



## Chimpanzees vs. Humans: Sizing Up Their Strength

**Humans Are Helpless in the Face of Chimpanzees, Who Are Overwhelmingly Stronger, Experts Say**

By *LARA SALAHI*

July 2, 2012 —

The mauling of Texas graduate student [Andrew Oberle](#) by two chimpanzees at the Jane Goodall Institute Chimpanzee Eden in South Africa Thursday was a reminder that in strength, size might not matter.

Chimpanzees are considered the closest living relative of humans, sharing 95 to 98 percent of the same DNA, according to the Jane Goodall Institute in Washington, D.C., a separate entity from the facility in South Africa.

But in no way do humans compare with a chimps' sheer strength and the few percentage points in which the two differ are extreme, many experts say.

"It's the closest thing we know to human warfare" when a chimp is provoked, said Steve Ross, director of the Lester E. Fisher Center for the Study of Conservation of Apes at Lincoln Park Zoo in Chicago.

"Chimps are incredibly strong and fast so humans are easily overpowered."

Indeed, chimpanzees have been shown to be about four times as strong as humans comparable in size, according to evolutionary biologist [Alan Walker](#), formerly of Pennsylvania State University.

Research suggests the difference in strength between the two lies in the muscle performance.

In chimps, the muscle fibers closest to the bones -- those deemed to be the source of strength of both chimps and humans ??? are much longer and more dense, so a chimp is able to generate more power using the same range of motion, Ross of the Lester Fisher Center said.

Also, unlike humans, chimpanzees have less control over their muscles. As a result, sometimes chimps use more of their muscle strength than necessary, according to Walker's theory, [published 2009 in the journal Current Anthropology](#). Such physical lack of control can potentially lead some chimps to become more aggressive when physical. In Thursday's case, however, an internal investigation by the Jane Goodall Institute near Johannesburg showed that the chimps might not have intended to be malicious, [Eugene Cussons, director of the institute, told "Good Morning America" today](#).

The two chimps saw Oberle's crossing the fence into the chimps' space as a violation of their territory, prompting them to take action, Cussons said.

"They have no anger," Cussons said of the chimps. "This is why we come to the conclusion, as far as our expertise goes, that it was a territorial defense. They directed the violence towards Andrew whom they feel was infringing on their territory."

Chimpanzees have a wide range of emotions and they are similar to what humans experience, yet they are known to have erratic and unpredictable impulses, Ross said. The emotional impulses also play a role in how aggressive they can become, he said.

"They can adapt very well to their environment but that doesn't preclude that they are territorial and they are violent and wild animals first," Ross said. "There's an aggression toward individuals that are not in their group."

But chimps are often seen as friendly and cute animals because many facilities use preventive measures to prevent the aggression, he said.

Indeed, the same muscles that are considered to be the source of a chimp's strength can also be seen as a detriment for the animal.

The lengthy muscle fibers mean chimps and other great apes can't swim, Ross said. To protect humans, many zoos create water barriers around the chimps' area so they cannot physically approach, Ross said.

While chimps are most often seen in a zoo environment or in facilities working hand in hand with humans, they are inherently wild and aggressive animals so both trained and untrained individuals should never let their guard down, he added.

"There's never a safe time to be in the same place as a chimp," Ross said. "The natural tendency of chimpanzees is one of aggression and there's always a need among them to demonstrate power and territory."

# A Comparison of the French Revolution and American Revolution

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Both the American Revolution and French Revolution were the products of Enlightenment ideals that emphasized the idea of natural rights and equality. With such an ideological basis, it becomes clear when one sets out to compare the French Revolution and American Revolution that people felt the need to be free from oppressive or tyrannical rule of absolute monarchs and have the ability to live independent from such forces. The leadership in both countries at the time of their revolutions was certainly repressive, especially in terms of taxation. Both areas suffered social and economic hardships that led to the realization that something must be done to topple the hierarchy and put power back into the hands of the people.

While there are several similarities in these revolutions, there are also a few key differences. This comparison essay on the French and American Revolutions seeks to explore the parallels as well as the divisions that are present in both the American Revolution and the French Revolution. The political climate in France during its revolution was quite different than that in America simply because there was not a large war that had just ended in America (while in France the Seven Years War had nearly devastated the French monarchy's coffers). Furthermore, although the lower and middle classes were generally the majority of the rebelling populace, there was far more upper class support for the revolution in France versus the participation of loyalists in America.

