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### Original Article

# Body Image and Body Type Preferences in St. Kitts, Caribbean: A Cross-Cultural Comparison with U.S. Samples Regarding Attitudes Towards Muscularity, Body Fat, and Breast Size

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**Abstract:** We investigated body image in St. Kitts, a Caribbean island where tourism, international media, and relatively high levels of body fat are common. Participants were men and women recruited from St. Kitts ( $n = 39$ ) and, for comparison, U.S. samples from universities ( $n = 618$ ) and the Internet ( $n = 438$ ). Participants were shown computer generated images varying in apparent body fat level and muscularity or breast size and they indicated their body type preferences and attitudes. Overall, there were only modest differences in body type preferences between St. Kitts and the Internet sample, with the St. Kitts participants being somewhat more likely to value heavier women. Notably, however, men and women from St. Kitts were more likely to idealize smaller breasts than participants in the U.S. samples. Attitudes regarding muscularity were generally similar across samples. This study provides one of the few investigations of body preferences in the Caribbean.

**Keywords:** attractiveness, body image, breast size, cross-cultural, fatness, muscularity

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### Introduction

A considerable literature has focused on human body type preferences. The origins of these preferences are often conceptualized within an evolutionary perspective. The existing work indicates that a person's physical attractiveness influences a wide variety of personal experiences, including mating opportunities and job opportunities (e.g., Buss, 1989; Langlois et al. 2000). The importance placed on physical attractiveness leads many people to express dissatisfaction with their overall appearance or weight, particularly among heavier men and women (Frederick, Forbes, Grigorian, and Jarcho, 2007; Frederick et al. 2006; Peplau et al. 2009).

Little is known, however, regarding preferences for different body types and body dissatisfaction in the Caribbean. Here we investigate body dissatisfaction and the specific body types that men and women find attractive in St. Kitts, an island with a population of about 35,000 people of primarily African descent, and how these preferences compare to those found in the U.S. In this study we investigate specifically attitudes towards women's breast size and body fat level, and attitudes towards men's muscularity and body fat levels.

Research on Caribbean body image and body type preferences is important for at least two reasons. First, Caribbean societies have been influenced by multiple cultures with conflicting ideologies regarding body weight. Many Caribbean cultures are heavily influenced by an African heritage, and body fat has been traditionally valued in many African cultures. These values clash with the American media and cultural influences favoring thinness, leading to the question of whether thinness or fatness is valued more in St. Kitts. Second, the influence of U.S. tourism and media influence are continually expanding at the same time that there is a growing prevalence of people in St. Kitts who are classified as "overweight" or "obese" by current U.S. body weight standards. This study provides the rare opportunity to examine body image in the Caribbean at a time when St. Kitts is experiencing multiple cultural influences.

#### *Attitudes Towards Women's Body Fat Levels and Breasts*

The valuation of slender bodies in the West is well documented. In one classic study, Fallon and Rozin (1985) used hand-drawn images varying in overall body size to show that women wanted to be thinner, and men preferred women who were thinner than average. These results have been widely replicated using these and similar scales (e.g., Thompson and Gray, 1995), although these scales have the limitation of confounding breast size and body fat level (as body fat level increases, so does breast size).

There is cross-cultural variation in preference for female fatness. In evolutionary-relevant subsistence and reproductive contexts, body fat provides protection against periods of famine and provides women with extra energy available during pregnancy and lactation, when the body requires greater caloric intake (Ellison, 2001). In less socioeconomically developed ("traditional" or non-Western) societies, plumpness is (or was) linked with fertility, sexuality, and attractiveness (e.g., Brown, 1991; Teti, 1995). For instance, a number of authors have reported on the existence of 'milking huts' in parts of Africa and the South Pacific, where adolescents from elite families are fed high-fat diets in preparation for marriage (e.g., Popenoe, 2003). In Fiji, large and robust bodies were traditionally considered aesthetically pleasing and people were encouraged to eat heartily through ideals such as "kana, mo urouro" or "eat, so you will become fat" (Becker, 2004). Numerous studies have found that individuals in less socioeconomically developed societies positively evaluate overweight, and sometimes obese, line-drawn and photographic figures (e.g., Frederick, Forbes, and Berezovskaya, 2008; Furnham and Baguma, 1994; Rguibi and Belahsen, 2006; Swami and Tovée, 2005; Tovée, Swami, Furnham, and Mangalparsad, 2006; for a brief review see Swami and Frederick et al., 2010). Individuals in these cultures are also less likely than those in developed societies to perceive themselves as overweight or obese, even when they are very large (e.g., Brewis, McGarvey, Jones, and Swinburn, 1998). Indeed, as shown in one study of body type preferences in 41 sites across

10 world regions, fatter women were preferred far more in rural non-western sites compared to industrialized countries (Swami and Frederick et al., 2010).

