



Idealised media images: The effect of fitspiration imagery on body satisfaction and exercise behaviour



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ABSTRACT

Recent studies have documented a shift in the cultural ideal of physical attractiveness, with women subscribing to a visibly toned ideal that emphasises health and fitness. The present study experimentally investigated the impact of athletic and muscular fitness-idealised images compared to traditional thin ideal images on women's body dissatisfaction and exercise behaviour, under the framework of Social Comparison Theory. Participants were 106 female undergraduate students randomly assigned to view one of three sets of images (thin ideal, athletic ideal, or muscular ideal) followed by a bout of exercise. Acute exposure to athletic ideal and thin ideal images led to increased body dissatisfaction, but exposure to muscular ideal images did not. Relative to thin ideal images, fitness-idealised images did not motivate participants to engage in higher levels of exercise suggesting that this type of fitness inspiration might not motivate actual exercise behaviour.

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1. Introduction

A large body of research has demonstrated that mass media images have a significant influence on sociocultural body ideals and are strongly influential on female body image perceptions (Groesz, Levine, & Murnen, 2002; Perloff, 2014; Stice, Spangler, & Agras, 2001; Thompson & Heinberg, 1999). Body image is defined as an individual's perception of their body appearance, as well as the thoughts and feelings that result from this perception (Cash, 2004; Tiggemann, 2004). Due to their emphasis on appearance and the importance of attractiveness in Western societies, idealised media images place pressure on women to achieve a similar aesthetic profile and can have significant negative implications for body image (Levine & Murnen, 2009).

The thin ideal represents the female form as a slender, feminine physique with a small waist and little body fat (Grogan, 2008; Schaefer et al., 2015). Past experimental studies have demonstrated a link between exposure to thin ideal traditional mass media, such as television, magazines and advertisements, and negative body

image in women (Levine & Murnen, 2009). However, an 'athletic ideal' characterised by both thinness and visible toning, including a more muscular upper body, toned abdomen and firmer lower body, has become popular across different forms of media (Boepple, Ata, Rum, & Thompson, 2016; Schaefer et al., 2015; Tiggemann & Zaccardo, 2016). A small amount of research has demonstrated that media exposure to images that are toned as well as thin do promote negative body image, similar to the thin ideal (Homan, 2010). This appears to be the case for print media (Homan, 2010), as well as social media images presented through the Internet (Jong & Drummond, 2016a, 2016b; Tiggemann & Zaccardo, 2015).

This shift in the popularity of the athletic ideal has, in part, been due to the global social media movement known as 'fitspiration' (an amalgamation of the words 'fitness' and 'inspiration'), a social media source which many women now use for health-related information and inspiration related to diet and exercise (Jong & Drummond, 2016a; Vaterlaus, Patten, Roche, & Young, 2015). "Fitspiration" consists of images and inspirational quotations aimed typically at women to inspire healthy living by providing tips on exercise and diet to improve health and fitness (Boepple & Thompson, 2016; Jong & Drummond, 2016a). A search (December, 2016) of the #fitspiration hashtag on Instagram returned close to 10 million pictures. A perusal of the images under the fitspiration hashtag shows two distinct ideal body types: an athletic ideal

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and a muscular ideal. The athletic ideal refers to a lean body, little body fat, and an athletic (i.e., fit) and toned/muscular appearance (Schaefer et al., 2015). In contrast, the muscular ideal, whilst still generally reasonably thin, is overtly muscular in appearance with well-defined leg, arm, and abdominal muscles.

While athletic ideal images may be viewed as healthier (due to their focus on promoting fitness) than thin ideal images, they may be quite difficult to attain and are actually somewhat paradoxical in nature. Realistically, attainment of an athletic ideal necessitates strict dieting practice, as well as substantial and consistent weight training (Ramme, Donovan, & Bell, 2016). For the majority of women, this lifestyle is unrealistic and unobtainable (Curioni & Lourenco, 2005). Recent content analyses of fitspiration media have also warned that components of these images, including their overall focus on appearance, the presence of objectifying features, the emphasis on appearance-related reasons for exercise, and the focus on weight management behaviours, are likely to have damaging effects for female body image (Boepple et al., 2016; Carrotte, Prichard, & Lim, 2017; Simpson & Mazzeo, 2016; Tiggemann & Zaccardo, 2016).

Research suggests that exposure to images featuring a toned and fit body only produces negative body image when paired with thinness (Groesz et al., 2002; Homan, McHugh, Wells, Watson, & King, 2012). For example, Homan et al. (2012) found that women exposed to athletic images of thin women experienced increased body dissatisfaction compared to those who viewed athletic images of women who were not thin. Relatedly, Benton and Karazsia (2015) demonstrated that an athletic ideal (thin and toned) had a similar significant negative impact on women's body satisfaction as the thin ideal, in a way that a more muscular (and less thin) ideal did not. It is possible that women see the muscular ideal as too masculine and therefore not attractive (Dworkin, 2001). This notion is supported by the common lack of support within the general population for the level of muscularity obtained by female body builders (Grogan, Evans, Wright, & Hunter, 2004; Shilling & Bunsell, 2009).