One of the most important similarities between both the American Revolution and French Revolutions was that there was a growing dissent among the people aimed at the monarchy and its associated elite and aristocrats. Even though they were powerful in both France and America at the start of each revolution, their strangleholds on both the people and economies of each nation were weakening. For instance, "In 1763 Britain was on the very pinnacle of worldwide power and her old enemies were seemingly prostrate. At the same time, however, the nation was beset with political instability and was stumbling on the edge of bankruptcy" (Jensen 4). The reaction against the British monarchy in America only served to further weaken it and although it may have been strong in other parts of the world, the continued resistance exemplified by events such as the Boston Tea party and other revolutionary acts against the crown were taking their toll.

By the time the American Revolution was strong and the war was beginning, Britain's defenses were already down since they had so quickly lost the vast amount of power they had gained in the pre-revolutionary years. In France and in the case of the French Revolution, it was much the same and although some of the reasons differed for the revolution, on the whole, it was a very similar attack against the monarchy. "In the eighteenth century, the French bourgeoisie had become aware of the increasing disparity between its wealth and social usefulness, on the one hand, and its social prestige and opportunities on the other. It was blocked and recognition of its worth was denied by a decaying class of parasitic, hereditary privileged, noble landowners. Its vitality was further jeopardized by a monarchy not only committed to antiquated aristocratic values, but also incapable of giving the country that firm yet benignly restrained direction under which the initiative of men of business might flourish" (Lucas 84). Just as in America, it was the middle and lower classes involved in the revolution and although the loyalists in America had a sound following, the demographics of the revolution were essentially the same.

Another important similarity between the two revolutions in France and America was their emphasis on Enlightenment thought. The Enlightenment, which started in France and is associated with writers such as Rousseau and Voltaire, caused those under the thumb of monarchies to begin to recognize the inequality inherent in such systems. People of all classes, especially the middle and lower classes, began to use these ideas to formulate an ideology of resistance and insist on the implementation of new measures that would guarantee the natural rights of all citizens. These ideas shaped the American Revolution and the success of it went on to also inspire the French as well. In France, "the war was an ideological war, but anyone who tried to see it as a straight clash between Revolution and counter-revolution would soon become confused. Partisans of the Revolution differed violently with each other, as did their opponents.

To different parties, the French Revolution might refer to specific events, like the capture of the Bastille, or to a vast personified force, or to an abstract cause for which the French or others might be fighting. It could mean taking titles away from dukes, giving bread to the poor, or mean the teachings of Jesus or Voltaire” (Palmer 10). This statement would also apply to America during its revolutionary period and acts of rebellion could be anything such as boycotting goods from Britain to violently attacking loyalist and British enterprises. The final result was that there “originated in the emergence of a new discourse on politics which grew up in opposition to the traditional ideology and practices of the old monarchy” (Sutherland 259) in both countries as Enlightenment ideals were put into practice. In the end, “the prime fruit of independence was the national republic, resting its claim to resolve the old problem of American legitimacy on several bases. One was the charisma of General Washington, embodying as he did the states had fought the war together. Another was the half-realized myth of an ultimate popular sovereignty, superior to both the republic and the separate states” (Countryman 283).

Like in the case of the American Revolution, the French Revolution and the years leading up to it saw increasing dissatisfaction with the absolute monarchy, especially in terms of his unwillingness to bring in a meaningful parliament or engage with demands of the citizens. On top of this, the Seven Years War had increased taxes by a huge margin and no one—not even those in the upper echelons saw the potential for personal yield. The nobility was becoming a useless old structure and the boredom of many of these idle aristocrats led to planning action. “In its French setting, then, the idea of “revolution” was inseparable from the condemnation of the past, which sharpened the will to exclude or eliminate those corrupt beneficiaries of the old order, the aristocrats” (Furet 65). What was perhaps most striking about the French Revolution was that it wasn’t merely a work’s revolt or a peasant’s rebellion—it was a wide-scale assault on the monarchy and the old values that were now stagnating in a world that was opening to industrialization. The difference between France and America was that in America there was not a period of protracted wars outside of the country going on that would weaken the economy and necessitate the need for additional funds. Even though there were battles in America with the Indians, mostly in the pursuit of land, these did not match the scope and cost of the Seven Years War that had driven the French nearly to bankruptcy. On the other hand, the British, the opponent to the Americans, were weakened because of outside (mostly colonial and land-grabbing) wars. The people in America were less impoverished than their French counterparts although the British government was coming close to breaking the bank through massive taxation.

