

DOES REPEATED EXPOSURE AND *AD LIBITUM* CONSUMPTION OF FOOD AND BEVERAGES INFLUENCE CONSUMERS' PREFERENCES AND SENSORY PERCEPTIONS? A SYSTEMATIC REVIEW

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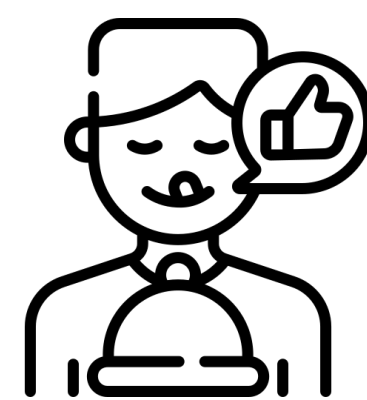
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INTRODUCTION

Conventional sensory analysis methods have limitations in accurately predicting consumer behaviour and product success in real-world settings, lacking elements like contextual cues and consumption moments. **Repeated exposure (RE)** and ***ad libitum* (AL)** consumption address these by expanding the dimensions of time and quantity, providing **more genuine evaluations**. This research, prompted by the absence of a combined RE and AL approach in the existing scientific literature, involved a **systematic review following the PRISMA methodology**.

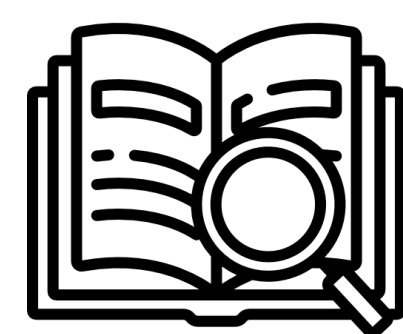
OBJECTIVES

1. To systematically **review existing literature on RE and AL** consumption methodologies.
2. To assess the **impact** of these methods **on consumers' preferences and sensory perceptions** of different foods and beverages.
3. To **determine the experimental conditions** under which these methods are applied.



METHODOLOGY

- **Guidelines:** PRISMA 2020
- **Databases:** Web of Science & Scopus (search performed until **Feb. 2024**)
- **Inclusion/exclusion criteria:**
 1. **Original peer-reviewed studies published in English.**
 2. **Evaluations of food products or beverages.**
 3. **Self-reported measurements by consumers** (studies only assessing intake or physiological/biochemical responses were not included).
 4. **RE was only considered when** the same group of participants was **exposed to the same samples in the same conditions.**
 5. **AL studies were only included when** consumers performed **evaluations on the target food/beverage.**
- **Search query:**



Sensory OR Consumer OR Acceptance OR Liking

AND

"Repeated Exposure" OR "Repeated Consumption" OR "*Ad libitum*" OR "As much as desired" OR "Until full*" OR "Until sati*" OR "Sensory-specific sati*"

POTENTIAL IMPLICATIONS

This review highlights the **importance of integrating repeated exposure and *ad-libitum* methodologies in sensory analysis**. By examining exposure duration, location, AL quantities/methods, and consumers' preferences and sensory perceptions, **this review provides a holistic perspective on the scientific literature that has not been performed before.**

This comprehensive approach is essential to understanding real-life consumption experiences and to advance in the sensory science field. Hence, **it offers a foundation for future research to better predict consumer behaviour and product success in real-world settings.**

