

# Distraction, not hunger, is associated with lower mood and lower perceived work performance on fast compared to non-fast days during intermittent fasting

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## Abstract

Using a repeated measures design, 16 females recorded hunger, distraction, mood and perceived work performance on two consecutive fast days, on two earlier and on two subsequent consecutive non-fast days, during intermittent fasting. Using regression analyses, low positive mood was associated with higher distraction ( $\beta = -0.38$ ,  $p < 0.01$ ), and lower perceived work performance was associated with higher distraction ( $\beta = -0.50$ ,  $p < 0.01$ ) and lower positive mood ( $\beta = 0.59$ ,  $p = 0.01$ ). No associations were found with hunger (largest  $\beta = -0.11$ ,  $p = 0.15$ ). Associations between mood, perceived work performance and distraction but not hunger mirror those found in traditional dieting and suggest no benefit for attention from intermittent fasting-type regimes.

## Keywords

cognitive processing, diet, eating behaviour, mood, weight loss

## Introduction

Impacts of food restriction on mood and performance are well known. Dieting and fasting have been found to result in poor mood, increased anxiety, nervousness, irritability, anger, frustration, depression, emotionality, negative emotionality, negative hyperemotionality, poor concentration, poor vigilance, slower reaction times, slower decision-making and poorer memory (see Benton and Parker, 1998; Green et al., 1997; Green and Rogers, 1995; Hagan et al., 2000; Keys et al., 1950; Laessle et al., 1996; McFarlane et al., 1999; Sunram-Lea et al., 2011).

Mechanisms behind these effects, however, remain unclear. Food restriction can clearly

impact on energy intake and thus may impact on energy availability and, more specifically, glucose availability. Low blood and brain glucose levels have been linked to low mood (Benton, 2002; Benton et al., 2001; Benton and Nabb, 2004; Gonder-Frederick et al., 1989) and poor cognitive

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performance, including slow reaction times, poor executive functioning, poor decision-making, poor memory recall and low levels of performance and productivity (Benton and Parker, 1998; Owen et al., 2010; Sunram-Lea et al., 2001, 2011).

Repeated evidence, however, also suggests that not only does the physiological deprivation in dieting impact on mood and performance but that the psychological requirements for food restriction can also impact on mood and performance (Appleton and McGowan, 2006; McFarlane et al., 1999; Polivy, 1998). Traditional forms of dieting typically require careful calorie monitoring, and so require individuals to pay a lot of attention to food and eating (Collier, 2013). This required attention has been suggested to result in reduced cognitive resources available for other tasks, such as decision-making and work performance (Green et al., 1997; Green and Rogers, 1995; Jones and Rogers, 2003), and many authors now argue that effects of dieting on mood and performance likely result entirely from this increased cognitive load (Green et al., 1997; Green and Rogers, 1995; Jones and Rogers, 2003; Shaw and Tiggemann, 2004; Tiggemann, 2000).

Certain forms of food restriction, however, require less attention than others. Intermittent fasting involves fasting or consumption of up to only 500-800 kcal/day on specific days interspersed with days on which participants can consume as much as they wish (Mosley and Spencer, 2013). Importantly, this dietary pattern requires much less attention to food than traditional dieting – individuals only monitor their food intake on certain days/at certain times, and at these times typically either consume nothing or consume only one small meal (Collier, 2013; Mosley and Spencer, 2013). Individuals are not constantly faced with difficult decisions about food and eating, but instead have clear and definitive all-or-nothing type rules (Collier, 2013). Dieting or fasting for intermittent days compared to longer has thus been suggested to have fewer effects on mood and performance than more consistent traditional dieting (Mosley and Spencer, 2013), not only because the time period for energy restriction is less, but also because the psychological deprivation and

hardship seems less (e.g. Laessle et al., 1996; Polivy, 1998). Diets involving intermittent fasting have also been associated with improved weight loss and improved risk profiles for many major health conditions, including cardiovascular disease, cancer and diabetes (Heilbronn et al., 2005; Varady and Hellerstein, 2007), and are becoming increasingly popular with professionals and users alike (Collier, 2013).

