

# **INSIGHTS ON SNACKING: A REVIEW FROM NUTRITION SCIENCE AND CONSUMER TRENDS**

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# Overview

● Introduction

● Objectives

● Methodology

● What is a snack? And what are the recommendations for snacking?

● Important dynamics to consider

1. **Why** are consumers snacking?
2. **When, where and with whom** are consumers snacking?
3. **How often** do consumers snack?
4. **Which snacks** are mostly consumed?
5. **Which product features** are important for consumers?

● Conclusion and future implications

# Introduction

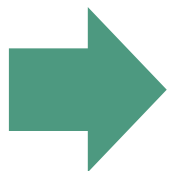


Individuals are **consuming energy outside of meals** *Hess et al. 2016*  
*Adv Nutr, 7(3), 466-475*

Snacking important role in **daily diets** of children and adolescents *Piernas & Popkin, 2010a*  
*Health Affairs, 29(3), 398-404*

● **Parents** mainly **responsible** for food choice *Boots et al. 2015* *Jacquier et al. 2018*  
*Appetite, 92, 94-101* *BMC Public Health, 18(1), 725*

Snacks are often linked to **high sugar, fat, salt** *Piernas & Popkin, 2010b* *Maalouf et al. 2017*  
*J Nutr, 140(2), 325-332* *Am J Clin Nutr, 105(6), 1443-1452*



An opportunity to develop **healthy snacks** for children and adolescents  
Understand **consumer's needs** – **scientific literature & trend reports**

