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## Cheat meals: A benign or ominous variant of binge eating behavior?

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## ABSTRACT

**Objective:** Engagement in “cheat meals” has been recently documented as a socially endorsed dietary practice oriented towards pursuing physique ideals, and which bears qualitative semblance to disordered eating behavior. However, the clinical significance of this dietary practice remains unclear.**Methods:** We recruited a sample of young adults ( $n = 248$ ; 56% women;  $M_{\text{age}} = 19.29 \pm 0.58$ ) and examined the prevalence and characteristics of cheat meal engagement, including its associations with eating disorder pathology, psychological distress, and impairment in role functioning.**Results:** Findings revealed that 89.1% of participants engaged in cheat meal consumption that was either planned or spontaneous, with planned cheat meals being predominantly aimed at managing food cravings and sustaining strict dietary regimens. Among men, the frequency of cheat meal engagement was positively associated with global eating disorder symptoms ( $p = 0.04$ ), and objective binge episodes ( $p = 0.03$ ), however cheat meals were not associated with psychological distress or clinical impairment for either gender ( $p > 0.05$ ).**Conclusions:** These preliminary findings suggest that cheat meal engagement is commonly endorsed among young adults, and particularly among men. Moreover, cheat meals may reflect psychopathological properties akin to binge episodes, although do not confer psychological distress. Future research is urged in elucidating the definitional properties of cheat meal engagement, and examining clinical implications for this widespread dietary practice.

Recently, there has been increasing interest in the prevalence and correlates of muscularity-oriented eating and weight-control behaviors (Mitchison & Mond, 2015; Murray, Griffiths, & Mond, 2016). These behaviors are typically geared towards the development of a muscular body ideal, and are thought to include the simultaneous or periodic over-regulation of dietary protein and the restriction of dietary energy, rigid muscle building exercise regimes, and possible engagement with synthetic muscle building agents (Murray, Griffiths, & Mond, 2016; Murray et al., 2017). Attempts to further elucidate muscularity-oriented eating and weight-control behaviors have revealed potentially adverse health impacts, in terms of their associations with eating disorder psychopathology and medical instability (Murray, Accurso, Griffiths, & Nagata, 2018; Murray, Griffiths, Mitchison, & Mond, 2017; Murray et al., 2012). In further explicating the qualitative nature of

muscularity-oriented eating behaviors, one recent content analysis examined the behavioral practices espoused via pro-muscularity websites, noting a particular emphasis on rigid dietary and exercise practices (Murray, Griffiths, Hazery, Shen, Wooldridge & Mond, 2016). While unequivocally promoting a lean and muscular body ideal, the dietary practices most centrally propagated the strict regulation of protein intake, and the restriction of dietary energy. Alongside this, a consistent theme was related to engagement in ‘cheat meals’, in which one’s restrictive and meticulously calculated dietary regimen may be abandoned for a brief influx of ‘prohibited’ foods (Murray, Griffiths, Hazery, Shen, Wooldridge & Mond, 2016). Moreover, this analysis of blog, forum and static web-based content revealed that a common belief among those pursuing a hyper-muscular physique was that planned and regular engagement in cheat meals would help in achieving a lean and

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muscular body ideal via the conferral of a metabolic advantage; specifically, the utilization of dietary fat as a primary energy source. In other words, a sporadic influx of calories (i.e., cheat meals) is believed to ‘trick’ one’s body into utilizing dietary fats as a primary source of energy, which extends into prolonged periods of dietary restriction, and facilitates body fat reduction without impacting muscle development (Murray, Griffiths, Hazery, Shen, Wooldridge & Mond, 2016).

In light of these findings, and in recognition that examination of pro-muscularity websites may have limited generalizability to broader samples, a second content analysis sought to examine the prevalence and content of cheat meal-related images on Instagram (Pila, Mond, Griffiths, Mitchison, & Murray, 2017). Over 1.6 million posts specifically relating to cheat meals were observed, depicting volumes of food commensurate with objective binge episodes, and primarily comprised calorically dense food types ranging from an estimated 1000 to 9000 calories. Importantly, the textual commentary alongside these food-related images typically related to (i) a loss of control during cheat meal engagement, (ii) the normalization of overeating during cheat meals, and (iii) strict adherence to exercise regimens and dietary restraint outside of cheat meal engagement. Further, person-related visual content most often depicted muscular bodies, of both men and women, in the act of exercising or displaying exposed muscularity, suggesting that these dietary practices may be linked to the pursuit of the muscular ideal for both genders (Pila et al., 2017).

