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Title: The 6-minute walk distance cannot be accurately assessed at home in people with COPD

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Body: Background: There is growing interest in home-based rehabilitation and self management programs for people with COPD. The 6-minute walk test is commonly used to assess the effects of these treatments on exercise capacity, however it is not known whether this assessment can be performed accurately in the home environment. The aim of this study was to determine whether exercise capacity can be accurately assessed in the home using the six minute walk test (6MWT). Methods: 14 participants with stable COPD (10 males), mean age 73 (SD 7) years and FEV1 55(14) %predicted undertook the 6-minute walk test at home and at the hospital. Home and hospital tests were conducted in random order on separate days, within one week, with two tests performed on each testing occasion and the best distance recorded. Hospital tests were conducted on a 30-metre walking track whilst home tests were conducted using the longest available track, inside or outside the home. Agreement for 6-minute walk distance (6MWD) across testing locations was examined using the Bland and Altman method. Results: Eight home tests were conducted outdoors and six were conducted inside the home, with track lengths ranging from 7 to 30 metres. The home 6MWD was shorter than the hospital 6MWD (mean 37 metres shorter, limits of agreement -192 to 118 metres). For the home tests, a shorter track length was associated with a greater reduction in 6MWD (rS=0.65, p=0.01). Conclusion: The 6-minute walk distance cannot be accurately assessed at home in people with COPD. Alternative exercise tests that are suitable for the home environment should be developed if a comprehensive assessment of people with COPD is to be performed at home.