External cues & appetite control

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Today

1. Many people struggle with body weight
2. External cues pose strong challenges
3. These challenges do not affect everyone to same extent -> intuitive eating
Many people struggle with body weight

Data drawn from Ng et al., 2014
Consumers: Health of diet is inferred by *what you eat*

- **Survey in USA:**
  - 78% agrees with statement ‘*What you eat is more important than how much you eat*’

- **Survey in UK:**
  - 28% states to continue eating even when full
  - 57% states that they could eat more at the end of a meal

Rozin, 2005; Fay et al., 2011
External cues pose strong challenges

External cues / emotions

Internal cues

Food intake

Palascha, van Kleef, De Vet and Van Trijp, in preparation
Meal initiation → Meal planning → Consumption phase → End of eating episode → Meal initiation

EXTERNAL
- Habits
  - Food visibility, odours
  - Social norms
- Package and portion sizes
- Labelling
- Perceived variety
- Palatability
- Atmospherics
- Distractions
- Package and portion sizes

INTERNAL
- Hunger feelings
- Conditioned satiety
- Sensory specific satiety
- Development of satiation
- Satiation
- Satiety

Bilman, Van Kleef and Van Trijp, 2017
Why do you stop eating?

Extremely full  Zone of physiological indifference  Extremely hungry

Herman & Polivy, 1984
Example of cue ‘food odours’

• Sight, smell and sound of food may trigger insulin levels to increase (hedonic hunger)
• Odours can enhance shopping outcomes, particularly for women

Rodin, Slochower and Fleming, 1977; Roschk, Loureiro and Breitsohl, 2017
Portion size as external cue

• Review of 13 studies show effects of at least 30% higher consumption levels (2009)
  • Effects shown for variety of foods, can persist over several days
  • Larger effects for men

• Meta-analytic review of 104 studies (2014): a doubling of portion size leads to an increase by 35% on average:
  • As portions become increasingly larger, effect diminishes
  • Effect is weaker among children, women, and overweight individuals, as well as for nonsnack food items and in contexts in which more attention is given to the food being eaten

Portion versus unit size

Equal portions, but different units
Example of cue ‘portion size’

- Study at primary schools (N=255)
- Manipulation of portion and unit size (2 by 2 between subjects design)
- 54% more intake with large portion
- No effect of unit size on intake

Van Kleef, Bruggers & De Vet, 2015
Example of cue ‘unit size’
In which situation would you eat the most?
Small chocolates: 23% less calories

Van Kleef, Kavvouris & Van Trijp, 2014
Many studies show influence external cues

• What to do about it so that people start eating healthier?
  • Make environment work for you, instead of against you
  • Eating according to rules and diet plans
  • Cherish and develop *intuitive eating* skills
Intuitive eating

- Initial claim: Body intrinsically ‘knows’ what and how much to eat to maintain both nutritional health and an appropriate weight
- Idea emerged in 1980s in parallel with anti-dieting movement

Tribole and Resch, 1995; Tylka et al., 2006, 2013, 2015; Palascha, van Kleef, De Vet and Van Trijp, in preparation
Deciding how much to eat is more difficult for adults than for children

- Study with children (2.5–5 years old) and adults on how they compensate after preload drinks:
  - Children decreased their intake after a high-caloric preload and increased their intake after a low-caloric preload, resulting in almost same total calories consumed between conditions (260 vs 269 kcals)
  - Adults consumed in total 100 kcals more after high-caloric preload
However, individual differences exist among adults

- Classic preload experiments show that some people are better at relying on internal cues and self-regulation

➢ *Body wisdom*
Interoceptive awareness

• Ability to perceive physical sensations that arise from within the body
• Intuitive eaters also respond to these sensations

Herbert et al., 2013; Mehling et al., 2012; Tylka et al., 2006
4 key characteristics of intuitive eaters

Self-report measures for research and clinical practice

Tylke and colleagues (2006, 2013)
(1) Eating for physical rather than emotional reasons, (2) Unconditional permission to eat, (3) Reliance on hunger and satiety cues, (4) Body-food choice congruence

Hawk’s and colleagues (2004)
(1) Intrinsic eating, (2) Extrinsic eating, (3) Anti-dieting, (4) Self-care
Some benefits of intuitive eating

• Negative association with BMI
• Positive effect on weight maintenance, less effects on weight loss
• Inconclusive evidence on physical health indicators
• Positive association with psychological wellbeing
• No evidence that it leads to improved dietary quality

Bruce et al., 2016; Clifford et al., 2015; Anderson et al., 2016; Van Dyke and Drinkwater, 2014; Schaefer & Magnuson, 2014
Can intuitive eating be developed?

• Tapper (2017) reviewed 14 studies that looked at mindfulness-related strategies on weight loss and weight-management related eating behaviours

• Most promising were present moment awareness and decentering
  • Can reduce later intake and desire for food (only few studies looked at that)
  • No evidence for weight loss support
Awareness of internal satiety cues

Experiment (between-subjects) with three tasks (N=117):

1. A mindfulness exercise focusing attention on breathing, posture, and internal body sensations like heart beat – all focused on the body but nothing directly related to hunger of fullness.

2. A mindfulness exercise focusing attention on an external object in the surroundings, such as a picture of a nice landscape.

3. No exercise but simply listening to a recorded story

Half got high-caloric preload (448 calories), half low-caloric preload (233 calories)
Results

It matters where attention is focused

Van de Veer, Van Herpen en Van Trijp, 2015
Future research opportunities

• Fine-tune measures of intuitive eating, building on Tylka et al., 2013, 2015
  • Body-food choice congruence -> remove?
  • A positive and relaxed relationship with food -> add?
• Often evidence by association only
  • Better samples, long-term effects
• What determines whether someone will become an intuitive eater?

Palascha, van Kleef, De Vet and Van Trijp, in preparation
To sum up

- External influences on eating are large
- Some individuals are able to listen and respond to internal cues of hunger & satiety
- Intuitive eating is adaptive eating style -> promising avenue for interventions
  - How to be around highly tempting foods and eat in moderation