

## Method

### High- and Low-Calories food Stimuli

In addition, because several studies have shown that high- versus low-calorie food stimuli might be processed differently depending on hunger level, we classified our images into high- versus low-calorie food items (Appendix C; e.g., Goldstone et al., 2009; Bleichert, Meule, Busch, & Ohla, 2014). Based on the information from a global nutrition database website (<https://www.nutritionix.com/>), we attributed for each stimuli the number of calories for 100g. Then, we performed a median split procedure to classify the stimuli as high- versus low-calories. Stimuli with calories above or equal at the median of 233 Kcal/100 g was considered as high- ( $M = 382$ ,  $SD = 108.59$ ,  $min = 234.09$ ,  $max = 666.66$ ), and those below 233 as low-calories set ( $M = 105.55$ ,  $SD = 71.20$ ,  $min = 14.92$ ,  $max = 233.33$ ).

## Results

### Reaction Times

**High- versus low-calorie food items analyses.** Finally, we examined whether high- versus low-calorie food items showed attentional benefit and whether it was influenced by hunger condition. In this analysis, the item type was changed for the type of calorie (i.e., high-/low-calorie food items). The repeated-measures ANOVA did not reveal any effect related to the caloric content of food items,  $F_s < 1$ .

### Recall

**High- versus low-calorie food items analyses.** Finally, we examined whether high- versus low-calories food items showed memory benefit and whether it was influenced by hunger conditions. In these analyses, item type was changed for calorie type (i.e., high-/low-calorie food items). The repeated measures ANOVA revealed a main effect of calorie type. Surprisingly, low-calorie ( $M = 1.55$ ,  $SEM = .15$ ,  $95\% CI [1.01, 1.43]$ ) food items were better

recalled than high-calorie food items ( $M = 1.05$ ,  $SEM = 0.14$ , 95%  $CI$  [.97, 1.37]),  $F(1, 62) = 6.18$ ,  $p = .02$ ,  $\eta^2 = .09$  regardless of the hunger condition. There was no significant interaction between emotion and type of calorie,  $F(1, 62) = 1.04$ ,  $p = .31$ ,  $\eta^2 = .02$  nor significant triple interactions between emotion, type of calorie and the hunger condition,  $F(1, 62) = 1.39$ ,  $p = .24$ ,  $\eta^2 = .02$

### **Recognition Memory**

***High- versus low-calorie food items analyses.*** Finally, we examined whether high-versus low-calorie food items showed memory benefit and whether it was specific to hungry participants. In these analyses, the item type was changed for calorie type (i.e., high-/low-calorie foods). The repeated measures ANOVA revealed a main effect of type of calorie,  $F(1,63) = 8.62$ ,  $p = .005$ ,  $\eta^2 = .07$ . Planned contrasts indicated that high-calorie ( $M = .68$ ,  $SE = .01$ , 95%  $CI$  [.09, .13]) food items were better remembered than low-calorie ( $M = .64$ ,  $SE = .01$ , 95%  $CI$  [.08, .12]) food items,  $t(1, 64) = -2.96$ ,  $p < .005$ , 95%  $CI$  [-.07, -.01],  $d = .40$ . No interactions reached significance ( $F_s < 1$ ).

### **Recognition Memory and Dot-Probe Task**

***High- versus low-calorie food items analyses.*** Finally, we examined whether high-versus low-calorie food items showed memory benefits and whether memory was influenced by hunger conditions. In these analyses, the item type was changed for the calorie type (i.e., high-/low-calorie food). The repeated measures ANOVA revealed a significant interaction between calorie type and target type,  $F(1, 63) = 6.11$ ,  $p < .02$ ,  $\eta^2 = .09$ . Follow-up  $t$ -tests showed that target low-calorie food items ( $M = .67$ ;  $SEM = .01$ , 95%  $CI$  [.10, .14]) were better remembered than –non-target low-calorie food items ( $M = .60$ ;  $SEM = .02$ , 95%  $CI$  [.12, .17]),  $t(1,64) = 3.37$ ,  $p = .001$ ,  $d = .56$ . Non-target high calorie food items ( $M = .68$ ,  $SEM = .02$ , 95%  $CI$  [.11, .16]) were better remembered than non-target low-calorie food items  $t(1, 64) = 3.71$ ,  $p < .001$ ,  $d = .59$ . Memory for target high-calorie food items ( $M = .67$ ,  $SEM$

= .02, 95% CI [.11, .16]) versus non-target high-calorie food items did not differ  $t < .1$ . No interactions reached significance ( $F_s < 1$ ).

