# Bipedalism vs. quadrapedalism essay sample

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Background

As the African landscape shifted gradually from dense forests toward large patches of savannah, early hominids found their food supplies waning, leading them to descend from the trees and become ground-dwellers. Because these early human ancestors could no longer feed where they lived, they were forced to begin carrying large amounts of sustenance over long distances back to their home bases-a tricky task had they remained quadrupeds. While some anthropologists contend that early hominids gathered fruits and nuts, a few argue that they were scavengers, stealing predators' kills. An upright stance would have enabled our ancestors to lug carcasses to safer areas for consumption, while also allowing them to see other food sources or potential danger at greater distances.

Aim

The aim of the experiment is to find out a plausible theory to why humans evolved into bipedal organisms from being quadrapedal. To compare bipedalism movement with quadrapedalism movement. Is traveling with food across distances easier and quicker being bipedal or quadrapedal?

Hypotheses

Being able to walk as a quadrapedal organism will take more time and energy since ones hands are not free. A bipedal organism has an easier ability to see ahead and find the quickest way to his home. If being on two legs makes traveling with food easier than the bipedal organisms will have

the fastest time because they are using fewer muscles and body parts to get around.

Ho: There is no difference between the amount of the time it takes to carry food between bipedal and quadrapedal organisms.

Ha: There is a significant difference in the amount of time it takes to carry food between the two organisms.

Variables

Independent: Walking up the steps on four legs or two legs and carrying a book or no book.

Dependent: The amount of time it takes to reach the top of the steps.

Control: The length and gender of the person in the experiment.

Material

Four people

Four stop watches

Four hard cover books

Data sheet

Procedure

1. Hold both stop watches in hand and line two people at the bottom of 26 steps.

2. Place a book in both of the tester’s hands which weighs 5 lbs. while one person stands on two feet and the other person is on their hands and feet. The person on fours will hold the book in their dominant hand while the other one stays on the ground.

3. Have the testers climb up the steps as quickly as possible while keeping the book in their hand.

4. When each tester reach the top of the steps stop the timer and record the speed it took to reach the top of the steps.

5. Repeat steps 1-4 with books and without books for a total of 4 trials each using 2 and 4 legs.

6. Record any significant difference.

Rejected

From the results the data appears to be valid. The experimenters on 2 legs had a faster time than those on 4 legs with or without books in their hands. The 2 legged with no book had the smallest average of 6. 5 seconds and 4 legged with books had the highest average time of 13. 6 seconds. Four legged with books is the only noticeable outlier. As seen in the graph the time increases from 2 legs with no book to the highest times at 4 legs with books. The times recorded are very accurate with slight human error of not being able to stop the watches on the exact second the subjects reached the top step. From both the T-test the Ho was rejected at alpha level 0. 5.

Graphs:

## Conclusion

From the experiment we rejected the Ho for both T-tests. There is a significant difference in the amount of time it takes to carry food between being bipedal and quadrapedal. From this there is evidence to suggest that the theory of hauling food is plausible. In order for some organisms to survive without being attacked by predators, carry food over long distances, and find better food sources they were forced to walk on two legs. If the early human ancestors didn’t walk on two legs we may not exist today. The benefit of the increase in speed from using two legs would allow more food to be carried from place to place creating an abundance of food supply. With the other benefit of being able to see potential danger while standing on two legs would allow the early humans to take different routes which would lead to avoiding a possible death.

From the theories Aquatic Apes appear to be the most outlandish because having a heavy upped body would make them stronger so they wouldn’t have a hard time in the water. Due to the type of lab research online couldn’t be obtained. The above data was compared with class data. From the results of a classmates experiment of having a person walk then crawl over a long distance my data makes sense. The person on 4 legs had a longer and harder time getting across the hallway than the person on 2 legs. From our data we had similar results. The person on 2 legs had a faster time than the person on all fours. My results confirm the source because the source also had a small P-value. The P-value indicated that there was also a significant difference in the distance between bipedal and quadrapedal organisms. The benefits of walking on 2 legs made life a lot easier for early humans.

There is error to be considered in this experiment. The fact that humans from today don’t know how to walk regular on fours always create error in the experiment. To change the procedures for better data the sample size needs to be larger. With a larger sample size the more accurate the speeds with be and that will increase the power of the experiment. With a larger sample size more T-test can be conducted to farther prove the results. Testing the experiment over greater distances will also improve the experiment. It will reduce the lurking variables that may be with having experiments in short distances. This will increase the validity of the results.

Since humans can never walk on fours properly without somehow cheating the investigation should be improved by using animals that have no choice but to walk on fours. We are accustomed to using our feet to walk and our hands for other things. Using a monkey would be a good choice to improve the investigation because they have similar features to humans. Monkeys don’t have that benefit of walking on 2 feet so the results would be even more reliable. Removing things such as trees from their environment and putting their food up high will cause the animals to stand on two legs. Their only way of survival would be to stand on 2 legs so the results are more valid because they cannot cheat this.