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# Applied Social Psychology for promoting pro-social and pro-environmental behavior in primary school students

Igor Vaslav Vitale

MiniEduAgri: Comics and Interactive Games for Explaining the Farm to Fork Strategy to  
Primary School Students



**I will start my presentation with a story that made famous the Province of Foggia in the field of medicine and food**



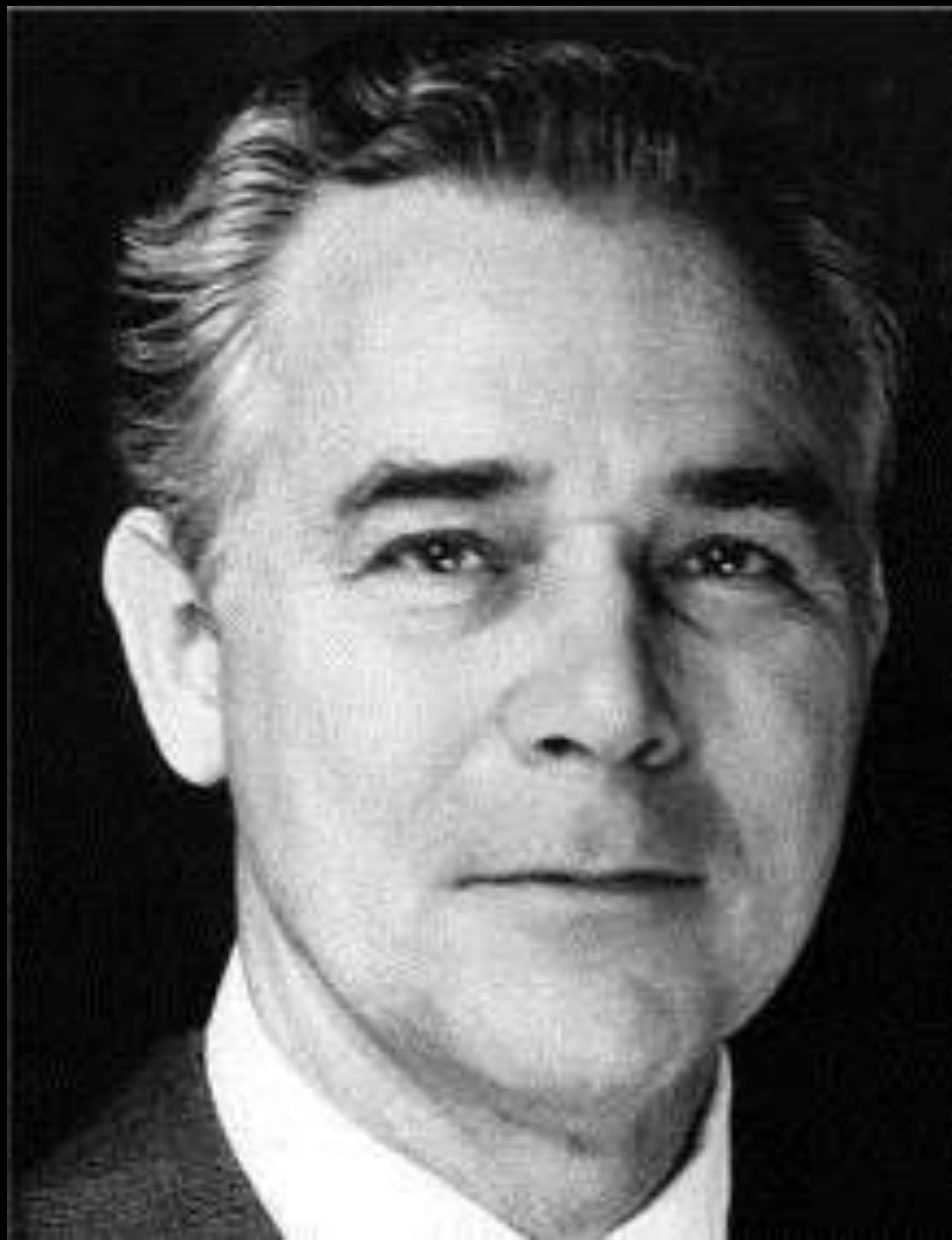


**Since the end of the 19th century many Italians have emigrated to the US**





**From Roseto Valfortore to Roseto Pennsylvania**

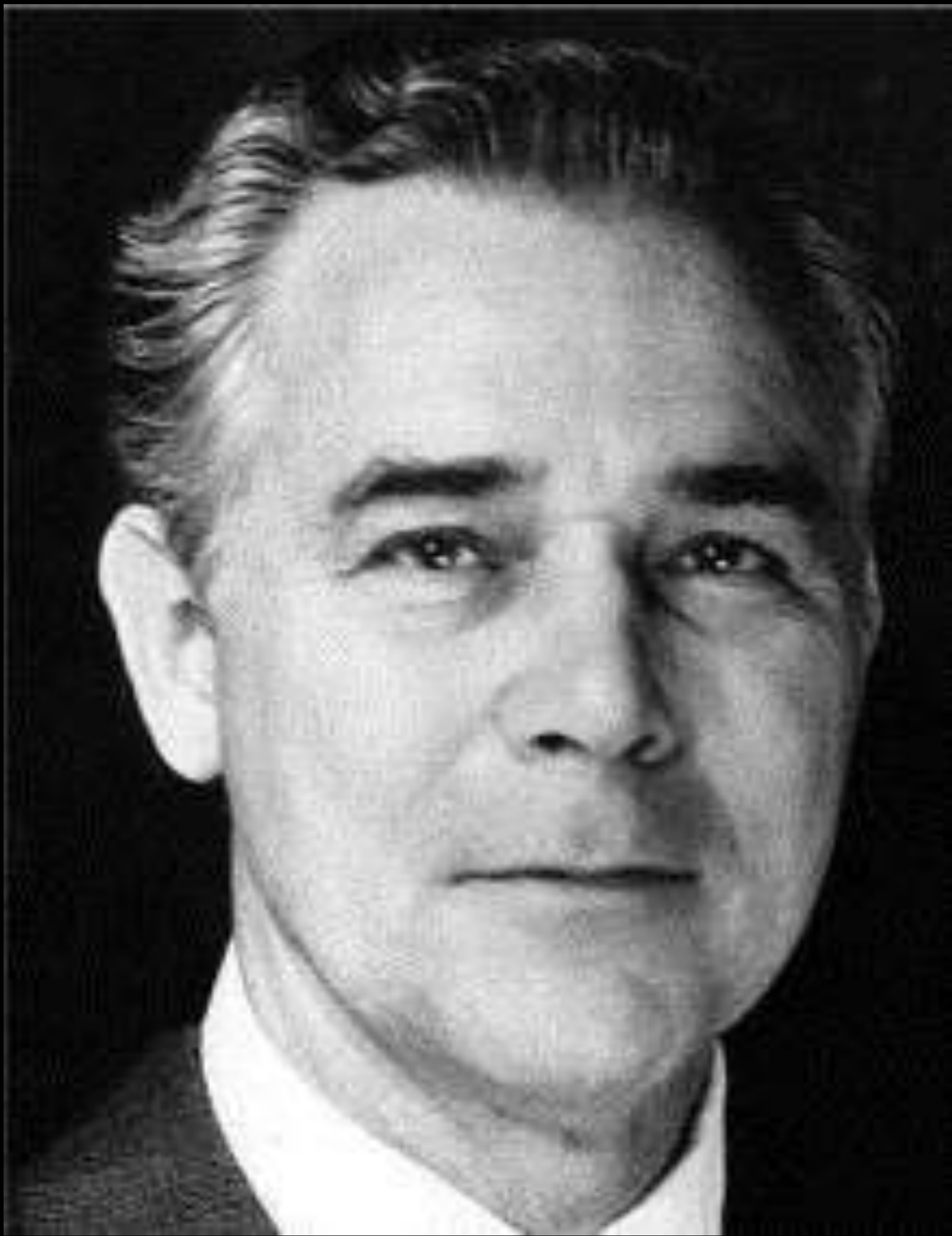


**Roseto Pennsylvania makes history because it captures the attention of one of the greatest doctors of the period. Prof Stewart Wolf**