Reduced distraction compared to traditional diets could further enhance the benefits of intermittent fasting. This study aimed to investigate the impact of fasting on perceptions of hunger, distraction, mood and perceived work performance and the degree to which the effects on mood and performance were accounted for by perceptions of hunger and distraction.

## Methods

The study was conducted using a repeated measures design. Hunger, distraction, mood and perceived work performance were recorded on two consecutive fast days during an intermittent fasting regime, and compared to hunger, distraction, mood and work performance on two earlier and two subsequent consecutive non-fast days. The impact of hunger and distraction on mood and perceived work performance were subsequently investigated using regression.

## Participants

A total of 16 lean female students (aged 18–22 years, body mass index (BMI): 20.2–23.9 kg/m<sup>2</sup>) took part in the study. All participants were non-smokers, in good physical and mental health and not on any energy restricting diet. Young females were involved in the study due to the high likelihood of food restriction in this group (e.g. Malinauskas et al., 2006; Mooney et al., 2004), therefore enabling high likely relevance and likely high compliance with study procedures. All participants were fully informed of all study procedures prior to commencement in the study and provided informed consent. The study was approved by

the Research Ethics Committee of Bournemouth University, and run in accordance with the Ethical Guidelines of the British Psychological Society and the Declaration of Helsinki (2000).

### *Intermittent fasting*

Participants were asked to undertake two consecutive days of fasting, where consumption of no more than 500kcal was permitted. Participants were given comprehensive guidance on the amount of food required to consume 500kcal, and consumption on each fast day was verified by the researcher by questioning all foods consumed. These questions, and questions about questionnaire completion revealed that all participants adhered to the experimental protocol. Consecutive fast days were utilized to allow investigation of compound effects on the second day of fasting should these arise.

Both the week before fasting and the week after fasting, participants were asked to consume their normal diet. All measures taken on fast days were also taken on the same two days of the week during these weeks (e.g. Tuesday, Wednesday), as non-fast day comparisons. A period of 1 week between measures was used to avoid direct compensation effects and to allow a more accurate measure of usual hunger, distraction, mood and perceived work performance. Use of the same two days of each week for all measurements was intended to control for effects due to routine. Mood and work performance are highly influenced by daily activities (e.g. D'Angelo and Wierzbicki, 2003; McKinzie, Altamura, Burgoon and Bishop, 2006; van Eck, Nicolson and Berkhof, 1998).

### *Hunger, distraction, mood and work performance*

Hunger, distraction, mood and perceived work performance were measured at 6:00p.m. on each study day, using 100mm visual analogue scales, anchored from 'not at all' to 'extremely'. Hunger was measured using two questions assessing current hunger – 'How hungry are you feeling?' – and whole day hunger – 'How

hungry have you felt throughout the day?'. Distraction was measured using five questions assessing current distraction – 'How attentive are you feeling?' (reversed scored) – and whole day distraction – 'How distracted do you feel you have been today?', 'How focused on particular tasks have you felt today?' (reversed scored), 'How often do you feel you've been daydreaming today?' and 'How difficult have you found it to concentrate today?'. Mood was measured using the 10 positive and 10 negative items of the Positive and Negative Affect Scales (PANAS) (Watson et al., 1988). Perceived work performance was measured using 3 items: 'How productive do you feel you've been today?', 'How satisfied are you with the amount of work you have completed today?' and 'How satisfied are you with the quality of the work you have completed today?'. Scale responses were combined and averaged to provide one score per participant per day for current hunger, whole day hunger, current distraction, whole day distraction, positive mood, negative mood and perceived work performance. For all scales, a higher score denoted stronger feeling. Questions on hunger, distraction, mood and perceived work performance were taken from published studies (e.g. Hill et al., 1995; Watson et al., 1988) or developed specifically for this study. Cronbach's alphas for all composite scales demonstrated good reliability (smallest alpha=0.71).

All mood items were completed first, then the questions on current distraction and current hunger, then all perceived work performance items and finally the questions on whole day distraction and whole day hunger. Distraction and then hunger questions were placed at the end of each section to avoid carry-over effects onto other questions.

