ELECTROCARDIOGRAPHIC AND OTHER CLINICAL CORRELATES OF SIX MINUTE WALKING DISTANCE IN OLDER FEMALES

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INTRODUCTION
The six minute walking test is an easy and safe test to estimate functional exercise capacity and walking ability of older persons. Reduced six minute walking distance is associated with increasing age and body mass index (BMI), and with chronic diseases such as heart failure and chronic obstructive pulmonary disease. On the other hand, increased six minute walking distance is associated with greater height and can be improved by increasing lower limb muscle strength and physical activity. However, the role of electrocardiographic (ECG) findings as correlates of six minute walking distance is unknown. The aim of this study was to determine how ECG findings and clinical variables which can be included in a routine clinical examination predict six minute walking distance in older females.

METHODS
In a cross-sectional design, 320 females aged 63 to 75 from the Finnish Twin Cohort were studied. Measurements performed were clinical examination including assessment of physical activity level, presence of chronic diseases, use of beta-blockers, BMI, ability to squat, measurement of resting blood pressure and standard 12-lead resting electrocardiogram including heart rate, and six minute walking test.

RESULTS
Mean six minute walking distance was 533 m. In a regression model, the best age-adjusted electrocardiographic predictors of long walking distance were high TV5, high TII and low Cornell voltage, but increases in explanation rates in addition to age were small (0.045, 0.038 and 0.030, respectively). The best age-adjusted predictors of long walking distance were ability to squat normally, low BMI and absence of chronic diseases (increases in explanation rates in addition to age 0.155, 0.136 and 0.091, respectively). When ECG findings were adjusted for other clinical variables involved, they lost their statistical significance. Together Cornell voltage, TV5 and other clinical variables explained 35.5 % of the variation in walking distance.

CONCLUSIONS
Normal ability to squat, low BMI and absence of chronic diseases are good predictors of long walking distance in relatively healthy older women in a cross-sectional study. The predictive value of ECG findings is smaller when cases with myocardial infarction are excluded.

Keywords: Walking, Elderly, Electrocardiography