

**MINDFULNESS WHILE
EATING AND MAKING
FOOD CHOICES:**

***HOW MINDFUL EATING,
SATISFACTION AND PORTION
SIZE INFLUENCE EATING
BEHAVIOUR***

Pei Gee Chew, RNutr



**Have you eaten at least one
snack in the last 24 hours?**

(Give us your Thumb Up if you have)



SNACKING IS VERY COMMON WORLDWIDE

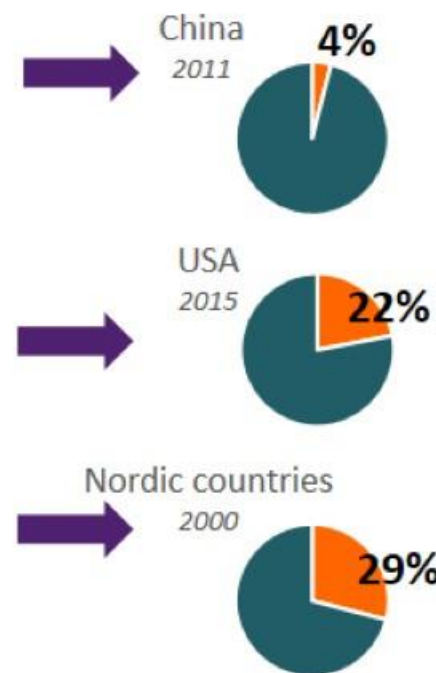
Country	Mean number of snacking occasions /day	Year of data collection
China (Wang et al. 2012)	0.9 - 1	2009
Japan (Murakami et al. 2022)	1.7	2017-18
Australia (Fayet-Moore et al. 2021)	2.1	2011-12
USA (Hunt et al. 2020a)	2.6	2007-2016
Mexico (Duffey et al. 2014)	1.3 – 1.6	2012
Denmark (Lund and Gronow 2014)	4.0	2012
France (ANSES 2017)	3.7 – 4.1	2014-2015

Eating outside of the three main meals, ie snacking, has been observed in all parts of the world.

- Even in very different culinary cultures and continents, eating in-between main meals is a regular food habit.
- However, the frequency may be different between age and countries

SNACKING CONTRIBUTES TO DAILY ENERGY INTAKE

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Snacking occasions account for significant daily energy intake with a contribution between 4% and 29%

STATE OF SNACKING IN INDIA

Nearly every single Indian consumer engages in snacking daily (97%).

Among them, **70%** partake in this delightful ritual twice daily.

Compared to five years ago, Indian consumers are paying more attention to...			
Well-being	Mindfulness	Personalization	Sensation
Nutritional value (83%)	My hunger or fullness level (73%)	Ingredients I believe are beneficial for me (80%)	Sensory experience including taste, smell, visual appeal, etc. (73%)
Portion size (68%)	Time and pace of enjoying the snack (72%)	Ingredients I'm trying to avoid (65%)	

HOW DO WE EAT IN SNACKING MOMENTS?

Important dimensions to be considered at snacking moments:

Portion size

Oversizing vs
Downsizing

Decisions related to food choices

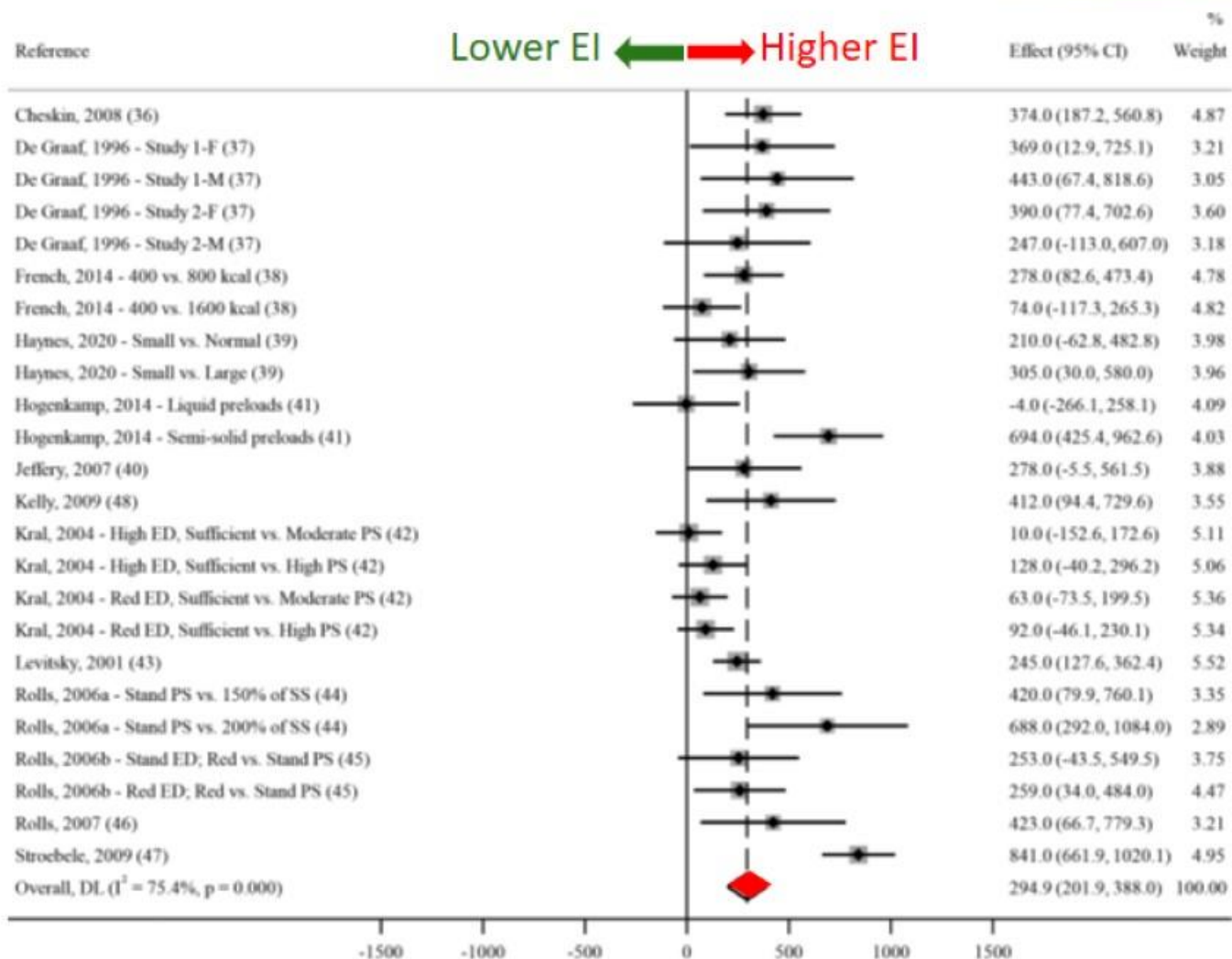
including
external and
internal cues

} To determine how
many calories will be
eaten at a snacking
occasion



CONSENSUS: OVERSIZING PORTIONS LEADS TO INCREASE DAILY ENERGY INTAKE

Adults (> 18 yo)



