In Stealth, Modern Shoes Have Deformed The Modern Human Body

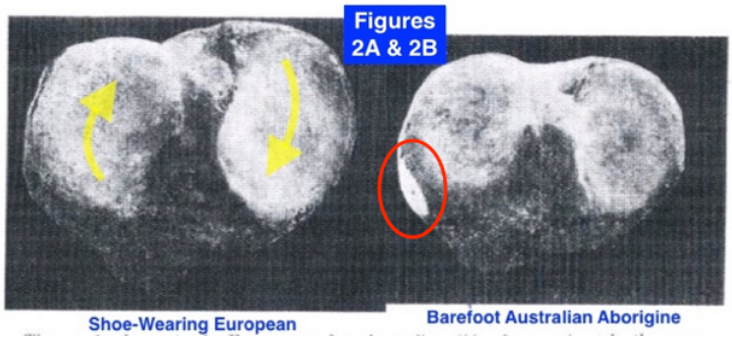
Unexplained anomalies have carved out a unique role in the history of science. They can lead to entirely new paradigms in our understanding of nature. An unexplained anomaly in human anatomy originating in the island of Malaita in the South Pacific and published in 1939 in the ***Lancet*** may be a new example of that paradigm-shifting role.

The unexplained anomaly is this: footprints are the same between individuals from different human races who have never worn shoes (**FIGURE 1A**)**;** in contrast, a modern human foot exposed to everyday use of modern shoes is rolled to the outside into a **supination** position (**FIGURE 1B**).

This overlooked anomaly strongly suggests that some attribute of modern shoes alone causes a physical deviation in the modern foot. My analysis of published data from a 2015 **ISB** prize-winning biomechanical study by **Steffen Willwacher et al**. has produced new experimental confirmation of that deviation: an average of about **6° of artificial, shoe sole-induced supination** occurring during midstance for 222 male and female runners in modern running shoes. That result is supported by unpublished data from Dr. Willwacher that his test subjects had **4° to 5° of ankle inversion** while standing in their own running shoes and by earlier studies by **Peter Cavanagh, Joe Hamill, and Steven Subonick**.

The artificial **6°** foot deviation during running likely has other effects on the body, since it occurs during a running peak load of 2-3 times bodyweight. A strong possibility therefore exists that some well-defined physical differences in the unaffected bodies of the "primitive barefoot races" actually represent the **normal** state of the natural human body. And, in contrast, those of the presumptively "more highly evolved modern European race" actually represent **abnormal** human deformities caused by footwear.

The **6°** supinated modern foot biomechanically twists the ankle joint and lower leg to the outside about **10°**, creating an abnormal rotary torsion built into the bone structure of the modern knee joint of a habitually **shod Modern European** (**FIGURE 2A**). It gradually enlarges and weakens one or both knees, promoting arthritis and ACL injuries.



In contrast, the rarely injured natural barefoot knee (**FIGURE 2B**) of a typical non-shoe wearer, a barefoot **Australian Aborigine** (and Caucasians from India and ancient Rome), has a smaller, simpler structure, with no abnormal built-in rotary motion and with stronger ligament attachments. (iliotibial tract, circled in **red**).

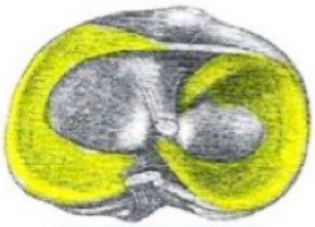


Figure 2C
Modern Knee Joint

The asymmetrically twisted and malformed menisci highlight the abnormality of the modern knee, the medial meniscus is pushed far forward, the lateral backward (**FIGURE 2C**), unlike those of a barefoot knee.

In evolutionary terms, it is already well-established that the human body was born to run. In terms of evolution-in-reverse, the artificial transformation of the modern human body from natural to deformed occurs during running with supination-inducing modern shoes.

