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Title:

Feeding Mixed Diets Alters Gastric Digestion of Protein from Haloumi in Growing Pigs as an Adult Human Model

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Preparation of Your Abstract

1. The title should be as brief as possible but long enough to indicate clearly the nature of the study. Capitalise the first letter of the first word ONLY (place names excluded). No full stop at the end.
2. Abstracts should state briefly and clearly the purpose, methods, results and conclusions of the work.

Introduction: Clearly state the purpose of the abstract
Methods: Describe your selection of observations or experimental subjects clearly
Results: Present your results in a logical sequence
Discussion: Emphasize new and important aspects of the study and conclusions that are drawn from them

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The dynamics of mixed meals during gastric digestion are not well understood. Currently, in vitro and in vivo models focus on breakdown of individual foods. This study aimed to determine gastric protein hydrolysis of haloumi as a protein source when consumed alone or together with carbohydrate sources with different structures (pasta or semolina).

Nine-week-old male pigs (n = 59) consumed haloumi (1), haloumi and pasta (0.5+0.5), or haloumi and semolina (0.5+0.5). Gastric contents of the proximal and distal region were collected after 30, 60, 120 or 240 min postprandially. The apparent degree of gastric protein hydrolysis based on the release of free NH_2-groups and gastric emptying of smaller proteins, peptides and amino acids (digested protein) were determined.
Apparent degree of gastric protein hydrolysis increased over time for haloumi and haloumi + semolina ($P<0.05$). Negligible hydrolysis (2%) for haloumi occurred in the first 30 min, however 240 min postprandially the degree of hydrolysis reached 14% ($P<0.05$). In contrast, for haloumi + semolina, the degree of hydrolysis was 14% after 30 min increasing to 31% after 240 min postprandially ($P<0.05$). For haloumi + pasta, the degree of hydrolysis was negligible after 30 min and did not change postprandially ($P>0.05$).
Differences in degree of hydrolysis were reflected in the rate of digested protein entering the small intestine. On average, 1.5, 5.3, and 18.0 g of digested protein entered the small intestine 240 min postprandially in the haloumi + pasta, haloumi, or haloumi + semolina diets, respectively.

These results align with differences in gastric chyme physical properties, where haloumi + semolina had the lowest hardness. This suggests that in haloumi + semolina, pepsin had easier access to protein, potentially due to increased mixing of enzymes and chyme.

Differences in digestion between single ingredients and mixed meals show the necessity to investigate combinations of foods.