One framework that is useful for examining the potential impact of idealised images on body image is Social Comparison Theory (Festinger, 1954). This theory suggests that individuals frequently assess their success and levels of ability by comparing themselves to others (Festinger, 1954). This comparison also extends to other dimensions of the self, such as physical appearance (Wheeler & Miyake, 1992). Social comparison can be examined as a trait variable, in that there exist relatively stable individual differences in social comparison engagement (Thompson, Heinberg, & Tantleff, 1991), or as a state variable, in response to specific situations (Tiggemann & McGill, 2004). Trait social comparison has been found to moderate the impact of idealised media images on body image, such that women with higher trait social comparison tendencies experience greater body dissatisfaction after viewing idealised images than those with lower social comparison tendencies (Dittmar & Howard, 2004). State appearance comparison is considered a key mechanism by which the media negatively affect women's body image (Tiggemann & McGill, 2004; Tiggemann & Zaccardo, 2015). According to Social Comparison Theory (Festinger, 1954), humans have an innate desire to compare themselves to others on relevant dimensions. When a woman compares herself to an idealised media image, she almost invariably falls short, resulting in dissatisfaction with her own body. Experimentally, state appearance comparison has been shown to at least partially mediate the effect of exposure to idealised images on body dissatisfaction (Tiggemann & McGill, 2004; Tiggemann & Zaccardo, 2015).

Health and fitness-related images such as fitspiration aim to engage and motivate women to partake in healthy behaviours such as exercise. Recently, Tiggemann and Zaccardo (2015) established a link between acute viewing of fitspiration images and a single-item measure of inspiration to exercise. To date, research on different

types of ideal images (e.g., Benton & Karazsia, 2015) has not examined the effect of these images on exercise intentions or actual exercise behaviour. Given the physical and psychological benefits of exercise (Buckworth, Dishman, O'Connor, & Tomporowski, 2013), it is important to determine whether certain types of idealised images actually motivate engagement in exercise and/or whether their tendency to promote negative body image deters women from engaging in exercise. As fitspiration images have been shown to increase exercise inspiration (Tiggemann & Zaccardo, 2015), it is anticipated that these types of images are likely to also promote actual exercise behaviour. By doing so, strategies can be devised to better motivate engagement in physical activity.

The present study aimed to investigate the effects of fitness-idealised images in comparison to traditional thin ideal images, on body dissatisfaction and exercise behaviour (distance travelled on a treadmill over a 10-minute period), under the framework of Social Comparison Theory. This was done using an experimental design examining the impact of three different types of images (thin ideal, athletic ideal, and muscular ideal). It was predicted that exposure to both thin ideal and athletic ideal images emphasising thinness, would lead to higher levels of body dissatisfaction and state social comparison than exposure to muscular ideal images. It was expected that this effect would be moderated by trait appearance comparison. Given their focus on promoting fitness, it was also predicted that exposure to 'fitspiration' images (athletic ideal and muscular ideal) would lead to a greater level of exercise (measured as distanced travelled on a treadmill over a 10-minute period) in comparison to exposure to thin ideal images that do not focus on fitness.

2. Method

2.1. Participants

Participants were 106 female university students recruited from Flinders University in South Australia. On average they were 20.60 years old ($SD = 1.85$) with a mean body mass index (BMI) of 22.65 ($SD = 3.93$), which falls within the 'healthy weight' range.

2.2. Design

The study employed a between-subjects experimental design with image type (thin ideal, athletic ideal, muscular ideal) as the independent variable. The major dependent variables were state body dissatisfaction (measured pre and post exposure), state social comparison, and exercise behaviour. Trait social comparison was tested as a moderator.

2.3. Materials

2.3.1. Experimental manipulation: image type

Three sets of visual stimuli were created for the study, each containing 15 images. Images were sourced from Google Images and Instagram, forms of media commonly accessed by the target population and available for public use (Sensis, 2016). To choose images, the keywords entered were 'thinspiration' for thin ideal images; 'athletic fitspiration' for athletic ideal; and 'muscular fitspiration' for muscular ideal images. The image sets contained women of different racial backgrounds and captured a variety of activities to reflect the types of images commonly seen on social media (Tiggemann & Zaccardo, 2016). The final sets of images (15 per condition) were chosen from a larger set of 85 images that were rated equivalently on levels of visual quality and physical attractiveness (1 = *not at all* to 7 = *very much*) by 10 independent female raters aged 17–25 years. Thin ideal images were rated high on thinness ($M = 5.85$; $SD = 0.08$); medium on

tone ($M = 4.40$; $SD = 0.10$); and low on athleticism and muscularity ($M = 3.30$; $SD = 0.11$; $M = 3.06$; $SD = 0.11$ respectively). Athletic ideal images were rated medium-high on thinness; tone; and athleticism ($M = 5.37$; $SD = 0.08$; $M = 5.42$; $SD = 1.00$; $M = 5.13$; $SD = 0.10$ respectively); but only as moderately muscular ($M = 4.63$; $SD = 0.10$). Muscular ideal images were rated high on tone; athleticism; and muscularity ($M = 6.25$; $SD = 0.12$; $M = 6.34$; $SD = 0.13$; $M = 6.45$; $SD = 0.13$ respectively); but only medium on thinness ($M = 4.36$; $SD = 0.10$). Images were presented to participants on an Apple Mac 13-inch computer screen in a fixed order and each image was displayed for approximately 15 s.