There was a difference in class participation in the Revolutions in America in France. In America, there were still a benefited from the great amount of favor they received from the British government. In France, however, even the the nobles and aristocrats were angry at the monarchy because they were given less and less power. Although they still had money and a fair amount of control over local politics, they were almost figureheads instead of people with actual power. They saw that the king was limiting their role in government and they were part of the resistance effort as well. This is not to say that all of the nobility took part in reaction against the monarchy but the numbers of French aristocrats that were rebelling was significant. Still, the similarity of the rest of the population sponsoring the revolts was strong in both France an America.

From the top levels all the way to the lowest of laborers, everyone in France had a reason to want to prompt great change. The nobility wanted a greater stake in the future of the country, the middle classes wanted better representation and lower taxes, and the poor wanted to be able to earn a living and not be forced to give up well over half their earnings to a king they’d never seen for a war they’d never benefit from. While it seems that a majority of the focus of the French Revolution is on the plight and revolt of the working poor, the fact remains that this was a rebellion that was so effective because of this widespread support. Although there were certainly royalists among the rebellious French, their interests in crushing the revolt were equally self-centered. If they were lucky enough to enjoy a spot of favor with Louis XIV, certainly the lavish spoils that the monarch himself enjoyed were to be shared. With such nepotism, the introduction of an elected or mixed-class parliament would obliterate their security. Still, the ideas of the Enlightenment had gradually tricked down and soon enough, they may have had an influence on the agricultural poor. “Whether sentimentalist ideas had been widely enough disseminated to influence the laboring poor in cities and in fields is an open question. There are indications that the topic of sentimentalism were familiar far down the social ladder” (Reddy 109).

In sum, these revolutions had more in common than it might appear despite the slight difference in time period and national histories. They were both reactions against an oppressive monarchy that taxed heavily and attempted to control its subject and they both reacted in part because of Enlightenment ideals. While there were different circumstances that effected the governments being rebelled against and there were different demographics of supporters, these revolutions had similar aims and achieved the similar result of a new republic and constitution as the final outcome.

## THE DIFFERENCES BETWEEN SAVING AND INVESTING

### *Saving*

Your “savings” are usually put into the safest places, or products, that allow you access to your money at any time. Savings products include savings accounts, checking accounts, and certificates of deposit. Some deposits in these products may be insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration. But there’s a tradeoff for security and ready availability. Your money is paid a low wage as it works for you.

After paying off credit cards or other high interest debt, most smart investors put enough money in a savings product to cover an emergency, like sudden unemployment. Some make sure they have up to six months of their income in savings so that they know it will absolutely be there for them when they need it.

But how “safe” is a savings account if you leave all of your money there for a long time, and the interest it earns doesn’t keep up with inflation? What if you save a dollar when it can buy a loaf of bread. But years later when you withdraw that dollar plus the interest you earned on it, it can only buy half a loaf? This is why many people put some of their money in savings, but look to investing so they can earn more over long periods of time, say three years or longer.

### *Investing*

When you “invest,” you have a greater chance of losing your money than when you “save.” The money you invest in securities, mutual funds, and other similar investments typically is not federally insured. You could lose your “principal”—the amount you’ve invested. But you also have the opportunity to earn more money.

THE BASIC TYPES OF PRODUCTS	
Savings	Investments
Savings accounts	Bonds
Certificates of deposit	Stocks
Checking accounts	Mutual funds, Exchange-traded funds
	Real estate
	Commodities (gold, silver, etc.)

