

# Abstracts

## *Fish oils, arrhythmias and mortality*

An interest in the therapeutic use of n-3 polyunsaturated fatty acids (omega-3 fats, or fish oil) to prevent and treat cardiovascular diseases began after a report in 1976 showed that the high consumption of fish oil in Inuit living in Greenland was associated with a decreased risk of cardiovascular disease.<sup>1</sup> The GISSI-Prevenzione trial of 11 324 patients randomised to a mixture of the omega-3 fats eicosapentaenoic acid (EPA) and docosahexaenoic acid ((DHA), 850 - 882 mg/day in a ratio of 1.2:1, respectively) or placebo showed a significant reduction in all-cause mortality and death from cardiovascular causes over 3.5 years of follow-up. These results seemed to be driven by a reduction in sudden cardiac death, sparking an interest in the potential anti-arrhythmic properties of fish oil. Three recent randomised clinical trials looked at fish oil in the prevention of sudden cardiac death in patients with implantable cardiac defibrillators. None of these trials, or a recent systematic review, showed a beneficial effect of fish oil on patient outcomes.

In this study Hernando León and colleagues synthesised the literature on the effects of fish oil - DHA and EPA - on mortality and arrhythmias and to explore dose response and formulation effects. The primary outcomes of interest were the arrhythmic end points of appropriate implantable cardiac defibrillator intervention and sudden cardiac death. The secondary outcomes were all-cause mortality and death from cardiac causes. Subgroup analyses included the effect of formulations of EPA and DHA on death from cardiac causes and effects of fish oil in patients with coronary artery disease or myocardial infarction.

Twelve studies totalling 32 779 patients met the inclusion criteria. A neutral effect was reported in 3 studies for appropriate implantable cardiac defibrillator intervention and in 6 studies for sudden cardiac death. Eleven studies provided data on the effects of fish oil on all-cause mortality and a reduction in deaths from cardiac causes. The dose-response relation for DHA and EPA on reduction

in deaths from cardiac causes was not significant.

Fish oil supplementation was associated with a significant reduction in deaths from cardiac causes but had no effect on arrhythmias or all-cause mortality. Evidence to recommend an optimal formulation of EPA or DHA to reduce these outcomes is insufficient. Fish oils are a heterogeneous product, and the optimal formulations for DHA and EPA remain unclear.

1. León H, *et al. BMJ* 2008; 337: a2931.

## *Treadmill exercise and resistance training in patients with peripheral arterial disease*

Supervised treadmill exercise improves treadmill walking performance in people with peripheral arterial disease (PAD) who have symptoms of intermittent claudication. However, to what extent such training improves the physical capabilities of those with PAD without symptoms of intermittent claudication remains unanswered. Most patients with PAD do not have classic symptoms of intermittent claudication, either because they are asymptomatic or because they have exertional leg symptoms other than intermittent claudication. Individuals with PAD who do not have classic intermittent claudication symptoms have comparable or greater functional impairment and functional decline than those without PAD. However, no prior exercise interventions have been tested on PAD participants with and without classic symptoms of intermittent claudication.

Additionally, benefits of lower extremity resistance (strength) training in PAD are unclear. Adults with PAD have smaller calf muscle area and poorer leg strength than those without PAD, and these muscle characteristics are associated with greater functional impairment among people with PAD. However, clinical trials of lower-extremity resistance training in persons with PAD have been small, have yielded mixed results, and have excluded PAD participants without classic symptoms of intermittent claudication.

Mary McDermott and colleagues performed a randomised controlled clinical trial involving men and women with PAD to address two clinical questions. First, they determined whether supervised treadmill exercise improves functional performance and other outcomes among participants with PAD with and without classic intermittent claudication symptoms. Second, they determined whether lower-extremity resistance training improves functional performance and other outcomes in participants with PAD with and without classic intermittent claudication symptoms. Each intervention group was compared with a control group.

They looked at 156 patients who were assigned to supervised treadmill exercise, lower extremity strength training or a control group. For the 6-minute walk, those in the supervised treadmill exercise group increased their distance walked by 35.9 m compared with the control group, whereas those in the resistance training group increased their distance walked by 12.4 m compared with the control group. Neither exercise group improved its short physical performance battery scores. For brachial artery flow-mediated dilation, those in the treadmill group had a mean improvement of 1.53% compared with the control group. The treadmill group had greater increases in maximal treadmill walking time, walking impairment distance score, and SF-36 PF score than the control group. The resistance training group had greater increases in maximal treadmill walking time, walking impairment scores for distance and stair climbing, and SF-36 PF score than the control group.

The conclusion was that supervised treadmill training improved 6-minute walk performance, treadmill walking performance, brachial artery flow-mediated dilation, and quality of life but did not improve the short physical performance battery scores of PAD participants with and without intermittent claudication. Lower-extremity resistance training improved functional performance measured by treadmill walking, quality of life, and stair climbing ability.

McDermott MM, *et al. JAMA* 2009; 301: 165-174.

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