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## **Results**

Data were initially analysed by repeated measures analysis of variance (ANOVA) to demonstrate impacts of fasting (fasting vs pre-fast non-fasting vs post-fast non-fasting) and day of measurement (day 1 vs 2) on hunger, distraction,

**Table 1.** Mean (and standard deviation) ratings for all measures.

Measure	Fast	Fast	Non-fast	Non-fast
	Day 1	Day 2	Day 1	Day 2
Current hunger (0–100)	78 (18)	71 (17)	53 (26)	31 (26)
Daily hunger (0–100)	74 (18)	76 (17)	45 (25)	34 (20)
Current distraction (0–100)	75 (17)	79 (12)	42 (20)	47 (26)
Daily distraction (0–100)	63 (16)	67 (18)	37 (14)	38 (20)
Positive mood (0–100)	30 (11)	27 (10)	44 (14)	50 (14)
Negative mood (0–100)	21 (13)	25 (15)	20 (11)	22 (11)
Work performance (0–100)	31 (24)	32 (20)	51 (18)	58 (19)

mood and perceived work performance. This analysis investigated simple group-based differences between conditions as a result of fasting. Second, data were analysed using clustered regression, where participant ID acted as the cluster variable. Clustered regression acknowledges the correlation and consequent lower within-cluster variation within clusters (or non-independent data points) and was used to allow multiple data points from each participant to be used for analysis (Desai and Begg, 2008). This resulted in the availability of 96 data points for analysis. In analyses on mood, regression models were used to predict mood, using, in model 1: fasting state (fast/non-fast) and day of measurement (1/2); and in model 2: fasting state (fast/non-fast), day of measurement (1/2), current hunger, whole day hunger, current distraction and whole day distraction. In analyses on perceived work performance, regression models were used to predict perceived work performance, using, in model 1: fasting state (fast/non-fast) and day of measurement (1/2); in model 2: fasting state (fast/non-fast), day of study (1/2), current hunger, whole day hunger, current distraction and whole day distraction; and in model 3: fasting state (fast/non-fast), day of measurement (1/2), current hunger, whole day hunger, current distraction, whole day distraction, positive mood and negative mood. Two- and three-step regression models were used to investigate independent effects of fasting, hunger and distraction on mood and perceived work performance. No differences were found between pre- and post-fasting non-fast days in ANOVA

analyses; thus, these were combined for all regression analyses. Correlations between current hunger and whole day hunger ( $r=0.65$ ), between current distraction and whole day distraction ( $r=0.53$ ) and between hunger and distraction (largest  $r=0.42$ ) were not so high as to suggest potential multicollinearity if included in the same model. Analyses were conducted in Stata (StataCorp, Inc.).

Means for all outcomes variables are given in Table 1. Records on fast days demonstrated greater current hunger, greater whole day hunger, greater current distraction, greater whole day distraction, lower positive mood, greater negative mood and lower perceived work performance compared to non-fast days (smallest  $F(2, 30)=8.60, p=0.01$ ).

Results of regression analyses for mood are given in Table 2. Higher positive mood was initially associated with non-fasting as opposed to fasting ( $\beta=18.67, 95\%$  confidence intervals (CIs)=13.77, 23.57,  $p<0.01$ ) and with the second day of measurement as opposed to the first ( $\beta=3.56, 95\%$  CIs=0.54, 6.56,  $p=0.03$ ). On inclusion of hunger and distraction variables, however, the effect of fasting disappeared ( $\beta=1.38, 95\%$  CIs=-8.59, 11.35,  $p=0.77$ ), and higher positive mood was associated with the second day of measurement ( $\beta=3.66, 95\%$  CIs=0.34, 6.98,  $p=0.03$ ) and lower current distraction ( $\beta=-0.38, 95\%$  CIs=-0.46, -0.29,  $p<0.01$ ).

