

Expand your horizon

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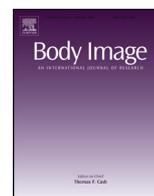
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Expand Your Horizon: A programme that improves body image and reduces self-objectification by training women to focus on body functionality



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ABSTRACT

This study tested *Expand Your Horizon*, a programme designed to improve body image by training women to focus on the functionality of their body using structured writing assignments. Eighty-one women ($M_{\text{age}} = 22.77$) with a negative body image were randomised to the *Expand Your Horizon* programme or to an active control programme. Appearance satisfaction, functionality satisfaction, body appreciation, and self-objectification were measured at pretest, posttest, and one-week follow-up. Following the intervention, participants in the *Expand Your Horizon* programme experienced greater appearance satisfaction, functionality satisfaction, and body appreciation, and lower levels of self-objectification, compared to participants in the control programme. Partial eta-squared effect sizes were of small to medium magnitude. This study is the first to show that focusing on body functionality can improve body image and reduce self-objectification in women with a negative body image. These findings provide support for addressing body functionality in programmes designed to improve body image.

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Introduction

Approximately 60% of women have a negative body image (Tiggemann, 2004), which is characterised by negative feelings, cognitions, behaviours, and perceptions regarding an individuals' own body (Garner & Garfinkel, 1981; Rosen, Saltzberg, & Srebnik, 1989; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Negative body image is a risk factor for numerous unhealthy behaviours including fasting, self-induced vomiting, laxative misuse, and excessive exercise (Cafri et al., 2005; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006), and is associated with low self-esteem (Cash & Fleming, 2002a), depression (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006), impaired sexual functioning (Weaver & Byers, 2006), and a diminished quality of life (Cash & Fleming, 2002b). In addition, negative body image is a main risk factor for the development and maintenance of an

eating disorder (Stice, 2002) and predicts treatment response and relapse in women who have developed an eating disorder (Cash & Deagle, 1997; Rosen, 1996). For these reasons, negative body image is an important target for intervention. The current study evaluates a novel programme for improving body image, which centres on training women to focus on the functionality of their body.

What is Body Functionality?

Body functionality is an aspect of body image that refers to everything that the body can do (Abbott & Barber, 2010; Alleva, Martijn, Jansen, & Nederkoorn, 2014). It encompasses body functions related to physical capacities (e.g., stamina; Abbott & Barber, 2010; Franzoi, 1995; Franzoi & Shields, 1984), health and internal processes (e.g., digestion; Avalos & Tylka, 2006), as well as senses (e.g., sight), creative endeavours (e.g., dancing), self-care (e.g., showering), and communication with others (e.g., via body language; Alleva et al., 2014). Body functionality can also be seen as the "body as process" or "what is my body capable of?" component of body image, in contrast to physical appearance, which captures the "body as object" or "how do I look?" component of body image (Franzoi, 1995; Fredrickson & Roberts, 1997; see also Fox, 2003). In

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conceptualising body functionality, it is important to keep in mind that it is not limited to physical capacities, which would position body functionality as a construct that is restricted to able-bodied people (cf. Webb, Wood-Barcalow, & Tylka, 2015), but also encompasses many functions that fall under the other categories listed above.

How Might Focusing on Body Functionality Affect Women's Body Image?

Body functionality and body satisfaction. Several studies have demonstrated that focusing on body functionality is associated with higher levels of body satisfaction. For example, interviews with women (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010) and adolescents (Frisén & Holmqvist, 2010) who score high on measures of body satisfaction have shown that these individuals focus on the functionality of their body more than their appearance and actively strive to take care of their body's functions. In addition, across fitness interventions designed to improve body image, objective changes in fitness (e.g., muscle tone) explain less than 15% of variance in measures of body satisfaction (Martin Ginis & Bassett, 2011); it has been proposed that learning to focus on body functionality (more than appearance) may play a larger role in explaining in fitness-related improvements in body satisfaction (Boudette, 2006; Campbell & Hausenblas, 2009; Grogan, 2011; Martin & Lichtenberger, 2002). Indeed, in contrast to exercising for appearance-related reasons (e.g., weight control), exercising for functionality-related reasons (e.g., health) has been associated with higher levels of body satisfaction (e.g., DiBartolo, Lin, Montoya, Neal, & Shaffer, 2007; Gonçalves & Gomes, 2012; Hubbard, Gray, & Parker, 1998; Tiggemann & Williamson, 2000). Lastly, in an experimental study, Alleva et al. (2014) demonstrated that focusing on body functionality leads to improvements in body satisfaction (specifically, satisfaction with body functionality) in undergraduate men and 30–50 year old women.

