

The adaptive advantages of bipedalism

[Science](#), [Social Science](#)



What are the adaptive advantages of bipedalism and a large brain in hominid evolution. Bipedalism is not exclusive to humans, and examples of this adaptation can be seen in some dinosaurs, birds, primates and kangaroos. By far the majority of animals have quadruped structure, and so bipedalism must be seen as a variation from the norm. There are different theories as to why and indeed when bipedalism emerged in hominids and one way to explore this phenomenon is to look at the present day behavior of species like chimpanzees and see how this is different from quadruped species. The most obvious advantage that bipedalism gives is height. This can be used to observe the environment and detect threats long before they arrive into the immediate vicinity of the creature. Extra height also allows a creature to reach higher levels for food, as we can see in an extreme version in the giraffe. For species which can tolerate water, height also allows deeper wading and again this may allow access to a greater range of food. Another advantage that bipedalism brings is that it frees up two of the limbs from having to take part in activities like walking and standing. Modern day chimpanzees use their arms for displays such as anger or stress, for carrying their young or items like food, and even for tool use. This encourages more specialization and the development of fine motor skills which in turn can enhance the ability of the species to interact with the environment. Many bird species developed flight in the limbs not used for walking, and this gives a secondary, in many ways much superior form of locomotion. Primates and hominids can use their arms for climbing which is a very useful skill if predators are around. In some ways a large brain could be seen as a disadvantage, because it makes the head size bigger and this can be a

problem during the birthing process. It also requires more nutrition, and this could mean that other parts of the body receive less nutrition than is ideal in times of famine. The larger brain, however, gives a significant advantage because it provides more space for new skills to be learnt. This in turn means that the animal is able to deal with new situations more easily, and can use its brainpower to be more flexible. The more thinking capacity an animal has, the more choices it can take on board. All animals have a basic capacity for activities like breathing, hunting, procreation and self-defence and these tasks can be carried out with a small brain, relying on instinctive patterns of behavior which prompt a very limited number of predictable reactions to common situations. A bigger brain, on the other hand, allows for higher level activities like language, detailed memory and social behaviour. The advantage comes in the proportional size of brain as compared with size of body, and not with absolute size, since there is no rule that says bigger animals are always smarter.