Although preferences for body fat have been widely examined, research on attitudes regarding breast size has been much less extensive, both in industrialized and non-industrialized cultures. Breast enlargement is an unusual feature in primates and the evolutionary function of this enlargement is not completely clear (Gallup and Frederick, 2010), but enlarged breasts may be used by men as a cue that a woman has reached puberty and has reproductively-relevant caloric stores available via stored body fat (Gallup, 1982).

Regardless of the evolutionary origin of breast size, it is clear that Western media emphasize the attractiveness of large breasts, and breasts are widely presented for evaluation and objectification in the popular media. The focus placed on women's breasts has led many women to feel that their breasts are either too small or too large (Forbes and Frederick, 2008; Forbes et al., 2006; Harrison, 2003; Jacobi and Cash, 1994; Tantleff-Dunn and Thompson, 2000; Thompson and Tantleff, 1992). For example, Frederick, Peplau, and Lever (2008) found that most women (70%) were not satisfied with the size or shape of their breasts. In terms of their top concern, 28% of women desired larger breasts, 9% desired smaller, and 33% indicated that their biggest issues with their breasts were that they were too droopy. Among men, in terms of their top concern with their partner's breasts, 20% wished their partner had larger breasts, 20% wished they were less droopy, 4% wished they were smaller, and 56% were satisfied.

One method for assessing attitudes regarding breast size uses hand-drawn silhouettes of women varying in breast size while body fat level is held constant. In these studies, women indicated their current and ideal breast size and men indicate the typical breast size and what they find most attractive. On average, women desired larger breasts and men desired breasts that are larger than average, but preferences did not extend to the highest end of the breast size continuum displayed (Tantleff-Dunn and Thompson, 2000; Thompson and Tantleff, 1992). These studies are valuable but have some limitations. First, they relied on silhouette representations of women. Second, they did not investigate the interactions of breast size and body fat (e.g., are smaller breasts more attractive on thinner women?).

#### *Attitudes Towards Men's Muscularity and Body Fat Level*

The popular media routinely represents men who are muscular and toned as being prestigious and attractive (Frederick, Fessler, and Haselton, 2005). Upper body strength and muscularity is one of the most dramatic sex differences in humans: on average, men have a substantial 61% more muscle mass than women (Cohen's  $d = 3$ ) and about 90% greater upper body strength, meaning that over 99% of women fall below the male average (see Lassek and Gaulin, 2009, for a brief review). Greater reliance on physical combat in dominance competition, intergroup warfare, and large game hunting likely contributed to the development of greater muscle mass in men (e.g., see Dixon, 2009; Puts, 2010).

Given the potential benefits of having a partner with muscularity in terms of defense and provisioning, and because the ability to gain muscularity is heritable, women may have evolved a bias to attend to male muscularity in mate selection (e.g., Frederick and Haselton, 2007; Snyder, Fessler, Tiokhin, Frederick, Lee, and Navarette, 2011). The

initial difference in muscularity among men and women is likely exaggerated by cultural factors favoring athletic competence in men and negative attitudes towards women with high levels of muscularity.

In terms of body image, researchers have repeatedly found that many men would like to be more muscular and are dissatisfied with their current level of muscularity (e.g., Frederick and Buchanan et al., 2007; McCreary and Saucier, 2009; Pope, Phillips, and Olivardia, 2000; Cafri, Thompson, Ricciardelli, McCabe, Smolak, and Yesalis, 2005). In terms of mate selection, Frederick and Haselton (2007) found that women preferred men who were moderately muscular, that muscular men reported having more total sex partners, more casual sex partners, and more affairs with women who had a partner at the time of the affair (see also Lassek and Gaulin, 2009). They also found that on average, women reported stronger preferences for muscularity in a short-term partner versus a long-term partner, and that their past short-term partners had been more muscular than their longer-term partners. One explanation for these findings is that women may have a higher level of attraction to muscular men, but that they perceive that these men are less likely to be faithful. Thus they might shift towards preferring and choosing less muscular men when seeking long-term partners.

