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VIDEO 23.6 Video clip showing asymmetrical posture of a middle age adult Walt Disney from **PBS** *American Experience: Disney* (2015) air date 9/14/15.

Chapter 24

Figure 24.1 Side-view of the vertebral spine, Figure 111 from the classic 1918 Edition of Henry *Gray's Anatomy of the Human Body.*

Figure 24.2 Bobby Hurley, on the cover of *Sports Illustrated,* April 13, 1992.

Figure 24.3 Front view showing extreme stress of Natasha Henstridge's muscles around her throat while running in the movie **Species** (1995).

Video 24.1 Video clip from the same source as the previous figure.

Chapter 25

Figure 25.1A Front view of the skull, from Figure 190 in the classic 1918 Edition of Henry *Gray's Anatomy of the Human Body.*

Figure 25.1B Neck torsion and skull positions, Figures 64 and 65, page 219, from Kapandji, I. A. (1974). T*he Physiology of the Joints (Volume 3): The Trunk and Vertebral Column (Second Edition)*. Edinburgh: Churchill Livingstone.

Figure 25.1C Side view of the neck muscles as shown in Figure 385 from the classic 1918 Edition of Henry *Gray's Anatomy of the Human Body.*

Figure 25.2 Jim Ryun's head and neck position at the end of a race. Ryun's Run. In *Runner's World,* September 2003, page 79.

Figure 25.3 Roger Banister's head and neck position at the finish line of his successful attempt to break the four-minute mile on May 6, 1954, from an AP Photo File.

Figure 25.4 A comparison of Jim Ryun's head and neck position between left leg (frame 10) and right leg (frame 4) at the midsupport position (1970) by Phil Bath and/or Visual Track and Field Techniques, 292 So. LaClenaga Blvd., Beverly Hills, Calif. 90211.

Figure 25.5A Five still frames (three right and two left, all at the midstance position) from a front view video clip of Usain Bolt's head while running in a Gatorade advertisement.

Figure 25.5B An Xray example of typical cervical asymmetry, web source not known.

Figure 25.5C Composite of previous Frames 4 and 10 like Figure 17.2A above with pelvis leveled in order to show the true relative position of the load-bearing legs at midstance position and showing the effect of the unstably tilting pelvis to bend-out the spine and bend-in the head. Plate 23 Man Running, from Muybridge, Eadweard (1887). *The Human Figure in Motion*. New York: Dover Publications, Inc. (1955).

Figure 25.6 Still frame showing tilted alignment of upper front teeth and gums of news commentator and columnist Mercedes Schlapp.

Figure 25.7 Side view of the eye muscles, from Figure 885 in the classic 1918 Edition of Henry *Gray's Anatomy of the Human Body.*

Video 25.1 Video clip from the same source as Figure 25.5.

Video 25.2 Video clip of asymmetrical head motion of elite female distance runners at USA Track and Field indoor championship.

Video 25.3 Close-up slow motion video clip of Bernard Lagat's asymmetrical head and neck motion when winning distance race at 2016 US Olympics Trials.

Video 25.4 Video clip showing typical examples of right/left facial asymmetry.

Chapter 26

Figure 26.1 Torsional-shift anatomical asymmetries between the right and left hemispheres shown in a bottom view, 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.

Figure 26.2 The Base of the Brain, Figure 196, page 337, torsional-shift anatomical asymmetries between the right and left hemispheres, Henry Gray *(1858). Gray's Anatomy.* Illustrated by Henry Vandyke Carter.

Figure 26.3 Photo of computer simulation of human brain concussion with intense sideways motion shown in frontal plane cross-section causing maximum tissue stretch in the central brain, from a TED Talk titled *Why Helmets don't prevent concussions – and what might* by David Camarillo, Ph.D. of

Stanford University on April 24, 2016.

Figure 26.4 Photo of frontal plane cross-section of a normal human brain showing in color the major communication network wiring with the red central portion the principal connection between the right and left hemispheres.

Figure 26.5 Same photo as previous figure (but without network coloring) showing the corpus callosum (circled in red), the physical portion of the brain that provides a fiber bundle connecting the two hemispheres.

Figure 26.6 A similar photo like the previous two figures, but of a retired NFL football player who suffered from CTE, his highly abnormal brain indicating extreme deterioration of the corpus callosum.