**The incidence of cardiovascular disease in people over 65 in Roseto Pennsylvania was -50%**

**Under 64 it was zero**





**And this was inexplicable for Stewart Wolf**



**What could possibly have caused such a huge difference?**



# Different dietary habits?





# Different professions?



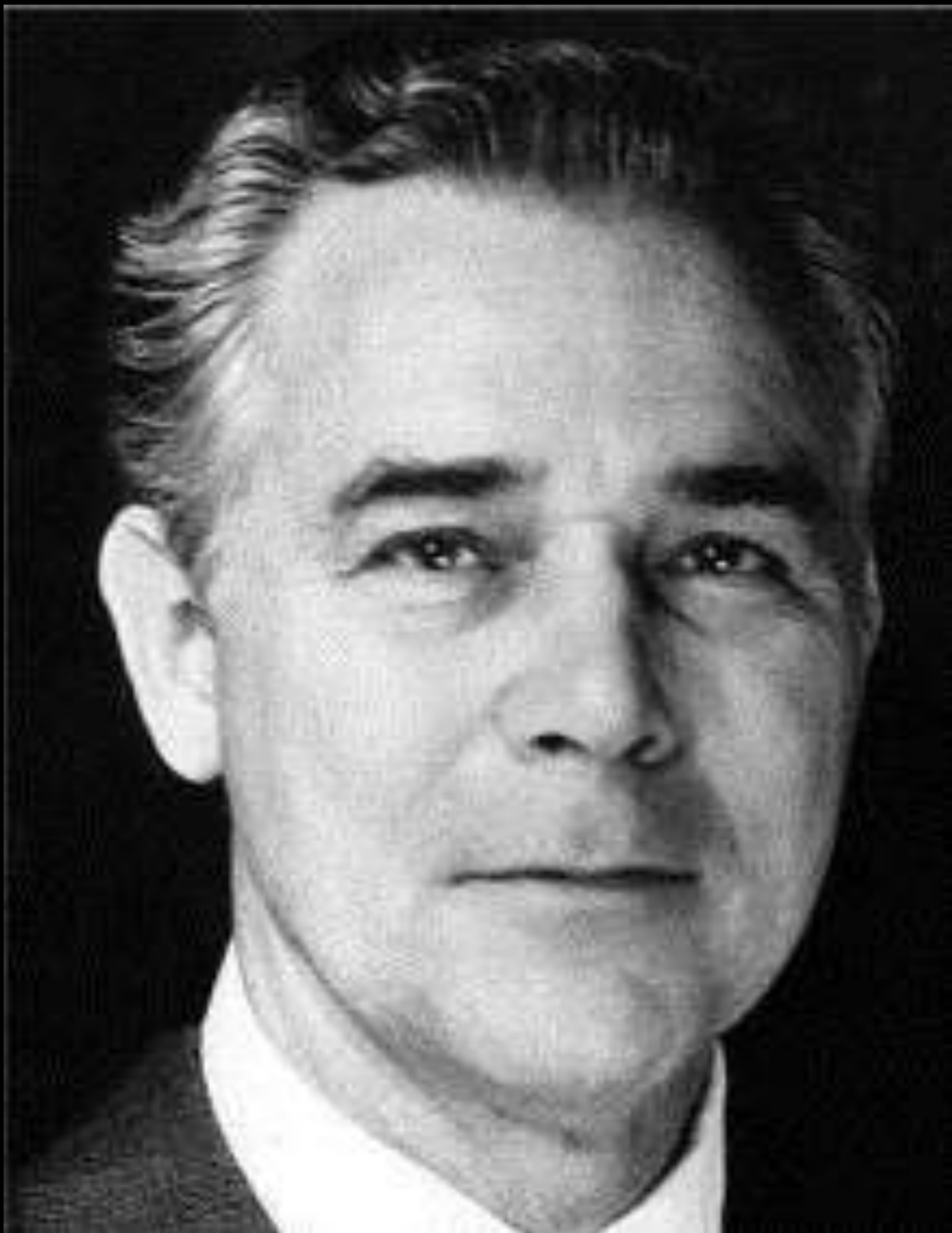


# Different alcohol consumption?





**None of these**



**It was inexplicable by the classic variables analyzed by  
medicine at that time**



**The only difference was found was...**

# The level of social cohesion at the table!





# Social support was higher



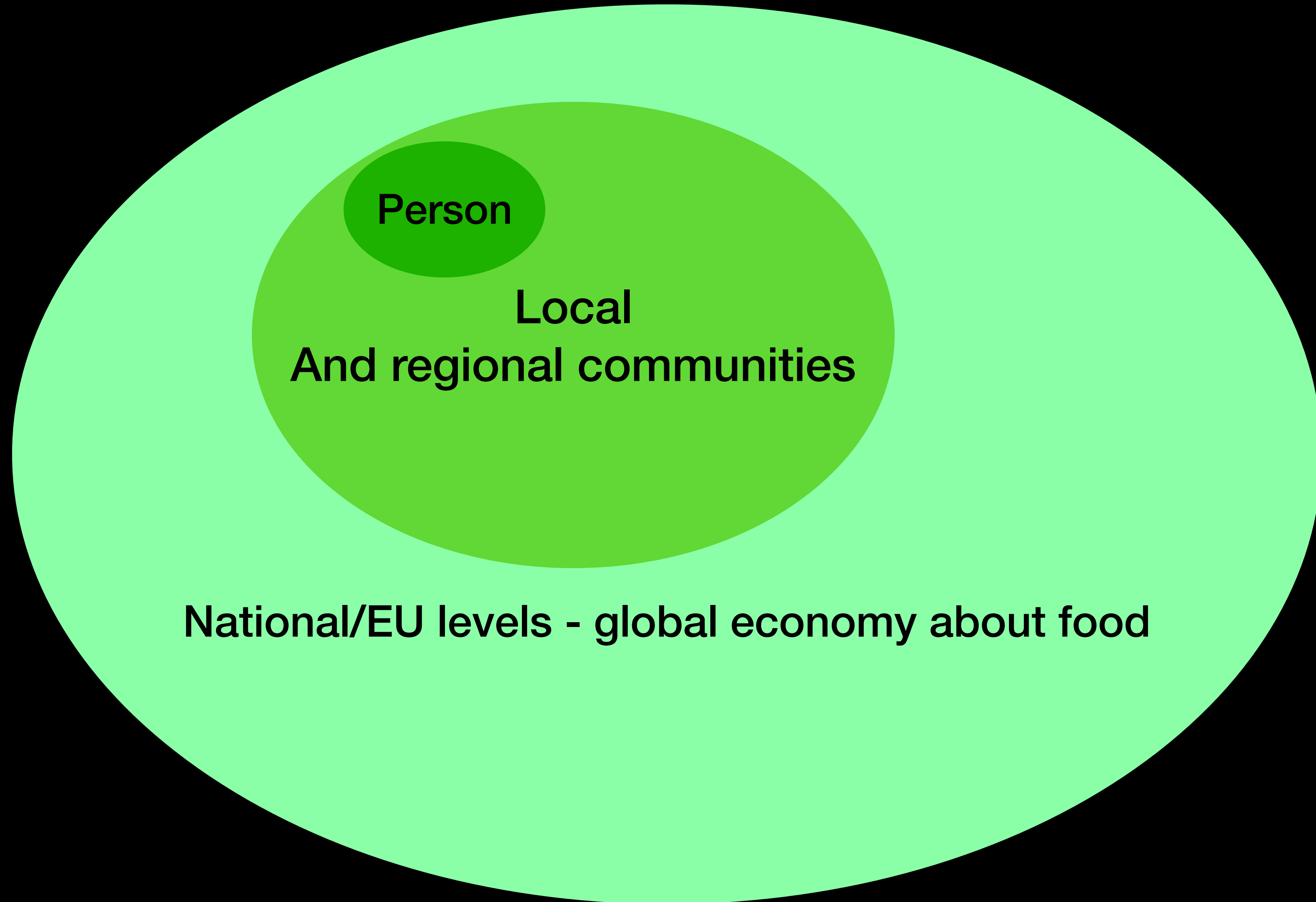


# And also family cohesion





# we propose you a systemic approach



Food technology

Laws

Social Psychology

Anthropology

Neuroscience



**Europe is very active in  
strategies for promoting  
sustainable and healthy food**

# New measures against Childhood Obesity

C 349/108

IT

Gazzetta ufficiale dell'Unione europea

29.9.2023

**Parere del Comitato economico e sociale europeo sul tema «Misure volte a ridurre l'obesità infantile»**

**(parere esplorativo richiesto dalla presidenza spagnola)**

(2023/C 349/17)

Relatore: **Josep PUXEU ROCAMORA**

Correlatrice: **Isabel CAÑO AGUILAR**

Consultazione

Lettera della presidenza spagnola del Consiglio, 8.12.2022

Base giuridica

Articolo 304 del trattato sul funzionamento dell'Unione europea

Sezione competente

Agricoltura, sviluppo rurale e ambiente

Adozione in sezione

1.6.2023

Adozione in sessione plenaria

13.7.2023



# Obesity reduction plans are certainly not new, we can see here a document of the 2007



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 30.5.2007  
COM(2007) 279 final

## **WHITE PAPER ON**

**A Strategy for Europe on Nutrition, Overweight and Obesity related health issues**

{SEC(2007) 706}  
{SEC(2007) 707}

# But the last Eurostat 2023 report shows that

+1,4%

	Time series too short for long-term assessment		:
Obesity rate (*)	2014–2019	1.4%	↓

Sustainable development  
in the European Union  
Monitoring report on  
progress towards the SDGs  
in an EU context  
2023 edition







# EUROPEAN GREEN DEAL







A large crowd of farmers, many with tractors, is gathered in front of the European Parliament building. The European Union flag is prominently displayed on the building's facade. The scene is dimly lit, suggesting an evening or overcast day.