There has been little in the way of cross-cultural research on preferences for male body types, including muscularity. In the International Body Project, the researchers found that greater than average muscularity was preferred in almost all sites, although the exact level of desirable muscularity varied across cultures (Frederick and Swami et al., 2010). In one study, men in East Asia reported desire for lower levels of muscularity than men in Western samples (Yang et al., 2005). Cross-cultural research on preferences for male body fat level is also relatively rare. In the International Body Project, there was substantial cross-cultural variation in whether or not fat or thin men were considered most attractive (Frederick and Swami et al., 2010). As noted earlier, a substantial number of U.S. men are dissatisfied with their weight, and overall body dissatisfaction is highest among fat and very thin men (Frederick, Lever, and Peplau, 2007; Peplau et al., 2009).

#### *Caribbean Body Image and Body Type Preferences*

Almost nothing is known about body image and preferred body types in the Caribbean or in St. Kitts specifically (see Madrigal, 2006). The few exceptions tend to focus on issues of female adolescent fatness (e.g., Anderson-Fye, 2004; Simeon et al., 2003). As an example, through ethnographic research in a Jamaican village, Sobo (1993) found that plump women were viewed more favorably, whereas thinness in women was viewed as a marker of infertility and antisocial behavior. We are not aware of published research on Caribbean breast size or male fatness or musculature.

At least two disparate factors may be working to shape body fat preferences in St. Kitts. On one hand, because other work indicates higher body fat levels are valued in some populations of African Americans and West Africans, one might expect that body fat is still valued more highly in St. Kitts than in the many parts of the U.S. (Ofusu, Lafreniere and Senn, 1998). On the other hand, much of the Caribbean has undergone dramatic transitions in mortality, fertility, Westernization, and average body weight, leading to the question of whether or not fatter bodies are still valued in St. Kitts. With the influx of Western media



and tourism and accompanying higher incomes in to St. Kitts, it is possible that body ideals may be now closely tied to those in the U.S. and Europe. Our research questions concerning female breast size and male physiques are informed by evolutionary considerations and potential cultural influences of the U.S.

### *Research Questions*

In order to investigate body type attitudes and body type preferences in St. Kitts versus the U.S., we administered a survey to a community sample in St. Kitts, a community sample recruited from the Internet in the U.S., and a university sample in the U.S. We investigated the following questions: Are there cross cultural differences in:

1. *Women's body fat and breast size satisfaction?* We predicted that women in St. Kitts would be less likely to desire thinness than U.S. women. We had no predictions regarding breast size.

2. *Men's preferences for female body fat and breast size?* We predicted that men in St. Kitts would be less likely to prefer thinness than U.S. men. We had no predictions regarding preferences for breast size.

3. *Men's muscularity and body fat satisfaction?* We predicted that men in both St. Kitts and the U.S. would generally desire increased muscularity and that men would be split in terms of desiring to be heavier or thinner based on their current body weight, with more favorable views of being fatter in St. Kitts.

4. *Women's preferences for male muscularity and body fat?* We predicted that women in both St. Kitts and the U.S. would generally prefer men who are more muscular than average.

5. *Perceptions of wealth?* We predicted that higher levels of body fat would be linked to perceptions of greater wealth in St. Kitts than in the U.S. We had no clear predictions regarding muscularity.

6. *Is one's own body type linked to body type ratings and preferences?* We predicted that individuals with high status body types would generally have stronger preferences for individuals with high status body types. For example, in the U.S., we predicted that muscular men would have stronger preferences for thinner women with larger breasts, and vice versa. The direction of the predicted association was less clear for St. Kitts, and depended on whether thinness or fatness is perceived to be more attractive.

7. *Do women prefer men with greater muscularity in a short-term partner than a long-term partner?* Following Frederick and Haselton (2007), we investigated whether women have stronger preferences for muscularity in a short-term partner than in a long-term partner.