Focusing on the functionality of the body may foster body satisfaction because it encourages individuals to positively “reframe” (e.g., Lambert, Graham, Fincham, & Stillman, 2009) the way that they think about their body. Whereas an appearance-based focus on the body often entails focusing on perceived imperfections (i.e., a negative orientation), which may cause individuals to feel less satisfied with their body, a functionality-based focus on the body entails focusing on what the body can do (i.e., a positive orientation), which may instead generate positive feelings towards the body (Alleva et al., 2014; Franzoi, 1995; Fredrickson & Roberts, 1997; Tylka & Wood-Barcalow, 2015). Further, common conceptions of appearance are often limited to few attributes (e.g., weight, measurements), whereas body functionality encompasses a diverse range of attributes from which people can derive satisfaction. In addition, in contrast to appearance, there is no overarching cultural ideal for body functionality, so focusing on body functionality might be less likely to evoke body-related social comparisons that can cause body dissatisfaction (Martin & Lichtenberger, 2002; Myers & Crowther, 2009).

Body functionality and body appreciation. Focusing on body functionality has also been related to *body appreciation*, which is an “unconditional approval and respect for the body” (Avalos & Tylka, 2006, p. 486). For instance, Avalos and Tylka (2006) demonstrated that a functionality-based focus on the body is related to greater body appreciation in samples of undergraduate women. Similarly, interviews with women who score high on measures of body satisfaction demonstrated that body appreciation was consistently linked with valuing body functionality (e.g., “A big thing with my body is that it allows me to do physical activity like hiking and biking;” Wood-Barcalow et al., 2010, p. 114). In addition, engaging in physical activity that emphasises the functionality of

the body has been related to higher levels of body appreciation (Langdon & Petracca, 2010; Swami & Tovée, 2009). Focusing on body functionality may encourage individuals to realise how their body facilitates (e.g., via physical movement), sustains (e.g., via digestion), and gives (e.g., via communicating with others) regarding various aspects of their life, which should foster feelings of appreciation for the body.

Body functionality and self-objectification. *Objectification theory* (Fredrickson & Roberts, 1997) proposes that women in Western societies are routinely sexually objectified; they are evaluated and valued predominantly based on their physical appearance, rather than on their body functionality and internal qualities (e.g., personality). In other words, women are seen as mere bodies, rather than as human beings (e.g., Haslam, Loughnan, & Holland, 2013; Heflick, Goldenberg, Cooper, & Puvia, 2011; Loughnan & Haslam, 2007; Vaes, Paladino, & Puvia, 2011). Experiences of sexual objectification routinely occur in interpersonal encounters (e.g., via the sexualised male gaze) and mass media (e.g., where women are portrayed with an emphasis on their body or body parts, rather than on their face; Archer, Iritani, Kimes, & Barrios, 1983; Fredrickson & Roberts, 1997; Halliwell, Malson, & Tischner, 2011). According to objectification theory, living in a cultural milieu of sexual objectification can socialise women to engage in *self-objectification*, meaning that they evaluate and value their own body based on appearance, from a third-person “observer perspective” instead of from a first-person perspective (Fredrickson & Roberts, 1997; Huebner & Fredrickson, 1999). Self-objectification, in turn, can lead to serious consequences such as negative body image, anxiety, depression, sexual dysfunction, and disordered eating (see Moradi & Huang, 2008, for a review).

Focusing on body functionality has been related to lower levels of self-objectification. For example, exercising for functionality-related reasons is associated with lower levels of self-objectification (e.g., Prichard & Tiggemann, 2008; Strelan, Mehaffey, & Tiggemann, 2003), as is engaging in physical activity that emphasises body functionality (Daubennier, 2005; Impett, Daubennier, & Hirschman, 2006; Prichard & Tiggemann, 2008; Tiggemann, Coutts, & Clark, 2014). Conversely, the more that women engage in self-objectification, the more they ‘disconnect’ from, and hold negative attitudes towards, their body functionality (e.g., by concealing signs of their menstruation or decreased awareness of internal bodily signals; Fredrickson & Roberts, 1997; Moradi & Huang, 2008; Roberts & Waters, 2004; Roberts, 2000). Theoretically, a focus on body functionality is “antithetical” to self-objectification, which entails emphasising appearance over body functionality (Roberts & Waters, 2004; Webb et al., 2015). Focusing on body functionality may therefore decrease self-objectification because it encourages women to think of their body as active, dynamic, and instrumental, and consequently discourages them from thinking of their body as passive, static, and aesthetic (Abbott & Barber, 2010; Fredrickson & Roberts, 1997; Moradi & Huang, 2008; Tiggemann, 2001; Tylka & Augustus-Horvath, 2011).

The Current Study

The aim of the current study is to investigate whether a programme designed to teach women to focus on the functionality of their body can increase levels of body satisfaction and body appreciation, and reduce levels of self-objectification. To do so, we created the *Expand Your Horizon* programme, which trains women to focus on the functionality of their body using three structured writing assignments (see Supplementary Material). Although a handful of body image interventions include aspects related to body functionality, such as encouraging participants to engage in nonappearance-related experiences that induce a feeling of mastery or pleasure (e.g., Cash, 2008; Fisher & Thompson, 1994;

McLean, Paxton, & Wertheim, 2011), these aspects are small parts of broader intervention programmes. *Expand Your Horizon* is unique in the extent of its focus on body functionality, and thus provides insight into the specific (causal) effects of focusing on body functionality on changes in women's body image.