# Objectives

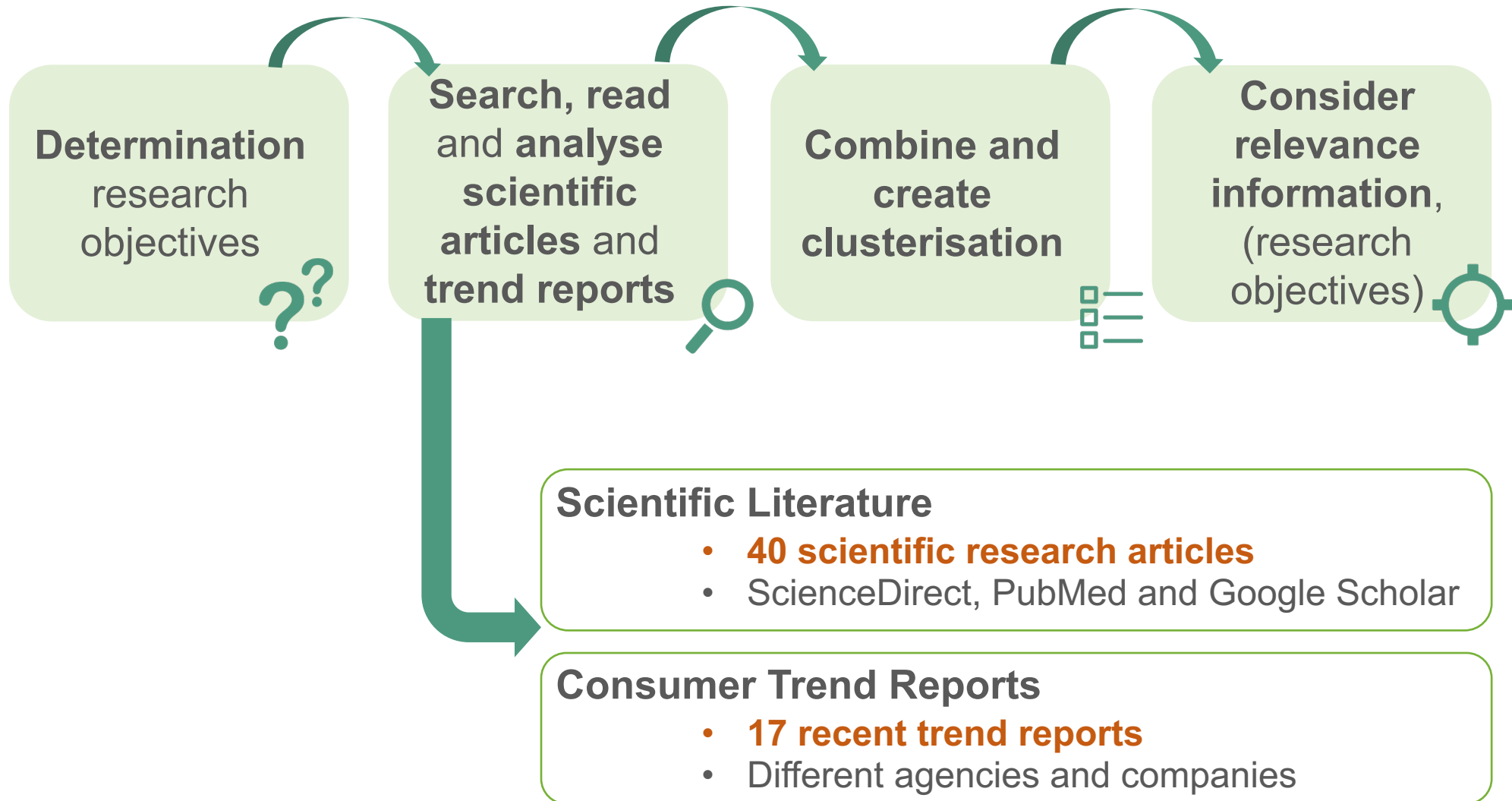
1

To know what is **considered a snack** and what are the **recommendations** for snacking

2

To better understand **consumer's snacking behaviour & snacking trends**, with a special focus on **children and adolescents (2 – 18 years)**

# Methodology



# Methodology

## Scientific Literature

- Papers from **11 different countries**
- Focus on **2–18-year-olds** (+ general population)
- Sample sizes **34–49952** (>100K in total)



## Consumer Trend Reports

- Trend reports from **15 different agencies**



# Objective 1

What is a snack? And what are the recommendations for snacking?



# What is a snack?



**Difficult to answer**

“All food and drinks (**> 0 kcal**) consumed **between or outside the three main meals** (breakfast, lunch and dinner)”

*Taillie et al. 2015*  
J Nutr, 145(11), 2570-2577

“Intake of foods **within a 15-minute period**, excludes all food that are defined as snacks but eaten as part of a meal”

*Piernas & Popkin, 2010b*  
J Nutr, 140(2), 325-332

“The consumption of **sweet** or **savoury palatable** food products”

*Van Den Broek et al. 2017*  
Appetite, 120, 565-570.

“...depend on **multiple external factors** such as the **type of food, portion size, timing, location and purpose**”

