RESPONSES TO EXERCISE IN OMANI CHILDREN WITH SICKLE CELL DISEASE OR SICKLE CELL TRAIT, COMPARED WITH HEALTHY CONTROLS

***Al Kitani M. **Thompson D. and ***Stokes K.**

1. Assistant Professor, Sultan Qaboos University, Physical Education Department, College of Education, Muscat, **OMAN**.

2.,3. Professor, University of Bath, Faculty of Sport and Exercise Sciences, **UK.**

Email: mkitani@squ.edu.om

(Received August 29, 2013, accepted November 30, 2013)

ABSTRACT

Sickle cell disease (SCD) and Sickle cell trait (SCT) are genetic disorders characterised by production of abnormal haemoglobin (Hb). It affects many races, countries, and ethnic groups and is particularly prevalent in Africa and parts of Asia. An association linking the presence of SCD in adults with exercise capacity has been established. Several factors might contribute in limiting exercise capacity in this population including; reduced oxygen carrying capacity of blood due to low Hb concentration; structural and functional adaptations resulting from chronic anaemia; and pulmonary changes from repeated episodes of acute chest syndrome (Callahan et. al). However, the mechanism of exercise limitation in children with sickle cell is still not clear. The aim of this study was to assess the cardiovascular response to a 20m shuttle run test of SCD/SCT and compare them to normal children from Oman. Anthropometric and body composition of Omani male children ages 12-15 years were measured. Haematological indices and VO2 max response to exercise was obtained. In 20m shuttle run test normal children reported significantly higher mean values than SCT and SCD children ($P<0.05$), while SCT results were significantly higher than SCD ($P<0.05$). In this study children with SCD have significantly lower aerobic fitness level compared with the other two groups. Other similar studies (Pianosi et al; Barden et al) reported same results. This might be due to the severity of the disease and delay in growth patterns. Children with SCD have limited cardiopulmonary fitness in comparison with normal healthy children.