We administered the *Expand Your Horizon* programme to a sample of 18–30-year-old women with a negative body image, and employed a randomised controlled design with an active control group and pretest, posttest, and one-week follow-up measurements. Based on the foregoing discussion of the relation between focusing on body functionality and higher levels of body satisfaction (e.g., Wood-Barcalow et al., 2010) and body appreciation (e.g., Avalos & Tylka, 2006), and lower levels of self-objectification (e.g., Roberts & Waters, 2004), we hypothesised that participants who receive the *Expand Your Horizon* programme will experience: (1) improvements in body satisfaction, (2) an increase in body appreciation, and (3) a decrease in self-objectification, at both posttest and follow-up, compared to participants who receive the control programme.

Method

Participants

Women had to be between 18 and 30 years and have a sum score of ≥ 90 on the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) to be included in the study (cf. McLean et al., 2011). A total of 167 women expressed interest in the study, of which 145 filled in the BSQ. Eighty-seven women were eligible but six no longer responded to our e-mails. Therefore, 81 women participated in the study; 41 were randomised to the functionality group (i.e., the *Expand Your Horizon* programme) and 40 were randomised to the control group. Participants were between 18 and 30 years ($M = 22.77$, $SD = 3.19$) with a body mass index (BMI; BMI = weight in kilograms/height in metres squared) between 18.56 and 37.09 ($M = 23.26$, $SD = 2.94$). Note that BMI could not be calculated for 14 participants because they did not provide information about their height and/or weight (height and weight were self-reported). Participants' BSQ scores ranged between 90 and 160 ($M = 117.65$, $SD = 19.69$). Most participants identified as heterosexual ($n = 74$); two participants identified as lesbian, two identified as bisexual, and three did not provide information about their sexual orientation. The majority of participants ($n = 55$) were university students.

Measures

Screening measure. As aforementioned, the BSQ (Cooper et al., 1987) was used to assess women's eligibility to participate in the study. The BSQ contains 34 items (e.g., "Have you felt so bad about your shape that you have cried?"), rated on a 6-point scale (1 = *never* to 6 = *always*), that assess individuals' concerns about their body shape. Scores on the items of the BSQ are summed, with higher scores reflecting higher levels of body concern. The BSQ was chosen as a screening measure because it measures *trait* levels of body concern, is relatively quick and easy to complete, and has demonstrated good internal consistency and construct validity (Cooper et al., 1987; McLean et al., 2011).

Body satisfaction. Body satisfaction was measured using items from two questionnaires: Items from the Multidimensional Body-Self Relations Questionnaire – Appearance Subscales (MBSRQ-AS; Brown, Cash, & Mikulka, 1990; Cash, 2000) were used to measure satisfaction with physical appearance, and items from the Body Esteem Scale (BES; Franzoi & Shields, 1984) were used to measure satisfaction with body functionality.

The MBSRQ-AS consists of 34 items and comprises five subscales: Appearance Evaluation, Appearance Orientation, Body Areas Satisfaction, Overweight Preoccupation, and Self-Classified Weight. For the purpose of this study, only items of the Appearance Evaluation Subscale (seven items; e.g., "I like my looks just the way they are") and the Body Areas Satisfaction Subscale (nine items; e.g., satisfaction with weight) were administered (cf. Cash, 2000). The Appearance Evaluation Subscale is rated from 1 = *definitely disagree* to 5 = *definitely agree*, and the Body Areas Satisfaction Subscale is rated from 1 = *very dissatisfied* to 5 = *very satisfied*. We averaged scores on the items of these two subscales to create an index of appearance satisfaction; higher scores indicate greater appearance satisfaction. In women, the Appearance Evaluation Subscale and the Body Areas Satisfaction Subscale demonstrated good internal consistency and one month test–retest reliability (Cash, 2000). In our sample, the internal consistency of the items of these two subscales (combined) at pretest, posttest, and follow-up was, respectively, $\alpha = .83$, $.89$, and $.91$.

The BES measures satisfaction with 35 body attributes that are rated on a 5-point scale (1 = *strongly dislike* to 5 = *strongly like*), and consists of three subscales for women: Sexual Attractiveness, Weight Concern, and Physical Condition. For the purpose of this study, only the Physical Condition Subscale (nine items) was administered. Scores on the items of this subscale (e.g., health, energy level) were averaged, with higher scores reflecting greater functionality satisfaction. The BES evidenced adequate internal consistency and construct validity in female undergraduates (Franzoi & Herzog, 1986; Franzoi & Shields, 1984). In this study, the internal consistency of the Physical Condition Subscale at pretest, posttest, and follow-up was, respectively, $\alpha = .83$, $.88$, and $.90$.