*Wansink et al. 2010*  
Appetite, 54(1), 214-216

*Younginer et al. 2016*  
Appetite, 98, 35-40

*Hess et al. 2016*  
Adv Nutr, 7(3), 466-475

*Adams & Savage, 2017*  
Appetite, 116, 215-222

# What is a snack?

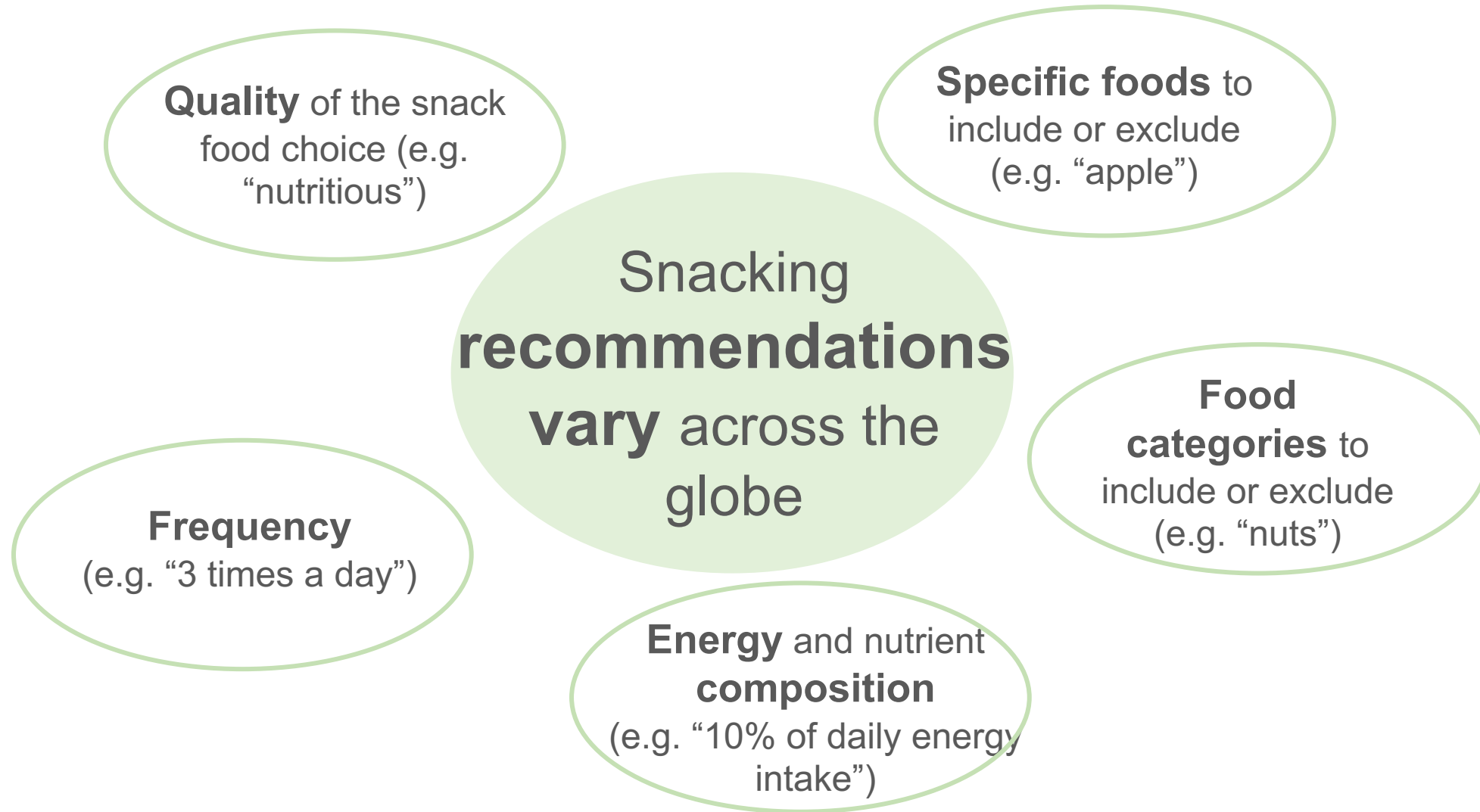


You need to consider that all papers/reports have their **own** definition and perception of ***snacks, snack foods*** or ***snacking.***



# Snacking recommendations

Potter et al. 2018  
Adv Nutr, 9(2), 86-98



➔ The authors concluded there is a **need for a consensus** in the scientific community and beyond! ➔

## Objective 2

Understanding consumer's snacking  
behaviour & snacking trends

# Important dynamics to consider

Understanding the full landscape of snacking...

## Consumer behaviour

1. **Why** are consumers snacking?
2. **When, where and with whom** are consumers snacking?
3. **How often** do consumers snack?
4. **Which snacks** are mostly consumed?
5. **Which product features** of snacks are important for consumers?

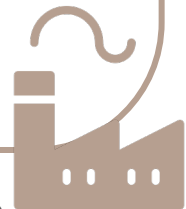
What do academic experts  
and consumers think?