**There is currently a protest against the European Green Deal by farmers in EU**





Commissione  
europea



# NUOVA AGENDA DEI CONSUMATORI

## LE AZIONI PER PROTEGGERE I CONSUMATORI EUROPEI NEL PERIODO 2020 – 2025

Scheda informativa, novembre 2020

[#NewConsumerAgenda](#)





# 1. TRANSIZIONE VERDE

## Mettere i consumatori in grado di svolgere un ruolo attivo

I consumatori sono disposti a pagare di più per ottenere prodotti più duraturi. Quando i consumatori ricevono informazioni migliori sulla durabilità dei prodotti, le vendite delle versioni più durature dei prodotti possono quasi triplicare.



Informare meglio i consumatori sulle caratteristiche di sostenibilità ambientale dei prodotti, quali la loro durabilità o riparabilità



Proteggere i consumatori da determinate pratiche, come il “greenwashing” o l’obsolescenza precoce, e garantire loro l’accesso a informazioni affidabili



Promuovere gli impegni delle imprese a favore di azioni di consumo sostenibile, che vadano oltre gli obblighi giuridici



Riparare i prodotti e incoraggiare l’acquisto di prodotti più sostenibili e circolari → revisione della direttiva sulle vendite di beni dopo il 2022





EUROPEAN  
COMMISSION

Brussels, 22.3.2023  
COM(2023) 166 final

2023/0085 (COD)

Proposal for a

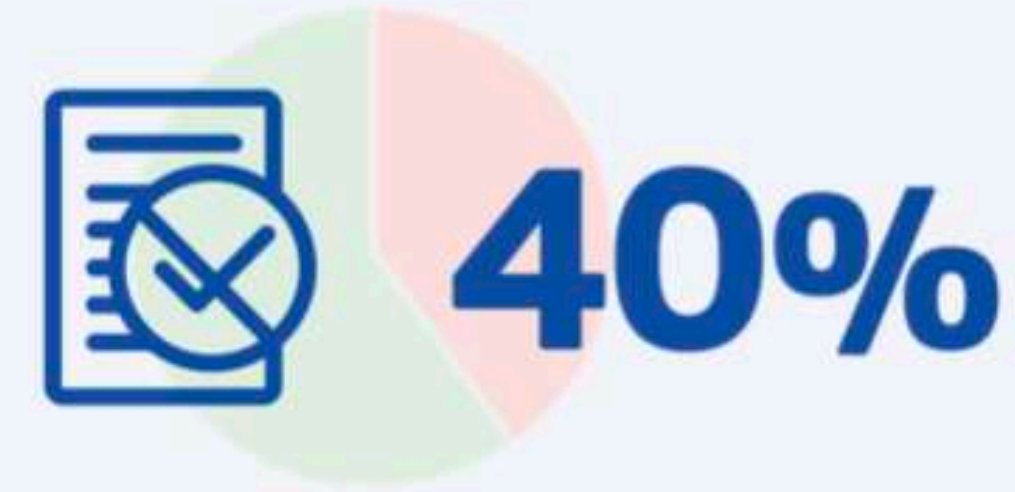
**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on substantiation and communication of explicit environmental claims (Green Claims Directive)**





53% of green claims give vague, misleading or unfounded information



40% of claims have no supporting evidence



Half of all green labels offer weak or non-existent verification



There are 230 sustainability labels and 100 green energy labels in the EU, with vastly different levels of transparency



**There are many things to do**



**But there's one truth: if consumers are not informed enough, their decision making about food will be weak**

**And even when informed, human  
decision making is limited**



**Daniel Kahneman  
integrated economics  
and psychology and  
won a Nobel Prize in  
2002 for having  
demonstrating the  
biases of human  
decision making**





**Humans has limited  
rational capacity due  
to limited memory,  
attention, capacity to  
calculate**



# Basic skills in EU are decreasing and data on new generations are not encouraging

**22,5% insufficient in reading skills**

**22,3% insufficient in science**

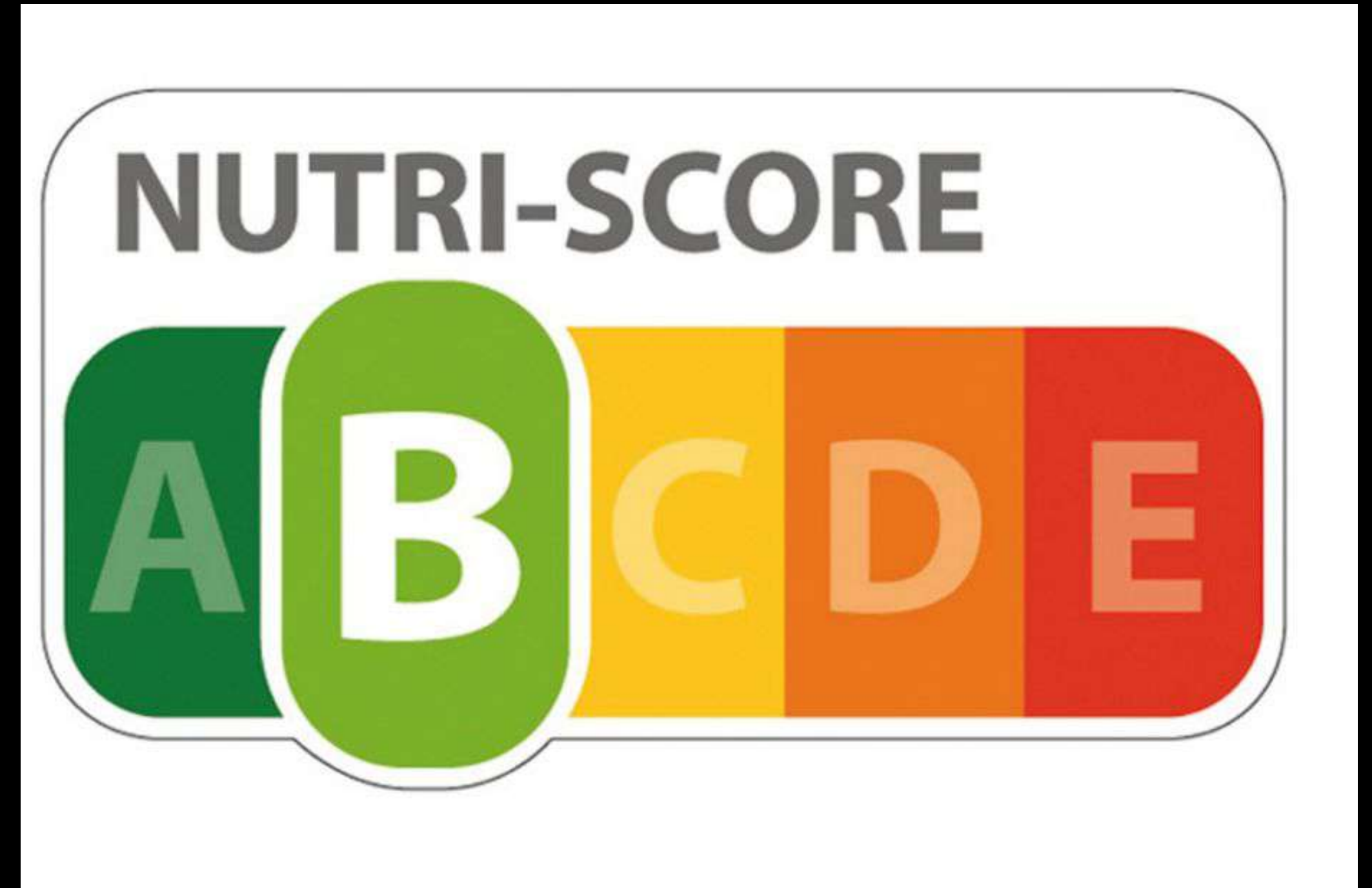
**22,9% insufficient in mathematics**





**Food labels maybe for some complex, for some not too easy and in other cases maybe too easy?**

**INGREDIENTS:** ENRICHED MACARONI (WHEAT FLOUR, DURUM FLOUR, NIACIN, FERROUS SULFATE [IRON], THIAMIN MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID); CHEESE SAUCE MIX (WHEY, MILKFAT, MILK PROTEIN CONCENTRATE, SALT, SODIUM TRIPHOSPHATE, CONTAINS LESS THAN 2% OF CITRIC ACID, LACTIC