Body appreciation. The Body Appreciation Scale (BAS; Avalos, Tylka, & Wood-Barcalow, 2005) was used to measure body appreciation. The BAS consists of 13 items (e.g., "I respect my body") that are rated on a 5-point scale (1 = *never* to 5 = *always*). Scores on the 13 items were averaged; higher scores indicate greater body appreciation. In female undergraduates, the BAS demonstrated good internal consistency, three week test–retest reliability, and construct validity (Avalos et al., 2005). In our sample, the internal consistency of the BAS at pretest, posttest, and follow-up was, respectively, $\alpha = .86$, $.90$, and $.91$.

Self-objectification. The Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998) and the Objectified Body Consciousness Scale (OBC; McKinley & Hyde, 1996) were used to measure self-objectification. The SOQ instructs participants to rank 10 body attributes according to how important they are to their physical self-concept, ranging from *least important* to *most important*. Five of the attributes are related to appearance (e.g., weight) and five are related to functionality (e.g., health). In scoring the SOQ, participants' most important attribute is given a score of 9, the second-most important attribute is given a score of 8, the third-most important attribute is given a score of 7, and so on (with the lowest-ranked attribute given a score of 0). Then, the sum of the scores for the functionality-related attributes is subtracted from the sum of the scores for the appearance-related attributes. Final SOQ scores range from –25 to 25, with higher scores reflecting higher levels of self-objectification. The SOQ demonstrated satisfactory construct validity in female undergraduates (Noll & Fredrickson, 1998).

The OBC consists of 24 items that are measured on an 8-point scale (1 = *strongly disagree* to 7 = *strongly agree*, with a "does not apply" response option) and comprises three subscales: Body Surveillance, Body Shame, and Control Beliefs. For the purpose of this study, only the Body Surveillance Subscale (eight items) was used. Scores on the items of this subscale (e.g., "During the day, I think about how I look many times") were averaged, with

higher scores reflecting a stronger tendency to think of the body in terms of appearance. In female undergraduates, the OBC evidenced good internal consistency and construct validity (McKinley & Hyde, 1996). In our sample, the internal consistency of the Body Surveillance Subscale at pretest, posttest, and follow-up was, respectively, $\alpha = .72$, $.82$, and $.81$.

Procedure

Participants were recruited using advertisements on university and college campuses, at supermarkets, gyms, and libraries, and two participant recruitment websites (i.e., websites that individuals can use to search for studies that they can participate in), for a study about “body image improvement programmes.” When women expressed interest in the study, they filled in an electronic version of the BSQ and were invited to participate if they met the cut-off score. Note that participants were aware that the study comprised two programmes and that they would be randomised to one of the two. However, participants were not given information about the content of the programme until they were randomised to either the functionality or control group (using Graph Pad Software, 2012). The entire study took place online using Qualtrics Research Suite (Qualtrics, 2013), via which participants could electronically fill in the measures as well as type and submit their writing assignment responses. First, participants signed an electronic informed consent sheet and then completed the pretest measures and first writing assignment. Two days later, participants completed the second writing assignment. Two days afterward, they completed the third writing assignment and then they immediately completed the posttest measures. One week later, participants completed the follow-up measures. All measures were administered at all three time points. Participants received reminder e-mails 24 h before each test day and if they did not complete the measures and writing assignments on time. Note that Qualtrics Research Suite affords researchers direct insight into the completeness and content of participants’ writing assignment responses and questionnaire data. In addition, for each writing assignment participants reported the time that they started writing and the time that they finished writing. At the end of the study, participants were debriefed and received a 10 Euro voucher. Ethical approval was obtained by the ethics committee of Maastricht University.

The Programmes

The *Expand Your Horizon* programme consists of three structured writing assignments. At the start of the programme, participants are given a brief introduction to body functionality – including a list of examples of body functions – and why it is important. Each of the three writing assignments focuses on two different areas of body functionality: The first focuses on the body’s senses and physical capacities, the second focuses on health and creative endeavours, and the third focuses on self-care and communication with others. Participants may refer back to the list of body functions throughout the programme. For each writing assignment, participants describe the functions that their body performs (regarding the respective areas of body functionality) and why they are personally important and meaningful to them. The guidelines are that participants should: (1) try to write for at least 15 min, (2) not stop writing once started, and (3) reread what they have written once finished writing (note that they are not given instruction to edit their response). Participants are reminded not to worry about spelling or grammar, and that their response will be unique because everyone’s body is different (see Supplementary Material to access the materials of the *Expand Your Horizon* programme).

The active control programme was a “creativity training programme.” The first writing assignment provided an introduction to

the concept of creativity and why it is important to develop creative skills (e.g., for fostering overall well-being). Participants were told that the programme would help them to improve their creative skills by working on a series of fictional short stories. The first writing assignment instructed participants to select a main character (not themselves), setting, and plot for their story, and to write using as much detail as possible. In the second and third writing assignments, participants were instructed to choose a different main character, setting, and plot than they did in the previous writing assignment(s). The three guidelines for the *Expand Your Horizon* programme (mentioned above) were also used for this active control programme.