### **Post-hoc Ratings**

First, we conducted a repeated-measures ANOVA with the ratings obtained by independent raters (Table 1) to examine whether food or household items were assessed as more attractive, valence, or arousing and might explain the fact that hungry and sated participants did not differ in terms of memory performance for the recognition task. Second, in order to examine whether high- versus low-calorie food items were assessed differently on the affective dimensions (reported in the supplemental materials, Table 2) by independent raters, we performed dependent samples  $t$ -tests. To examine whether recognized food and household items were assessed as more attractive, valence (positive or negative), or arousing and might explain the fact that hungry and sated participants did not differ in terms of memory, we conducted a repeated measures ANOVA with the between-subjects factors hunger condition (sated/hungry), item type (food/household) with the correspondence of the recognition memory performance from the initial experiment with the ratings obtained by independent raters as the dependent variable. Finally, the mean level of hunger reported by the independent raters was 3.93 ( $SD = 2.52$ ).

#### **Arousal.**

Food items were rated by independent raters as more arousing than household items,  $F(1, 38) = 18.64, p < .001, \eta^2 = .33$ . A  $t$ -test revealed no significant difference between high- versus low-calorie food items on the ratings of arousal,  $t(46) = 1.14, p = .26$ . Level of hunger obtained by independent raters showed a significant (positive) correlation with their arousal ratings for high-calorie food items,  $r(47) = .30, p = .04$ , and low-calorie food items,  $r(47) = .31, p = .03$ .

### **Attractiveness.**

Food items were rated by independent raters as more attractive than household items,  $F(1, 38) = 49.02, p < .001, \eta^2 = .56$ . Food items recognized by participants in the initial experiment were assessed by independent raters as more positive than household items,  $F(1, 63) = 2903.60, p < .001, \eta^2 = .98$ . No significant interaction between hunger conditions and ratings of attractiveness for recognized items,  $F < .1$ .

*T*-test found no significant difference between high- versus low-calorie food items on the ratings of attractiveness,  $t(46) = 1.12, p = .27$ .

### **Valence.**

Food items were rated by independent raters as more positive than household items,  $F(1, 38) = 32.73, p < .001, \eta^2 = .46$ . Food items recognized by participants in the initial experiment were assessed by independent raters as more positive than household items,  $F(1, 63) = 2466.01, p < .001, \eta^2 = .98$ . No significant interaction between hunger conditions and ratings of valence for recognized items,  $F < .1$ .

*T*-test found no significant difference between high- versus low-calorie food items on the ratings of valence,  $t < 1$ .

### **Craving.**

Level of hunger obtained by independent raters showed a significant (positive) correlation with their craving ratings for high-calories food items  $r(47) = .36, p = .01$  and low-calories food items  $r(47) = .45, p = .001$ .

*T*-test found no significant difference between high- versus low-calorie food items on the ratings of craving,  $t < 1$ .

### Palatability.

*T*-test found no significant difference between high- versus low-calorie food items on the ratings of palatability,  $t < 1$  No significant correlation between level of hunger obtained by independent raters and their ratings for palatability neither for high- nor low-calorie food items.

Table 1

*Post-hoc ratings of arousal, attractiveness and valence dimensions for food and household items*

	Food		Household		Food vs. Household
	Mean	SD	Mean	SD	p-value
arousal	54.51	15.29	47.72	11.90	< .001
attractiveness	58.64	10.08	46.65	11.55	< .001
valence	12.79	11.26	4.64	6.49	< .001
craving	49.58	14.30			
palatability	60.37	9.46			

*Note.* SD = standard-deviation

Table 2

*Post-hoc ratings of arousal, attractiveness, valence, craving and palatability dimensions divided in high and low-calorie food items*

	Food high-calorie		Food low-calorie	
	Mean	SD	Mean	SD
arousal	55.29	16.74	53.74	15.19
attractiveness	59.41	12.93	57.88	8.96
valence	12.98	14.18	12.60	10.42
craving	50.20	16.71	48.97	13.78
palatability	61.15	12.49	59.59	9.10

*Note.* SD = standard-deviation.