NOTE: Weights are from random-effects model

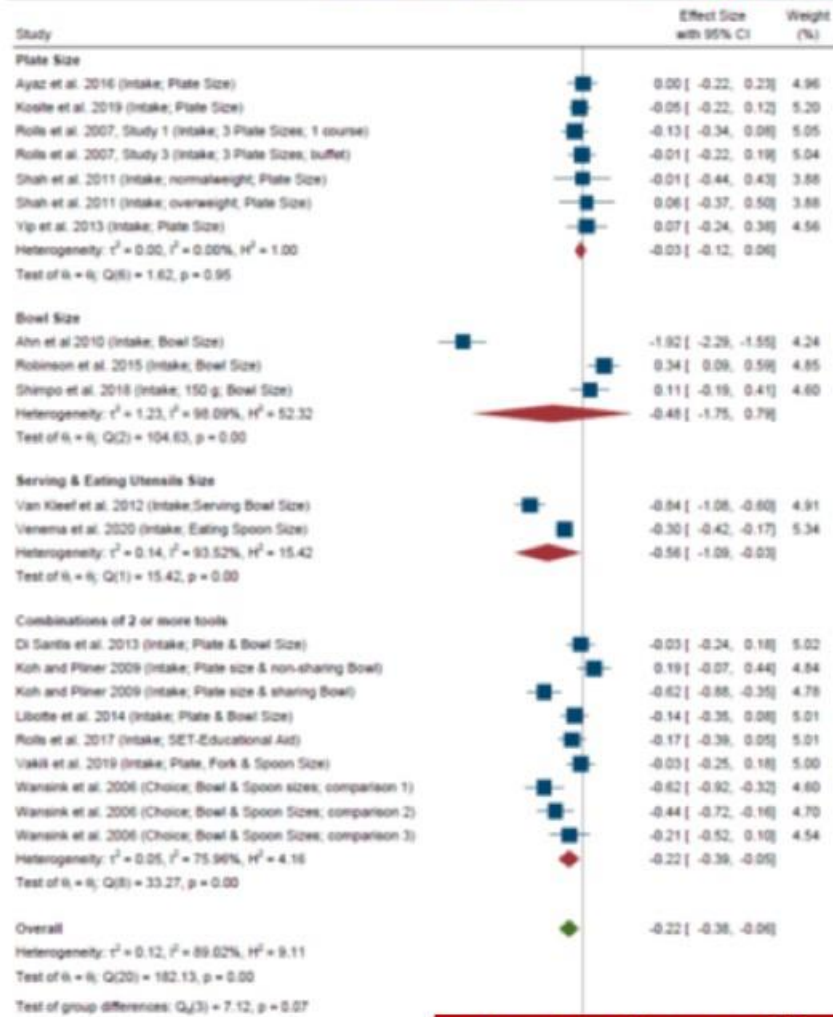
Forest plot of the effect of portion size on daily energy intake

Higgins *et al.* 2022

WHAT ABOUT DOWNSIZING?

Adults (> 18 yo)

