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Impact of ActiGraph's processing criteria on steps count in COPD

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Abstract

Accelerometer-measured daily step count is widely used to infer on physical activity levels of people with COPD. Processing techniques may impact results but the extent of this problem is yet little understood.

We assessed the impact of different epoch lengths and filters, using two non-wear time algorithms on steps/day estimates in people with COPD.

People with COPD wore an ActiGraph wGT3X on the waist for 7 days. Data were processed using combinations of epoch lengths (15s vs 60s), filters (normal vs low frequency extension [LFE]), and non-wear time algorithms (Choi vs Troiano). Aligned Rank Transform-ANOVA was applied to compare the effects of filter and epoch length and the interaction effect between these factors on the steps/day for each non-wear time algorithm.

A total of 116 people with COPD (89♂; 69±8y; FEV1 53±20pp) were included. With the Choi algorithm, the LFE yield more than the double number of steps/day than the normal filter (median [IQR]=12770 [8785-17096] vs 5717 [3111-7566], respectively, $F(1,115)=1280.4$, $p<0.001$) and no significant differences were observed between the two epoch

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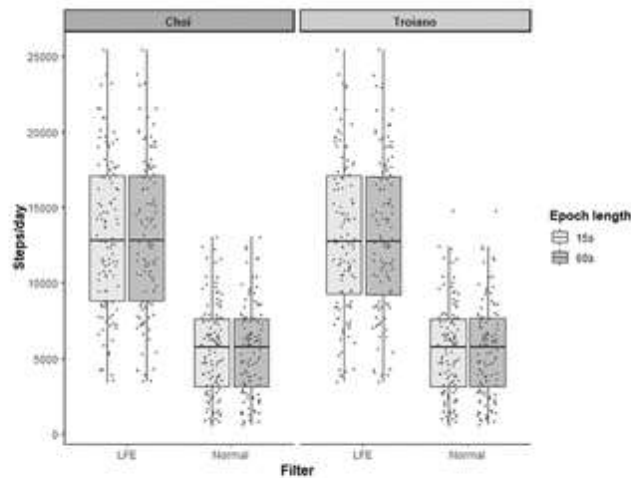


Figure 1 – Steps/day by filter and epoch length using Choi and Troiano algorithms in people with COPD.

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COPD Physical activity

Footnotes

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