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Barefoot children have better balance

A study by researchers from South Africa and Germany found that young children who grow up walking barefoot have better balance and can also jump further than children who wear shoes.

"Our research has shown that regular physical activities without shoes may be beneficial for the development of jumping and balance skills, especially in the age of 6 to 10 years," says Professor Ranel Venter from the Department of Sport Science in the Faculty of Education at Stellenbosch University.

Professor Venter and colleague, Dr Elbé de Villiers, collaborated with researchers from the University of Jena and the University of Hamburg.

The study was conducted in South Africa and Germany between March 2015 and June 2016 and published recently in the journal *Frontiers in Pediatrics*.

Professor Venter says the aim of the research was to evaluate, for the first time, the link between growing up barefoot or wearing shoes and the development of motor performance during childhood and adolescence. "To our knowledge, no study has examined the potential relationship between regular barefoot activities and motor skills."

Three hundred and eighty-five habitual barefoot and 425 shoe-wearing children between 6 and 18 years were recruited in schools across rural and urban areas in the Western Cape, in South Africa, and Northern Germany.

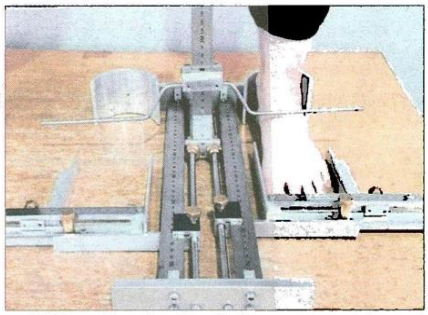
Venter says the two populations were chosen due to their different footwear habits. "Whereas South African children are generally used to walking barefoot during the day, almost all German children wear shoes during school time and for most of recreational activities."

For the children to be considered habitually barefoot, they had to be barefoot at school and in and around the house or during sports/recreational activities. Both groups had to participate in physical activity for at least 120 accumulative minutes per week and they had to be free of any orthopaedic, neurological or neuromuscular conditions that may influence motor performance.

Professor Venter says all the children completed balance (walking backwards in a self-selected, comfortable speed over three balance beams of 6, 4.5, and 3 cm width), standing long jump and 20m sprint tests.

"Results of these tests show that barefoot children in South Africa's primary schools performed better in balance tests than their German counterparts who never walk barefoot. This may be related to the fact that the feet of South Africa's children are wider and more deformable.

"Barefoot children were also able to jump further from a standing position that German children.



■ South African feet seem to be broader in front. Most available and affordable shoes do not have enough space for the toes and are too narrow.

"This may be related to the fact that the foot arches of South African children are well developed.

"Children who are regularly barefoot have higher foot arches than children who never walk barefoot. Their feet are also more flexible and less flat."

Professor Venter says that as far as jumping results are concerned, significant effects were found for the age groups 6 to 10 and 15 to 18 years.

She also points out that fewer differences were observed during adolescence although there are greater jump distances and slower sprint times in barefoot individuals.

"Our results show that motor skill competencies of shoe-wearing and barefoot children may develop differently during childhood and adolescence.

"Whereas barefoot children between ages 6 and 10 years scored higher in the backward balance test compared to shoe-wearing children, no differences were found in adolescents.

"The early childhood years are fundamental for the development of balance, and rapid improvements can be observed until the age of 9 to 10 years.

"A likely explanation is that footwear habits influence the musculoskeletal architecture of the foot which in turn may be associated with motor performance."

Professor Venter says the overall results of their study emphasise the influence on and importance of footwear habits for the development of feet and motor skills during childhood and adolescence.

Shoe shapes not suitable for South African children

In an earlier study, Professor Venter found that the feet of South African children walking barefoot are in many ways different from European shoe wearers. "The problem is that the growing feet of our barefoot children are forced into European sizes – the shoes are particularly narrow. It also does not help if parents decide to buy bigger shoes – it changes the natural operation of the foot and the shoe's designed 'bend' does not match the foot's natural bend."

Professor Venter says that through her research, she wants to explain the fact that the shoes that our children wear, especially school shoes, are not suitable and appropriate for most South African children's feet and to raise awareness of the value of children walking barefoot.

"Society cherishes the perception that barefoot should necessarily be equal to poverty or lower status in society. We should rather embrace and cherish our barefoot culture. The results of our research must motivate local and South African shoe providers to get involved and to really care for the health and good development of children's feet."

Professor Venter adds that she wants to expand her research to a survey on the occurrence of foot problems; as well as a barefoot intervention with older people and to determine whether it may have an effect on balance.

● Source: Hollander, K et al 2018. *Motor skills of children and adolescent are influenced by growing up barefoot or shod. Frontiers in Pediatrics Vol.6: 1-6.*