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Six-minute walk test is a poor predictor of maximum oxygen uptake in children

Dear Editor,

It was with great interest that I read the work of Limsuan et al. (1) on the 6 min walk test in healthy 9–12 year old children. However, I have some major concern after reading the paper. In Fig. 1 the authors present the relationship between 6 min walk distance and maximum oxygen uptake (VO_{2max}). However, looking at the actual values for VO_{2max}, the authors did not correct the VO_{2max} for body mass as indicated in the legend of the figure. Because the VO_{2max} ranges between 1 and 3, it must be expressed in L/min, and not in kg/L/min as the indicated on the *x*-axis. Both walk distance and VO_{2max} are influenced by growth and development in children (2). Therefore my question is whether this relationship would be the same when 6 min walk distance is actually correlated with VO_{2max} per kilogram body mass.

Furthermore, it is my opinion that the 6 min walking test cannot be used as a substitute for a formal maximal exercise test in the paediatricians office. I have pooled data from several paediatric patient groups that have been tested in our laboratory on both the 6 min walk test as well as a maximal exercise test using respiratory gas exchange to determine VO_{2max} (3,4). As can be appreciated from Fig. 1, there are only very low correlations between walking distance and VO_{2max} in these paediatric patients groups. Pearson's correlations between 6 min walking distance and VO_{2max} were as follows: Juvenile Idiopathic Arthritis (JIA): $r = 0.25$, haemophilia $r = 0.31$, spina bifida (SB): $r = 0.46$, end-stage renal disease (ESRD) $r = -0.25$. Because of these low correlations, the 6 min walk test cannot predict VO_{2max}, replace a maximal exercise test, nor can it be used as a screening instrument for referral for exercise testing in the primary care office.

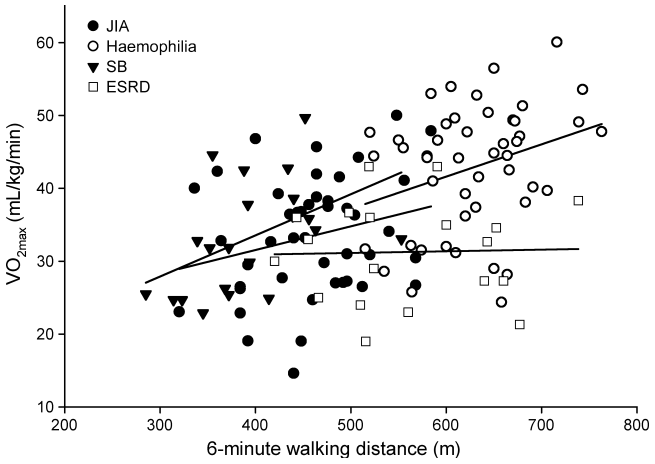

Figure 1 The 6 min walking distance in relation to VO_{2max} (mL/kg/min) in different pediatric patient groups. JIA, juvenile idiopathic arthritis, SB, spina bifida. Data from references (3,4).

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Correlation between the 6-min walk test and exercise stress test

Dear Editor,

We are pleased to have our work being examined and received a valuable comment from the readers. Our study on the 6-min walk test in healthy children, aged 9–12 years, demonstrated the correlation between the 6-min walk distance and the maximum oxygen consumption (1). As Dr Takken pointed out that there is a typing error on the Fig. 1 in our previous publication. The maximum oxygen consumption (VO_2 max) in the *x*-axis aimed to express in L/min. Nevertheless, we conducted several analyses on our data and obtained a similar result of correlation between the 6-min walk test and the VO_2 max index by the body weight (mL/min/kg) as shown in Fig. 1 with the correlation coefficient $r = 0.54$. Our data are consistent with the previous report by Li et al. (2). So in our article, we proposed 6-min walk test (SMWT) to be a 'screening' tool prior to the exercise stress test in children. The result of the SMWT could then assist the primary care physician to define the urgent basis of referral, which seemingly is quite common in clinical practice. We would therefore like to clarify that we did not suggest the use of