

HIDDEN IN PLAIN SIGHT

LIST OF DRAFT FIGURES AND VIDEOS

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Initial Figure View of bottom sole from an Adidas Feet You Wear concept advertisement/promotional material.

Figure 1A Identical bare footprints of always barefoot European and Solomon Island native from **James**, Clifford S. (1939). Footprints and feet of natives of the Solomon Islands. In the *Lancet*: 2: 1390-1393.

Figure 1B Different bare footprints of shoe-wearing European and barefoot Solomon Island native from **James**, Clifford S. (1939) above.

Figure 1C From Lawrence H. Wells (1931). The Foot of the South African Native. In the *American Journal of Physical Anthropology*, Vol. XV, No. 2. 186-289, Figure 6 on page 225.

Figure 2A&B Figure 2B is Elevated shoe heel elevating the wearer's foot heel and thereby plantarflexing the ankle joint, based on Figure 290 of the classic 1918 Edition of Henry *Gray's Anatomy of the Human Body*, available online at www.Bartleby.com/107/. Fig. 2A is from unknown web source.

Figure 3A-C The ankle joint and subtalar ankle joint of the foot, based on Figures 268 and 271 of the 1918 Edition of *Gray's Anatomy*.

Figure 4A&B Based on Figure 290 of the 1918 Edition of *Gray's Anatomy* and adapted from Hicks, J.H. (1961) The three weight-bearing mechanisms of the foot. In: Evans, F.G., ed. *Biomechanical Studies of the Musculo-Skeletal System*. Springfield, IL: Charles C. Thomas. From Kelikian, Armen (2011). *Sarafian's Anatomy of the Foot and Ankle*, page 620. Philadelphia: Wolters Kluwer.

Figure 5A Based on Figures 16 and 20, pages 61 and 67, from Sgarlatto, T. E. (Ed.) (1971). *A Compendium of Podiatric Biomechanics*. San Francisco: California College of Podiatric Medicine. Also based on Figure 10 Kevin Kirby et al. (1988). Anterior Axial Projection of the Foot. In the *Journal of the American Podiatric Medical Association* 78: No. 4: 159-170; and Root et al. *Normal and Abnormal Function of the Foot* (1977). Clinical Biomechanics Corporation: Los Angeles.

Figure 5B Figures 1 and 2 of Gustav Rubin (1971). Tibial Rotation. *Bulletin of Prosthetic Research*. Spring, 1971.

Figure 6A&B Comparison between barefoot and heeled shoe of the path of the ankle joint (talar trochlear) when rotated externally to the outside by shoe heel-induced supination of the subtalar joint, based on Figures 244 and 258 of the 1918 Edition of *Gray's Anatomy*.

Figure 7 Figure 3.2 based on Plate 18 Man Running, Frame 10 side view, from Muybridge, Eadweard (1887). *The Human Figure in Motion*. New York: Dover Publications, Inc. (1955).

Figure 8A Perspective view of body weight forces during running on the lower leg tilted to the outside, based on a part of a figure from *De dissectione partium corporis humani libri tres* by Charles Estienne. Paris, 1545.

Figure 8B Simple graph of the force vectors of Fig. 8A.

Figure 8A1 Based on Figure 8.5 of *The Running Shoe Book* by Peter Cavanagh (1980). Mountain View, CA: Anderson World, Inc.

Figure 8A2 Annotated Figure 1 of Katrina Mira **Fischer**, Steffen Willwacher, Anton Arndt, Peter Wolf and Gert-Peter Brueggemann (2017). Calcaneal adduction in slow running: three case studies using intracortical pins. *Footwear Science*, Vol. 9, no. 2, 87-93.

Figure 8C Knee Moment Frontal Plane & Transverse Plane Graphs from Figure 4 of Steffen **Willwacher** et al. (2016). The free moment in running and its relation to joint loading and injury risk. In *Footwear Science* Vol. 8, No. 1, 1-11. Winner of the Nike Award for Athletic Footwear Research presented at the XIIth Footwear Biomechanics Symposium in Liverpool, UK 2015.

Figure 8D Figure 9, page 1850, from Stefanyshyn, Darren J. et al. (2006). Knee Angular Impulse as a Predictor of Patellofemoral Pain in Runners. In *The American Journal of Sports Medicine* 34: 11: 1844-1851.

Figure 8E Figure 2, page 481, from Mundermann, Dyrby, Chris O., and Andriacchi, Thomas P. (2008). A comparison of measuring mechanical axis alignment using three-dimensional position

capture with skin markers and radiographic measurements in patients with bilateral medial compartment knee osteoarthritis. In *The Knee*. 15:480-485.

Figure 8F Selected graphs from Figure 6, page 8, of Steffen **Willwacher**, Irena Goetze, Katina Mira Fischer and Gert-Peter Bruggemann (2016). The free moment in running and its relation to joint loading and injury risk. In *Footwear Science* Vol. 8, No. 1, pages 1-11. Winner of the Nike Award for Athletic Footwear Research presented at the XIIth Footwear Biomechanics Symposium in Liverpool, UK 2015.