Statistical Analyses

The data were analysed in a series of 2 (Group: functionality vs. control) \times 2 (Time: posttest vs. follow-up) mixed repeated measures ANCOVAs, with grand-mean centred pretest scores on the respective outcome as covariate (that is, for each outcome, the sample mean was subtracted from each individual’s score on that outcome). This method of analysis (i.e., using grand-mean centred pretest scores as covariate) is superior to analysing the data with pretest as a repeated measure because it increases the power and reduces the risk of Type I errors arising from multiple testing (Van Breukelen, 2013; see Van Breukelen & Van Dijk, 2007, for details about this method of analysis).

As a *first step* for each analysis, we checked the presence of Group \times Time \times Pretest and Group \times Pretest interactions. These interactions were not significant for any of the outcomes and were therefore excluded from the statistical models. The analyses were then rerun in a *second step* with only the Group \times Time and Time \times Pretest interactions, as well as the main effects of Group, Time, and Pretest. Additionally, each of these analyses was rerun with BMI as a covariate; however, adding BMI as a covariate did not affect the results, and there were no Group \times BMI interactions. The reported results are therefore based on the statistical models without BMI.

For the primary outcome (body satisfaction: appearance and functionality satisfaction) an alpha of .05 was chosen; to control for multiple testing, a stricter alpha of .01 was chosen for the secondary outcomes (body appreciation and self-objectification; Howell, 2009). To control for attrition bias, we conducted intention-to-treat analyses where missing data were imputed using participants’ corresponding data at the previous time point. Outliers were defined as values that were more than 3 SD above or below the group mean; these values were replaced with the boundary values identified (i.e., the group mean plus or minus 3 SD). We calculated partial eta-squared as effect sizes for each main effect and interaction effect, where $\eta_p^2 = .01$, $.06$, and $.14$ constitute small, medium, and large effect sizes, respectively. It can be shown that for the Group main effect of interest these values correspond to values of Cohen’s *d* effect size equal to 0.20, 0.50 and 0.80, respectively (Cohen, 1988). Partial eta-squared was chosen instead of Cohen’s *d* because the latter is defined only for a between-subject effect, not for within-subject effects or interaction effects.

Results

Missing Data, Outliers, and Pretest Scores

Three participants ($N_{\text{functionality}} = 2$) dropped out after pretest, and one participant in the functionality group dropped out halfway through the online follow-up measurement. The resulting missing values were imputed as aforementioned to include all participants in the analyses. Two outliers were identified and replaced: One

Table 1
Pretest, posttest, and follow-up scores for the functionality and control groups.

	Functionality group (N=41) M (SD)	Control group (N=40) M (SD)
Appearance satisfaction (MBSRQ-AS)		
Pretest	2.70 (0.47)	2.52 (0.52)
Posttest	2.92 (0.55)	2.61 (0.58)
Follow-up	3.02 (0.57)	2.68 (0.63)
Functionality satisfaction (BES-PC)		
Pretest	3.33 (0.62)	3.20 (0.76)
Posttest	3.50 (0.60)	3.11 (0.66)
Follow-up	3.54 (0.64)	3.24 (0.72)
Body appreciation (BAS)		
Pretest	3.05 (0.53)	2.83 (0.56)
Posttest	3.28 (0.57)	2.88 (0.61)
Follow-up	3.33 (0.63)	2.93 (0.65)
Self-objectification (SOQ)		
Pretest	4.89 (13.85)	5.89 (10.22)
Posttest	-2.09 (15.50)	5.81 (10.44)
Follow-up	0.03 (14.06)	4.44 (9.32)
Self-objectification (OBC-BS)		
Pretest	5.28 (0.81)	5.45 (0.68)
Posttest	5.03 (0.88)	5.26 (0.92)
Follow-up	5.05 (0.89)	5.28 (0.78)

Note. MBSRQ-AS = Multidimensional Body-Self Relations Questionnaire – Appearance Scales; BES-PC = Body Esteem Scale: Physical Condition Subscale; BAS = Body Appreciation Scale; SOQ = Self-Objectification Questionnaire (note that scores range from -25 to 25); OBC-BS = Objectified Body Consciousness: Body Surveillance Subscale.

outlier was in the functionality group and concerned pretest data for functionality satisfaction; the second was in the control group and concerned posttest data for self-objectification (OBC Body Surveillance Subscale). Table 1 presents pretest, posttest, and follow-up scores on all outcomes for the functionality and control groups. As expected given the randomisation of participants to condition, there was no significant group difference on any outcome at pretest: appearance satisfaction, $F(1, 79) = 2.43, p = .12, \eta_p^2 = .03$; functionality satisfaction, $F(1, 79) = 0.670, p = .42, \eta_p^2 = .01$; body appreciation, $F(1, 79) = 3.01, p = .09, \eta_p^2 = .04$; self-objectification (SOQ), $F(1, 75) = 0.06, p = .81, \eta_p^2 = .001$; and self-objectification (OBC Body Surveillance Subscale), $F(1, 79) = 1.07, p = .30, \eta_p^2 = .01$.