Higher negative mood was initially associated with the second day of measurement ( $\beta=2.34, 95\%$  CIs=0.56, 4.11,  $p=0.01$ ) and on

**Table 2.** Results of the regression analyses for positive and negative mood.

	Model 1		Model 2		Statistics	
	Variables	$\beta$ (95% CIs), <i>p</i>	Variables	$\beta$ (95% CIs), <i>p</i>	$\beta$ (95% CIs), <i>p</i>	
Positive mood	Fast state	<b>18.67 (13.77, 23.57), <i>p</i> &lt; 0.01</b>	Fast state	1.38 (-8.59, 11.35), <i>p</i> = 0.77		
	Day	<b>3.56 (0.54, 6.56), <i>p</i> = 0.03</b>	<b>Day</b>	<b>3.66 (0.34, 6.98), <i>p</i> = 0.03</b>		
			Current hunger	-0.05 (-0.22, 0.11), <i>p</i> = 0.48		
			Daily hunger	-0.11 (-0.27, 0.04), <i>p</i> = 0.15		
Negative mood			<b>Current distraction</b>	<b>-0.38 (-0.46, -0.29), <i>p</i> &lt; 0.01</b>		
			Daily distraction	0.03 (-0.15, 0.21), <i>p</i> = 0.73		
	Fast state	-2.46 (-7.26, 2.33), <i>p</i> = 0.29	Fast state	6.21 (-1.91, 14.33), <i>p</i> = 0.12		
	Day	<b>2.34 (0.56, 4.11), <i>p</i> = 0.01</b>	<b>Day</b>	<b>3.79 (1.19, 6.39), <i>p</i> = 0.01</b>		
			Current hunger	0.10 (-0.03, 0.22), <i>p</i> = 0.12		
			Daily hunger	0.03 (-0.11, 0.17), <i>p</i> = 0.66		
		Current distraction	0.003 (-0.16, 0.16), <i>p</i> = 0.97			
		Daily distraction	0.16 (-0.08, 0.41), <i>p</i> = 0.18			

CI: confidence interval.  
Significant differences (*p* < 0.05) are emboldened.

inclusion of hunger and distraction variables was also only associated with second day of measurement ( $\beta=3.79$ , 95% CIs=1.19, 6.39,  $p=0.01$ ).

Results of regression analyses for perceived work performance are given in Table 3. Greater perceived work performance was initially associated with non-fasting as opposed to fasting ( $\beta=23.19$ , 95% CIs=12.11, 34.27,  $p<0.01$ ). On inclusion of hunger and distraction variables, this effect disappeared ( $\beta=-1.13$ , 95% CIs=-18.24, 15.99,  $p=0.89$ ), and greater perceived work performance was associated with second day of measurement ( $\beta=5.90$ , 95% CIs=0.75, 11.06,  $p=0.03$ ), lower current distraction ( $\beta=-0.25$ , 95% CIs=-0.47, -0.03,  $p=0.03$ ) and lower whole day distraction ( $\beta=-0.49$ , 95% CIs=-0.74, -0.24,  $p<0.01$ ). On inclusion also of mood variables, associations with day of measurement and current distraction disappeared (day:  $\beta=3.85$ , 95% CIs=0.45, 8.15,  $p=0.08$ ; current distraction:  $\beta=-0.03$ , 95% CIs=-0.34, 0.28,  $p=0.83$ ), but greater perceived work performance was associated with lower whole day distraction ( $\beta=-0.50$ , 95% CIs=-0.69, -0.32,  $p<0.01$ ) and higher positive mood ( $\beta=0.59$ , 95% CIs=0.17, 1.00,  $p=0.01$ ).

## Discussion

First, these results demonstrated lower positive mood, higher negative mood and lower perceived work performance on fast days compared with non-fast days. These effects have been demonstrated repeatedly previously in relation to dieting and fasting (Benton and Parker, 1998; Green et al., 1997; Green and Rogers, 1995; Hagan et al., 2000; Keys et al., 1950; Laessle et al., 1996; McFarlane et al., 1999; Sunram-Lea et al., 2001) and were demonstrated here after just 1 - 2 days of fasting.