Lower EI ← → Higher EI



Random-effects DerSimonian-Laird model

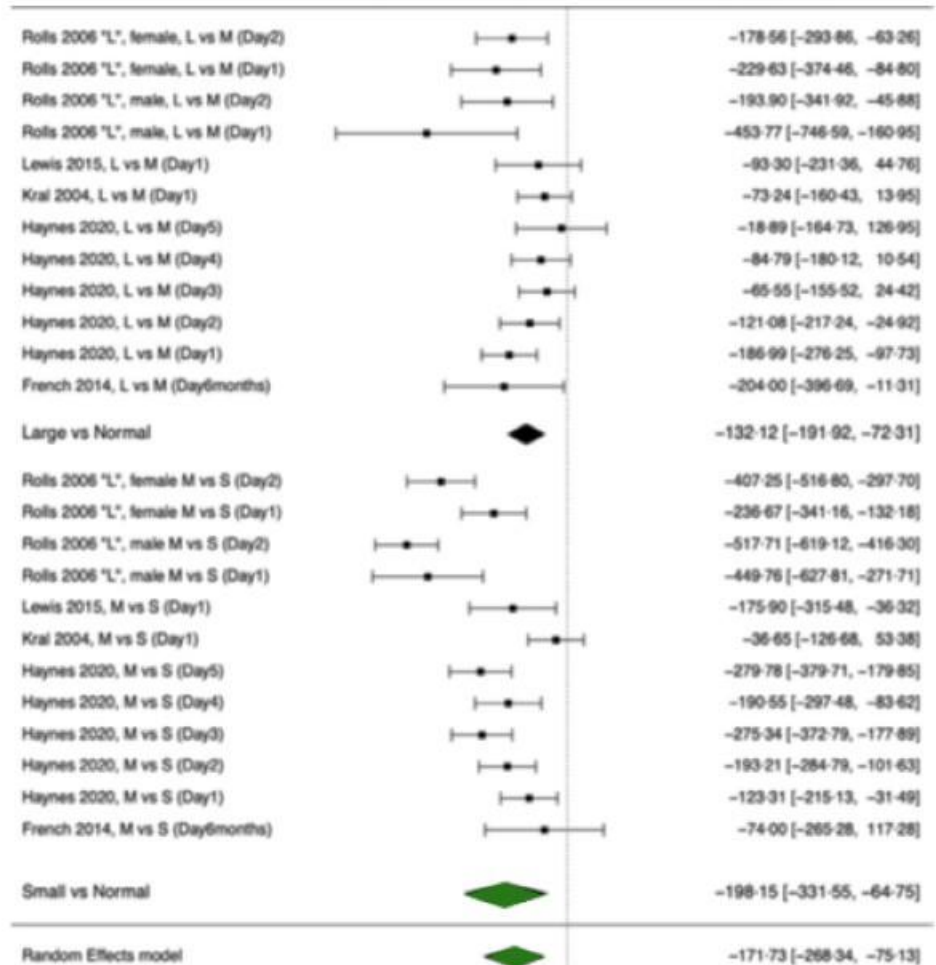
Vargas-Alvarez et al. 2021

No significant effect of downsizing on daily energy intake



Positive effect of downsizing on daily energy intake

Lower EI ← → Higher EI

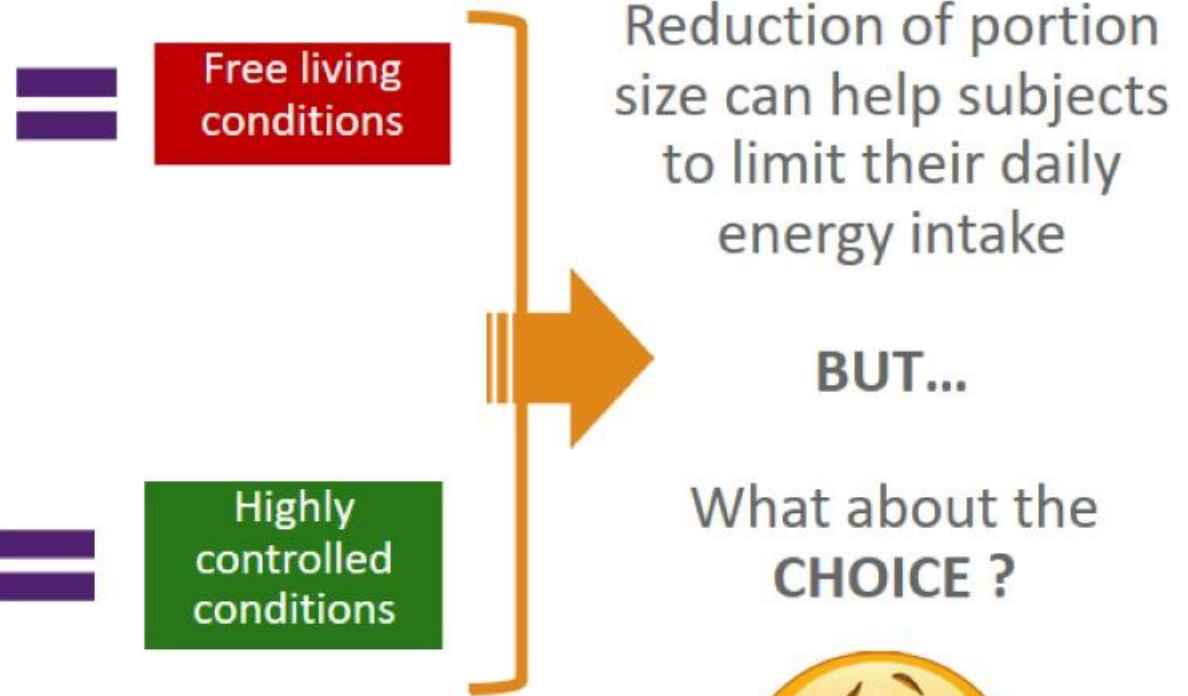


Robinson et al. 2023

WHY DOWNSIZING LEADS TO CONFUSING RESULTS ?

Main difference: selection criteria of the studies

- Meta-analysis of Vargas-Alvarez (2021) selected 28 publications on
 - “**Any intervention in which an instrument or tool is used to control food/drink portion size** irrespective of its validation status and not requiring significant professional guidance or a clinical setting for the user to be able to use it appropriately”
 - Meta-analysis of Robinson (2023) selected 14 publications on
 - “Studies were required **to have manipulated portion sizes** (i.e. amount of food served to participants, also known as ‘serving size’ and characterized in the present review as kcal served) **provided to participants.**”
-
- In addition, encouraging results on pre-packed foods and downsizing (Liu et al. 2022)



EATING IN BALANCE WITH OUR MODERN LIFESTYLE...