**Moreover, consumers lives in systems. Systems that may strongly affect their decision making capacity**

**Companies**

**Laws and Policies**

**Consumers**

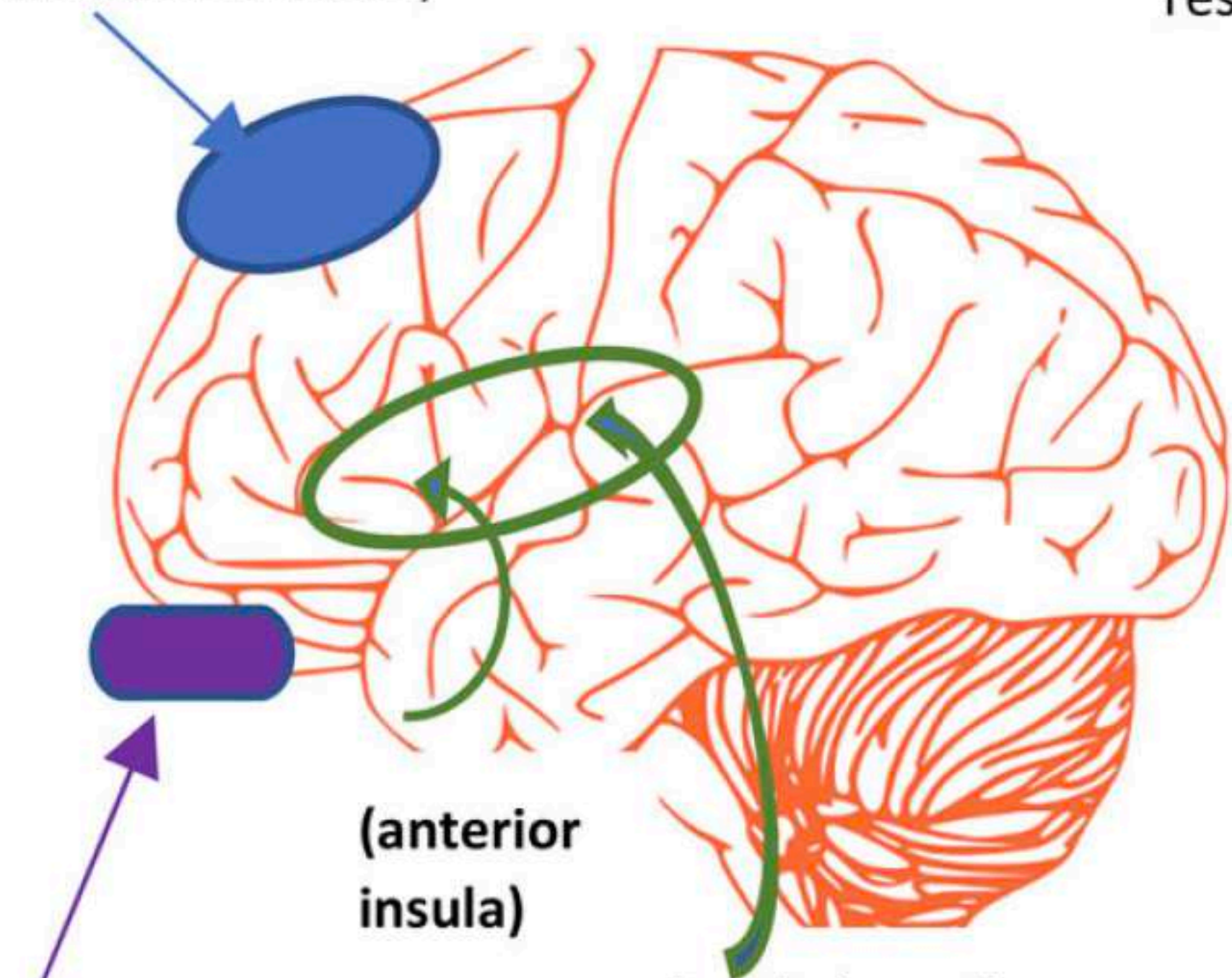
**Economic factors**

**Cultural factors**



**Dorsolateral PFC (dlPFC)** (e.g. predicted value, ambiguity, working memory, remembered value)

**anterior Cingulate Cortex (ACC)** (e.g. response resolution, choice, anxiety,



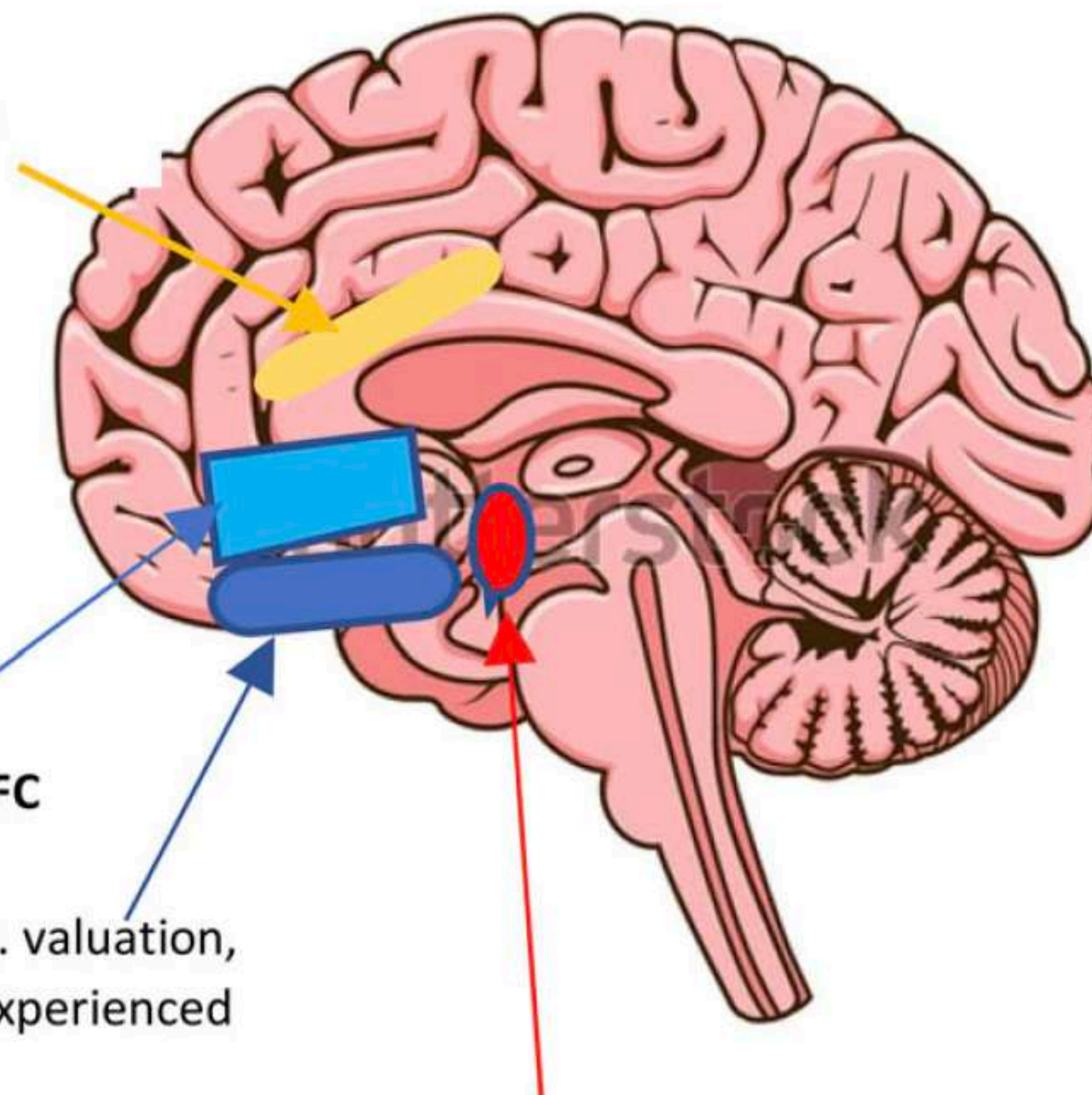
**lateral OFC (IOFC)**  
(e.g. consumption, experienced value)

