

# Change Is the only constant

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## Valorization Addendum

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## **Main findings**

The current dissertation aimed to investigate biased attention for food, and fluctuations in this attentional bias (AB) for food, and test if this is related to BMI or dietary restraint. In summary, the findings of this dissertation show that people with overweight/obesity and restrained eaters do not significantly bias their attention more to palatable foods as compared to people with normal weight. Higher BMI is however related to more fluctuations in attention, towards and away from food. The results of this project are relevant for understanding eating behavior and helping to establish healthy diets.

## **Relevance**

Worldwide, over 1.9 billion adults aged 18 years and older (in 2016), over 340 million children and adolescents aged 5-19 (in 2016), and over 38 million children under the age of 5 (in 2019) are overweight or obese (World Health Organization, 2020). The prevalence of obesity nearly tripled between 1975 and 2016 and continues to rise rapidly (World Health Organization, 2020; Finkelstein et al., 2012), which has caused adverse health and economic consequences (e.g., Kyrgiou et al., 2017). A correct and clear understanding of the cognitive mechanisms driving eating behavior will benefit the development of more effective interventions targeting obesity.

In general, people know that healthy eating habits and exercising benefit a healthy weight. However, it is still difficult for many to adhere to a healthy lifestyle. We live in an obesogenic environment (e.g., Hall, 2018; Lake, 2018) in which we are exposed to aggressively marketed, advertised, and affordable palatable food stimuli. Many researchers in the food domain assumed that people with overweight/obesity have an AB for food-related cues, which possibly promotes overeating (e.g., Berridge, 2009; Nijs & Franken, 2012). However, the empirical evidence about it is disappointingly inconsistent (e.g., Hagan et al., 2020; Werthmann, Jansen, & Roefs, 2015). Our results confirm that the relation between attention for food and overweight is more complex. Attention for food fluctuates over time and these fluctuations increase with higher BMI. Building on these results, future research can focus on factors that influence the relation between food cues, attention, and overweight/obesity, with the goals to determine how our food environment influences overweight/obesity and how this can be prevented.

In addition, our findings cast doubt on whether it is appropriate to implement research findings in applied settings too quickly. The previous studies on AB for addictive and emotion-related stimuli have fostered the translation from scientific research to practical application, in the form of attentional bias modification training (ABT) (Heeren, Mogoșe, Philippot, & McNally, 2015; MacLeod & Clarke, 2015). The food-related ABT is based on the assumptions that people with overweight/obesity have an enhanced AB for food stimuli and a reduction of such AB for food stimuli should reduce food intake (Kakoschke, Kemps, & Tiggemann, 2014). However, our research suggests that people with a high BMI and dietary restraint do not necessarily have more biased attention to food stimuli as compared to healthy control participants, and therefore reducing AB for food might not be a useful clinical goal. This suggests that applying ABT to reduce food intake might be an invalid training method. So, we suggest it is important to establish consistent, reliable causal factors of obesity first and to avoid applying research findings in practice too quickly.

The current findings are not only relevant for research on eating behavior, but also for related fields of research, like addiction research. Specifically, it is assumed that AB for addictive drugs is most significant in people with a substance use disorder (Robinson & Berridge, 1993). Addictive drugs and palatable foods are both a source of reward and of concern. These parallels suggest that our findings might be translated to addiction research and that studying the dynamic nature of AB for addictive drugs might be relevant and important. As far as we know, no study has investigated RT-based intra-individual fluctuations in AB for addictive drugs at the moment.

### **Target groups**

The current dissertation investigated the dynamic nature of AB for food among females with overweight or obesity, females who are struggling with dietary restraint, Chinese and Dutch children, and females with normal weight. Therefore, the current dissertation is relevant for researchers who study individuals' eating behaviors and researchers who are interested in cultural differences in mechanisms of weight gain. This dissertation is also of interest for researchers and clinicians who study how to prevent overeating and transfer scientific research to practice. Furthermore, food is related to everyone's daily life, so people from the

general population can also gain knowledge about the cognitive mechanisms underlying eating behavior from our research.

### **Activities**

The findings of this dissertation contribute to the current state of knowledge. Studies included in this dissertation have been presented and discussed at several scientific conferences. Scientific articles based on the research included in this dissertation were published or will be published in peer-reviewed journals.