2.4. Measures

2.4.1. Social media use

To gauge general social media usage, participants were asked to indicate which social networking sites they use and how much time they spend on these sites (*less than 10 min*, *10–30 min*, *31–60 min*, *over 1 h*).

2.4.2. Regular physical activity levels

As an index of usual activity levels, all participants were asked to indicate their current exercise habits (frequency and duration of any physical activity/sport they engage in). Following Prichard and Tiggemann (2008), total amount of exercise was calculated by summing each activity's frequency by its duration.

2.4.3. State body dissatisfaction

Body dissatisfaction was measured before and after viewing the images. Following previous research (Heinberg & Thompson, 1995; Prichard & Tiggemann, 2012), this was done using four visual analogue scales (VAS; fat, physically attractive, satisfied with my body shape and satisfied with body size). The scales consisted of 100-mm horizontal lines, with poles labelled *not at all (0)* and *very much (100)* that are measured to the nearest millimetre. Participants indicated how they currently felt by marking a spot along the line for each dimension. Positive items were reverse coded and the mean of the four items was calculated to create a measure of state body dissatisfaction at each time point. VAS are reliable measures, able to detect small changes in body dissatisfaction (Heinberg & Thompson, 1995). In the current study, the body dissatisfaction scale demonstrated acceptable internal consistency at pre-exposure ($\alpha = .82$), and post-exposure ($\alpha = .82$).

2.4.4. State social comparison

The State Appearance Comparison Scale (Tiggemann & McGill, 2004) was used to determine the amount of appearance comparison participants engaged in after viewing the images. Using three 7-point Likert scales, participants rated the extent to which they thought about their appearance when viewing images (1 = *no thought about appearance*, 7 = *a lot of thought about appearance*), and the extent to which they compared their body/specific parts with those seen in the images they viewed (1 = *no comparison*, 7 = *a lot of comparison*). State appearance comparison was calculated by averaging the three items, with higher scores indicating greater state appearance comparison. Previous research has shown that items on this scale are highly correlated ($r = .71$ to $.82$; Tiggemann & McGill, 2004). The current study had acceptable internal reliability ($\alpha = .85$).

2.4.5. Trait social comparison

The Physical Appearance Comparison Scale-Revised (PACS-R) was used to measure trait appearance comparison (Schaefer & Thompson, 2014). This scale consists of eleven items that assess an individual's tendency to compare their own appearance to the appearance of others. The PACS-R is recognised for its good inter-item reliability ($r = .72$; Schaefer & Thompson, 2014) as well as

good convergent validity with theoretically related variables (e.g., body satisfaction, dietary restraint, weight concern, and internalisation of appearance ideals). Participants were asked to indicate on the 5-point Likert scale (1 = *never* to 5 = *always*), how often they made physical appearance comparisons across a range of social situations. A mean trait appearance comparison score was then calculated by averaging all the scores (range 1–5). Higher scores implied a greater tendency to engage in appearance comparison. The current study demonstrated acceptable internal consistency ($\alpha = .91$).

2.4.6. Fittspirational goals

Following Tiggemann and Zaccardo (2015), two items were included to test the inspirational effects of the images. On a 7-point Likert scale participants were asked how inspired they felt when viewing the images to improve their fitness and to be physically active (1 = *not at all inspired*, to 7 = *very inspired*). A mean fitness inspiration score was created by averaging the two items.

2.4.7. Exercise behaviour

Exercise behaviour was measured as the distance travelled on a treadmill (in kilometres) by participants in the 10-min period.

2.4.8. Demographic information

Participants were asked their age and ethnicity. Objective measures of current weight and height were taken to calculate body mass index (BMI; kg/m^2).

2.5. Procedure

Following ethics approval from the University's Social and Behavioural Research Ethics committee, participants were recruited through the School of Psychology's research management system for a study on *social media, exercise and well-being*. Potential participants were informed that the study involved answering a series of questionnaires about their weight, exercise behaviours, and attitudes as well as viewing some social media images and participating in a bout of physical activity. They received either course credit for their participation ($n = 22$) or were reimbursed \$20 for 45–60 min their time ($n = 86$), and were debriefed upon the conclusion of the study. Testing sessions lasted approximately 45–60 min. Upon arrival at the research laboratory, after providing informed consent, participants completed measures of their social media use and regular physical activity levels, and then completed the baseline state measure of body dissatisfaction. Participants were then randomly assigned by Qualtrics to one of three conditions (thin ideal, athletic ideal, or muscular ideal images). Participants were asked to rate each image on its visual quality to ensure participants paid attention to each image. All participants then completed follow-up state measures of body dissatisfaction. Participants were then asked to exercise on a treadmill for 10 min at any pace. After the exercise component of the study, participants completed the measures of state appearance comparison and fitness inspiration. The final questionnaire measure was trait social comparison. Participant height and weight were measured objectively at the end of the session.

3. Results

3.1. Sample characteristics

Participants ($N = 106$) had a mean age of 22.60 years ($SD = 1.85$) and a mean BMI of 22.65 ($SD = 3.93$). A series of one-way analyses of variance indicated that across the three conditions (thin

Table 1

Mean (SD) scores for age, BMI, exercise, image quality, weekly media use, trait social comparison, and baseline body dissatisfaction.

