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Lab Three: Habitual Bipedality

**Section One:**

One common distinction that humans and other great apes share is how they move from place to place. For Chimpanzees, it is a mixture of knuckle walking and some bipedalism. Bipedalism is characterized by walking on the hind legs, even if more limbs are available for movement. What inhibits more walking on the hind legs in chimps is the shape of the pelvis, placement of the foramen magnum and the nuchal plane. These three factors are clear indicators that during time of evolution of both humans and chimps, one subsection of the species needed a different mode of transportation. Habitual behavior is when it is done all of the time, where humans are an example. One common explanation for this habituality is they (early hominids) “had to cope with the sun as they moved from a shady forest habitat to the scorching savanna” (Chen, Ingfei, 2006). Environmental evidence from the Cenozoic Era from ice caps shows a gradual global warming, subsequently drying forests which were homes for many primal primates. Since the ancestors of hominids moved from tree to tree to get around, development of bipedality was a must. Some evidence of erect walking can be seen in early as the Australopithecines. This can be seen in the famous Lucy skeleton that has a “broad pelvis and thigh bones that angled in toward the knees” (Erin, 2012). Having hips that are in a U shape allow for the weight to rest on a large bone, permitting easier bipedalism. In contrast, Chimpanzees have a wall-like pelvis, not allowing for even weight distribution. Other species in the animal kingdom show signs of frequent bipedalism such as birds, kangaroos, and some lizards have been seen to run bipedally (R McN Alexander, 2004). Other theories suggest that humans developed bipedal tendencies due to hunting reasons. The basic outline is that humans have a better oxygen delivery system than other animals and is not based on the movement of their legs. Antelopes for example, breath in rhythm to their stride, much like an accordian. What sets humans apart is we can regulate our breathing, external from our leg movements. Along with this, we are also furless, allowing us to cool much more efficiently “by perspiring through millions of sweat glands” (Chen, Ingfei, 2006). Animals have been documented to run only until they reach a certain internal temperature, after which they will no longer attempt to escape. Humans would then come and finish off the prey leaving victorious.

**Section Two:**

With the current evidence outlined, I would have to agree with the position that hominids became bipedal because of warming events in the Cenozoic. Evidence from the fossil record, ice caps and overall timeline point to this conclusion. I would classify this the driving factor for the initial development of bipedalism but not a definitive one. We can see that other environmental factors were pushing for an upright walking pattern, most evident in prey hunting. Before the warming in the Cenozoic, the diet of these primates was mostly fruit from trees and insects from the foliage. There was a demand for a new food supply and this new resource pool was “rich sources of protein and fat”(Chen, Ingfei, 2006). This type of diet provided the proper nutrients allowing for the development of large leg muscles and long term food storage for extensive journeys. Along with the many benefits of bipedalism, there are some critical disadvantages. For example, heavy lifting without proper form will result in stress on the lower back and subsequently injuring the individual. Other injuries that cripple hominids are related to the foot and leg. With the lack of mobility, it would be hard for the individual to move and survive.

References

Alexander R. M. (2004). Bipedal animals, and their differences from humans. Journal of anatomy, 204(5), 321–330. doi:10.1111/j.0021-8782.2004.00289.x

Wayman, Erin. “Becoming Human: The Evolution of Walking Upright.” Smithsonian.com, Smithsonian Institution, 6 Aug. 2012, www.smithsonianmag.com/science-nature/becoming-human-the-evolution-of-walking-upright-13837658/.

Chen, I. (2006). Born to run. Discover, 27(5), 62.