



Cardiovascular Fitness of Children and Adolescents Following Lower Limb Burn Injury: A Cross Sectional Study

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AIMS

To assess the cardiovascular fitness of children and adolescents post lower limb burn injury compared to unaffected peers

To determine if burn location affects performance

METHODS

Participant characteristics and burn location were recorded.

The 6 minute walk test was used to measure cardiovascular fitness. Physical activity levels were determined using the Physical Activity Questionnaire for children (PAQ-C) and adolescence (PAQ-A).

Unpaired t-tests were used to compare results of children with a burn injury to contemporary normative data, and to compare children with burns in different locations.

RESULTS

Participants
26 participants (77% male) aged between 5 and 16 years (mean: 10.4 years, SD 3.21) were assessed at a mean of 125 days post lower limb burn injury. TBSA of burns ranged from 0.7% to 30% (mean 5.41%, SD 6.99%). 9 participants had bilateral injuries. 10 participants had burns crossing a joint surface.

Cardiovascular Fitness
Performance was significantly reduced overall on the 6 minute walk test compared to normative data¹ (mean difference -90.49 metres, 95% CI -143.87 to -37.11, p = 0.001).

Burn location
Burn location did not significantly alter performance (all p<0.38).

Physical Activity Levels
Participants PAQ scores ranged from 0 – 4.58/5 (mean 2.98, SD 1.30) suggesting high variability in the physical activity levels of children with burns. A moderate non-significant correlation was found between physical activity levels and 6 minute walk distance (r²=0.43, p=0.05).

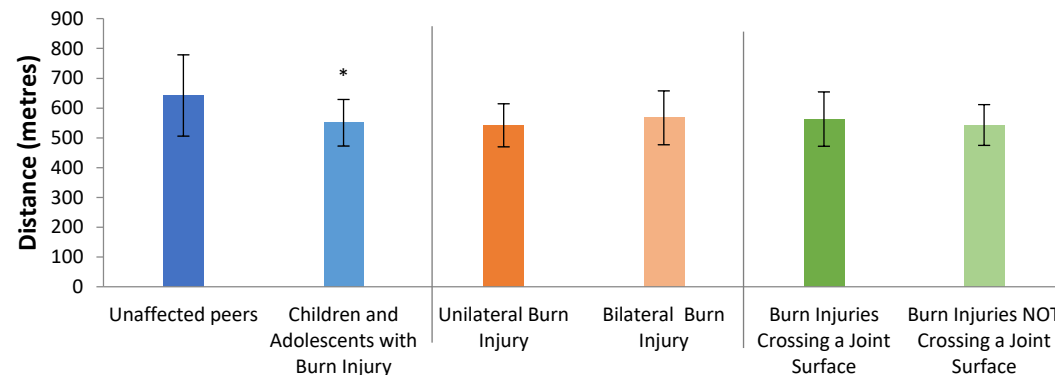


Figure 1. 6 Minute Walk Test distance of children and adolescents with lower limb burn injury of various locations and overall results compared to unaffected peers¹. Values are means ± SD. * indicates statistically significant at p <0.05.

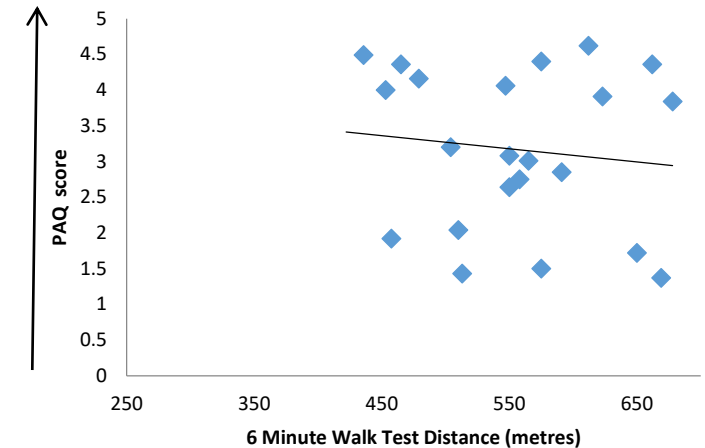


Figure 1. Correlation between 6 Minute Walk Test distance and Physical Activity Questionnaire (PAQ) score. Higher PAQ scores indicate greater activity levels, while lower scores indicate lower activity levels.

CONCLUSION

Cardiovascular fitness is reduced in children and adolescents 3 – 6 months post lower limb burn injury, irrespective of burn location.

Physiotherapy interventions should focus treatment on reconditioning to address these impairments.

REFERENCE

1. McKay MJ, Baldwin Jn, Ferreira P, Simic M, Vanicek N, Burns J. Reference Values for Developing Responsive Functional Outcome Measures Across the Lifespan. *Neurology*. 2017;88:1-8