Figure 26.7 U. S. Patent Number US 8,732,868, issued by the U. S. Patent and Trademark Office on May 27, 2014, titled *Helmet and/or Helmet Liner with at least One Internal Flexibility Sipe with an Attachment to Control and Absorb the Impact of Torsional Or Shear Forces*.

VIDEO 26.1 Brief video clip showing the dorsolateral prefrontal cortex on the left hemisphere.

VIDEO 26.2 Human brain tissue stretch simulation, from a TED Talk titled *Why Helmets don't prevent concussions – and what might* by David Camarillo, Ph.D. of Stanford University was made April 24, 2016 (at *www.ted.com*).

VIDEO 26.3 The human brain's corpus callosum and CTE, from the same reference as VIDEO 26.1 above.

VIDEO 26.4 A slow motion video clip of the face of Dahne Schippers, an Olympic Champion 200m sprinter.

Chapter 27

Figure 27.1 Top view drawing of Einstein's brain (based on photograph shown in **Figure 27.4**), showing asymmetrical hemispheres with the right shifted forward, from Figure 1 of Dean Falk, Frederick E. Lepore, and Adrianne Noe (2013). The cerebral cortex of Albert Einstein. *Brain* 136: page 1306.

Figure 27.2 Foville's drawing of a top view of the human brain (1844). From **Sandrig**, Susan (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.

Figure 27.3 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/cerebrianatomecu00will#page/n71/mode/2up.

Figure 27.4 Top view photograph of Einstein's brain, showing asymmetrical hemispheres with the right shifted forward, from Figure 1 of Dean Falk, Frederick E. Lepore, and Adrianne Noe (2013). The cerebral cortex of Albert Einstein. *Brain* 136: page 1306.

Figure 27.5 The asymmetrically twisted body of wheel-chair-bound Steven Hawking from **Hawking** (2014), a PBS biography of his life.

Figures 27.6 A photo of Steven Hawking's college age asymmetrical standing posture, with higher right shoulder from **Hawking** (2014), a PBS biography of his life.

Figure 27.7 The asymmetrical eyes of Steven Hawking with larger left eye, from *Genius By Steven Hawking (2016)*, a PBS series.

Figure 27.8 Alan Turing as a highly elite adult runner, finishing second in a 1946 three-mile race, photo and page 444 of Andrew Hodges' *Alan Turing: The Enigma* (1983). Princeton and Oxford: Princeton University Press.

Chapter 29

Figure 29.1 Comparison of skeletons with naturally erect posture and poor posture, from Mary Bond's T*he New Rules of Posture: How to Sit, Stand, and Move* (2006) Healing Arts Press; the drawings are modified from originals by Brenna Maloney and Patterson Clark of *The Washington Post*. See at: http://www.washingtonpost.com/wp-dyn/content/graphic/2007/04/16/GR2007041600761.html.

Figure 29.2 Figure 2A and 2B of Ron Hruska's Pelvic stability influences lower-extremity kinematics, in *Biomechanics*, June 1998, page 24, reprinted in Mary Lloyd Ireland's The female ACL: why is it more prone to injury? In *Orthop Clin N Am* 33 (2002). page 642.

Chapter 32

Figure 32.1 U. S. Patent Number US 9,030,335, issued by the U. S. Patent and Trademark Office on May 12, 2015, titled *Smartphone App-Controlled Configuration of Footwear Soles Using Sensors in the Smartphone and the Soles* by Frampton E. Ellis.

Chapter 34

Figure 34.1 U. S. Patent Number US 9,009,809, which issued by the USPTO on April 14, 2015, is titled *Computer or Microchip with a Secure System BIOS and a Secure Control Bus Connecting a Central Controller to Many Network-Connected Microprocessors and Volatile RAM*.

Chapter 36

Figure 36.1 Photo of identical twin young boys from **PBS** Ken Burns Presents *Cancer: the Emperor*

of All Maladies (2015), A Film by Barak Goodman.

Figure 36.2 Xray from "Brain Cancers Reveal Novel Genetic Disruption in DNA" (December 23, 15) in *The New York Times*.

Chapter 40

Figure 40.1 Cartoon on Vikings stretching before an attack, from Gary Larson (1985), *Valley of the Far Side*. Page 44, Kansas City: Andrews, McMeel, & Parker..

Chapter 40

Figure 41.1 Cartoon on aimless herd of buffalo, from Gary Larson.

Chapter 44

Figure 44.1 Kevin Durant's basketball shoe showing substantial lack of lateral stability, from *The Offseason: Kevin Durant* (2014) on **HBO** (11/29/14).

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