

To: Transport & Health Policy Makers, & Practitioners
From: Prof Adrian Davis, TRI, Edinburgh Napier University
Date: 17th March 2020
Subject: Essential Evidence 4 Scotland No. 25 Commuter cycling and health protection.

Top Line: Studies from the 1980s reported higher fitness levels in regular cycle users and that even short distance cycled at least three times a week is enough to improve measured fitness, reduce body fat and improve a range of aspects of health & well-being.

Much of the focus of interventions to promote cycling and walking have been on the work journey. The physical activity benefits of cycling have therefore been relatively well studied in relation to this journey. One of the earliest studies was of Birmingham factory workers where cycling was found to have the strongest association with fitness of all the physical activities assessed. Even in 1986 the authors were able to cite a number of studies which identified the contribution of cycling to fitness both among adults and children. The most commonly cited results from this study were in terms of fitness: The order of the difference in fitness in favour of cyclists is equivalent to that enjoyed by being five years younger (cycling in general) or up to 10 years younger (for regular cyclists).¹

Dutch research has demonstrated that cycling as part of normal daily activity can yield much the same improvements in physical performance as specific training programmes (such as gym attendance). The higher the total distance cycled during a six month trial period of activity among men and women (who had not participated in regular intensive exercise over the previous six months), the higher the gain in maximal external power and maximal oxygen uptake. For those with a low initial fitness level, a single trip distance of three kilometres per day each way was enough to improve physical performance if repeated at least three times a week.²

Research from Finland suggest that journeys to and from work by bicycle provide exercise of sufficient intensity and duration to improve fitness and health, and that travel by bicycle provides greater increases in measured fitness than does walking.³

A UK study of non-exercisers who took up cycling (some commuting) on at least four days a week found that the greatest benefits were near the beginning of the trial, and the more the volunteers cycled, the fitter they became. Body fat was also significantly reduced among most of the volunteers who were overweight or obese at the outset (59% of volunteers). In addition, leg strength improved by 16%, and other benefits included perceptions of enhanced well-being, self-confidence, tolerance to stress, and reductions in difficulty sleeping.⁴ From 2000 studies demonstrated that regular cycling protects against ill-health and premature death from all causes.

¹ Tuxworth, W., Nevill, A., White, C., Jenkins, C. 1986 Health, fitness, physical activity, and morbidity of middle aged male factory workers, *British Journal of Industrial Medicine*, 43: 733-753.

² Hendriksen, I. 1996 *The effect of commuter cycling on physical performance and on coronary heart disease risk factors*, Amsterdam: Free University.

³ Oja, P., et al. 1991 Physiological effects of walking and cycling to work, *Scandinavian Journal of Medicine, Science and Sports*, 1: 151-157.

⁴ Boyd, H., et al 1998 Health-related effects of regular cycling on a sample of previous non-exercisers, *Resume of main findings*