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Keywords
In vitro digestion
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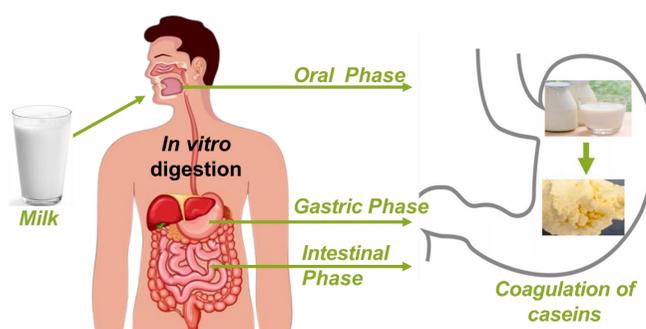
Funding



Influence of the gastric biomechanics on the digestion of milk using a biorelevant *in vitro* dynamic digestion simulator

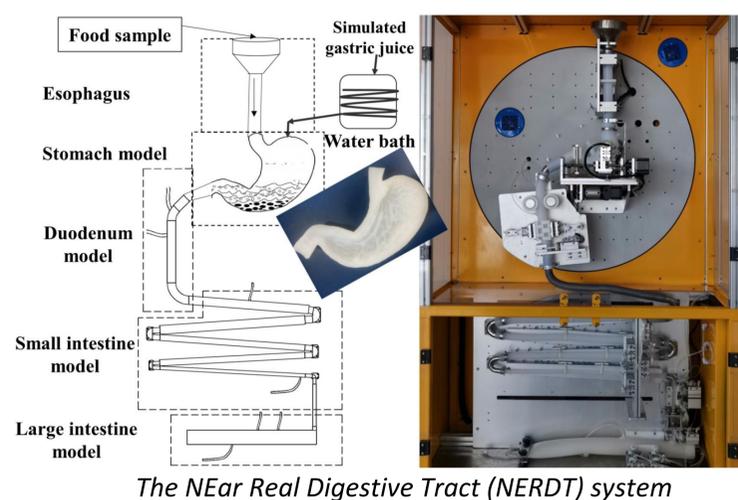
Socio-economic Context

- Milk is a key source of nutrients for humans of all ages. Understanding the factors affecting its digestion is essential for maximizing nutritional benefit
- Knowledge of the digestive behaviour of milk components helps in the development of functional dairy products that can bring health benefits to humans



Scientific Context

- The digestion of milk by humans is affected by several factors (*e.g.*, consumption temperature, enzyme activity, protein content), yet not well investigated
- Digestion-related studies performed *in vivo* on humans or animals are not always feasible technically, ethically and financially. *In vitro* digestive models, such as the NEar Real Digestive Tract (NERDT) system, offer a promising alternative



Research Questions

- How to set the operational parameters of the NERDT to control gastric emptying?
- What are the respective contributions of pepsin and stomach contractions in the initial formation and further disintegration of milk aggregates?
- How do the consumption temperature and the protein content influence the gastric digestion of milk?

Expected Results

- To reproduce the gastric digestive behaviour of milk using the NERDT
- A more comprehensive understanding of the gastric digestion of milk, and of the factors affecting the formation of casein aggregates, the breakdown of milk components and the release of nutrients
- To hierarchize the factors influencing the extents and kinetics of nutrient bioavailability such as amino acids, lipids and vitamins

Research Perspectives

- Optimize the *in vitro* digestive model, including the intestinal phase, and make it as close to the real situation as possible
- Promote the development and application of functional dairy products with enhanced health-promoting properties