Chapter 2
The causes of eating fast

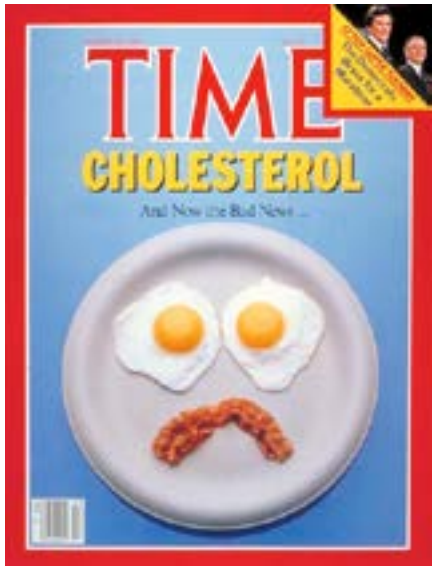
Food quality

According to the WHO (World Health Organisation), nutrition is characterised by food intake that serves the needs of our organism . Two terms are essential to remember : the nutrients and the calories. The nutrients (carbohydrates, proteins, lipids, vitamins, minerals) are elementary components found in food products, or nature necessary for our organism. They cover our physiological needs and allow us to function effectively.

Malnutrition is characterised by an inappropriate consumption of food; it is the result of a deficit or an excess of specific nutrients.

A calorie is a unit of energy. All the food products that we consume contain calories but some of them provide empty calories. These calories contain a lot of energy but very few essential non-energetic components such as fibers, minerals and micronutrients.

The medical studies show that particularly rich food products that need to be consumed with temperance are most of the time low viscocity food products. Yet, the less the food is viscous, the more it will be eaten quickly. On the opposite, high viscosity food is meant to have a better nutritional value and is eaten more slowly. The fibers for instance require an important chewing effort. Note that, food quality is an area of strong investment research backed by the food –processing industry.



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Eating-rate and food quality

High dose, rapid rate of absorption appear to be particularly associated with "food addiction."		120 undergraduates participated in Study One and 384 participants recruited through Amazon MTurk participated in Study Two.
2015	PLoS One Feb 18;10(2):e0117959. doi: 10.1371/journal.pone.0117959. eCollection 2015.	Schulte EM, Avena NM, Gearhardt AN.

The results confirm the effect of texture on eating rate. We conclude that people consumed more of the meal when the food was simultaneously mashed and savoury. Food texture may be used to produce slower eating rates that result in a reduced overall energy intake within a realistic hot lunchtime meal.		four groups consisted of about 40 subjects (mashed, standard, n=37; mashed, savoury n=39; whole, standard n=40; and whole, savoury n=41) matched for age (average age=44.8 ± 5.3), gender (on average 19 males and 20 females), normal BMI (average 22.6 ± 1.7) and dietary restraint score (DEBQ score=1.74 ± 0.6).
2013	Appetite. Jan;60(1):180-6. doi	Forde CG, van Kuijk N, Thaler T, de Graaf C, Martin N.

Compared with the standard viscosity meal, high viscosity meal was consumed at a slower eating rate, with postprandial hunger and desire to eat being lower while fullness was higher.		15 healthy males
2013	PLoS One Jun 20;8(6):e67482	Zhu Y, Hsu WH, Hollis JH.

This idea fits with the concept of the taste system as a nutrient□sensing system that informs the brain and the gastro□intestinal system about what is coming into our body. With liquid or food that can be eaten quickly, this system is bypassed. Slower eating helps the human body to associate the sensory signals from food with their metabolic consequences.		Article review
2011	Proceedings of the Nutrition Society May;70(2):162-70	de Graaf C.

Depending on the foods, large differences show in eating rate between foods, ranging from 4.2 to 631 g/min. The fattest the food and the lowest his viscosity is, the fastest the food can be ingested. This study showed that when foods can be ingested rapidly, food and energy intake is high.		37 men and women (aged 23.3 (SD 3.4)y, BMI 21.7 (SD 1.7)kg/m(2))
2011	Appetite Feb;56(1):25-31	Viskaal-van Dongen M, Kok FJ, de Graaf C.

Foods that can be eaten quickly lead to high food intake and low satiating effects□the reason being that these foods only provide brief periods of sensory exposure (mouth, tongue, pallet)		articles review
2010	Nature Reviews. Endocrinology May;6(5):290-3	de Graaf C, Kok FJ.

Presentation of the studies

Color of the section

Color of the related topic the study treats

Topic of the section

Team Nationality	Main results of the study *Potential illustration*		Cohort number Cohort specification
	Years	Publication references	Author(s)

Color by section :

- Satiety
- Food Intake
- Obesity
- Metabolic Risks
- Diabetes
- GERD
- Food quality
- Chewing
- Portion Size
- Mindful eating
- Gastric surgery
- Scientific Method

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