

South Africa's barefoot children wear ill-fitting school shoes

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Caliper testing. Credit: Stellenbosch University South Africa

Many children in South Africa run the risk of developing foot

abnormalities such as hammer-, clawed- and retracted toes and heel spurs because they wear school shoes that don't fit properly.

This is one of the key findings of a new study at Stellenbosch University (SU).

"Our research shows that habitually barefoot kids wear school shoes that are either too short, too long or too narrow for their feet. Wearing ill-fitting shoes regularly can have a negative impact on the development of their feet which can lead to various foot abnormalities, and [musculoskeletal problems](#) such as [lower back pain](#) later in life," say Marise Breet and Ranel Venter from the Department of Sport Science at SU. They set out to determine if the length and width dimensions of prescribed school shoes match the foot dimensions of habitually barefoot [children](#).

The findings of their study were published recently in *BMC Pediatrics*.

Breet and Venter measured the feet of 698 kids (431 girls and 267 boys) between the ages of six and sixteen in urban and rural schools. They also measured the length and width of different brands of school shoes currently available in stores. The maximum heel-toe length (HTL) and foot width with an added 10 mm toe and width fit allowance to each participant were compared to the corresponding school shoe length and width.

"Our results show that, comparing the shoe length and maximum heel-toe-length of participants, as well as taking 10 mm toe allowance into account, 59% of children wore shoes that were not the correct length. With regards to the shoe width and the added 10 mm of width fit allowance, 98% of the shoes worn by the children were too narrow for their feet."

"Given the width dimensions of the shoes in our study, many children in South Africa will not have the option of a school shoe with a wider forefoot, as this is not available. Habitually barefoot children have a wider forefoot than those who wear shoes on a regular basis."

According to the researchers, there are several possible reasons for the prevalence of ill-fitting shoes.

"Recent research has indicated toe and width allowances are not applied effectively. Often too much or too little space is left for the toes inside the shoe to ensure a correct shoe fit. The recommended toe allowance of 10 mm should be considered in addition to the HTL of the child to guarantee the correct fit for shoe length."

"Our shoe manufacturers use a shoe design based on the British system, using foot length as the basic measurement. In this system, each increase in foot length will correspond with a standardized increase in foot girth, based on European data."

"Also, the manufacturing of children's shoes is often not predominantly influenced by orthopedic and biomechanical research, but by fashion trends."

The researchers add that the quality of information available on footwear fit and the rapid increase (up to 1.5 cm per year) in foot length in children between the ages of six and 14 years could also be reasons for ill-fitting shoes.

They recommend that shoe manufacturing companies consider the shoe width of school shoes for habitually barefoot children and adolescents to avoid the long-term negative effects of ill-fitting shoes.

"Shoe designs for these children should produce a shoe to fit the foot

properly and mimic the natural shape and dimensions of the bare foot. This should help to enhance the healthy development of the [foot](#)."

"It should be pointed out, however, that shoe manufacturers don't always have the right data to design a standard shape from available measurements. Consequently, they focus on shoe length as a basic measurement without considering the other dimensions."

The researchers say their study advances and elaborates on existing views on this highly relevant issue, as it places the onus on shoe manufacturers to improve on the basic dimensions of available shoes for habitually barefoot children.

"Results from our study could help to create awareness of the current mismatch between these children's feet and available [school](#) shoes and could also assist shoe manufacturers to make better-fitting [shoes](#) for our South African children and adolescents."

More information: Marise Carina Breet et al, Are habitually barefoot children compelled to wear ill-fitting school shoes? A cross-sectional study, *BMC Pediatrics* (2022). [DOI: 10.1186/s12887-022-03263-9](https://doi.org/10.1186/s12887-022-03263-9)

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