Adherence to Programme Instructions

The content of participants' writing assignment responses was checked and the self-reported time spent on each writing assignment was calculated. The content of all participants' writing assignment responses was in line with the instructions of their respective programme. For all three writing assignments there was no group difference in the amount of self-reported time spent writing, all $ps > .05$.

Body Satisfaction

With regard to appearance satisfaction, the analyses revealed a significant main effect of Group, $F(1, 78) = 4.44, p = .038, \eta_p^2 = .05$, indicating that, overall, participants in the functionality group felt more satisfied with their appearance than participants in the control group. The difference in appearance satisfaction between groups was the same at posttest as at follow-up, as demonstrated by the nonsignificant Group \times Time interaction, $F(1, 78) = 0.26, p = .61, \eta_p^2 = .003$. That is, at both posttest and follow-up, participants in the functionality group were more satisfied with their appearance than participants in the control group. There was also a significant main effect of Time, $F(1, 78) = 7.66, p = .007, \eta_p^2 = .09$, indicating that, overall, participants in both groups felt more satisfied with their appearance at follow-up than at posttest. This effect neither

depended on participants' pretest scores, as demonstrated by the nonsignificant Time \times Pretest interaction, $F(1, 78) = 0.04, p = .838, \eta_p^2 = .001$, nor on their Group, as demonstrated by the nonsignificant Time \times Group interaction.

With regard to functionality satisfaction, the results showed a significant main effect of Group, $F(1, 78) = 9.48, p = .003, \eta_p^2 = .11$, indicating that, overall, participants in the functionality group felt more satisfied with their body functionality than participants in the control group. Again, this difference was the same at both posttest and follow-up, as demonstrated by the nonsignificant Group \times Time interaction, $F(1, 78) = 0.07, p = .283, \eta_p^2 = .02$. The results also showed a significant main effect of Time, $F(1, 78) = 4.82, p = .031, \eta_p^2 = .06$, indicating that, overall, participants in both groups felt more satisfied with their body functionality at follow-up than at posttest. This effect did not depend on participants' pretest scores, as demonstrated by the nonsignificant Time \times Pretest interaction, $F(1, 78) = 0.001, p = .977, \eta_p^2 < .001$, or on their Group, as demonstrated by the nonsignificant Time \times Group interaction.

Body Appreciation

The results showed that participants in the functionality group experienced greater body appreciation than participants in the control group, Group, $F(1, 78) = 6.46, p = .013, \eta_p^2 = .08$, although this effect was only marginally significant at $p < .01$. As in the former analyses, the group difference was the same at both time points, Group \times Time, $F(1, 78) = 0.004, p = .950, \eta_p^2 < .001$. The main effect of Time, $F(1, 78) = 2.33, p = .131, \eta_p^2 = .03$, was nonsignificant, showing that, overall, there were no changes in body appreciation from posttest to follow-up. The Time \times Pretest interaction, $F(1, 78) = 0.23, p = .634, \eta_p^2 = .003$, was also nonsignificant.

Self-Objectification

SOQ. These analyses were conducted with 62 participants ($N_{\text{functionality}} = 35$) because data were excluded from participants who did not fill in the SOQ correctly at one or more time points (cf. Noll & Fredrickson, 1998). The main effect of Group, $F(1, 59) = 7.22, p = .009, \eta_p^2 = .11$, was significant, showing that, overall, participants in the functionality group experienced lower levels of self-objectification than participants in the control group. At both posttest and follow-up, participants in the functionality group experienced lower levels of self-objectification than participants in the control group, Group \times Time, $F(1, 59) = 3.19, p = .079, \eta_p^2 = .05$. The main effect of Time, $F(1, 59) = 0.14, p = .711, \eta_p^2 = .002$, was nonsignificant, demonstrating that, overall, there were no changes in self-objectification from posttest to follow-up. The Time \times Pretest interaction, $F(1, 59) = 0.14, p = .714, \eta_p^2 = .002$, was also nonsignificant.

Given the large amount of missing data for this outcome, we mimicked these analyses using mixed regression to check if the results could be replicated when all participants with at least posttest or follow-up data for the SOQ ($N = 77$) could be included in the analyses (which is possible with mixed regression but not with ANOVA; see Van Breukelen, 2013, for details). These results confirmed those of the original analyses. Further, given the absence of both a main effect of Time and a Group \times Time effect, a reasonable alternative method was to solve the problem of missing data by calculating, per participant, the average of posttest and follow-up data. This allowed us to conduct an ANCOVA analysis with $N = 77$, where Group was entered as a predictor variable and Pretest was entered as a covariate. This analysis also confirmed the original analyses, demonstrating that participants in the functionality group experienced lower levels of self-objectification than participants in the control group, $F(1, 74) = 7.95, p = .006$.

