff showers and changing facilities, lobbying local authorities to improve cycle routes, travel diaries, fitness testing, incentives or medical support):

the environment provided a choice for active or sedentary behaviour (signing, posters or stair riser banners to increase use of stairs, educational materials or improving the attractiveness of stairwells).

Participants included in the review
Studies on adults aged 18 years or older were eligible for inclusion. The included studies were aimed at employees or service personnel, or people using specific sites such as libraries, public transport stations or shopping centres.

Outcomes assessed in the review
The studies had to report on changes in HEPA or physical fitness. The included studies reported on increases in physical activity (e.g. cycling or walking to work) or fitness scores. These outcomes were assessed at 6 months to 12 years. In the ‘stairs’ studies, observations were made as to the number of people that chose stairs rather than escalators.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the study.
Assessment of study quality
The authors did not state that they assessed quality, although some aspects of study quality were discussed in the narrative.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Details of the characteristics and outcomes of each study were tabulated.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative discussion, according to the category of intervention.

How were differences between studies investigated?
Differences between the studies were discussed in the narrative.

Results of the review
Eighteen studies were included: 3 evaluated changes in the environment (3,777 participants) and 15 evaluated stair interventions (836,181 observations). All were of before-and-after design; two also had a non-intervention comparison group.

Environmental changes (3 studies).

One study showed a small improvement in fitness from baseline with the provision of more exercise facilities, which had extended opening hours, compared with a non-intervention control group. One study reported an improvement in self-reported changes to travel to work (cycling or walking) with the provision of showers and changing rooms. A third study reported an increase in those taking regular physical activity over time with a health promotion intervention.

Stair interventions (15 studies).

In most studies there was a positive effect of posters and banners on the number of people using stairs during the poster campaign, and up to 3 months after the intervention. One study showed a positive effect at 6 months. The increase in stair usage ranged from 2 to 29%, although most studies reported increases of less than 5%.

Authors’ conclusions
Changes to the physical environment appear to increase HEPA behaviour. However, without well-controlled experimental studies it is difficult to assess the effectiveness of these interventions.

CRD commentary
This review attempted to answer a complex question, using broad inclusion criteria. The aims were clearly stated and the search was comprehensive. However, the review was limited to studies in English, hence it is possible that studies were missed. The methods used to select studies and extract the data were not described, therefore error and bias cannot be ruled out. The quality of the studies did not seem to have been systematically assessed, although some aspects were discussed in the text. The interventions were described in detail. The decision to present the results as a narrative was appropriate. Given the limited evidence available, and the limitations of the review highlighted, the authors’ conclusions are suitably conservative.
Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: Future studies should use objective measures of the environment and outcomes. They should also assess what aspects of the environment have an impact on HEPA behaviour; how they impact; which of these can be changed to have a positive effect; what are the effects of these changes or interventions; and how these interventions can be implemented in practice.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.