Second, the effects of fasting on mood and perceived work performance were found to result largely from the consequent distraction, as opposed to the act of fasting or the resulting hunger. In final regression models for both mood and perceived work performance, initial

effects of fasting were accounted for entirely by effects of distraction, and neither fasting state nor hunger were significantly associated with mood or perceived work performance, while distraction was. An important role for distraction in the effects of fasting and dieting on mood and performance has previously been suggested (Green et al., 1997; Green and Rogers, 1995; Jones and Rogers, 2003), but this is the first study of which we are aware that has distinguished between effects of the act of fasting, effects of hunger and effects of distraction, and demonstrates effects only for distraction. Effects in this study are also of particular interest due to the use of intermittent fasting, a form of dieting considered to require less attention (and so to result in less distraction) than traditional dieting.

The act of fasting presumably impacts on energy intake, and reduced blood sugar has previously been suggested as a route through which dieting and fasting may impact on mood and performance (Benton, 2002; Benton and Parker, 1998). Our study findings suggest that this reduced blood sugar impacts on mood and perceived work performance, not through hunger or physiological deprivation, but through an increased cognitive load as a result of an increased attention towards food and eating. Others have also suggested that the minimal amount of weight often lost during dieting also implies limited physiological deprivation (Green et al., 1997; Green and Rogers, 1995; Laessle et al., 1996), suggest limited impact as a result of physiological deprivation (Green et al., 1997; Green and Rogers, 1995; Laessle et al., 1996), and suggest increased cognitive load and a redirection of attention as a result of dieting/fasting (Green et al., 1997; Green and Rogers, 1995; Jones and Rogers, 2003).

Positive mood was also associated with day of measurement, where positive mood was higher on the second day of measurement compared to the first, suggesting some tolerance to the fasting regime. Previous work has also suggested that one of the benefits of intermittent fasting might be the short-term nature of the fasting element (Collier, 2013; Laessle et al.,

**Table 3.** Results of the regression analyses for perceived work performance.

Model 1	Statistics	Model 2	Statistics	Model 3	Statistics
Variables	$\beta$ (95% CIs), $p$	Variables	$\beta$ (95% CIs), $p$	Variables	$\beta$ (95% CIs), $p$
<b>Fast state</b>	<b>23.19 (12.11, 34.27), <math>p &lt; 0.01</math></b>	<b>Fast state</b>	-1.13 (-18.24, 15.99), $p = 0.89$	<b>Fast state</b>	-0.79 (-16.09, 12.52), $p = 0.79$
<b>Day</b>	<b>4.78 (-0.02, 9.59), <math>p = 0.06</math></b>	<b>Day</b>	<b>5.90 (0.75, 11.06), <math>p = 0.03</math></b>	<b>Day</b>	3.85 (0.45, 8.15), $p = 0.08$
		Current hunger	-0.05 (-0.19, 0.09), $p = 0.44$	Current hunger	-0.02 (-0.12, 0.09), $p = 0.71$
		Daily hunger	-0.03 (-0.25, 0.19), $p = 0.79$	Daily hunger	0.04 (-0.20, 0.27), $p = 0.75$
		<b>Current distraction</b>	<b>-0.25 (-0.47, -0.03), <math>p = 0.03</math></b>	Current distraction	-0.03 (-0.34, 0.28), $p = 0.83$
		<b>Daily distraction</b>	<b>-0.49 (-0.74, -0.24), <math>p &lt; 0.01</math></b>	<b>Daily distraction</b>	<b>-0.50 (-0.69, -0.32), <math>p &lt; 0.01</math></b>
				<b>Positive mood</b>	<b>0.59 (0.17, 1.00), <math>p = 0.01</math></b>
				Negative mood	-0.02 (-0.29, 0.24), $p = 0.85$

CI: confidence interval.

Significant differences ( $p < 0.05$ ) are emboldened.

1996; Polivy, 1998). Negative mood, however, was also higher on the second day of measurement compared to the first; thus, the effects of day of measurement may reflect more an adaptation to the measures or the study procedures.

Perceived work performance was also associated, not only with distraction but also with positive mood. The impact of mood on performance is well recognized in the occupational as well as health psychology literature (Arnold and Randall, 2010; Millward, 2005; Ogden, 2007), but the direction of effects between mood and perceived work performance cannot be clearly distinguished from a cross-sectional analysis such as that used here and may be reversed. While the deliberate manipulation of fasting suggests that effects on both mood and perceived work performance are a result of the fasting, it is possible that effects of mood on perceived work performance are in fact effects of perceived work performance on mood, or a result of a mutual determinant such as distraction. As positive mood was associated with current distraction and day of measurement, it could be argued that perceived work performance is in fact also predominantly associated with distraction.