OBC (Body Surveillance Subscale). The main effect of Group, $F(1, 77) = 0.45, p = .503, \eta_p^2 = .01$, was nonsignificant. The main effect of Time, $F(1, 77) = 0.25, p = .622, \eta_p^2 = .002$, as well as the interaction effects of Group \times Time, $F(1, 77) = 0.07, p = .787, \eta_p^2 = .001$, and Time \times Pretest, $F(1, 77) = 2.58, p = .113, \eta_p^2 = .03$, were also nonsignificant.

Discussion

This study evaluated the *Expand Your Horizon* programme: a novel programme designed to improve body image by training women to focus on the functionality of their body. Compared to participants in the control programme, participants who took part in the *Expand Your Horizon* programme experienced higher levels of appearance satisfaction and functionality satisfaction, and lower levels of self-objectification. In addition, they tended to feel greater appreciation for their body. These findings are in line with the prior literature that suggested that focusing on body functionality can have beneficial effects on women's body image.

First, the finding that the *Expand Your Horizon* programme led to increases in body satisfaction provides experimental support for the correlational and interview-based studies that demonstrated a relation between focusing on body functionality and higher levels of body satisfaction (e.g., Frisén & Holmqvist, 2010; Tiggemann & Williamson, 2000; Wood-Barcalow et al., 2010). Focusing on the functionality of the body may encourage individuals to positively reframe the way that they think about their body, thus shifting their orientation from negative (appearance-focused) to positive (functionality-focused; Alleva et al., 2014; Franzoi, 1995; Fredrickson & Roberts, 1997; Tylka & Wood-Barcalow, 2015). In this sense, the *Expand Your Horizon* writing assignments may work in a similar fashion as fitness-based interventions (Martin & Lichtenberger, 2002), although it is possible that the present writing assignments make this shift more explicit and consequently encourage participants to shift their orientation with explicit cognitive effort. It must be mentioned, however, that focusing on body functionality may not necessarily entail a positive orientation for every individual. Some aspects of body functionality may be perceived less positively, for instance if someone strives to become a professional athlete, suffers from chronic pain, or has a physical disability. These individual differences should be investigated in future research. Nevertheless, given the fact that body functionality encompasses several areas (i.e., it is not limited to physical capacities; Webb et al., 2015), each with several different aspects, dissatisfaction with one area or aspect may be less likely to 'spread' and affect an individual's overarching evaluation of his or her body functionality.

Second, the fact that the *Expand Your Horizon* programme led to improvements in body appreciation supports the prior studies that demonstrated a relation between a functionality-based focus on the body and greater levels of body appreciation (e.g., Avalos & Tylka, 2006; Langdon & Petracca, 2010; Swami & Tovée, 2009). Focusing on body functionality may foster body appreciation because many areas (e.g., health) and aspects (e.g., absorbing vitamins) of body functionality are important – and often central – to leading a normal and fulfilling life; contemplating this fact should generate appreciation and gratitude for one's own body. This notion has also been expressed by participants in prior interview-based studies (e.g., "Just be glad that you do have a body that's healthy and working properly. Just be glad that you're able to do the things you are;" Wood-Barcalow et al., 2010, p. 114). In-depth content-based analyses of individuals' responses to the *Expand Your Horizon* writing assignments may provide additional insight into this relationship.

Lastly, the present findings show that focusing on body functionality leads to lower levels of self-objectification; this lends

experimental support to the prior studies that demonstrated this relationship using correlational research (e.g., Daubemier, 2005; Prichard & Tiggemann, 2008). It is also noteworthy that the *Expand Your Horizon* programme had a medium-sized effect on self-objectification ($\eta_p^2 = .11$). These findings are promising because they demonstrate that self-objectification – which many women habitually engage in (Fredrickson & Roberts, 1997) and which has been shown to have serious consequences for well-being (Moradi & Huang, 2008) – can be effectively counteracted, at least on the short term. Furthermore, sexual objectification of women is ubiquitous in Western culture, and will likely take time and extensive effort to change (Tylka & Augustus-Horvath, 2011). Therefore, it is also promising that this technique might provide women with an individual-level strategy to buffer these persistent societal-level influences. Future studies could investigate, experimentally, whether focusing on body functionality can prevent the negative effects of exposure to sexual objectification (e.g., media images of sexually objectified women).

It is important to note that the reductions found in self-objectification in this study were only found with regard to the SOQ – no changes in self-objectification were found with regard to the Body Surveillance Subscale of the OBC. Findings from the SOQ and OBC Body Surveillance Subscale have varied in previous research as well (Moradi & Huang, 2008). The divergence found in this study might be caused by the different aspects captured by each questionnaire. The SOQ asks individuals to rank functionality and appearance-based body attributes according to how important they are for their physical self-concept. Thus, individuals make reflective, controlled decisions when filling in the SOQ. In contrast, many items of the Body Surveillance Subscale of the OBC capture thought tendencies that might occur automatically and without conscious control, such as the tendency to make social comparisons (Mussweiler, Rüter, & Epstude, 2004; e.g., "I rarely compare how I look with how other people look"). It could be that the *Expand Your Horizon* programme helped participants realise that appearance is less important than body functionality, but that this change did not yet translate to improvements in habitual thoughts about their body. Future research may elucidate these differences by including longer-term follow-up measurements.