**(anterior insula)**

**Insula** (e.g. disgust, pain, negative emotions, arousal)

**ventromedial PFC**

**medial OFC** (e.g. valuation, predicted and experienced value, WTP)



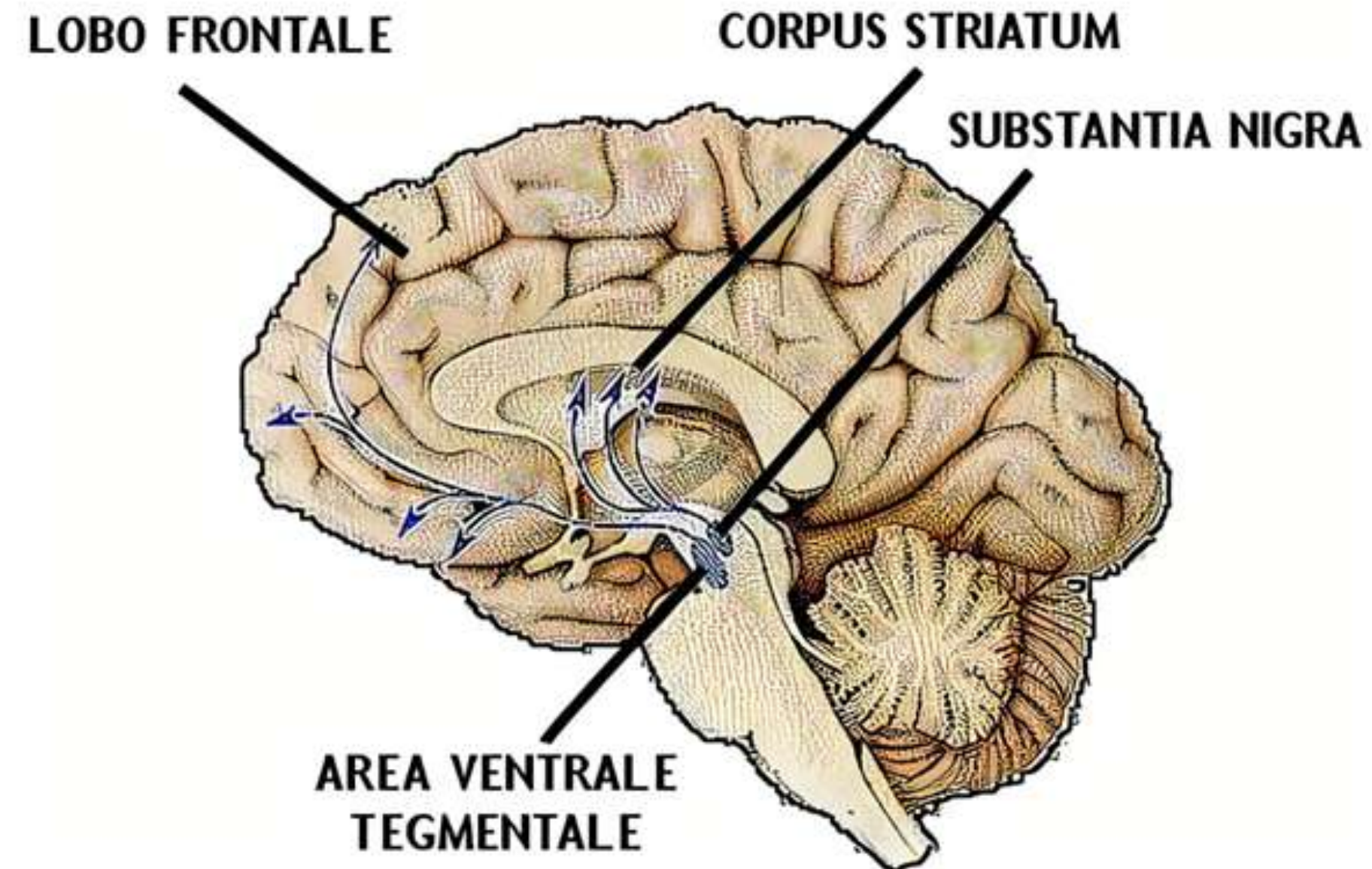
**ventral Striatum & NAcc** (e.g. learning, preference/liking, predicted value, motivational value)



# Food neuroscience: images and words

- ▶ Food-related stimuli can cause brain activation (Tang et al., 2012).
- ▶ Insula, striatum, amygdala and orbital frontal cortex are part of the reward circuit.
- ▶ Food stimuli cause the activation of the same circuit
- ▶ Dopamine release

## SISTEMA DOPAMINERGICO

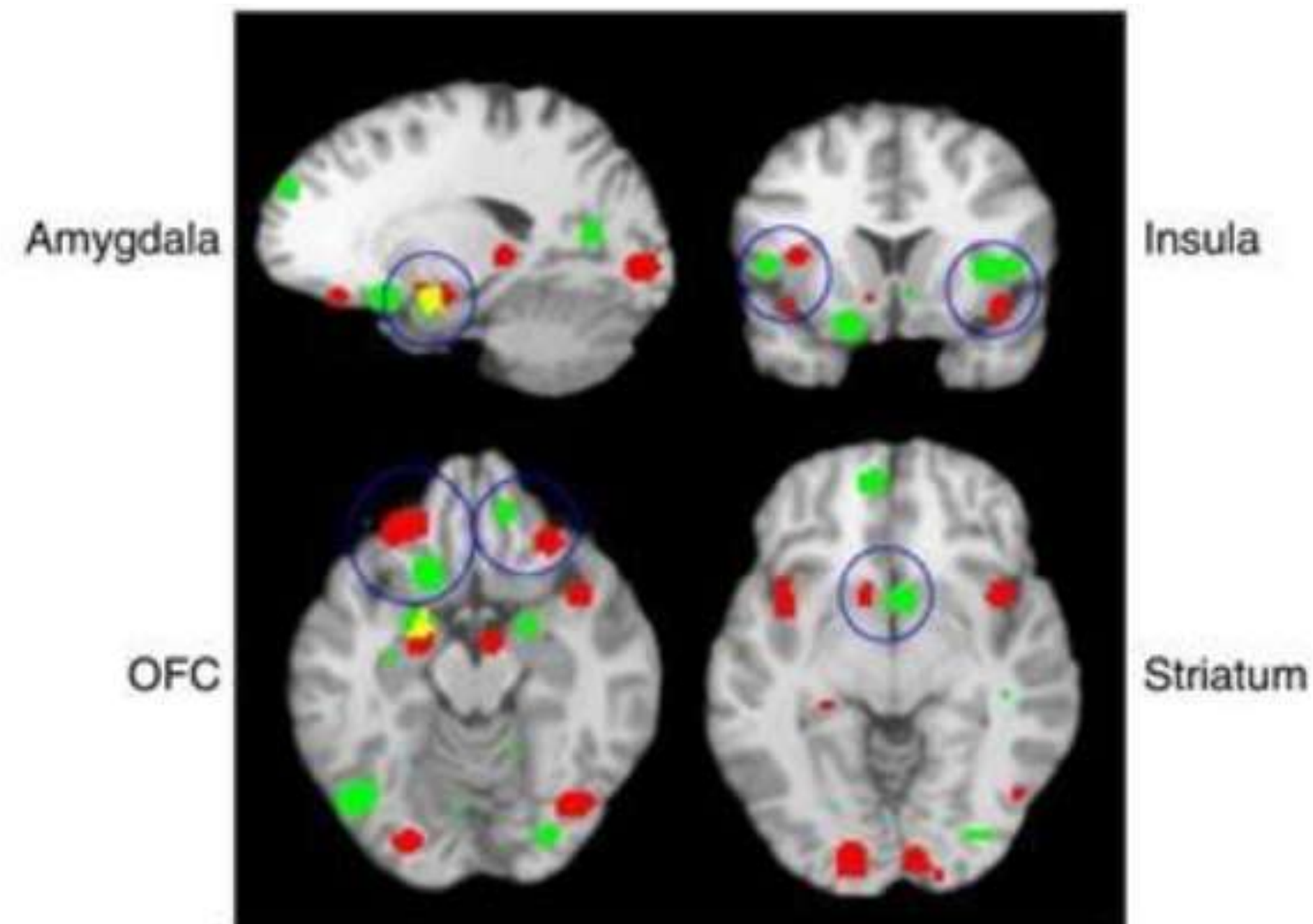




# Food neuroscience: images and words

We can see the results of Tang and colleagues' (2012) meta-analysis on the similarities between brain activation caused by **visual food stimuli (red)** and **smoking (green)**.

This provides the first piece of advice to the restaurateur: to attract the customer's attention, **include visual stimuli, photos of food in the menu!**





# Food neuroscience: images and words

- ▶ **Words** also influence our brain and this was proven many years ago! In the study by Staats and Hammond (1972), 43 people were given a test by presenting them with some words:
- ▶ BLACK, PANCAKES, BACON, SQUARE, FRENCH FRIES, IRONY; EGGS, TIPS, HAMBURGERS, RICE, FAT, HEAT.
- ▶ The results demonstrate that food words elicit a salivary response. And salivary production increases with food words!
- ▶ Therefore, words are important and must be selected carefully.

# Food neuroscience: images and words

- ▶ Not all words cause the same reactions. Those related to "junk food" attract us more.
- ▶ Humans share a liking for high-calorie foods: fats and sugars (Pinel et al., 2000).
- ▶ Papiés (2013) suggests that words appeal to us more when they refer to palatable, unhealthy, and unsustainable foods.

