Man vs Horse?

Every June, in the town of Llanwrtyd, Wales, hundreds of runners and horseback riders compete in the Man versus Horse Marathon. People might assume the winner would always be the horse, but that is not the case. It is not so far-fetched to imagine a human runner outlasting a horse in a long-distance race. Research on the development of human physiology has revealed that the human body has evolved to be an efficient long-distance running machine. It is specially designed to outlast most four-legged animals.

Humans evolved this way in order to survive. In the time before projectile weapons like spears, humans needed to get very close to their prey in order to kill them. Usually, prey like antelope and deer can move much more quickly than humans over short distances. However, if the human hunters could force the prey to run longer distances, the animals would become exhausted. That gave prehistoric hunters an advantage. Humans who could endure the long-distance chase necessary for a successful hunt were the humans who ate and had food to share. They were the humans who started families and became ancestors to all of us.

There are several physical characteristics that make humans great longdistance runners. First, unlike other animals, humans cool their overheated bodies by perspiring. Quadrupeds, like horses or antelope, do not perspire. They cool their bodies by panting — breathing quickly through the mouth. Panting only cools the blood vessels in the head and neck and requires additional energy. An animal becomes even more tired by panting.

Perspiration, on the other hand, takes no energy from the human body. As the human body overheats, sweat glands, which are located in different parts of the body to most efficiently cool major organs and body systems, begin to excrete moisture. As this moisture evaporates, the body is cooled. This advanced humancooling evolution means that humans can run much longer distances than many other animals without overheating.

It is relevant to mention here that in all its 40-year history, a human won the Man Versus Horse Marathon only twice: in 2004 and 2007, both times on a very hot day. This fact was further studied by Lewis Halsey of the University of Roehampton and Caleb Bryce of the Botswana Predator Conservation Trust. They gathered historical data from two other endurance races where humans competed with horses and found out that although for both humans and horses, hotter temperatures led to slower times, the trend was significantly steeper for horses than for humans.

In addition to sweating, humans' feet and legs have developed to support the most efficient use of energy in long-distance running. The fact that a human's big toe is straight and aligned with the other toes, unlike the big toe of, for example, a great ape, which is off to the side, means it takes less energy for a human to run than it does for an ape. This big toe also helps a human runner push off to spring from a stand-still quickly, and without expelling a lot of energy.

Finally, the human upper body, with a narrow waist and long arms that swing easily in straight arcs helps the human runner stay on a path without wild, energy-burning movements from side to side.

Although success as a long-distance runner is no longer required to survive, running is still a very popular sport. Many cultures still consider the body shape associated with running to be physically attractive and a sign of good health.

What is the main idea in the first paragraph?

1. Development of human physiology needs to be researched.
2. The fact that a human can outrun a horse isn't that surprising.
3. Running machines can help train for long-distance running.
4. There is a special marathon for people vs horses held in Wales.