

## COOKING EXPANDS THE MIND

“You are what you eat”, has taken on new meaning following a recent collaborative research report from Brasil and the United States suggesting that cooked food may have helped human brains to grow so large.

You may not find it surprising that humans have the biggest brains for our size than any other animal. Our big brains explain a lot about us – intelligence, emotion, self-awareness. Gourmet cooking? But big brains aren’t cheap – they require heaps of energy to function properly. Twenty percent of the energy we consume – around 1800 kJ/day for a 9000 kJ/day average diet – goes right to our head! Whereas closely related primate brains require only 9% of their consumed energy. Although high-energy foods are now plentiful to support our big brains, this was not always the case. So how did big brains even come into existence?

To answer this question, researchers looked back in the fossil record to see when our ancestors’ brains started getting bigger. Our Australopithecine ancestors, who lived some 2.5-4 million years ago, possessed brains of similar size to modern day primates, and so likely had similar energy requirements. Thereafter a curious thing happened: cranial capacity, and thus brain size, nearly doubled over the following 1-2 million years. Clearly, something must have changed about our ancestors’ way of life that allowed them to take on massively more energy than ever before, and thereby fuel brain expansion.

The researchers hypothesised that cooking may have played an important part. Here’s their reasoning. Cooked food yields more energy per gram than raw food – we can extract 20-30% more energy from cooked meat and starch than raw. Plus a nice BBQ’d steak tastes divine! Cooked food is also softer, so it’s easy to chew and passes readily through our digestive system, which saves energy. This sounds really good so far, but it would really be strengthened if the researchers could find evidence that cooking came into practice around the same time as brain expansion. Digging into the archeological records revealed that the use of fire and crude cooking implements dates to around 1.5 million years ago – exactly the time when they would have been needed to prepare the energy-dense foods that fueled brain growth. And what’s more... If our ancestors did not use cooking to increase the energy value of food, they would have had to eat for more than 9 hours a day just to meet the energy demands of brain expansion. Food for thought if you’re considering one of those fad raw food diets. So get out to the BBQ this summer for some traditional Kiwi fare – it expands your mind (and your body, so enjoy in moderation)!

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### REFERENCES:

1. Fonseca-Azevedo K, Herculano-Houzel S. “Metabolic constraint imposes tradeoff between body size and number of brain neurons in human evolution.” *Proc Natl Acad Sci U S A*. 2012 Nov 6;109(45):18571-6. doi: 10.1073/pnas.1206390109.