	Image type			
	Overall (N = 106)	Thin ideal (n = 36)	Athletic ideal (n = 34)	Muscular ideal (n = 36)
Age	20.60 (1.85)	20.58 (2.01)	20.65 (1.94)	20.58 (1.65)
BMI	22.65 (3.93)	22.68 (4.03)	23.65 (4.13)	21.69 (3.47)
Exercise (min weekly)	287.29 (206.57)	241.95 (182.26)	304.97 (207.62)	317.73 (230.30)
Image quality	3.41 (0.48)	3.42 (0.50)	3.46 (0.48)	3.36 (0.47)
Media use	2.48 (0.48)	2.46 (0.49)	2.50 (0.46)	2.48 (0.49)
Trait social comparison	3.32 (0.76)	3.26 (0.72)	3.36 (0.81)	3.36 (0.77)
State social comparison	5.15 (1.50)	5.17 (1.64)	5.56 (1.37)	4.78 (1.43)
Baseline body dissatisfaction	54.02 (17.94)	59.82 (21.09)	51.84 (16.00)	50.29 (15.02)

Scale end points: image quality, 1–5; media use, 1–4; trait social comparison, 1–5; state social comparison, 1–7; body dissatisfaction, 0–100.

ideal, athletic ideal, muscular ideal) there was no statistically significant difference between groups on age, $F(2, 103) = 0.013$, $p = .987$, BMI, $F(2, 103) = 2.222$, $p = .114$, weekly media use, $F(2, 105) = 0.050$, $p = .952$, image quality ratings, $F(2, 103) = 0.364$, $p = .696$, typical amount of exercise (minutes per week), $F(2, 103) = 1.368$, $p = .259$, or baseline body dissatisfaction, $F(2, 103) = 3.022$, $p = .053$ (means in Table 1). Importantly, there was no difference between the three groups on trait social comparison, $F(2, 103) = 0.202$, $p = .817$.

3.2. The effect of image type on body dissatisfaction

Given the specified predictions regarding group differences, an ANCOVA with orthogonal planned contrasts via LMATRIX was used to test the effect of image type on post-exposure body dissatisfaction. Pre-exposure body dissatisfaction was controlled for as a covariate, and adjusted means are presented in Table 2. Specifically, the planned comparisons tested the impact of viewing the thin images (thin ideal and athletic ideal combined) against viewing the muscular images (contrast: $-1, -1, +2$), and viewing the thin against the athletic ideal images (contrast: $-1, +1, 0$).

The overall ANCOVA was significant, $F(2, 102) = 5.35$, $p = .006$, partial $\eta^2 = .095$. The first planned comparison which compared the thin images (thin and athletic ideals) against the muscular images was significant, $F(1, 102) = 4.98$, $p = .028$, partial $\eta^2 = .047$, whereby women exposed to the thin and athletic images reported significantly greater body dissatisfaction than women exposed to the muscular images. The planned comparison between thin ideal images and athletic images was also significant, $F(1, 102) = 5.61$, $p = .020$, partial $\eta^2 = .052$. Women exposed to the athletic ideal images reported significantly greater body dissatisfaction than women exposed to the thin ideal images. Posthoc analysis indicated that there was no difference ($p > .05$) between the thin and muscular ideal conditions.

3.3. Effect of image type on state appearance comparison

A one-way ANOVA with planned comparisons via LMATRIX was conducted to compare state appearance comparison resulting from viewing the thin and athletic images versus the muscular images, and the athletic images versus the thin ideal images (means displayed in Table 1). The overall ANOVA was not significant, $F(2, 101) = 2.18$, $p = .118$, partial $\eta^2 = .041$, and neither were the planned comparisons; thin and athletic versus muscular: $F(1, 101) = 3.47$, $p = .066$, partial $\eta^2 = .033$, and thin versus athletic ideal: $F(1, 101) = 0.96$, $p = .329$, partial $\eta^2 = 0.009$.

Given that overall scores on state social comparison were relatively high ($M = 5.15$ on a scale of 1–7) and all experimental conditions contained images of people, the impact of state social comparison on body dissatisfaction, irrespective of condition, was tested using hierarchical multiple regression. Pre-exposure body dissatisfaction was entered in Step 1, and state social comparison was entered in Step 2. At Step 2, state social comparison accounted

for unique variance in body dissatisfaction, beyond that provided by baseline body dissatisfaction, $R^2_{\text{change}} = .014$, $F_{\text{change}} = 5.538$, $p = .021$. Thus, state social comparison predicted increased body dissatisfaction across conditions.

3.4. Moderation by trait appearance comparison

A hierarchical multiple regression analysis tested whether the relationship between image type and body dissatisfaction was moderated by trait appearance comparison. Following Aiken and West's (1991) recommendation, trait social comparison scores were centred to reduce multicollinearity. Two computed dummy variables: dummy 1 (1 if in the thin ideal condition, 0 otherwise), and dummy 2 (1 if in the athletic ideal image condition, 0 otherwise) were used for this analysis to represent the independent variable image type. Two product term variables were obtained by multiplying both dummy variables by the centered trait appearance comparison scores. Pre-exposure body dissatisfaction was entered in Step 1, and then the two dummy variables and centred trait appearance comparison in Step 2. The two two-way product terms were entered in Step 3. The total variance explained by the model as a whole was 77.5%, $F(6, 101) = 57.85$, $p < .001$. However, the inclusion of the product terms (Step 3) did not explain significant additional variance in body dissatisfaction, $R^2_{\text{change}} = .004$, $F_{\text{change}}(2, 101) = 0.924$, $p = .400$, and thus there was no significant interaction.

