

What's cooking?

The evolutionary role of cookery

- (1) 'YOU are what you eat', or so the saying goes. But anthropologist Richard Wrangham, of Harvard University, believes that this is true in a more profound sense than the one implied by the old proverb. It is not just *you* who are what you eat, but the entire human species. And with *Homo sapiens*, what makes the species unique in
5 Dr Wrangham's opinion is that its food is so often cooked.
- (2) Cooking is a human universal. No society is without it. And the consumption of a cooked meal in the evening, usually in the company of family and friends, is normal in every known society. Moreover, without cooking, the human brain (which consumes 20-25% of the body's energy) could not keep running. Dr Wrangham thus believes that
10 cooking and humanity have evolved together. In fact, he thinks that cooking and other forms of preparing food are the evolutionary change that underpins all of the other – and subsequent – changes that have made people such unusual animals.
- (3) Humans became human, as it were, with the emergence 1.8m years ago of a species called *Homo erectus*. This had a skeleton much like modern man's – a big,
15 brain-filled skull and a narrow pelvis and rib cage, which imply a small abdomen and thus a small gut. Hitherto, the explanation for this shift from the smaller skulls and wider pelvises of man's apelike ancestors has been a shift from a vegetable-based diet to a meat-based one. Meat has more calories than plant matter, the theory went. A smaller gut could therefore support a larger brain.
- (4) Dr Wrangham disagrees. When you do the sums, he argues, raw meat is still
20 insufficient to bridge the gap. He points out that even modern "raw foodists" – members of a town-dwelling, back-to-nature social movement – struggle to maintain a high enough weight, while they have access to animals and plants that have specifically been bred for the table. If restricted to raw food pre-agricultural man would have starved.
- (5) Start cooking, however, and things change radically. Cooking alters food in three
25 important ways. It breaks starch molecules into more digestible fragments. It "denatures" protein molecules, so that their amino-acid chains unfold and digestive enzymes can attack them more easily. And heat physically softens food. That makes it easier to digest, so even though the stuff is no more calorific, the body uses fewer
30 calories dealing with it.
- (6) In support of his thesis, Dr Wrangham has looked closely at other scientific studies and has come up with impressive material. Cooking increases the amount of food digested in the stomach and small intestine, where it can be absorbed, from 50% to 95% according to work done on people fitted for medical reasons with collection bags at the
35 ends of their small intestine. Another telling experiment, conducted on rats, did not rely on cooking. Rather, the experimenters ground up food pellets and then recomposed

them to make them softer. Rats fed on the softer pellets weighed 30% more after 26 weeks than those fed the same weight of standard pellets. The difference could be explained by the lower cost of digestion. Indeed, Dr Wrangham suspects the main cause
40 of the modern epidemic of obesity is not overeating but the rise of processed foods. These are softer, because that is what people prefer.

(7) It looks as if Dr Wrangham is relying on a compelling chain of thought. And in doing so he may have cast light not only on what made humanity, but also on one of the threats it faces today.

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Tekst 4 What's cooking?

- 1p 5 How does the writer introduce the topic of the article in paragraph 1?
A By addressing the reader in an informal way.
B By criticising an often-used cliché.
C By explaining his personal interest.
D By using a standard expression.
- 1p 6 What is the function of paragraph 2?
A To explain the resistance against Dr Wrangham's theory.
B To illustrate the importance of Dr Wrangham's theory.
C To question the relevance of Dr Wrangham's theory.
D To sketch the outline of Dr Wrangham's theory.
- 2p 7 Geef van elk van de volgende beweringen aan of deze wel of niet in overeenstemming is met de inhoud van de alinea's 3 en 4.
Volgens Dr Wrangham
1 krijgen mensen door de inname van alleen rauw vlees onvoldoende voedingsstoffen binnen.
2 leefde de *homo erectus* voornamelijk van vegetarisch voedsel.
3 levert het eten van rauw vlees minder calorieën op dan van plantaardige voeding.
4 zorgt de consumptie van rauw voedsel ervoor dat de huidige mens fit blijft.
Noteer het nummer van elke bewering, gevolgd door "wel" of "niet".
- "Moreover, without cooking, the human brain (which consumes 20-25% of the body's energy) could not keep running." (lines 8-9)
- 1p 8 Which of the following is in line with the quotation mentioned above?
A "It is ... human species." (lines 3-4)
B "changes that ... unusual animals" (line 12)
C "Meat has ... theory went." (line 18)
D "If restricted ... have starved." (line 24)
- 1p 9 Which of the following is true, judging from paragraphs 5 and 6?
1 The softer the food, the more energy-efficient its digestion is.
2 The characteristics of food are changed by cooking it.
A Only 1 is true.
B Only 2 is true.
C Both 1 and 2 are true.
D Neither 1 nor 2 is true.
- "... one of the threats it faces today" (alinea 7)
- 1p 10 Welke bedreiging voor de mensheid wordt hiermee bedoeld?
Citeer uit alinea 6 of 7 het eerste woord van de zin waarin deze bedreiging genoemd wordt.

Bronvermelding

Een opsomming van de in dit examen gebruikte bronnen, zoals teksten en afbeeldingen, is te vinden in het bij dit examen behorende correctievoorschrift, dat na afloop van het examen wordt gepubliceerd.