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### About Chimpanzees

#### So Like Us

Chimpanzees and humans differ by just over one percent of DNA. In fact biologically, chimpanzees are more closely related to humans than they are to gorillas. Some have proposed including chimpanzees (genus *Pan*) in the same genus as human beings (genus *Homo*) to recognise these similarities, calling them *Homo troglodytes*. Though this is controversial, it emphasizes how similar we really are.

[Watch the video](#) of human-chimpanzee analogies.

Take a look at just how chimpanzees are so like us:

- [Taxonomy & Genetics](#)
- [Reproduction](#)
- [Childhood](#)
- [Intelligence](#)
- [Communication](#)
- [Emotions](#)
- [Significant Differences](#)



#### Taxonomy & Genetics

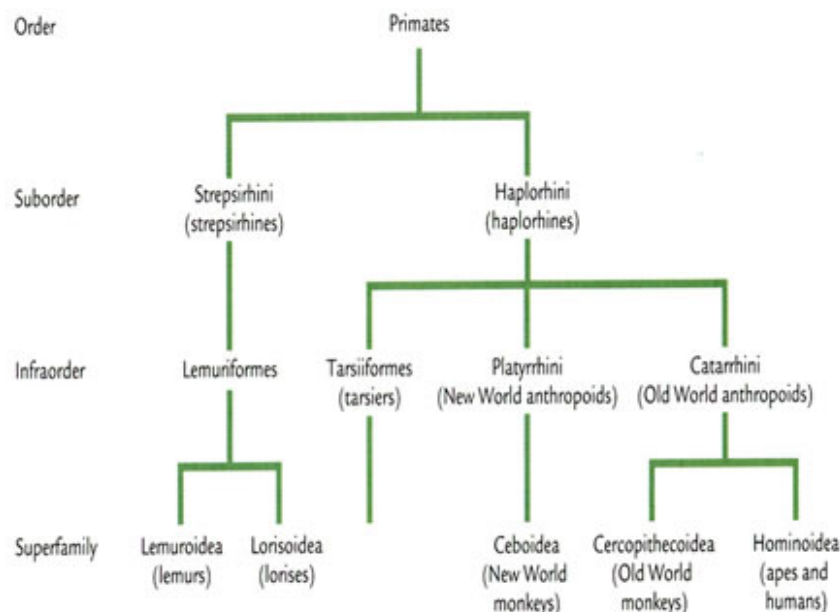
Chimpanzees and humans belong to the animal order "primates". Primates include the suborders strepsirhines (lemurs and lorises) and haplorhines (tarsiers, monkeys, apes, and humans).

Primates are characterized by many features, including:

- Large brains, relative to body size
- An increased reliance on stereoscopic vision (commonly known as depth perception)
- Less reliance on smell (the dominant sensory system in most other mammals)
- Most have opposable thumbs and flexible joints

Apes and humans belong to the superfamily hominoid, that share similar characteristics, such as the absence of a tail, dental features, even larger brains, and greater mobility in shoulders, elbows and wrist suited for different locomotion.

Within this superfamily, chimpanzees and humans share the most similar genetic makeup, sharing 98.6% of our genes.



## Reproduction



Chimpanzees become sexually mature between the ages of 10 and 13. Females usually reproduce every 5 years, but a mother is unlikely to raise more than 3 offspring to full maturity during her lifetime, due to a high rate of infant mortality. Gestation period (period of pregnancy) is approximately 8 months. These numbers and timelines are comparable to those for human reproduction.

Interestingly, when a female is in oestrus (sexually receptive) the skin around her rump swells considerably and becomes clear pink. Females show their first very small sexual swellings at age eight or nine, but are not sexually attractive to the older males until they reach age 10 or 11. There is usually a two-year period of adolescent sterility before the female finally conceives. Spacing between births, provided the previous infant lives, is about five years. At this age and as a rite of passage, almost every young chimp gets lost from their mother at some point during their exploration.

[Watch the video.](#)

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## Childhood

Like us, chimps have a long childhood—five years of suckling and sleeping in their mothers' nests at night. Bonds formed between mother and offspring and between siblings during this intense period are likely to persist throughout life.

If a mother dies, the orphan may be unable to survive. He or she often shows signs of clinical depression, and feeding and play activities decline. Older siblings often adopt their orphaned brothers or sisters. Occasionally individuals adopt infants not related to them (alloparenting)—instances of true altruism.

