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Risser sign - trends in a South African black population

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2012-01-16
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RISSER SIGN – TRENDS IN A SOUTH AFRICAN BLACK POPULATION

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A research report submitted to the Faculty of Health Sciences, University of the Wiwatersrand, Johannesburg, in partial fulfillment of the Requirements for the degree of Master of Medicine in the branch of Orthopaedics

Johannesburg, 2009

DECLARATION

I, Ziyaad Mayet declare that this research report is my own work. It is being submitted for the degree of Master of Medicine in the branch of Orthopaedics in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

……

……. day of ……., 2009

To Nazrana,

my source of strength

and support.

PRESENTATIONS ARISING FROM THE STUDY

1. Lukhele M., Mayet Z. The Risser sign-Is there a difference in the African population? Oral presentation. 1st Biennial Congress of the South African Spine Society 28 – 31 MAY 2009, Sun City
2. Mayet Z., Lukhele M., Aboo N., Mohammed N. Risser Sign-Is there a difference in the African population? Poster presentation. SAOA 55th congress 2009, Bloemfontein

ABSTRACT

The 5 stages of the Risser sign, which chart the development of ossification of the iliac crest has been widely used as a tool to assess skeletal age and remaining spinal growth, and thereby influence scoliosis management. However, as with other markers of skeletal age, it is under the influence of genetic and environmental factors. Proof of this was given by Risser, who observed that children in warmer climates developed earlier. Numerous other authors have also shown differences for other measures of maturity between different race groups.

We tried to show that a different trend occurred in the South African Black population, as compared to published data from other population groups.

Radiographs from the Radiology records departments of various hospitals were assessed by 2 independent observers for the Risser sign. This was used to chart trends, which was compared to trends published by

Scoles *et. al.* which was recorded on the Cleveland based Brush-Bolton Collection.

The South African black population showed a trend towards starting earlier. They however completed their fusion later. This is suggestive of a longer duration of iliac ossification. Furthermore, the importance of climatic control was shown by the fact that the black & white populations mirrored each other.

ACKNOWLEDGEMENTS

To Professor Lukhele, whose insight and support made this possible, and to all the staff of the radiology records departments at each hospital for their assistance.

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ABBREVIATIONS

PHV	Peak height velocity
PGA	Peak growth age
ASIS	Anterior superior iliac spine
PSIS	Posterior superior iliac spine
AP	Anteroposterior
PA	Posteroanterior
DHEA	Dihydro-epiandrostenedione
DHEA-S	Dihydro-epiandrostenedione-S
IGF-1	Interleukin growth factor-1
DSA	Digital skeletal age