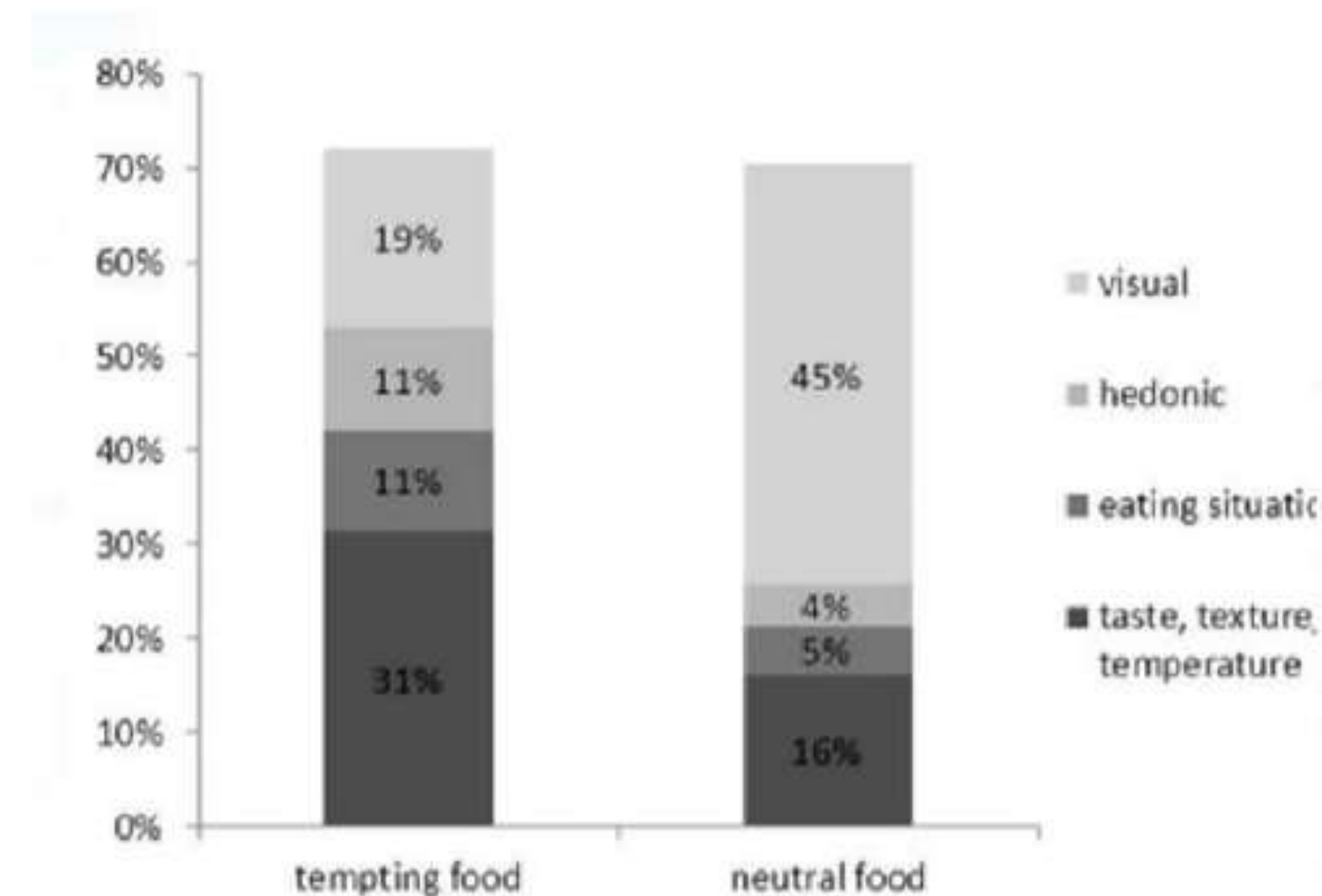


FIGURE 4 | Percentages of eating simulation and visual features, constituting different profiles for tempting and neutral food.



# Neuroeconomics methods



**Eye tracking**

**fNIRS**

**fMRI**

Where you put labels affect attention of the users

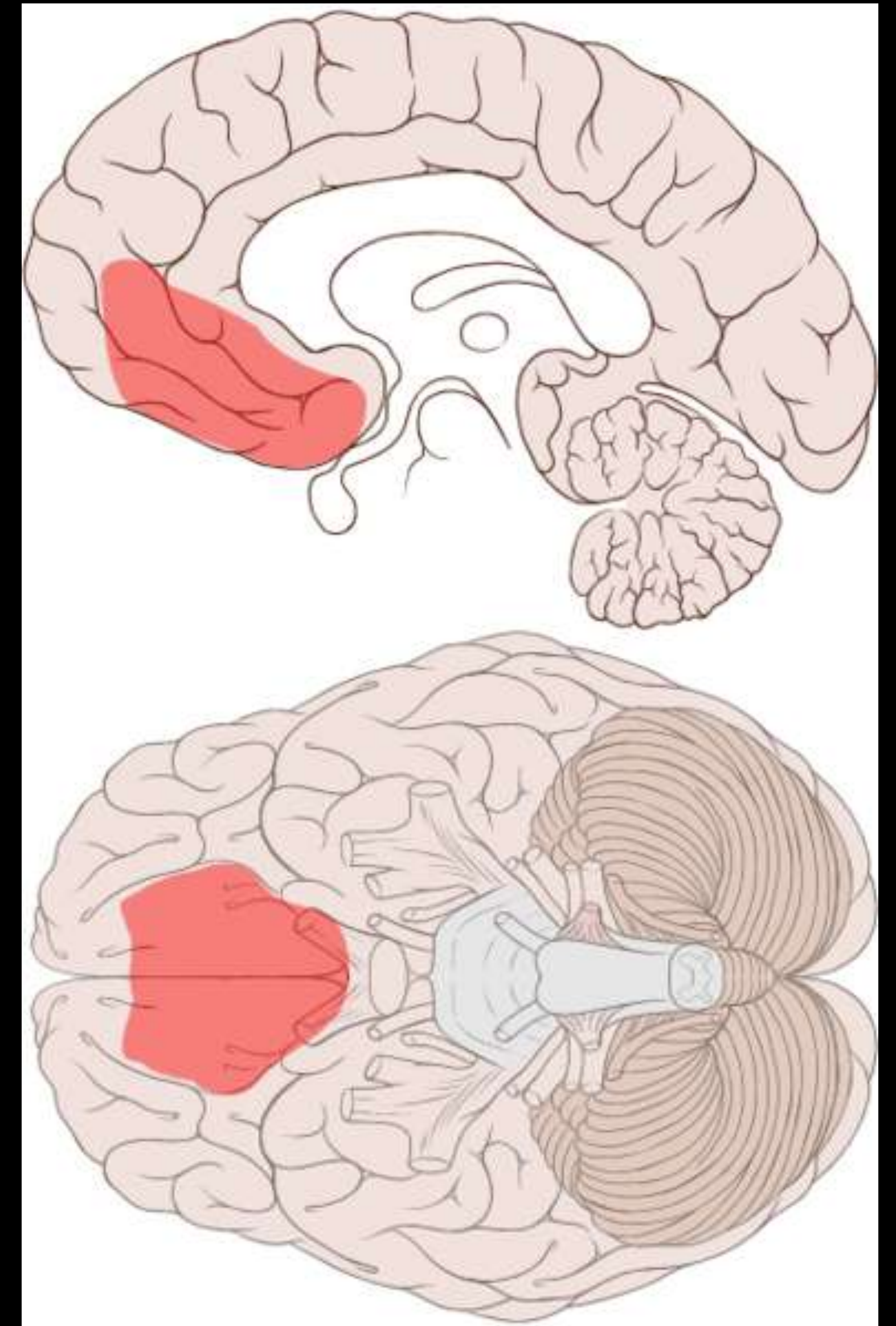


**There are areas that can predict food preferences**

**Ventromedial prefrontal cortex predicted preference formation between Pepsi and Coca-Cola (McClure, 2004)**

**Ventral striatum is related to food preferences (O'Doherty et al., 2006)**

**Decision making, reward**





# Declared price of wine influence its perception

Price improves evaluations of the wine. This “marketing placebo effect” is more effective on consumers high in reward seeking, low in somatosensory awareness, and high in need for cognition. It increase the orbitofrontal cortex activity

## Decision making

Plassman, H. et al. (2015). Individual Differences in Marketing Placebo Effects: Evidence from Brain Imaging and Behavioral Experiments



**The reward system is more activated in overweight people when confronted with high-calories food**

**orbitofrontal cortex,  
amygdala, ventral  
striatum, ventromedial  
prefrontal cortex and  
insula**



**Stoeckel, L.E., R.E. Weller, D.B. Twieg, R.C. Knowlton and J.E. Cox. 2008. Widespread reward-system activation in obese women in response to pictures of high-calorie foods. *NeuroImage* 41(2): 636-647.**



# The effect on brain for the fair-trade labels

**Ventral striatum and ventromedial prefrontal cortex (emotion regulation and decision making)**

**Improve the subjective sense of taste and willingness to pay**



**FAIRTRADE**

**Plassman, H. et al. (2015). Individual Differences in Marketing Placebo Effects: Evidence from Brain Imaging and Behavioral Experiments**

# Organic food labels impact on the nucleus accumbent

The increased activity in ventral striatum is demonstrated in daily organic consumers, especially in Nucleus accumbens and dorsolateral prefrontal cortex, for foods with organic labelling.

