The effects of mindful eating on consumption and desire

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Mindfulness is increasingly being promoted as a way to achieve weight loss.
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Olson and Emery (2015) (See also Carriere et al., 2017)

Systematic review of 19 mindfulness-based interventions for weight loss

13 brought about significant reductions in weight

BUT unclear whether these changes were brought about by changes in mindfulness

→ Most mindfulness-based interventions for weight loss are multi-component.
Can’t we just include measures of mindfulness in these trials?

- Experience and expertise influences item interpretation and assessment of ability
- Lack of convergent validity
- Social desirability bias

Grossman (2011); Kruger & Dunning (1999)

1. When I’m walking, I deliberately notice the sensations of my body moving.
2. I’m good at finding words to describe my feelings.
3. I criticize myself for having irrational or inappropriate emotions.
4. I perceive my feelings and emotions without having to react to them.
5. When I do things, my mind wanders off and I’m easily distracted.
6. When I take a shower or bath, I stay alert to the sensations of water on my body.
7. I can easily put my beliefs, opinions, and expectations into words.
8. I don’t pay attention to what I’m doing because I’m daydreaming, worrying, otherwise distracted.
9. I watch my feelings without getting lost in them.
10. I tell myself I shouldn’t be feeling the way I’m feeling.
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
12. It’s hard for me to find the words to describe what I’m thinking.
13. I am easily distracted.
We need more carefully controlled experimental studies examining the effects of different types of mindfulness-based strategies on different types of eating behaviours.

We need to understand how mindfulness works.

Notice the initial flavours of the food. What does it taste like? Is it similar to any other flavours you know? What different flavours can you detect?

Notice the textures of the food and how they change as you chew. Pay attention to how the flavour changes as you chew.

Mindful eating usually involves focusing on the sensory properties of the food.
Mindful eating can reduce subsequent consumption

- Attending to the sensory properties of food reduces subsequent consumption of a high calorie snack 2-3 hours later (Higgs & Donohoe, 2011; Robinson et al., 2014; Seguias & Tapper, 2018)

How?

See also Tapper, K. (2017).
Does it work by reducing desire?

- Learning theory suggests that simultaneously reinforcing two or more conditioned stimuli reduces the strength of the association between each individual conditioned stimuli and the reinforcer (Rescorla & Wagner, 1972).

**Conditioned stimuli**

- Sight of cookie
- Sight of cookie
- Smell of cookie
- Feel of cookie

**Reinforcer**

- Pleasure from cookie

**Expected pleasure**

- Expected pleasure = actual pleasure
- Expected pleasure > actual pleasure
Method

• Males and female participants (n = 60)

• Ate 1 cookie whilst listening to an audio clip:
  • Asking them to focus on the sensory properties of the cookie (experimental condition)
  • Describing how cookies are made (control condition).

• Approach avoidance task to assess implicit desire (15 food images, 5 sweet, 5 salty, 5 neutral, each displayed 4 times, 2 approach, 2 avoid)
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• Explicit ratings of desire for the same foods
Imagine you were offered this food right now. How much would you want to eat it?

I wouldn't want to eat this food at all  ○ ○ ○ ○ ○ I'd really want to eat this food
Method

- Males and female participants (n = 60)

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  - Asking them to focus on the sensory properties of the cookie (experimental condition)
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- Explicit ratings of desire for the same foods

- Taste test with cookie pieces and crisps (60g each)
Results: Effects on consumption

Table 1. Mean (SD) weight of food consumed in grams in the experimental and control conditions.

<table>
<thead>
<tr>
<th></th>
<th>Experimental (n=29)</th>
<th>Control (n=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cookies</td>
<td>16.48 (16.65)</td>
<td>27.14 (13.48)</td>
</tr>
<tr>
<td>Crisps</td>
<td>16.17 (13.37)</td>
<td>28.57 (15.93)</td>
</tr>
</tbody>
</table>

- Significant main effect of condition. No effect of food type. No interaction.
Results: Effects on explicit and implicit desire

Table 2. Mean (SD) levels of implicit and explicit desire for cookies and crisps in the experimental and control conditions.

<table>
<thead>
<tr>
<th></th>
<th>Explicit desire (1-5)</th>
<th>Implicit desire (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cookies</td>
<td>Crisps</td>
</tr>
<tr>
<td>Experimental</td>
<td>2.66 (1.42)</td>
<td>2.83 (1.36)</td>
</tr>
<tr>
<td>Control</td>
<td>2.57 (1.53)</td>
<td>2.89 (1.64)</td>
</tr>
</tbody>
</table>

- Explicit desire – no significant effects
- Implicit desire – significant interaction between food and condition.
Results: Association between implicit desire and consumption

Level of implicit desire did not predict the amount eaten.
Therefore it cannot explain the reductions in consumption.

Table 3. Correlations between implicit desire for, and consumption of, cookies and crisps.

<table>
<thead>
<tr>
<th></th>
<th>Implicit desire for cookies</th>
<th>Implicit desire for crisps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cookies eaten</td>
<td>-.08</td>
<td>-</td>
</tr>
<tr>
<td>Crisps eaten</td>
<td>-</td>
<td>.05</td>
</tr>
</tbody>
</table>
How does mindful eating reduce consumption?
- Does it prime weight management / healthy eating goals?
- Does it prompt people to prioritise pleasure over satiation? (Cornil & Chandon, 2016)

How does mindful eating influence food intake over the long term?
- Do people compensate for the reduced intake at other eating occasions?
- Do people reduce portion sizes but increase frequency of consumption?
- Do people habituate to effects over time?
Conclusions

Mindful eating reduces subsequent consumption of high calorie snacks in the laboratory.

However, this effect does not seem to be brought about by changes in implicit or explicit desire for food.

We need to explore other explanations as well as long term effects.
Explicit desire for cookies correlates with consumption in the experimental group only. Do they become better at eating in accordance with their desire?

This still does not explain the reduction in crisp consumption.

Table 4. Correlations between explicit desire for, and consumption of, cookies and crisps in experimental and control conditions.

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit desire for cookies and consumption</td>
<td>.39*</td>
<td>-.14</td>
</tr>
<tr>
<td>Explicit desire for crisps and consumption</td>
<td>.06</td>
<td>.06</td>
</tr>
</tbody>
</table>

*p<.05