Another important direction for future research will be to investigate the potential mechanisms and relationships that underlie the functionality-based approach to improving body image. For example, given that a functionality-based focus on the body is "antithetical" to self-objectification (Roberts & Waters, 2004; Webb et al., 2015), focusing on body functionality may directly reduce self-objectification, which in turn could lead to improvements in body satisfaction and body appreciation. In fact, Tiggemann et al. (2014) have shown that engaging in belly dancing (a form of dance that emphasises body functionality; Tiggemann et al., 2014) is associated with greater body appreciation via reductions in self-objectification. Another possibility is that focusing on body functionality may directly increase body appreciation, which should foster positive feelings towards the body and decrease levels of self-objectification; this is because body appreciation entails an unconditional approval of the body – irrespective of perceived imperfections – and an emphasis on body functionality over appearance (Avalos & Tylka, 2006; Tylka, 2011; Wood-Barcalow et al., 2010).

More broadly, it is also possible that, for women with a negative body image, writing about the functionality of their body could highlight a discrepancy between their beliefs (e.g., that their body is inadequate) and behaviour (e.g., writing about the many capabilities of their body). According to cognitive dissonance theory (Festinger, 1957), this discrepancy should create psychological discomfort, or *cognitive dissonance*. Consequently, women with a negative body image might alter their cognitions in order to alleviate this

cognitive dissonance, which could lead to improvements in body image (e.g., Halliwell & Diedrichs, 2014; Stice, Trost, & Chase, 2002). This same situation could also be explained from the perspective of self-perception theory (Bem, 1972): Women with a negative body image might infer their body-related attitudes based on their behaviour (e.g., “I was able to describe all of these positive aspects about my body, so perhaps I do not feel so bad about my body after all”). Future studies that investigate these and other potential relations and mechanisms will contribute to an improved understanding of body functionality and how to foster a healthy body image.

Strengths and Limitations

The main strengths of the current study are that it tests a novel approach to improving body image and focuses on body functionality, an understudied aspect of body image (Smolak & Cash, 2011). In addition, we tested a group of women with a negative body image, employed an active control group, and only four participants dropped out of the study. The *Expand Your Horizon* programme is also relatively inexpensive and easy to administer (via the Internet), and requires less than one hour of participants' time. Further, the *Expand Your Horizon* programme encourages women to focus on what their body is capable of, rather than on perceived imperfections or negative feelings and cognitions, and therefore contributes to a growing literature on positive body image (Halliwell, 2015; Tylka, 2011; Tylka & Wood-Barcalow, 2015; Webb et al., 2015).

This study also has its limitations, however. At pretest, we did not measure participants' expectations about the programme that they were randomised to. It could be that participants in the *Expand Your Horizon* programme expected greater improvements in body image than participants in the control programme, who may have been less convinced that a creativity training programme could affect their body image. In addition, as with all studies that investigate an intervention programme, it is possible that our findings resulted in part from demand characteristics. The inclusion of an active control group should have reduced the impact of demand characteristics on our results, but future research may benefit from an active control programme with a theme that is more closely related to body image. Also, although we were able to check participants' writing assignment responses (to ensure that they complied with the instructions of their respective programme), the amount of time participants spent on the writing assignments was self-reported, so participants might have misreported this information. Future research should implement methods to register this information objectively.

A further limitation of this study concerns the instrument that was used to measure satisfaction with body functionality, the Physical Condition Subscale of the BES. The Physical Condition Subscale only focuses on two areas of body functionality: physical capacities and health. To our knowledge, an instrument measuring satisfaction with body functionality in the broader sense (i.e., incorporating other areas of body functionality) does not yet exist (Webb et al., 2015). To progress research on body functionality, it is important to create and validate such a questionnaire. Further, it will be important to consider improvements to the *Expand Your Horizon* programme that may increase the magnitude of its effects on body image. One possibility is to administer ‘booster’ writing assignments after completion of the initial programme. Lastly, we tested ‘high-risk’ women between the age of 18 and 30, so it is an unanswered question whether the programme will have similar effects in ‘low-risk’ samples, different age groups, or in men. It is also unclear whether the effects of the *Expand Your Horizon* programme are long-lasting, as we included a one-week follow-up. Future studies using longer-term follow-ups are necessary.

Conclusion

In sum, the current study provides support for a promising technique for improving body image and decreasing self-objectification – namely, training women to focus on the functionality of their body. This study also provides the first experimental evidence that focusing on body functionality can increase body satisfaction and body appreciation and reduce self-objectification in women with a negative body image. Future research should be directed at improving the *Expand Your Horizon* programme and investigating the mechanisms that underpin this approach. This study underlines the statements of other scholars (e.g., Smolak & Cash, 2011; Tylka & Wood-Barcalow, 2015) that body functionality is an important construct that merits further attention.

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Appendix. Supplementary material

Supplementary material associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.bodyim.2015.07.001>.

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