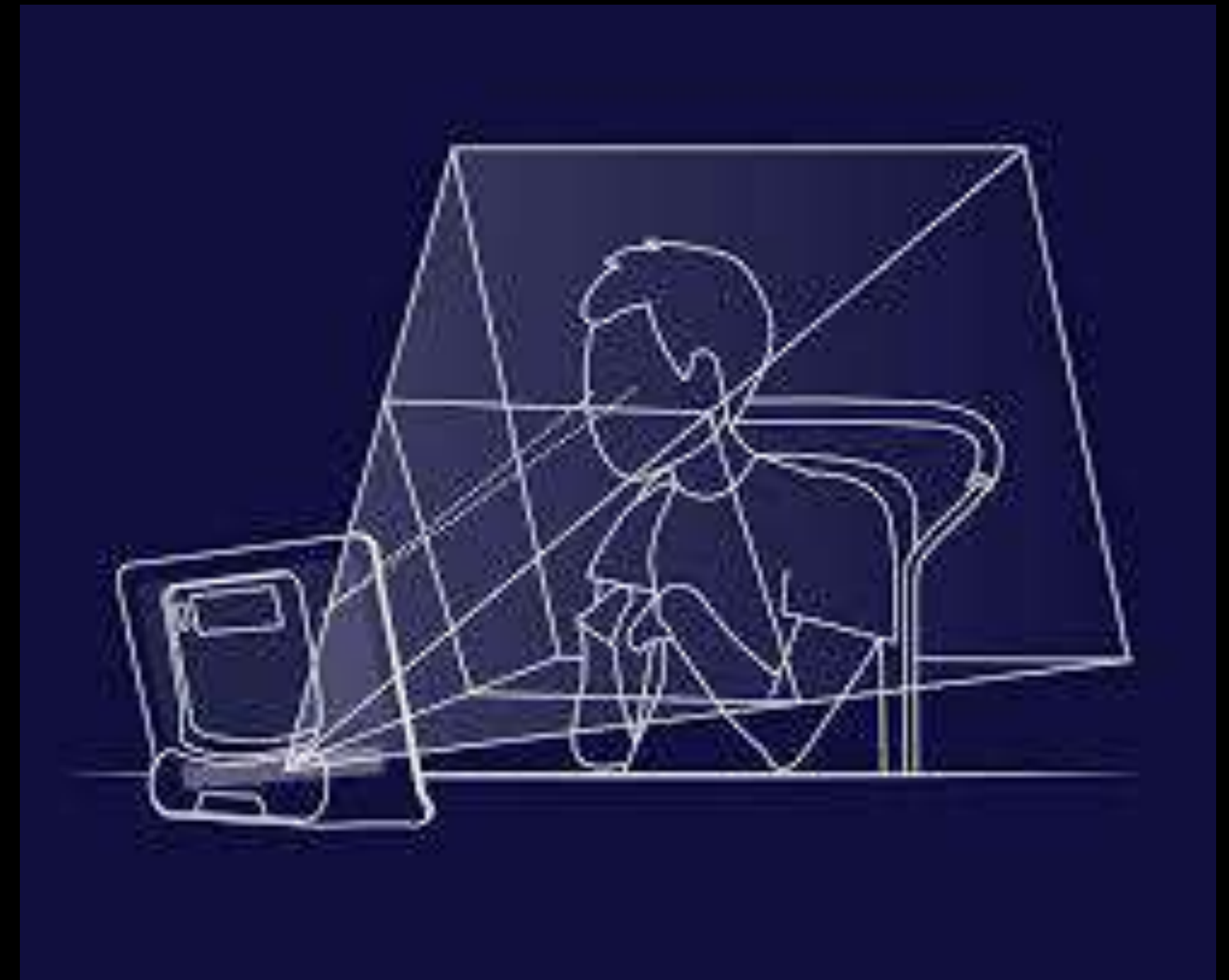


Linder, N.S., G. Uhl, K. Fließbach, P. Trautner, C.E. Elger and B. Weber. 2010. Organic labeling influences food valuation and choice. *NeuroImage* 53(1): 215-220



**Eye tracking research showed that visuals positioning impact on consumers behaviors**

**The presence of nutritional claims on fronts of packages increases the attention of consumers (Ballco et al., 2019)**



**Ballco, P., T. De-Magristis and C. Vincenzina. 2019. Consumer preferences for nutritional claims: an exploration of attention and choice based on an eye-tracking choice experiment. *Food Research International* 116: 37-48.**

# Packaging have an impact on the brain

**Attractive packages activate the occipital lobe (visual activity)**

**Unattractive packages activates areas of the frontal lobe (executive function) and insula (pain and emotion management)**





# Studies on novel food (earthworm crackers)

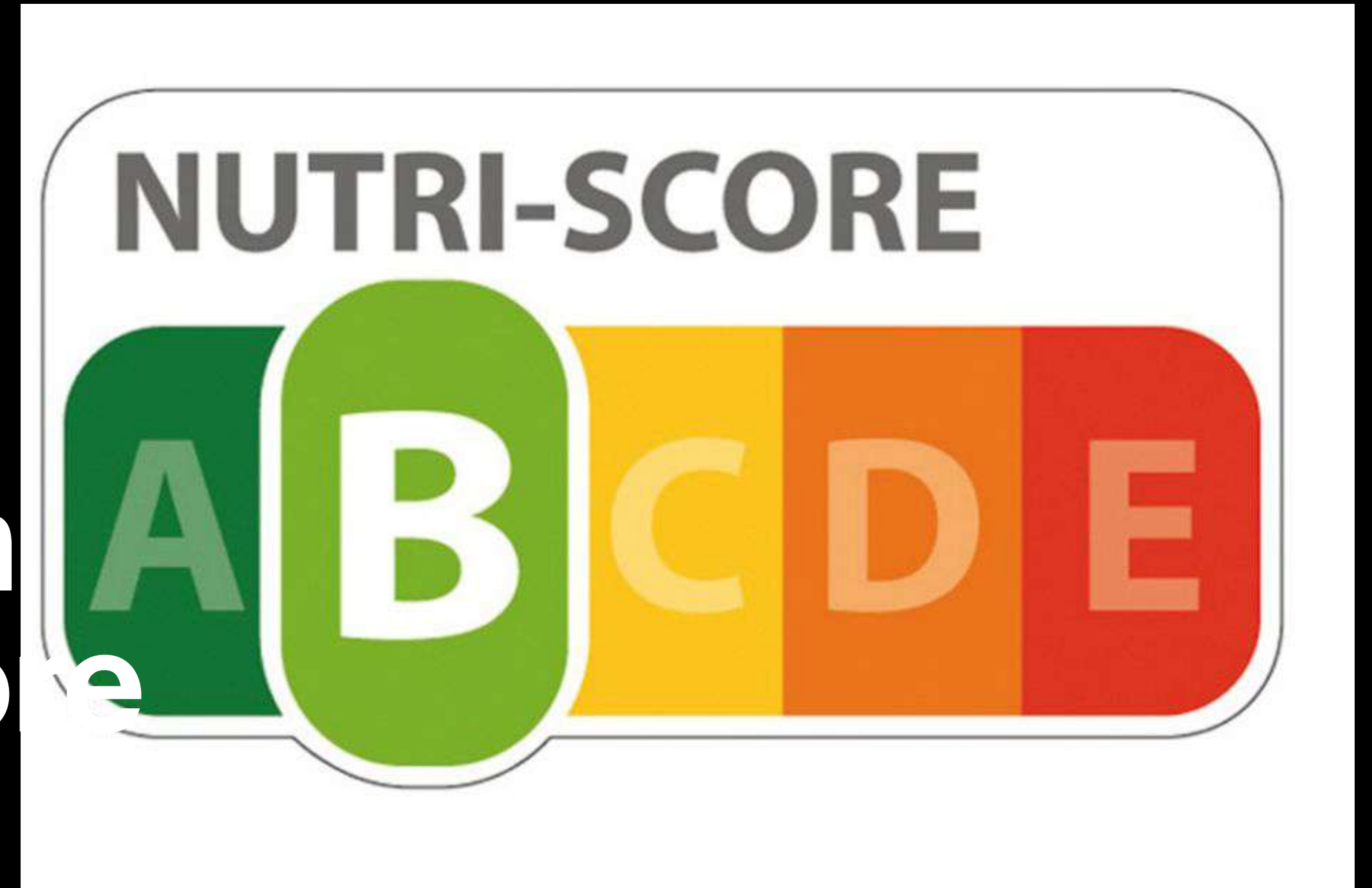
**Blind tasting sessions of earthworm crackers and informational campaign should major female aversion towards earthworm crackers. Information about healthiness of the product was stronger than the ones about flavour.**