Figure 8G Annotated Figures 3 & 4 of Katrina Mira **Fischer**, Steffen Willwacher, Anton Arndt, Peter Wolf and Gert-Peter Bruggemann (2017). Calcaneal adduction in slow running: three case studies using intracortical pins. *Footwear Science*, Vol. 9, no. 2, 87-93.

Figure 9A&B 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 9C 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 9D View of ancient Roman tibial plateau from *Roman Catacomb Mystery*, NOVA PBS (air date 2/5/14).

Figure 9E A typical modern tibial plateau of right knee showing asymmetrical and malformed meniscus cartilage on the left, forward of the knee, based on Figure 349 of the 1918 Edition of *Gray's Anatomy*.

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Figure 10C Cone-shaped trochlear surface of modern ankle joint, modified from an upper view of the talus in the 1918 Edition of *Gray's Anatomy*.

Figure 10D Frontal plane cross sections of the ankle bone (talus) showing trabecular over-development of lateral side, Figs. 23.28-29 from page 273 of Michael C. Hall (1966). *The Architecture of Bone*. Springfield, Illinois: Charles C Thomas.

Figure 10E Frontal plane cross sections of the ankle bone (talus) showing trabecular under-development of lateral side, from Figure 34 of R. B. Seymour Sewell (1906). A Study of the Astragalus. In the *Journal of Anatomy and Physiology* 42:152-161, particularly Fig. 34 on page 160.

Figure 11A Basic misalignment of lower extremity joints, showing the right and left knee joints of right and left legs rotated unnaturally to outside by elevated shoe heels/subtalar joint interaction, away from the direction of forward locomotion indicated by the pelvis, as seen in a horizontal plane view, modified from upper views of the foot, tibial plateau, and pelvis in the 1918 Edition of *Gray's Anatomy*.

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Figure 16D Fetus during labor, from figure by William Smellie (1754) *A Sett of Anatomical Tables*, from page 203, in *Human Anatomy: A Visual History from the Renaissance to the Digital Age*, page 203. (2006) Rifkin, Benjamin A. and Ackerman, Michael J. New York: Abrams.

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Figure 16G Viscera spilling out, unsupported by pelvic basin, Plate 57 of Andreas Vesalius from the First Edition of the *De Humani Corporis Fabrica* (1543), page 165 of *The Illustrations from the Works of Andreas Vesalius of Brussels* by Saunders, J. B. deC. M. and O'Malley, Charles D. (1950) New York: Dover Publications, Inc.

Figure 17A Plate 23 Man Running, Frame 4 rear view at midstance, from Muybridge, Eadweard (1887). *The Human Figure in Motion*. New York: Dover Publications, Inc. (1955).

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Figure 23A Knock-kneed caucasian male with well-developed vastus lateralis, Figure 9.7 of I. S. Smillie (1974). *Diseases of the Knee Joint*. Edinburgh: Churchill Livingstone.

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- Figure 25** 1960's Limbo King Mike Quashie, in *The New York Times* (March 13, 2010) page A13.
- Figure 26A** Neck torsion and skull positions, Figures 64 and 65, page 219, from Kapandji, I. A. (1974). *The Physiology of the Joints (Volume 3): The Trunk and Vertebral Column (Second Edition)*. Edinburgh: Churchill Livingstone.
- Figure 26B** Jim Ryun's head and neck position at the end of a race. Ryun's Run. In *Runner's World*, September 2003, page 79.
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- Figure 27C** Side view of the eye muscles, from Figure 885 in the classic 1918 Edition of Henry Gray's *Anatomy of the Human Body*.
- Figure 28A** Figure 4.5 from page 126 of Gazzaniga, Michael S. et al. (2014). *Cognitive Neuroscience: The Biology of the Mind (4th Ed.)*. New York: W. W. Norton & Company. The torsional-shift anatomical asymmetries between the right and left hemispheres are shown in a bottom view.
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- Figure 28C** Christopher Wren's drawing of the base of the human brain, the first figure of Thomas Willis' *Cerebri anatome* (1664), from the President and Council of the Royal College of Surgeons of England. From Sandrig, Susan (2016). A brief history of topographical anatomy. In *Journal of Anatomy* 229: 32-62, Figure 7 on page 44. Arraez-Aybar, Luis-Alfonso et al. (2015). Thomas Willis, a pioneer in translational research in anatomy (on the 350th anniversary of *Cerebri anatome*), Figure 3 on page 295. In *Journal of Anatomy* 226: 289-300. Available on <https://archive.org/stream/cerebriatomecu00will#page/n71/mode/2up>.
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(2016). A brief history of topographical anatomy. In *Journal of Anatomy* 229: 32-62, Figure 10 on page 56. Plate 11 in Achille Louis Foville's Atlas published with *Traite complet de l'anatomie, de la physiologie et de la pathologie du system nerveux cerebro-spinal* (1844), from the President and Council of the Royal College of Surgeons of England.

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Figure 35 Unmodified Leonardo De Vinci sketch known as "The Vitruvian Man" (c. 1485), Accademia, Venice.

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