## Trends (industry reports)

Current and upcoming  
**snacking trends**

What does the market say?



# 1. Why are consumers snacking?

In general, to fulfill **unsatisfied needs**. **6 main reasons**, according to 9 studies and reports

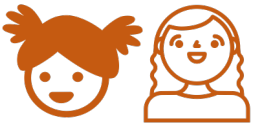


## *In general:*



- **Hunger**
- **Nutrition**
- **Energy**
- **Replacement meal**
- **Craving**
- **Boredom**

## *In children and adolescents:*



- **Emotion-driven impulsiveness**
  - Both **negative** and **positive** emotions can lead to emotional snacking

*Coumans et al. 2017*  
Appetite, 123, 152-159

*Tan & Holub, 2018*  
Appetite, 123, 169-174

## *Parents could influence snacking behaviour child:*

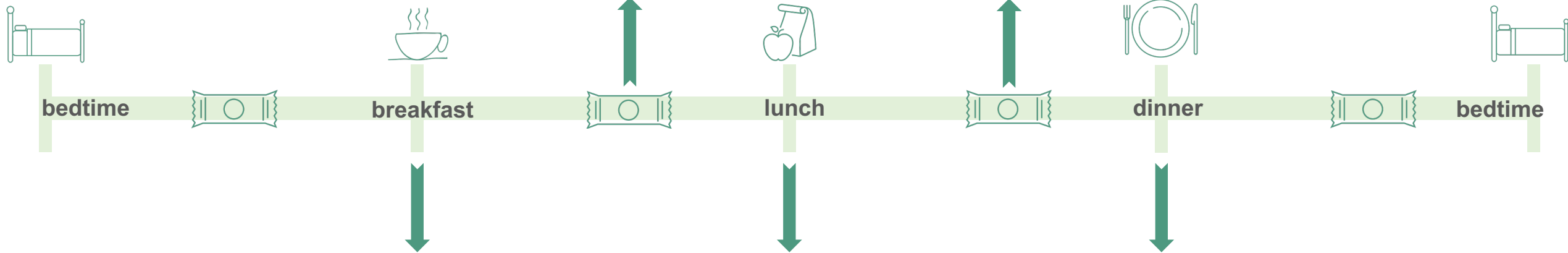
- **Restrictive feeding**
  - **Increase** snack intake in 2 – 18 years
  - **Increase unhealthy** snack intake three years later in 3 – 11 years

*Blaine et al. 2017*  
Int J Behav Nutr Phys Act, 14(1), 146

*Boots et al. 2018*  
Appetite, 92, 94-101

## 2. When, where and with whom are consumers snacking?

**after breakfast, but before dinner:**  
in the mid-morning or mid-afternoon

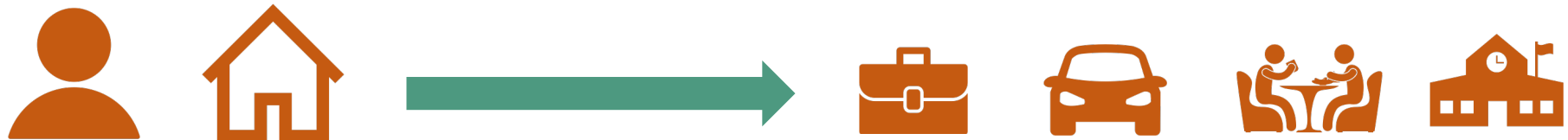


However, consumers more and more **replace meals** for **snacks**

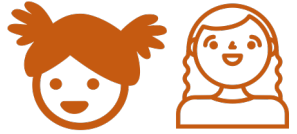
- **45%** of 30,000 global respondents **snack as a meal alternative**
- **25%** of the 300 US Millennials have a **snack instead of a meal** every day

