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Effects of a novel plant-based protein on daily nutritional intake: Do people adapt over time?

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Newly developed plant-based foods can vary in protein, but can consumers detect these differences? Here, we sought to explore whether repeated consumption of a novel plant-based protein-containing food impacts the macronutrient profile of other foods in the diet.

Healthy adult meat-eating participants consumed a portion of a novel plant-based test food daily over 5 days. In a between-group design, two levels of protein, 10% and 25%, were tested. Participants kept a digital food diary and attended an experimental session on day 1 and day 8. During the experimental sessions, participants ate the test food (preload), followed by an *ad libitum* buffet. They also evaluated their liking for the test food, alone or in combination with protein or carbohydrates, together with its expected satiety.

Thirty-eight ($n(25\%)=20$) participants completed the intervention. The higher (25%) protein test food received lower liking and higher expected satiety ratings ($p<0.05$). Both groups declared a greater desire to eat the test food in combination with carbohydrates than with protein ($p<0.001$). There were no between-group differences in macronutrient intake at the buffet, but the 25% group increased their lipid and calorie intake by 14% between sessions ($p<0.05$). Food diaries show a 20% reduction in daily protein intake in the 25% group over 5 days ($p=0.04$).

In this study, participants used test foods as protein sources independently of their protein content. However, after several days of intervention, the higher-protein group reduced its daily protein intake indicating a potential compensation on physiological level.