Effects of hedonic deprivation on implicit and explicit evaluation of chocolate in high and low chocolate cravers

**BACKGROUND**

- Weight-loss dieting affects homeostatic and hedonic processes [1] and it is unclear which of the two make dietary adherence so difficult.
- Deprivation of a specific food (without an energy deficit) may induce craving for that food [2, 3], which is associated with low dieting success [4].
- However, findings are inconsistent as restrictive weight-loss diets are sometimes reported to decrease food cravings [5, 6].
- The current study, therefore, tested whether an experimentally-induced hedonic deprivation (i.e., restricting intake of chocolate in the absence of an energy deficit) would increase state craving and implicit preferences for chocolate.

**METHODS**

- To recruit high and low chocolate cravers, 131 individuals completed the chocolate version of the Food Cravings Questionnaire-Trail [7].
- n = 39 high cravers and n = 21 low cravers were instructed to refrain from chocolate for a two-week period and to maintain regular chocolate consumption for one week, respectively (Fig. 1).
- At both laboratory sessions, state chocolate craving was assessed by the chocolate version of the Food Cravings Questionnaire-State [7] and implicit preference for chocolate was measured by a chocolate version of the Single-Category Implicit Association Test (SC-IAT), [8] (Fig. 2) and the Affect Misattribution Procedure (AMP), [9] (Fig. 3).

**RESULTS**

- There was a significant interaction of group × condition, F(3, 60) = 10.17, p = .002, η² = .35. Only high cravers reported higher craving for chocolate in deprived state compared with satiated condition, t(33) = 4.43, p < .001, dₚ = 0.73 (Fig. 4).
- There was a main effect of group, F(3, 60) = 8.49, p = .002, η² = .34, indicating that high cravers showed higher preference for chocolate than low cravers (Fig. 5). The main effect of condition, F(3, 60) = 0.10, ns, and the group × condition interaction were not significant, F(3, 60) = 2.19, ns.
- There was a significant interaction of group × stimulus category, F(3, 60) = 7.75, p = .007, η² = .38. Only high cravers rated Chinese pictures more pleasant than Chinese pictures primed by neutral objects, t(33) = 3.89, p < .001, dₚ = 0.81 (Fig. 6).

**CONCLUSION**

- To date, only few studies investigated the effects of a selective hedonic deprivation on craving for a specific food.
- Results of the current study confirm that such a short-term hedonic deprivation increases state chocolate craving only in individuals who frequently experience chocolate cravings. High cravers also showed generally higher implicit preference for chocolate, which was unaffected by hedonic deprivation.
- Thus, hedonic effects of restricted intake of craved foods, independent of caloric deficits, can trigger cravings that might undermine dietary adherence. Flexible dieting strategies rather than rigid food restriction might, therefore, be advantageous for individuals with high trait cravings in particular.

**REFERENCES**


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