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High-protein weight loss diets can work

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Scientists have shown that instead of counting calories for weight loss, we would do better to boost the protein content of our diet.

Nutritional values of foods are typically given in kilojoules or kilocalories, standard units of energy. However, new research on apes and monkeys suggests that this is too simplistic as different macronutrients – carbohydrates, fats and proteins- interact to regulate appetite and energy intake. In these animals, overall energy intake seems to be less important than achieving the correct nutritional balance.

Professor David Raubenheimer (University of Sydney), a nutritional ecologist, says "Foods are complex mixtures of nutrients and these do not act independently but interact with one another. The appetite systems for different nutrients compete in their influence on feeding".

When foods are nutritionally balanced, there is no competition between these appetite systems, and when one nutrient requirement is satisfied, so too are the others. Many foods however, are unbalanced and have a higher or lower proportion of protein to carbohydrate than the animal requires. Therefore, to obtain the right amount of protein the animal may have to over- or under-eat fats and carbohydrates.

The researchers studied baboons that live on the edge of human settlements. Despite eating different combinations of foods each day, they achieved a consistent balance where 20% of their energy needs came from protein. However, their overall energy intake varied significantly, over a 5-fold range. According to Professor

Raubenheimer: "This suggests that the baboon values getting the right balance of nutrients over energy intake per se". Other studies found that spider monkeys and orang-utans , too, foraged for a balanced diet. But when seasonal availability of some foods prevented them from getting a balanced diet, they prioritised getting the right amount of protein even if this meant eating too much or too little fats and carbs. Surprisingly, the opposite response is seen in gorillas, who often significantly over-eat protein in order to reach their target carbohydrate level. "This shows that there is diversity even among closely related primates", says Professor Raubenheimer. "It also demonstrates that an energy-only approach is not adequate to understand primate foraging or for making conservation decisions".

Like spider monkeys and orang-utans, humans prioritise protein over carbohydrates and fat. This means that if we have a diet with low protein, we will over-eat fats, carbs and energy to get the target level of protein. This may explain why human obesity cases in the Western World have soared over the past 60 years whilst the proportion of protein in our diet has dropped during this time. Professor Raubenheimer says: "We can use this information to help manage and prevent obesity, through ensuring that the diets we eat have a sufficient level of protein to satisfy our appetite". This may explain why high-protein regimes, such as the Atkins Diet, can aid weight loss. However, Professor Raubenheimer cautioned that "We also need to get the balance of fats:carbs right…high protein diets might help us to lose weight, but if they involve other imbalances then other health problems will be introduced". The researchers are currently investigating how the balance of carbohydrates and fats affects the health of laboratory mice.

Professor Raubenheimer concluded with his own advice for dietary health: "A simple rule for healthy eating is to avoid processed foods – the closer to real foods the better. Whilst it is clear that humans are generalist feeders, no human population has until recently encountered

"ultra-processed foods" – made from industrially extracted sugars, starches and salt. Our bodies and appetites are not adapted to biscuits, cakes, pizzas & sugary drinks and we eat too much of them at our peril".

This work is to be presented at the Annual Meeting of the Society for Experimental Biology in Manchester on Friday 4th July.

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