*Nielsen, 2014*

*Welch's, 2017*



# 3. How often do consumers snack?



- **US:** snacking increased from 1977 to 2006 with **1.5 snack more** per day in children **2 – 18 years**

*Piernas & Popkin, 2010a*  
Health Affairs, 29(3), 398-404

- **NL:** children **2 – 7 years:** **1.4** snacks/day

*Damen et al. 2019*  
Food Qual Prefer, 74, 10-20

- **US:** adolescents **12 – 19 years:** **2** snacks/day

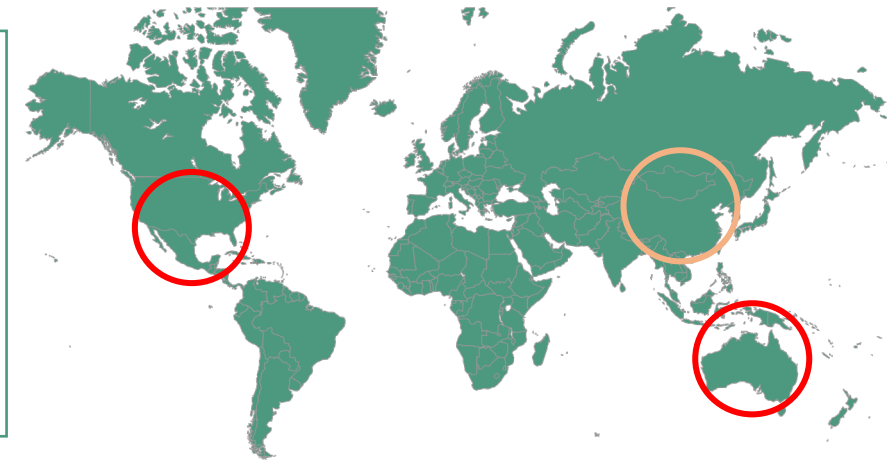
*Larson et al. 2017*  
J Nutr, 146(7), 1348-1355

- **AUS:** 60% of children **4 – 13 years:** **≥4** snacks/day

- **US & MEX:** 50% of children **4 – 13 years:** **2 – 3** snacks/day

- **CHN:** >70% of children **4 – 13 years:** **0 – 1** snacks/day

*Wang et al. 2018*  
Nutrients, 10(2), 198





# 4. Which snacks are mostly consumed?

Snacks differ **across countries**, and might differ **across ages** too

*In general* 

Europe



North America



Latin America



Asia/Pacific



Nielsen, 2014

*Children and adolescents*



NL: 2 – 7 years



US: 2 – 18 years



MEX: 4 – 13 years



AUS/CHN: 4 – 13 years



*Damen et al. 2019*  
Food Qual Prefer, 74, 10-20

*Dunford & Popkin, 2018*  
Pediatr Obes, 13(4), 247-255

*Wang et al. 2018*  
Nutrients, 10(2), 198

*Wang et al. 2018*  
Nutrients, 10(2), 198

## 5. Which product features are important for consumers?



brand

convenience

**TASTE**

variety

naturalness

nutrition & health

environment

price



**TASTE**

- Choice based on taste perceptions
- Recognisable taste
- Liking is important

*Letona et al. 2014*  
BMC Public Health, 14(1), 1274

*Grunert et al. 2016*  
Trends Food Sci Technol, 47, 82-92

*Hartmann et al. 2017*  
Appetite, 117, 247-254

# Conclusion and future implications

**No** agreed scientific **definition** of snacking and **lack of unified recommendations**

Most snacking **between meals**, but **boundaries** between meals and snacks are **blurring**



**Call-to-action:**  
consensus on definition and recommendations, among all stakeholders

**Health, naturality, the environment,** and **convenience** become increasing **key drivers**



**Opportunity** for the industry to develop healthier and more nutritious snacks

Especially in **children**, **taste** remains a **priority** for snacks



The **exposure** to healthier foods (e.g., non-sugary/non-salty foods) early in life

**THANK YOU!**

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