

# Do you want fries with that, Mickey?

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Using mice as models, researchers at the Max Planck Institute for Evolutionary Anthropology traced some of the differences between humans and chimpanzees to differences in our diet. The findings appear in the January 30 issue of PLoS ONE.

Humans consume a distinct diet compared to other apes. Not only do we consume much more meat and fat, but we also cook our food. It has been hypothesized that adopting these dietary patterns played a key role during human evolution. However, to date, the influence of diet on the physiological and genetic differences between humans and other apes has not been widely examined.

By feeding laboratory mice different human and chimp diets over a mere two week period, researchers at the Max-Planck-Institute for Evolutionary Anthropology in Leipzig, Germany, were able to reconstruct some of the physiological and genetic differences observed between humans and chimpanzees.

The researchers fed laboratory mice one of three diets: a raw fruit and vegetable diet fed to chimpanzees in zoos, a human diet consisting of food served at the Institute cafeteria or a pure fast food menu from the local McDonald's™ (the latter caused the mice to significantly gain weight). The chimpanzee diet was clearly distinct from the two human diets in its effect on the liver - thousands of differences were observed in the levels at which genes were expressed in the mouse livers. No such differences were observed in the mouse brains. A significant fraction of the genes that changed in the mouse livers, had previously been observed

as different between humans and chimpanzees. This indicates that the differences observed in these particular genes might be caused by the difference in human and chimpanzee diets.

Furthermore, the diet-related genes also appear to have evolved faster than other genes - protein and promoter sequences of these genes changed faster than expected, possibly because of adaptation to new diets.

Citation: Somel M, Creely H, Franz H, Mueller U, Lachmann M, et al (2008) Human and Chimpanzee Gene Expression Differences Replicated in Mice Fed Different Diets. PLoS ONE 3(1): e1504. doi:10.1371/journal.pone.0001504 ([www.plosone.org/doi/pone.0001504](http://www.plosone.org/doi/pone.0001504))

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