Findings from these content analyses suggest that further investigation of the nature and correlates of cheat meal engagement would be of interest. In particular, these behaviors, and the regimens of which they form part, bear a close resemblance to the binge eating episodes that occur in eating disorders, such as binge eating disorder and bulimia nervosa. However, the current understanding around what constitutes and characterizes cheat meal engagement is limited to the analysis of online content. Examining the features of cheat meal engagement, including, perhaps most importantly, its degree of symptomatic similarity to eating pathology (i.e., reasons for engagement, intentional nature of engagement, drive for compensatory behavior), is crucial for determining whether cheat meal engagement is pathological or benign. In addition, it is prudent to determine whether, and to what extent, cheat meal engagement may be associated with psychological distress and role impairment, two general indicators of psychological wellbeing that can be used to assess, in part, the clinical significance of a purportedly pathological behavior. With muscularity-oriented eating and weight-control behaviors being particularly likely to go undetected in clinical and research settings (Murray, Griffiths, & Mond, 2016), community-based studies of the nature and correlates of cheat meals may be helpful in furthering our understanding the presentation and clinical significance of these behaviors.

The goal of the current study was, therefore, to conduct a preliminary investigation of the (i) the prevalence and characteristics of cheat meal engagement in young adults, and (ii) associations between cheat meal engagement and three key indicators of clinical significance, namely, eating disorder psychopathology (including objective binge episodes), general psychological distress and impairment in role functioning. Since social media content relating to cheat meals was previously found to be common, but potentially distinctly experienced, in men and women (Pila et al., 2017), and given anecdotal reports that the prevalence of muscularity-oriented disordered eating may be increasing in both women and men (Murray et al., 2017), men and women were compared in the current study. Given the exploratory nature of the research, no *a priori* hypotheses concerning the associations between cheat meal engagement and indicators of clinical significance, or gender differences in these, were formulated.

## 1. Methodology

### 1.1. Participants and procedures

The sample consisted of 248 undergraduate students (56% women) from a metropolitan city in Canada. Participants ranged in age from 18 to 32 years ( $M_{\text{age}} = 19.29$ ,  $SD_{\text{age}} = 0.58$  for women,  $M_{\text{age}} = 19.50$ ,  $SD_{\text{age}} = 1.44$  for men) and in Body Mass Index (BMI,  $\text{kg}/\text{m}^2$ ) from 14.5 to 39.5 ( $M_{\text{BMI}} = 22.02$ ,  $SD_{\text{BMI}} = 3.01$  for women, and  $M_{\text{BMI}} = 24.67$ ,  $SD_{\text{BMI}} = 3.94$  for men). More specifically, 4.3% of women were underweight (BMI < 18.5), 84.8% were normal weight (BMI between 18.5 and 24.99), 8.7% were overweight (BMI between 25 and 29.99) and 2.2% were obese (BMI  $\geq 30$ ), whereas 0.9% of men were underweight, 58.3% were normal weight, 33.3% were overweight, and 7.4% were obese. The sample identified their ethnicity as White (53.2%), Chinese (17.7%), South Asian (9.7%), Black (8.1%), Filipino (6.0%), Southeast Asian (3.6%), West Asian (2.4%), Korean (2.4%), Arabic (2.0%), Latin (1.2%), or Other (4.4%). Of the sample, 22.3% of women and 9.2% of men reported previously seeking professional help for a mental health concern. Participants were given the opportunity to participate in a cross-sectional online survey on “Student Health Behaviors” while enrolled in an undergraduate Kinesiology and Physical Education research methods course. The study received ethical approval from the University Research Ethics Board and all participants provided informed consent prior to participation.

### 1.2. Measures

#### 1.2.1. Participant characteristics

Data were collected on participant sex, ethnicity, and height and weight, which were used to calculate BMI.

#### 1.2.2. Cheat meal engagement

A series of self-report measures informed from past research identifying the cheat meal phenomenon (Pila et al., 2017) were created for the purpose of this study. Specifically, participants were provided with a definition of cheat meals as ‘When one is following a diet regimen, they occasionally will have a meal that allows them to eat things that are not part of the specific eating plan. Cheat meals refer to a dietary practice where you may choose to eat something that is not normally part of the specific diet plan you have created.’ Participants then reported if they had ever consumed a cheat meal, and if they had consumed a cheat meal in the past 4 weeks (28 days), in addition to an open-ended frequency of the number of cheat meals consumed in the past 4 weeks. Utilizing the question stem from frequency items of the Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994), participants who had ever engaged in a cheat meal were asked to specify ‘on how many of the past 28 days’ they have engaged in cheat meals that were intentional, and cheat meals that were spontaneous. An aggregate cheat meal engagement score was used in the regression analyses.

#### 1.2.3. Cheat meal characteristics

Participants were asked to rate the salience of various reasons for cheat meal engagement. Created based on pilot data (Pila et al., 2017), participants rated the following reasons for cheat meal engagement: (i) allow permission to indulge in foods that are not part of diet, (ii) improve metabolism, (iii) are part of my fitness and exercise regime, (iv) are part of my dietary plan, (v) help manage psychological food cravings, (vi) help manage physical food cravings, (vii) help me stick to otherwise strict eating plan, and (ix) are not intentional, they just happen. Each reason was rated on a 7-point scale of importance, 1 (not at all important) to 7 (very important). Additionally, participants were asked to report the extent to which they engage in compensatory behaviors after the consumption of a cheat meal, including exercising intensively and/or vigorously, reducing food intake, or engage in purging behaviors (i.e., vomiting, taking laxatives/diuretics). Items were

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