3.5. The effect of image type on exercise inspiration and behaviour

An examination of whether the different images inspired and motivated fitness indicated that there was a statistically significant difference between the image type groups on inspiration to improve fitness and physical activity, $F(2, 103) = 3.657$, $p = .029$, partial $\eta^2 = 0.066$. Athletic ideal ($M = 5.43$, $SD = 0.28$) images were viewed as significantly more inspirational than thin ideal images ($M = 4.47$, $SD = 0.27$, $p = .046$), but were not significantly more inspirational than viewing muscular ideal images ($M = 4.57$, $SD = 0.27$, $p = .086$).

For exercise behaviour, an ANCOVA was conducted to determine the effect of image type on distance travelled on the treadmill after controlling for usual exercise behaviour (mins per week), which was entered as a covariate. Results showed there was no difference in distance travelled on the treadmill across the image type groups, $F(2, 100) = 0.230$, $p = .795$, partial $\eta^2 = .005$. Participants who viewed the athletic ideal ($M = 0.97$, $SD = 0.31$) and muscular ideal images ($M = 0.98$, $SD = 0.29$) did not travel significantly further on the treadmill than participants who viewed thin ideal images ($M = 0.92$, $SD = 0.34$).

4. Discussion

The present study sought to determine how exposure to idealised fitness images ('fitspiration') affected women's state body

Table 2
Mean (SD) scores for body dissatisfaction by image type.

Image type	Pre-exposure	Post-exposure	Adjusted post-exposure
Thin ideal	59.82 (21.09)	62.85 (21.02)	57.74 (1.57) ^a
Athletic ideal	51.84 (16.00)	61.15 (16.97)	63.08 (1.59) ^b
Muscular ideal	50.29 (15.02)	52.84 (15.60)	56.13 (1.56) ^a

Scale end points: body dissatisfaction, 0–100.

Means with different superscripts denote significant differences ($p < .05$).

dissatisfaction relative to that of the traditional thin ideal, and to determine whether these images inspire exercise and promote actual engagement in exercise. Consistent with previous research, exposure to idealised media images that emphasised thinness, that is, both the athletic and thin ideal images, produced a negative effect on body dissatisfaction, relative to muscular ideal images (Benton & Karazsia, 2015; Homan et al., 2012). In addition, participants who viewed athletic ideal images reported greater body dissatisfaction than participants who viewed traditional thin ideal images, suggesting that thin and fit images may be more damaging for women's body image.

The finding that the athletic ideal images led to the most body dissatisfaction is perhaps not surprising. The athletic ideal promises that, if an individual invests enough time and effort into maintaining a healthy lifestyle (e.g., regular exercise and eating a healthy diet), they too can achieve this physique. Problematically, these images may oversell the attainability of this 'ideal' body, potentially setting many women up for failure. The saturation of athletic ideal images further makes this ideal body seem both attainable and normative, desensitising women from their generally unobtainable nature (Sabiston & Chandler, 2009). In addition, while athletic ideal images are deemed inspirational, it remains unknown what effect they may have on women's reasons for exercise. Content analyses suggest that fitspiration images focus heavily on the appearance-related benefits of engaging in exercise and dieting rather than the health and wellbeing benefits (e.g., Carrotte et al., 2017; Tiggemann & Zaccardo, 2016). Exercising for appearance reasons rather than for health and wellbeing reasons has been linked to higher body dissatisfaction and disordered eating, and low self-esteem among women (Gonçalves & Gomes, 2012; Prichard & Tiggemann, 2008). As such, the value these images place on exercising to improve appearance could have a widespread detrimental effect on female body image and should be examined further.

In the present study, images were examined in the context of Social Comparison Theory (Festinger, 1954). Western societies offer women opportunities to engage in appearance comparisons virtually on a daily basis (Jung & Lee, 2006), thus increasing the opportunities for women to experience increased body dissatisfaction. The athletic ideal is visible in a variety of contexts, including fitness centres, health magazines, and on social media in the form of fitspiration (Boepple et al., 2016; Tiggemann & Zaccardo, 2016). Overall, participants in each condition reported levels of state social comparison similar to that noted in previous research with fitspiration images (Tiggemann & Zaccardo, 2015), and there were no significant differences between conditions. It appears that participants compared their appearance to the women presented in each of the image conditions. Further, irrespective of condition, state appearance comparison predicted increased body dissatisfaction, highlighting its important role in relation to elevated body image concern. In line with Tiggemann and Zaccardo (2015), although contrary to Dittmar and Howard (2004), trait appearance comparison was not found to moderate the relationship between exposure to the different images and body dissatisfaction. This finding suggests that everyday state appearance comparisons may play a more important role than trait appearance comparison. The findings also provide insight into how the change in current sociocultural body

image 'ideal' could have many implications for women's psychological functioning and behaviour. Although fitness-idealised images aim to inspire positive body image and encourage women to live a 'healthy lifestyle', they may not accomplish their intended purpose, instead leading to increased body dissatisfaction.