Negative mood was affected by fasting (as demonstrated in ANOVA analyses), but was not associated significantly with hunger or distraction. These findings may suggest a particular role for distraction only in positive perceptions, but the lack of effects on negative mood is possibly alternatively a result of the low levels of negative mood in general in the study. Negative moods are likely to be higher over longer dieting/fasting time periods and/or in individuals who are dieting/fasting by choice compared to those on a 2-day schedule for a 3-week study. Longer studies and studies involving individuals who self-select to follow an intermittent fasting regime would clearly be of interest.

The study is limited in its use of a limited number of participants and the absence of individuals on a traditional diet where effects of hunger and distraction are also investigated. The study was undertaken as a pilot study, and a larger study with a traditional dieting control

was envisaged if limited effects of distraction were suggested here. The use only of lean young females may also be considered a limitation. This population group was used to test a theoretical hypothesis, due to their likely high compliance, as well as the high relevance of this group for real-world implications. Study of other population groups who are also likely to diet/fast, for example, those overweight, would also be of interest from a public health perspective, although greater variance between individuals and greater impacts from other weight-related variables may mask relative effects due to hunger and distraction. We have also preferred to use simple step-based regression analyses to demonstrate effects, as opposed to more complex analyses such as mediation analyses or bootstrapping. Mediation analyses were avoided to allow the investigation of independent effects due to the act of fasting (in mediation analyses these effects would have to be assumed), and more complex analyses were not used to avoid over-interpretation of data from a limited pilot study.

In conclusion, this study demonstrated impacts of fasting on mood and perceived work performance in association with distraction, where poorer positive mood and poorer perceived work performance on fast days compared to non-fast days were associated with higher distraction, as opposed to the act of fasting or higher hunger. This distraction is considered to occur as a result of the attention required for fasting. This study thus suggests that intermittent fasting offers no benefits for mood or perceived work performance over traditional dieting as a result of reduced distraction during fast days. Benefits for intermittent fasting may be achieved as a result of the reduced time period of energy restriction and the reduced psychological deprivation, but these hypotheses need testing before they are advocated.