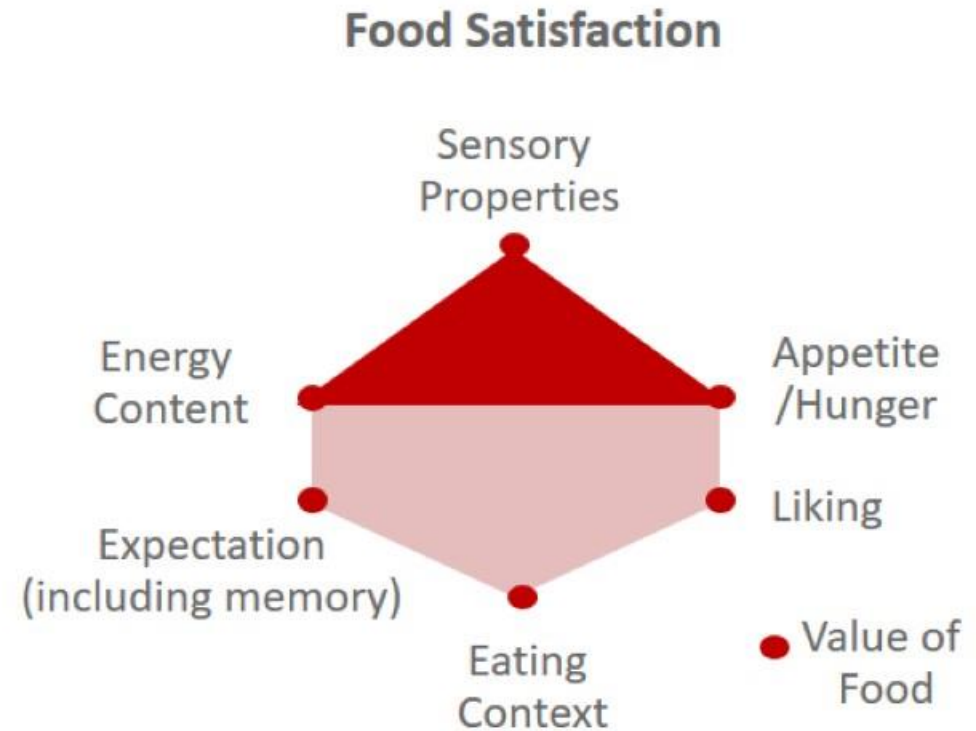
Two phenomenon applied to eating behaviour can help to limit daily energy intake in free living conditions

SATISFACTION

MINDFUL EATING

RIGHT PORTION... SATISFIED PORTION

- **Satisfaction** : “general appreciation of the food within a broader context, which may imply the food’s value, its utility and its adequacy for the situation” (Cardello *et al.* 2000; Moller 2015)
- Strategies for portion reduction need to focus on both postprandial fullness and enjoyment of taste (Ferrar *et al.* 2019)
- Adjusting the portion size to a sufficient level of satisfaction has been shown to be an interesting way to reduce the portion size of pre-packaged foods (Vinoy & Lesdéma - FENS 2019)



(Modified from Lesdéma *et al.* 2017)

MINDFUL EATING PRINCIPLES

- Paying attention to the eating experience
- Being aware of physical hunger and able to distinguish it from emotional or external cues
- Being aware of satiety signals and able to dissociate them from sensory-specific satiety
- Focusing on the sensorial experience and savoring foods
- Making conscious and deliberate food choices and avoiding judging the eating experience



Emerging science on mindful eating applied to snacking

MINDFULNESS TRAINING: FOCUS ON FOOD ENJOYMENT

102 young US subjects
(3 hours from previous meal)

3 groups

Mindfulness short training (audio tape)