To date, research has established a preliminary link between viewing fitspirational images and a greater inspiration to exercise, compared to participants who viewed travel images (Tiggemann & Zaccardo, 2015). In the present study, greater reported inspiration to exercise was also evident among participants who viewed athletic ideal images compared to participants who viewed images depicting the thin ideal. However, this inspiration did not translate into actual behaviour. No differences were found between the participants who viewed fitness-idealised images and participants who viewed thin ideal images on exercise behaviour (distance travelled). While deemed inspirational, in the present study exposure to fitness imagery did not have an effect on actual exercise engagement. This is perhaps not surprising given that previous research with young people has shown that intentions to do more exercise do not always translate into actual behaviour (Poobalan, Aucott, Clarke, & Smith, 2012). These findings raise concern given that exposure to the same imagery also results in increased body dissatisfaction, and indicate the need for future research in this area.

One possible explanation as to why there were no emergent group differences on exercise behaviour is that the current study was conducted in a laboratory environment and as such, the exercise component may have been considered artificial. Future research would benefit from considering the real-world effects of exposure to different types of idealised images on exercise behaviour. In a real world setting, the impact of viewing fitness-idealised images on exercise behaviour may be reliant on a variety of other factors such as cost, time, travel, and social support. Future exploration of idealised media images and exercise behaviour should also reconsider the way in which exercise is measured. In the current study, participants travelled at a pace of their choosing on the treadmill for a brief bout of 10 min. Perhaps exercising for a greater period or being offered a choice of whether to exercise or not would have elicited differences between the groups.

The study offers a variety of practical implications and consequently possible avenues for future research. Contemporary women are aware that viewing and subscribing to the thin ideal can contribute to a number of negative health outcomes (e.g., anorexia, bulimia, and low self-esteem; Smolak & Levine, 2015). Widespread mass media coverage of these potential effects has frequented the news headlines in the past decade (e.g., collective banning of proanorexia and #thinspiration social media pages by the big social networking sites; Duca, 2015). Similar to exposure to the thin ideal, results from the present study show that athletic ideal images in the form of 'fitspiration' also lead to a significant increase in body dissatisfaction. Further, exposure to these images, in comparison to thin ideal images or muscular images, did not increase engagement in exercise in the present study (as measured in a laboratory setting). This suggests that these images, while potentially inspirational, may not fulfil their intended purpose. This is particularly important given the current popularity of fitspiration media and the general perception that because of its focus on health and fit-

ness, it is better than traditional thin ideal images. Therefore, media outlets should be careful in their use of athletic ideal images, particularly as a source of appearance-related motivation. This may prove a difficult challenge, particularly in western societies where the use of social media websites, including the relatively new online trend 'fitspiration', has increased dramatically.

These findings also present specific implications for the way in which health care professionals provide support for women struggling with body image concerns. To date, some intervention programs have helped women to effectively confront their beliefs about the importance and appeal of thinness (Mitchell, Mazzeo, Rausch, & Cooke, 2007). In the present study, the muscular (but not thin) ideal was somewhat protective of body dissatisfaction. By emphasising the importance of health and fitness, women may be encouraged to see fitness, rather than achieving the 'ideal body', as their aim. Accordingly, incorporating the importance of strength and fitness into these interventions might lead to positive body image outcomes for women. Future research could examine the impact that messages of strength and fitness have on the otherwise negative health outcomes associated with viewing idealised images.

The findings should be interpreted in light of a number of limitations. First, the study was conducted in a laboratory setting. This limits the generalisability of the findings. Second, participants were asked to rate the quality of each image they viewed. This was done to ensure that they attended to the images, but is not typical of usual engagement with images in different forms of media. Third, as a neutral control condition (with no images of people) was not utilised, it remains unknown whether athletic ideal images may increase exercise engagement over and above exposure to neutral non-fitness focused images. Fourth, despite being the first study to examine the impact of fitness images on exercise behaviour, our measurement of exercise behaviour was limited to a 10-min bout on a treadmill and may not have accurately captured exercise behaviour. Future research should consider other methods of measuring exertion and exercise behaviour such as heart rate monitors, and more naturalistic measurement (e.g., fitness trackers). In addition, it would be useful to explore the mechanisms by which fitspiration images might inspire fitness (e.g., appearance-related reasons for exercise, focus on body functionality). Lastly, our sample was predominantly young Caucasian Australian university students. Although the majority of the research on body image tends to employ a similar sample, future research should consider examining larger and more diverse populations. In particular, the study would benefit from considering the impact of these images on female adolescents, as this age group is the largest user of online social media websites (Boyd, 2014).

In conclusion, notwithstanding these limitations, the study offers a significant contribution to the existing body of research on the psychological and behavioural outcomes associated with viewing idealised media images for women. The current study extends previous research (e.g., Benton & Karazsia, 2015; Homan et al., 2012) by experimentally testing the effects of idealised fitness images compared to thin ideal images on body image, under the framework of Social Comparison Theory. Furthermore, the current study was the first to investigate the impact of these images on actual exercise behaviour. The results add to the growing evidence that athletic ideal media images can be just as detrimental as the traditional thin ideal (Benton & Karazsia, 2015; Homan et al., 2012), if not more so. In addition, despite the notion that these images should inspire fitness, no evidence was found in the present study for any impact on exercise behaviour. As a result, the findings of this study advise against excessive exposure to fitspiration images that promote the athletic ideal. Future research is now needed to exam-

ine different possible mechanisms by which fitspiration images impact upon body image and exercise behaviour.

