Eat to Be Fit Or Fit to Eat? Restrained Eaters’ Food Consumption in Response to Fitness Cues
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Consumption of food perceived as dietary-forbidden decreases if restrained (versus unrestrained) eaters are incidentally primed with fitness. Ironically, consumption of isocaloric food perceived as dietary-allowed increases for restrained eaters in response to incidental fitness primes or when fitness is integral to the product. Biases in self-perception can explain these effects.

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EXTENDED ABSTRACT
It is recommended that individuals exercise regularly (Haskell et al. 2007). However, today’s environment provides many apparent substitutes for physical activity. This research investigates whether and how fitness cues – both cues that are incidentally present in the environment and cues that are integral to food products (e.g., as part of the packaging) – affect food consumption volumes and whether the relationship is moderated by individual differences and product perceptions.

CONCEPTUAL FRAMEWORK
We propose that both dietary restraint and the perception of food as ‘good’ or ‘bad’ impact the relationship between fitness cues and consumption. Dietary restraint refers to chronic eating patterns by individuals who are guided less by their internal feelings of hunger and more by external factors and a constant concern with weight control and dieting (Bublitz, Peracchio, and Block 2010). Restrained eaters often experience conflicts between the goal of eating enjoyment and the goal of weight management (Stroebe et al. 2008). Furthermore, restrained eaters tend to think heuristically about food and view food as either more (allowed) or less (forbidden) suitable for achieving long-term goals (Oakes and Slotterback 2005). If product categories are perceived as dietary-forbidden, both incidental and integral fitness cues should inhibit restrained eaters’ tendency to approach tasty but unhealthy food and decrease consumption relative to when the concept of fitness is not salient (Anschutz, van Strien, and Engels 2011; Fishbach and Shah 2006).

In contrast, when product categories are perceived as dietary-allowed, we expect the opposite effect. In this case, the compatibility of eating with long-term health benefits reduces the conflict between eating enjoyment and weight management and may liberate restrained eaters from pursuing their dietary goals (Fishbach and Dhar 2005). Therefore, both incidental and integral fitness cues are hypothesized to increase consumption for restrained eaters when the product category is dietary-allowed.

Previous research has implicated a variety of mechanisms that may increase or decrease food consumption, including biased product perceptions (caloric under- or over-estimation; Wansink and Chandon 2006) and biased self-perceptions (the extent to which consuming a food affects the perceived closeness to desired fitness or body weight; Geyskens et al. 2007). We examine which of these accounts is most consistent with the effect of fitness cues on consumption for restrained eaters.

EMPIRICAL STUDIES AND MATERIALS
We conducted four studies to test these hypotheses. Studies 1a and 1b assessed the consumption of dietary-forbidden (potato chips) and dietary-allowed (yogurt and granola) foods (both pre-tested, 150 kcal per serving) in response to incidental fitness cues. Study 1a (n = 132) used a two-group design in which either fitness or neutral concepts were primed supraliminally via a scrambled sentence task. After the priming task, participants had a chance to sample a dietary-forbidden food (potato chips) and their consumption was assessed unobtrusively. Dietary restrained eating was assessed via Herman and Polivy’s (1980) scale (α = .78). A moderated regression analysis with prime (neutral = 0, fitness = 1), mean-centered dietary restraint, their interaction, gender, BMI, perceived tastiness, and hunger as independent variables and the number of calories consumed as the dependent variable revealed the expected two-way interaction between prime and dietary restraint (b = –7.74, p < .05, model R² = .15). There was no effect of the prime on consumption for unrestrained eaters, but restrained eaters consumed significantly less when they were primed with fitness (b = –7.60, p < .01).

Study 1b (n = 166) was similar in design to study 1a, except that the product category was dietary-allowed (yogurt and granola). As expected, there was a significant interaction between prime and dietary restraint (b = 5.83, p < .05, model R² = .22). The fitness prime had no effect for unrestrained eaters, but restrained eaters consumed significantly more when they were primed with fitness (b = 4.57, p = .01).

Study 2 (n = 162) investigated the effect of integral fitness cues on consumption of dietary-allowed food (trail mix) using a two-group design in which participants had a chance to sample (under the pretense of a taste test) either a Fitness Trail Mix or simply a Trail Mix. Consumption was measured unobtrusively, and dietary restraint was measured with Van Strien et al.’s (1986) scale (α = .91). As expected, there was a significant interaction between fitness cue and dietary restraint (b = 68.33, p < .05, model R² = .19). The fitness cue had no effect on unrestrained eaters, but restrained eaters consumed significantly more trail mix when it was labeled Fitness Trail Mix (b = 85.90, p < .01).

Study 3 (n = 104) examined potential mediators of this effect. The design was similar to study 2, except that we asked participants to rate the perceived calorie content per serving (150 kcal, presented in bowls) and their perceived closeness to desired fitness and desired body weight (0 = far away, 100 = fully reached). The results of moderated regression analyses showed that a fitness cue on the product did not have a differential effect on calorie estimates of restrained and unrestrained eaters (b = –1.98, p = .85, NS). However, the interactions of dietary restraint with closeness to both desired fitness (b = 1.65, p < .05) and body weight (b = 2.54, p < .001) were significant. Spotlight analyses showed that restrained eaters saw themselves as closer to their desired fitness and body weight in the Fitness Trail Mix condition.

CONTRIBUTIONS
Our research shows that fitness cues primarily influence the amount of food consumed by restrained eaters, and that the direction of the effect depends on whether (isocaloric) food is perceived to be dietary-forbidden or dietary-allowed. Although liberation processes in restrained eaters have previously been shown for diet- and health-related primes (Papiés and Hamstra 2010) and for certain food attributes (e.g., ‘haloes’ associated with low-fat; Wansink and Chandon 2006), we demonstrate that they also occur in response to fitness cues. Despite the fact that the focal goal of becoming more fit is actually not fulfilled by eating food associated with fitness, consumption of dietary-permitted food increased for restrained consumers.