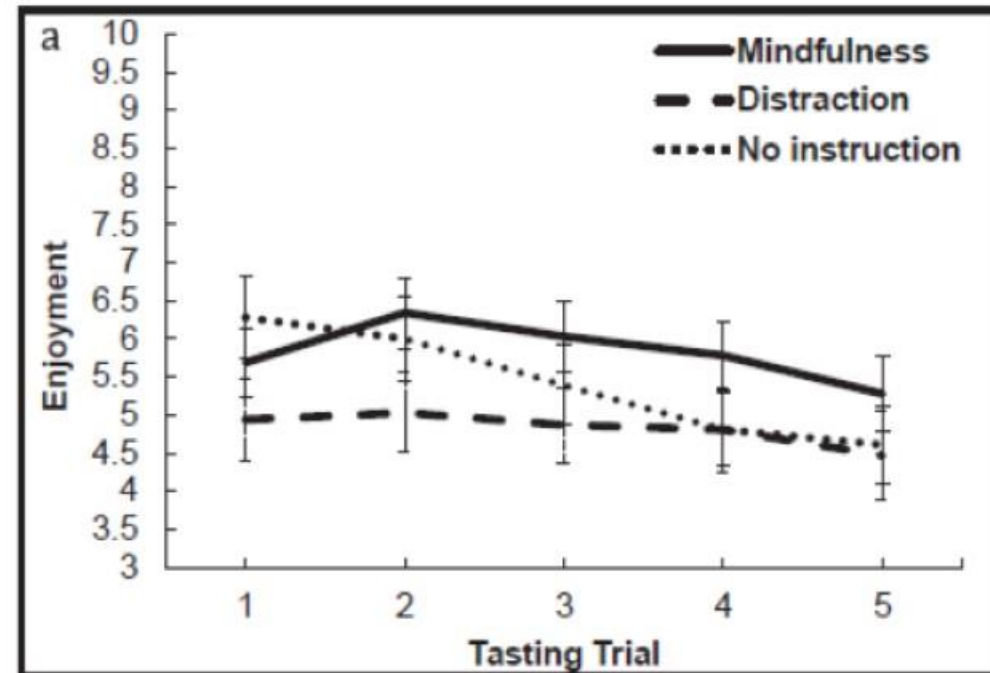
Distraction condition (forced focus on a word puzzle)

No instruction (audio of a psychology textbook)



**Mindfulness increases
enjoyment from foods**

Tasting sessions (5 trials) with raisins



Arch, 2016

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Asked to help themselves
freely from a variety of foods

Various foods proposed to all groups

Condition	Calories consumed				
	High sugar foods mean (SD)	High salt foods mean (SD)	High saturated fat foods mean (SD)	"Healthy" foods mean (SD)	Total calories mean (SD)
Mindfulness	56.81 (53.06) ^a	75.01 (58.01) ^a	105.27 (81.26) ^a	65.04 (66.17) ^a	196.68 (135.24) ^a
Distraction control	92.98 (70.86) ^b	93.33 (62.32) ^b	144.08 (99.10) ^b	69.44 (71.55) ^a	251.20 (142.28) ^b
No-instruction control	93.15 (75.45) ^b	104.25 (70.69) ^b	152.34 (99.59) ^b	62.36 (77.09) ^a	259.65 (159.23) ^b

Arch et al., 2016



**Encouraging data showing that in lab condition:
Short mindfulness training applied to snacking moment
reduces calories consumed**

TRANSLATING THIS ENCOURAGING SCIENCE TO CONSUMERS



KNOW WHAT
YOU WANT
(EMOTIONAL
AND
FUNCTIONAL
NEEDS)



BE AWARE
OF PORTION
&
MODERATE
IT



BE PRESENT IN
THE MOMENT



ENJOY AND
APPRECIATE
THE SNACK
WITH ALL YOUR
SENSES



BE AWARE OF
YOUR HUNGER,
FULLNESS AND
SATISFACTION
LEVEL



REFLECT ON
YOUR WHOLE
EATING
EXPERIENCE

TAKE HOME MESSAGES

- As the number of daily eating occasions and their characteristics change, **some novel behavioral approaches may be applied** to help people to better determine the quality and the quantity of their food choices.
 - **Portion Size** - is an important attribute to help people consume mindfully
 - **Satisfaction** - providing the expected “satisfaction” associated to a portion
- **Mindfulness principles can be applied to each eating occasion** to promote deliberate and conscious food choices that are likely to better meet individuals ‘needs.

THANK YOU



Mondelēz
International
SNACKING MADE RIGHT