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References

- Benton, C., & Karazsia, B. T. (2015). The effect of thin and muscular images on women's body satisfaction. *Body Image*, 13, 22–27. <http://dx.doi.org/10.1016/j.bodyim.2014.11.001>
- Boepple, L., Ata, R. N., Rum, R., & Thompson, J. K. (2016). Strong is the new skinny: A content analysis of fitspiration websites. *Body Image*, 17, 132–135. <http://dx.doi.org/10.1016/j.bodyim.2016.03.001>
- Boepple, L., & Thompson, J. K. (2016). A content analytic comparison of fitspiration and thinspiration websites. *International Journal of Eating Disorders*, 49, 98–101. <http://dx.doi.org/10.1002/eat.22403>
- Boyd, D. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.
- Buckworth, J., Dishman, R. K., O'Connor, P. J., & Tomporowski, P. D. (2013). *Exercise psychology* (2nd ed.). Champaign, IL: Human Kinetics.
- Carrotte, R. E., Prichard, I., & Lim, C. M. S. (2017). Fitspiration on social media: A content analysis of gendered images. *Journal of Medical Internet Research*, 19, e95. <http://dx.doi.org/10.2196/jmir.6368>
- Cash, T. F. (2004). Body image: Past, present, and future. *Body Image*, 1, 1–5. [http://dx.doi.org/10.1016/S1740-1445\(03\)00011-1](http://dx.doi.org/10.1016/S1740-1445(03)00011-1)
- Curioni, C. C., & Lourenco, P. M. (2005). Long-term weight loss after diet and exercise: A systematic review. *International Journal of Obesity*, 29, 1168–1174. <http://dx.doi.org/10.1038/sj.ijo.0803015>
- Dittmar, H., & Howard, S. (2004). Thin-ideal internalization and social comparison tendency as moderators of media models' impact on women's body-focused anxiety. *Journal of Social and Clinical Psychology*, 23, 768–791. <http://dx.doi.org/10.1521/jscp.23.6.768.54799>
- Duca, L. (2015). *Can thinspiration really be #Banned from Instagram?* The Huffington Post. Retrieved from http://www.huffingtonpost.com/laurenduca/thinspiration-banned-from-instagram_b_3829155.html?ir=Australia
- Dworkin, S. L. (2001). Holding back: Negotiating a glass ceiling on women's muscular strength. *Sociological Perspectives*, 44, 333–350. <http://dx.doi.org/10.1525/sop.2001.44.3.333>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140. <http://dx.doi.org/10.1177/001872675400700202>
- Gonçalves, S. F., & Gomes, A. R. (2012). Exercising for weight and shape reasons vs. health control reasons: The impact on eating disturbance and psychological functioning. *Eating Behaviors*, 13, 127–130. <http://dx.doi.org/10.1016/j.eatbeh.2011.11.011>
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, 31, 1–16. <http://dx.doi.org/10.1002/eat.10005>
- Grogan, S. (2008). *Body image: Understanding body dissatisfaction in men, women, and children* (2nd ed.). London and New York: Routledge.
- Grogan, S., Evans, R., Wright, S., & Hunter, G. (2004). *Femininity and muscularity: Accounts of seven women body builders*. *Journal of Gender Studies*, 13, 49–61.
- Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology*, 14, 325–338. <http://dx.doi.org/10.1521/jscp.1995.14.4.325>
- Homan, K. (2010). Athletic-ideal and thin-ideal internalization as prospective predictors of body dissatisfaction, dieting, and compulsive exercise. *Body Image*, 7, 240–245. <http://dx.doi.org/10.1016/j.bodyim.2010.02.004>
- Homan, K., McHugh, E., Wells, D., Watson, C., & King, C. (2012). The effect of viewing ultra-fit images on college women's body dissatisfaction. *Body Image*, 9, 50–56. <http://dx.doi.org/10.1016/j.bodyim.2011.07.006>
- Jong, S. T., & Drummond, M. J. N. (2016a). Exploring online fitness culture and young females. *Leisure Studies*, 35, 758–770. <http://dx.doi.org/10.1080/02614367.2016.1182202>
- Jong, S. T., & Drummond, M. J. N. (2016b). Hurry up and 'like' me: Immediate feedback on social networking sites and the impact on adolescent girls. *Asia-Pacific Journal of Health, Sport and Physical Education*, 7, 251–267. <http://dx.doi.org/10.1080/18377122.2016.1222647>
- Jung, J., & Lee, S.-H. (2006). Cross-cultural comparisons of appearance self-schema, body image, self-esteem, and dieting behavior between Korean and U.S. women. *Family and Consumer Sciences Research Journal*, 34, 350–365. <http://dx.doi.org/10.1177/1077727x06286419>
- Levine, M. P., & Murnen, S. K. (2009). Everybody knows that mass media are/are not [pick one] a cause of eating disorders: A critical review of evidence for a causal link between media, negative body image, and disordered eating in females. *Journal of Social and Clinical Psychology*, 28, 9–42. <http://dx.doi.org/10.1521/jscp.2009.28.1.9>
- Mitchell, K. S., Mazzeo, S. E., Rausch, S. M., & Cooke, K. L. (2007). Innovative interventions for disordered eating: Evaluating dissonance-based and yoga

