

Lifestyle and structured exercise programmes increased physical activity and improved cardiorespiratory fitness

Dunn AL, Marcus BH, Kampert JB, et al. *Comparison of lifestyle and structured interventions to increase physical activity and cardiorespiratory fitness. A randomized trial.* JAMA 1999 Jan 27;281:327-34.

Question

Are lifestyle physical activity programmes as effective as structured exercise programmes for improving physical activity, cardiorespiratory fitness, and risk factors in healthy, sedentary adults?

Design

24 month randomised, single blind (outcome assessor), controlled trial.

Setting

An outpatient centre in Dallas, Texas, USA.

Participants

237 healthy, sedentary adults (mean age 46 y, 50% women) who lived or worked within 16 km of the centre. Exclusion criteria were history of myocardial infarction, stroke, type 1 diabetes mellitus, osteoporosis, or osteoarthritis; >140% of ideal body weight; plans to move from area or become pregnant; consumption of ≥ 3 drinks of alcohol each day; exercising ≥ 3 days each week for ≥ 20 minutes; hypertension; and use of medication that could impair exercise performance. 80% were included in the final analysis.

Intervention

Both groups received 6 months of intensive training, 18 months of maintenance training, and identical physical activity goals. 122 adults were allocated to the lifestyle programme that comprised encouragement to accumulate 30 minutes of moderate exercise daily, regular meetings (weekly for 16 wks, tapering to once every 3 mo) based on cognitive and behaviour modification principles, weekly home assignments, newsletters, and regular assessments. 115 adults were allocated to the structured exercise programme, which included supervised sessions, tailored goals based on the American College of Sports Medicine recommendations, a fitness centre membership, and follow up for non-attendance.

Main outcome measures

Changes in physical activity, cardiorespiratory fitness, blood pressure, lipid concentrations, and body composition.

Main results

Both groups showed improvements from baseline to 24 months for energy expenditure (total and vigorous activity), stair climbing, treadmill time, peak oxygen consumption, submaximal heart rate, body fat, and blood pressure. The structured exercise group had improvements in walking; total, high, and low density lipoprotein (HDL and LDL) cholesterol; and ratio of total cholesterol to HDL cholesterol concentrations, whereas the lifestyle group did not. Neither group showed improvements in weight or triglyceride concentrations.

At 24 months, the structured exercise group had a greater decrease in hours spent sitting each week than did the lifestyle group (adjusted mean decrease from baseline 6.85 v 1.18 h, $p=0.04$). The groups did not differ at 24 months for changes in energy expenditure, walking, stair climbing, treadmill time, peak oxygen consumption, submaximal heart rate; body fat; weight; total, HDL, or LDL cholesterol concentrations; ratio of total cholesterol to HDL cholesterol; or blood pressure.

Conclusion

In healthy, sedentary adults, lifestyle exercise and structured exercise programmes were equally effective at improving selected physical activity and cardiorespiratory fitness outcomes and decreasing blood pressure.

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Commentary

The findings of Dunn *et al* are consistent with those of other studies of healthy adults. Lifestyle physical activity at moderate levels is effective at increasing and maintaining levels of cardiorespiratory fitness that are consistent with guidelines for public health.¹⁻³ In contrast, studies of people with concurrent chronic conditions (eg, cardiovascular disease) show that increased physical activity and fitness are better achieved with supervised, formal programming.^{4,5}

Men and women were equally represented in the study. The strategies used in both groups were based on the Stages of Change model, which proposes that strategies need to be matched to an individual's motivational readiness for change. The study lasted 24 months,

which is an appropriate length of time for many people to make successful behaviour changes. Participants randomised to formal exercise programming were asked to attend 5 sessions each week. In practice, such high attendance expectations could contribute to non-compliance. The home lifestyle group was provided with many forms of ongoing support. The cost benefit of providing this level of support on a large scale requires further scrutiny. The results are clearly important: lifestyle based exercise can be as effective as supervised programmes when programming is geared to the participant's motivational readiness for change. The individual needs of certain client groups (eg, people who are elderly, economically

disadvantaged, or have chronic conditions) and their personal preferences should be factored into counselling and programme design.

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