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Improvements in exercise capacity among inactive using electrically assisted bicycles to commute

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Background: Physical inactivity is a leading cause of premature death in the 21st century. Interventions to change a sedentary lifestyle in a general population have so far not been very successful. Active commuting by bike is a promising intervention because it overcomes time constraint and accessibility, the two most important obstacles reported by those unable to maintain a new activity. Active commuting by bike is chosen by 4 % in the norwegian population, a lower proportion of workers compared to most European countries. Electrically assisted bicycles (EABs) are perceived to make active commuting more manageable, and some evidence indicate that EAB provide an exercise intensity level likely to produce health benefit. **Aims:** In this study we wanted to examine if providing inactive people with EAB would lead to an increase in physical activity and an improvement in their exercise capacity.

Method: Inactive employees in a selection of private and public corporations in three Norwegian cities were invited to participate in the intervention. Inclusion criteria were: a desire to cycle to work, more than 3 km commuting distance and currently not being physically active. Twenty five participants were included and provided with EABs and GPS-bike computer. They were followed from 3-8 months, 226 days on average. A questionnaire and testing of maximal oxygen consumption (VO₂max) were performed at inclusion and after the intervention. Bike usage was measured using a GPS bike computer.

Results: Participants used their EABs 102 minutes/week on average. VO₂max improved significantly with 2.36 ml/kg/min (7.7 %), p=0.05.

Conclusions: Offering EABs to inactive employees to promote active commuting can lead to substantial increase in physical activity and significant improvements of V02 max.