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## References

- Appleton KM and McGowan L (2006) The relationship between restrained eating and poor psychological health is moderated by pleasure normally associated with eating. *Eating Behaviors* 7: 342–347.
- Arnold J and Randall R (2010) *Work Psychology: Understanding Human Behavior in the Workplace* (5th edn). Essex: Pearson Educational Limited.
- Benton D (2002) Carbohydrate ingestion, blood glucose, and mood. *Neuroscience and Biobehavioral Reviews* 26: 293–308.
- Benton D and Nabb S (2004) Breakfasts that release glucose at different speeds interact with previous alcohol intake to influence cognition and mood before and after lunch. *Behavioral Neuroscience* 118: 936–943.
- Benton D and Parker PY (1998) Breakfast, blood glucose, and cognition. *American Journal of Clinical Nutrition* 67: 772S–778S
- Benton D, Slater O and Donohoe RT (2001) The influence of breakfast and a snack on memory and mood. *Physiology & Behavior* 74: 559–571.
- Collier R (2013) Intermittent fasting: The next big weight loss fad. *Canadian Medical Association Journal* 185: 321–322.
- D'Angelo B and Wierzbicki M (2003) Relations of daily hassles with both anxious and depressed mood in students. *Psychological Reports* 92: 416–418.
- Desai M and Begg MD (2008) A comparison of regression approaches for analyzing clustered data. *American Journal of Public Health* 98: 1425–1429.
- Gonder-Frederick LA, Cox DJ, Bobbitt SA, et al. (1989) Mood changes associated with blood glucose fluctuations in insulin-dependent diabetes mellitus. *Health Psychology* 81: 45–59.
- Green MW and Rogers PJ (1995) Impaired cognitive functioning during spontaneous dieting. *Psychological Medicine* 25: 1003–1010.
- Green MW, Elliman NA and Rogers PJ (1997) Impaired cognitive processing in dieters: Failure of attention focus or resource capacity limitation? *British Journal of Health Psychology* 2: 259–267.
- Hagan MM, Tomaka J and Moss DE (2000) Relation of dieting in college and high-school students to symptoms associated with semi-starvation. *Journal of Health Psychology* 5: 7–15.
- Heilbronn LK, Smith SR, Martin CK, et al. (2005) Alternate-day fasting in non-obese subjects: Effects on body weight, body composition, and energy metabolism. *American Journal of Clinical Nutrition* 81: 69–73.
- Hill AJ, Rogers PJ and Blundell JE (1995) Techniques for the experimental investigation of appetite and food intake in the laboratory. *International Journal of Obesity* 19: 361–375.
- Jones N and Rogers PJ (2003) Preoccupation, food, and failure: An investigation of cognitive performance deficits in dieters. *International Journal of Eating Disorders* 33: 185–192.
- Keys A, Brozek J, Henschel A, et al. (1950) *The Biology of Human Starvation*. Minneapolis, MN: University of Minnesota Press.
- Laessle RG, Platte P, Schweiger U, et al. (1996) Biological and psychological correlates of intermittent dieting behavior in young women. A model for bulimia nervosa. *Physiology & Behavior* 60: 1–5.
- McFarlane T, Polivy J and McCabe RE (1999) Help, not harm: Psychological foundation for a nondieting approach toward health. *Journal of Social Issues* 55: 261–276.
- McKinzie C, Altamira V, Burgoon E, et al. (2006) Exploring the effect of stress on mood, self-esteem and daily habits with psychology graduate students. *Psychological Reports* 99: 439–458.
- Malinauskas BM, Raedeke TD, Aeby VG, et al. (2006) Dieting practices, weight perceptions, and body composition: A comparison of normal weight, overweight and obese college females. *Nutrition Journal* 5: 11.
- Millward L (2005) *Understanding Occupational and Organizational Psychology*. Thousand Oaks, CA: SAGE Publications Inc.
- Mooney E, Farley H and Strugnell C (2004) Dieting among adolescent females – Some emerging trends. *International Journal of Consumer Studies* 28: 347–354.
- Mosley M and Spencer M (2013) *The FastDiet: Lose Weight, Stay Healthy and Live Longer*. London: Short Books.
- Ogden J (2007) *Health Psychology* (4th edn). Maidenhead: Open University Press.

- Owen L, Finnegan Y, Hu H, et al. (2010) Glucose effects on long term memory performance: Duration and domain specificity. *Psychopharmacology* 211: 131–140.
- Polivy J (1998) The effects of behavioral inhibition: Integrating internal cues, cognition, behavior and affect. *Psychological Inquiry* 9: 181–204.
- Shaw J and Tiggemann M (2004) Dieting and working memory: Preoccupying cognitions and the role of the articulatory control process. *British Journal of Health Psychology* 9: 175–185.
- Sunram-Lea SI, Foster JK, Durlach P, et al. (2001) Glucose facilitation of cognitive performance in healthy young adults: Examination of the influence of fast-duration, time of day and pre-consumption plasma glucose levels. *Psychopharmacology* 157: 46–54.
- Sunram-Lea SI, Owen L, Finnegan Y, et al. (2011) Dose-response investigation into glucose facilitation of memory performance and mood in healthy young adults. *Journal of Psychopharmacology* 25: 1076–1087.
- Tiggemann M (2000) Dieting and cognitive style. *Journal of Health Psychology* 5: 17–24.
- Van Eck M, Nicolson NA and Berkhof J (1998) Effects of daily events on mood states: Relationships to global perceived stress. *Journal of Personality and Social Psychology* 75: 1572–1585.
- Varady KA and Hellerstein MK (2007) Alternate-day fasting and chronic disease prevention: A review of human and animal trials. *American Journal of Clinical Nutrition* 86: 7–13.
- Watson D, Clark LA and Tellegen A (1988) Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology* 54: 1063–1070.