There are particularly close parallels between chimpanzee infants and human children – both have an insatiable appetite for play, are extremely curious, learn through observation and imitation, need constant reassurance and attention, and finally, need affectionate physical contact for healthy development.

A long childhood is as important for chimps as it is for humans. A young



chimp has much to learn, watching, imitating and practising the behaviour of others. This learning is the means by which certain actions are passed from one generation to the next—the beginnings of culture.

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## Intelligence

The anatomy of the chimpanzee brain and central nervous system is startlingly similar to our own. It should not be surprising, then, that chimpanzees (along with gorillas and bonobos) are capable of intellectual performances once thought unique to humans. Wild chimps use sophisticated cooperation in hunting. They use tools for more purposes than any other being, save humans. And chimps show the beginning of even more sophisticated tool-making behaviour.



Chimpanzees are capable of reasoned thought, abstraction and have a concept of self. Chimps use reasoned thought when they process information and use their memory, for example when finding fruit according to what season it is. Chimps are capable of generalization and symbolic representation, as they are able to group symbols together, and some chimps have even learned how to use American Sign Language. Chimps also have a "concept of self", which refers to an individual's perception of their being in relation to others. An interesting test that is often used is to see if an animal recognizes themselves in mirrors – chimps can do this, while most other animals cannot!

Those who have worked closely with chimpanzees agree that they feel and express emotions such as sadness and happiness, fear and despair—and they know mental as well as physical pain.

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## Communication

There are uncanny similarities in the nonverbal communication of chimps and humans—kissing, embracing, patting on the back, touching hands, tickling, swaggering, shaking the fist, brandishing sticks, hurling rocks. And these patterns appear in similar contexts as those in which they are seen in humans.

In captivity, chimpanzees can be taught human languages such as ASL (American Sign Language), learning 300 or more signs. They can also master many complex skills on computers.



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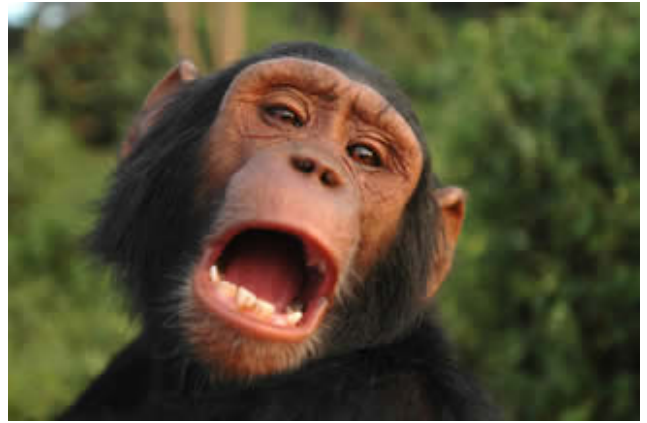


## Emotions

Dr. Goodall discovered that chimpanzees displayed a wide range of complex emotions that were once thought to be uniquely human. For instance, chimpanzees clearly exhibit emotions such as joy, sadness, fear and despair. Chimps have also been found to possess an almost human-like enjoyment of physical contact, laughter, and community.

These emotions have been evidenced particularly in chimpanzees, moreso than other mammals, due to their facial expressions and their facial musculature that is so similar to ours.

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## Significant Differences



Jane Goodall's study of chimpanzees not only points to striking chimp-human similarities but also pinpoints differences. Aside from the obvious physical traits, perhaps the most significant difference is that chimpanzees do not have a spoken language. This is due to the fact that chimps do not have a vocal tract. This human development can be attributed to various human adaptations working in conjunction, including walking upright and learning to cook our food (leading to smaller jaws and larger brains).

Our intellect dwarfs that of even the most gifted chimpanzee. The fact that chimpanzees can learn from humans, to communicate using human languages such as American Sign Language or lexigrams, does not change this. Language is believed to have played a major role: humans can discuss things or events not present, share knowledge of the distant past, make plans for the distant future, while no other animals can.

Importantly however, Dr. Goodall reminds us:

***"If humans are the most intelligent beings on earth, why is it that we are destroying our only home?"***

- Dr. Jane Goodall -

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