- interventions. *International Journal of Eating Disorders*, 40, 120–128. <http://dx.doi.org/10.1002/eat.20282>
- Perloff, R. M. (2014). Social media effects on young women's body image concerns: Theoretical perspectives and an agenda for research. *Sex Roles*, 71, 363–377. <http://dx.doi.org/10.1007/s11199-014-0384-6>
- Poobalan, A. S., Aucott, L. S., Clarke, A., & Smith, W. C. (2012). Physical activity attitudes, intentions and behaviour among 18–25 year olds: A mixed method study. *BMC Public Health*, 12, 640. <http://dx.doi.org/10.1186/1471-2458-12-640>
- Prichard, I., & Tiggemann, M. (2008). Relations among exercise type, self-objectification, and body image in the fitness centre environment: The role of reasons for exercise. *Psychology of Sport and Exercise*, 9, 855–866. <http://dx.doi.org/10.1016/j.psychsport.2007.10.005>
- Prichard, I., & Tiggemann, M. (2012). The effect of simultaneous exercise and exposure to thin-ideal music videos on women's state self-objectification, mood and body satisfaction. *Sex Roles*, 67, 201–210. <http://dx.doi.org/10.1007/s11199-012-0167-x>
- Ramme, R. A., Donovan, C. L., & Bell, H. S. (2016). A test of athletic internalisation as a mediator in the relationship between sociocultural influences and body dissatisfaction in women. *Body Image*, 16, 126–132. <http://dx.doi.org/10.1016/j.bodyim.2016.01.002>
- Sabiston, C. M., & Chandler, K. (2009). Effects of fitness advertising on weight and body shape dissatisfaction, social physique anxiety, and exercise motives in a sample of healthy-weight females. *Journal of Applied Biobehavioral Research*, 14, 165–180. <http://dx.doi.org/10.1111/j.1751-9861.2010.00047.x>
- Schaefer, L. M., Burke, N. L., Thompson, J. K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., ... & Swami, V. (2015). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychological Assessment*, 27, 54–67. <http://dx.doi.org/10.1037/a0037917>
- Schaefer, L. M., & Thompson, J. K. (2014). The development and validation of the Physical Appearance Comparison Scale-Revised (PACS-R). *Eating Behaviors*, 15, 209–217. <http://dx.doi.org/10.1016/j.eatbeh.2014.01.001>
- Sensis. (2016). *Sensis Social Media Report 2016: How Australian people and businesses are using social media..* Retrieved from <https://www.sensis.com.au/about/our-reports/sensis-social-media-report/sensis-social-media-report-archive>
- Shilling, C., & Bunsell, T. (2009). The female bodybuilder as a gender outlaw. *Qualitative Research in Sport and Exercise*, 1, 141–159. <http://dx.doi.org/10.1080/19398440902909009>
- Simpson, C. C., & Mazzeo, S. E. (2016). Skinny is not enough: A content analysis of fitspiration on pinterest. *Health Communication*, 1–8. <http://dx.doi.org/10.1080/10410236.2016.1140273>
- Smolak, L., & Levine, M. P. (2015). Body image, disordered eating, and eating disorders. In L. Smolak & M. P. Levine (Eds.), *The Wiley handbook of eating disorders* (pp. 3–10). Chichester, UK: John Wiley & Sons, Ltd. <http://dx.doi.org/10.1002/9781118574089.ch1>
- Stice, E., Spangler, D., & Agras, W. S. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: A longitudinal experiment. *Journal of Social and Clinical Psychology*, 20, 270–288. <http://dx.doi.org/10.1521/jscp.20.3.270.22309>
- Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them? *Journal of Social Issues*, 55, 339–353. <http://dx.doi.org/10.1111/0022-4537.00119>
- Thompson, J. K., Heinberg, L. J., & Tantleff, S. (1991). The Physical Appearance Comparison Scale (PACS). *The Behavior Therapist*, 14, 174.
- Tiggemann, M. (2004). Body image across the adult life span: Stability and change. *Body Image*, 1, 29–41. [http://dx.doi.org/10.1016/S1740-1445\(03\)00002-0](http://dx.doi.org/10.1016/S1740-1445(03)00002-0)
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology*, 23, 23–44. <http://dx.doi.org/10.1521/jscp.23.1.23.26991>
- Tiggemann, M., & Zaccardo, M. (2015). "Exercise to be fit, not skinny": The effect of fitspiration imagery on women's body image. *Body Image*, 15, 61–67. <http://dx.doi.org/10.1016/j.bodyim.2015.06.003>
- Tiggemann, M., & Zaccardo, M. (2016). 'Strong is the new skinny': A content analysis of #fitspiration images on instagram. *Journal of Health Psychology*, <http://dx.doi.org/10.1177/1359105316639436>
- Vaterlaus, J. M., Patten, E. V., Roche, C., & Young, J. A. (2015). #gettinghealthy: The perceived influence of social media on young adult health behaviors. *Computers in Human Behavior*, 45, 151–157. <http://dx.doi.org/10.1016/j.chb.2014.12.013>
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, 62, 760–773. <http://dx.doi.org/10.1037/0022-3514.62.5.760>