IDENTIFICATION OF STUDIES VIA DATABASES AND REGISTERS

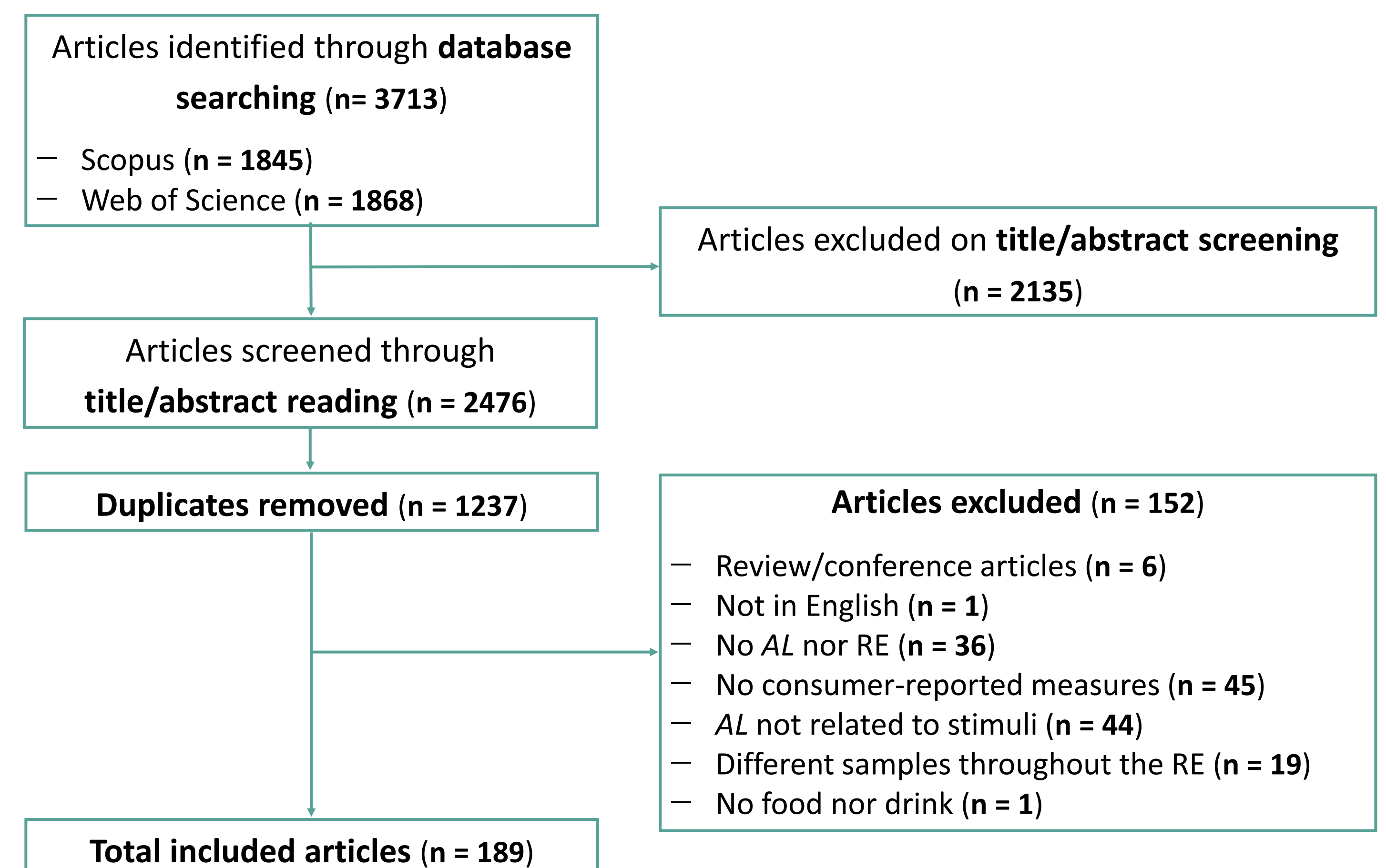
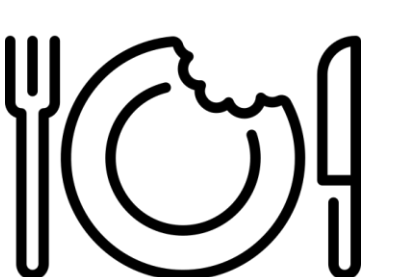


Fig. 1 – Systematic review flowchart.

DATA COLLECTION

- **RE studies:**
 1. **Products/samples/participants/groups info.**
 2. **Exposure sessions:** No. and frequency of sessions, no. of products/samples per group, location, pick up regularity, consumption time of the day (same or different), consumption (partial or total), product presentation and measurements.
 3. **Pre/mid/post exposure (or follow-up session if applicable):** No. of sessions, location, no. of products/samples per group and measurements.
 4. **Main results.**
- **AL studies:**
 1. **Main aim.**
 2. **Products/samples/participants/groups info.**
 3. **Design:** AL type (real or limited), no. of products/samples per group, location, time passed since last meal and hunger status.
 4. **Measurements, intake and consumption time.**
 5. **Main results.**



PRELIMINARY RESULTS

- **RE main results:** Mainly on **novel or less popular liked foods (e.g., fruits and vegetables for children)** that generally leads to **more positive evaluations**.
- **RE experimental conditions:** Most studies **conducted at home** and **evaluated in the lab**. The **duration of exposure** ranged from **a few sessions up to several months**.
- **RE:**
 - 40%  Age < 18
 - 60%  Age > 18
 - 58%  At Home
 - 21%  At Daycare/Preschool
 - 15%  At CLT/Lab
- **AL main results:** **Primarily assessed satiety-related measures** and the **impact of diet modifications** on consumer behaviour. Very seldom was AL consumption compared to limited portion sizes in terms of its effect on sensory perception.

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