That is because, during running, the highest repetitive forces on the human body are experienced. That pounding repetitive load of 2-3 times bodyweight controls bone growth and joint formation during the critical growth phases of childhood and adolescence, when running is frequent, in accordance with Wolff's Law and Davis's Law governing bone and joint development.

During locomotion, especially running, the supinated modern foot automatically twists and tilts the body's entire skeletal structure into a bilaterally asymmetrical position, including both legs, as well as the pelvis, and everything supported it, including the spine, torso, arms, and skull.

A typical **African Bushman** (**FIGURE 3A**), having grown up barefoot, has natural body structure when running at peak load in midstance: symmetrical with straight legs and level pelvis, with no leg crossover and well-defined spine. Evidence indicates that Asians and Caucasians who have not worn modern shoes, such as young Kim Phuc and Zola Budd, have the same vertically aligned body structure.

In contrast, the typical modern body of the **shod Finnish marathoner** (**FIGURE 3B**), having grown up wearing modern shoes, is tilted and twisted away from a vertical centerline. He has a twisted pelvis and bent-out spine with shallow definition and unnatural thoracic torsion abnormally distorting his chest, possibly pressuring the heart and thereby promoting heart disease. His neck and head are tilted-in to counterbalance his tilted-out spine.

In summary, the modern human body has been deformed – artificially by footwear, rather than preordained by genetics – resulting in unnaturally exaggerated differences between human races and also between genders. The evidence points to a completely new and different understanding of what is normal in human anatomy, despite the conventional wisdom that gross human anatomy is the most settled of all the sciences.

How the everyday shoe sole manages to create such widespread deformity in every part of the modern human body is the focus of my new book. The actual shoe sole structure that causes the supination anomaly is outlined there, as is what is already known about it and its effects in hundreds of peer-reviewed studies, as well as the new research effort urgently needed now.

A short, 9-page summary and a first draft of the both abridged book and the complete book are available at my research website, **www.AnatomicResearch.org**.

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Research Note:

I should also include here a note about the extent of my research effort. I have conducted over a period of many years a comprehensive analysis of all peer-reviewed research I could find in many different disciplines like biomechanics, anatomy, orthopedics, podiatry, physical anthropology, archeology, and many others that were related to shoe heel-induced supination, including many articles available only at the Library of Congress and the National Library of Medicine, not online. The **Endnotes** of my unabridged book now totals over 73 pages, mostly listing the many peer-reviewed articles I reviewed and concluded were relevant, and specifically noting the exact pages and/or specific figures that were considered most relevant. Far more articles were reviewed and deemed not sufficiently relevant to include.

LIST OF FIGURES

Figure 1 Different bare footprints of shoe-wearing European and barefoot Solomon Island native from **James**, Clifford S. (1939). Footprints and feet of natives of the Solomon Islands. In the ***Lancet***: 2: 1390-1393. **Figures 2A & 2B** Comparative views of the European and Australian Aborigine tibial plateaus (lower surface of the knee joint) from W. Quarry Wood (1920). The Tibia of the Australian Aborigine. In the *Journal of Anatomy* Vol. LIV: Parts II & III (January and April): 232-257, Figure 1 on page 235. **Figure 2C** Top views of tibial plateaus (middle photos) from India from Figure 2, page 139, from Kate, B. R. & Robert, S. L. (1965). Some observations on the upper end of the tibia in squatters. In the *Journal of Anatomy*, Lond. 99: 1: 137-141. **Figure 2D** View of ancient Roman tibial plateau from *Roman Catacomb Mystery*, **NOVA PBS** (air date 2/5/14). **Figures 3 A&B** A cropped rear view still photo frame of a Bushman (A) and Shod Finn (B) from a **YouTube** video clip of ***Barefoot running Bushman versus me (shod Finn)*** https://www.youtube.com/watch?v=H1Ej2Qxv0W8. Published on May 26, 2013.