**Russo, V., Songa, G., Marin, L.E.M., Balzaretti, C.M., Tedesco, D.E.A. (2020). Novel food-based product communication: a neurophysiological study. Nutrients 2020**

# Traffic lights demonstrated efficacy

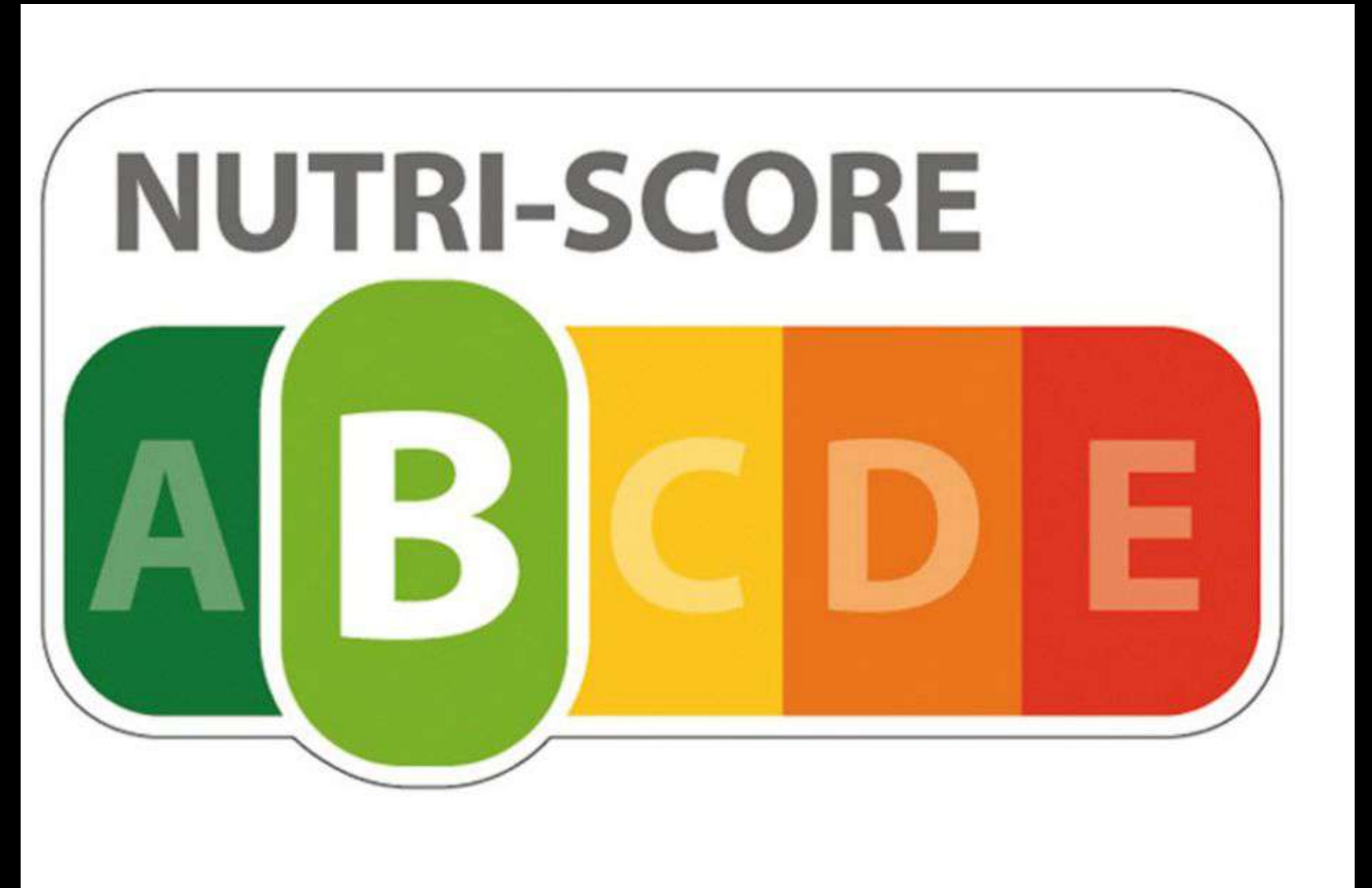
**Examining 2 types of nutrition labels, the traffic light impacted on decision making on healthiness more than classic labels (Jones and Richardson, 2007)**






# Traffic lights demonstrated efficacy

Traffic light labels and logos are very effective in encouraging healthy  
Van Herpen and Van Trijp 2011





**Social and psychological strategies  
to encourage the sustainable and  
healthy for consumption**



# Nudges

Strategies to encourage fast decision making tools

For example putting a vegetarian dish as “dish of the day”

Placing health food at the check-out counter

Increasing the number of available vegetarian options (and increase at the probabilistic level)

**Abrahamse, W. (2020). How to effectively encourage sustainable food choices: a mini-review of available evidences. Frontiers in Psychology, vol. 11**

# Carbon and environmental labels

Food labels has a modest effect on people's food choices. The environmental ones are mediated by people's green values.

For example, Elofsson et al. (2016) found that milk with environmental friendly label brought a 6% more sales

Green-labels of climate friendly food in cafeterias brought a +11,5% of sales if compared with baselines

**Abrahamse, W. (2020). How to effectively encourage sustainable food choices: a mini-review of available evidences. Frontiers in Psychology, vol. 11**



# The provision of information

Monroe et al., (2015) and Canfora et al., (2019) informational campaign showed to have an effect in reducing red-meat self-report consumption

Abrahamse, W. (2020). How to effectively encourage sustainable food choices: a mini-review of available evidences. *Frontiers in Psychology*, vol. 11

# Visual prompts

Visual prompts are a brief form of information that act as a reminder to engage certain behaviors (stickers, posters, signs, etc.)

For example, simple indications like “no food waste please. Remember to use your food recycling caddy” increased recycled food waste of the 20%

**Abrahamse, W. (2020). How to effectively encourage sustainable food choices: a mini-review of available evidences. *Frontiers in Psychology*, vol. 11**



# Social Norms

Descriptive social norms: describes what people do

Injunctive social norms: what people is expected to do

Dynamic social norms (norms in behaviors other people engage in). For example: Patron information about dynamic norms (30% of americans have started to make an effort to limite their meet)

Normative social norms - standard prompts “many guests asks wrap their pizza leftovers”

**Abrahamse, W. (2020). How to effectively encourage sustainable food choices: a mini-review of available evidences. Frontiers in Psychology, vol. 11**

# How to make sustainable menus more attractive

- ▶ If we want customers to choose **sustainable** products from the menu, it is necessary to use attractive images and words.
- ▶ The study is by Cai et al. (2021) is based on the consumption of **offal**. If we increased the consumption of offal, we could reduce the greenhouse gases produced by livestock (Xue, et al., 2019).
- ▶ Cai et al. (2021) propose persuasive strategies to increase offal sales.
- ▶ They conducted research to identify the factors that influence customers by interviewing 20 experts who were successful in **selling offal**.



# The results demonstrate that it is possible to reduce the aversion to offal... let's see how!

1. Conspicuously portions of organs are rejected more, because they resemble live organs.
  2. Tasting services: customers can taste unknown foods and understand if they like them, avoiding waste.
  3. Using euphemisms or foreign names. Not beef tongue, but barbacoa.
1. If the organ is ground up and put in a pâté, the first impression will be less scary
  2. Name aesthetics: “I served intestines, but I called them “meat pretzels” and made them into pretzel shapes to serve them.”



# Conclusions

- ▶ To encourage people to try a sustainable dish, include "attractive" photos and appropriate words in the menu that do not arouse negative feelings.
- ▶ Be honest about the preparation method, don't hide anything from the customer.
- ▶ Use wordplay to embellish the names of dishes.
- ▶ In the future we could also invent tools to evaluate the sustainability and effectiveness of menus!







Co-funded by  
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# Thank you

Igor Vaslav Vitale, Mariella Segreti

MiniEduAgri: Comics and Interactive Games for Explaining the Farm to Fork Strategy to  
Primary School Students