## **Materials and Methods**

### *Study Sites*

*St. Kitts site.* Research in St. Kitts was conducted in the town of Basseterre, the capital of the island. With approximately 20,000 inhabitants, the town is also the largest in the dual island nation of St. Kitts and Nevis. The island's current ethnic makeup is overwhelmingly Afro-Caribbean, with a small number of Europeans (mostly via the U.S. or

U.K.), Indians (via India or of Indo-Guyanese background), Dominicans (from Dominican Republic) and peoples of other ethnicities (e.g., China) comprising the remainder of the population. The island was first settled thousands of years ago by Tainos and Caribs, but these Native American populations had virtually disappeared with the arrival of Europeans and Africans. The island's history in recent centuries centered on the sugar economy, trade, and slavery. Over the past several decades, tourism serves as the economic driver on the island, with a large port in Basseterre visited regularly by cruise ships. Tourists from North America and Europe are common.

The population in St. Kitts is well-educated, long-lived, and has experienced an increase in average body weight over time. According to the St. Kitts Ministry of Health, among adults, an estimated 78% are classified by the CDC standards either overweight or obese, with rates higher among women. An estimated 20% of adults have diabetes and 36% have hypertension, indicating the profound effects of metabolic-related diseases. By many social and economic indicators, island inhabitants fare well by international standards: the island has a gross national income per capita of \$12,440 U.S. (World Health Organization, 2011) and a literacy rate of 98%. According to the latest government data, average female and male life spans are an estimated 71 and 68 years, respectively. The crude birth rate is an estimated 13.8.

Participants were recruited from St. Kitts by Peter Gray during August 2010 field research. Participants were recruited within a convenience, community-based sample (e.g., from a public square and at a boat dock). Additional observations and informal discussions with locals and government officials provided further ethnographic context.

*Web site.* Participants responded to an advertisement posted to the volunteers section of craigslist.org, an Internet website that reports receiving over 20 billion page views per month, has had over 50 million visitors total, and is currently ranked as the #7 most visited English language website (Craigslist fact sheet, 2010).

*University site.* Students from UCLA volunteered to complete the study at the beginning or end of their psychology, science, or communications classes.

### *Participants*

*Sample sizes.* We recruited 39 participants from St. Kitts (*male*  $n = 19$ ; *female*  $n = 20$ ), 438 participants via the Web (*male*  $n = 156$ ; *female*  $n = 282$ ), and 618 participants from UCLA (*male*  $n = 176$ ; *female*  $n = 442$ ) for a total  $N$  of 1,095 (*male*  $n = 351$ , *female*  $n = 744$ ). The numbers from the Web sample do not include 87 participants who were excluded from the dataset for one or more of the following reasons: Indicated taking the survey more than once, indicated that they did not complete the survey carefully, did not complete critical variables, or indicated talking with others or that other could view their answers during survey completion.

*Age.* The average age for each sample was: St. Kitts men ( $M = 37$ ,  $SD = 15$ ), St. Kitts women ( $M = 38$ ,  $SD = 15$ ), Web men ( $M = 38$ ,  $SD = 14$ ), Web women ( $M = 29$ ,  $SD = 11$ ), UCLA men ( $M = 20$ ,  $SD = 2$ ), and UCLA women ( $M = 19$ ,  $SD = 3$ ). A 2 (sex)  $\times$  3 (sample) ANOVA revealed significant main effects of sex  $F(1, 1089) = 8.8$ ,  $p = .003$ ,  $\eta_p^2 = .01$ , and sample  $F(2, 1089) = 363.4$ ,  $p < .001$ ,  $\eta_p^2 = .40$ , and a significant interaction  $F(2, 1095) = 30.1$ ,  $p < .001$ ,  $\eta_p^2 = .05$ .

*Ethnicity.* Participants in the St. Kitts sample were overwhelmingly of Afro-Caribbean descent, and thus reflective of the predominant Afro-Caribbean island demographics. A few St. Kitts participants had more recent Indian background, and many have a social and genetic history of variable admixture between Afro-Caribbean, European, Native American and other influences. The percentages of men and women of each ethnicity in the Web sample were: Asian (6%, 7%), White (73%, 69%), Hispanic/Latino/a (10%, 10%), Black (1%, 6%), Biracial/Multiracial (6%, 6%), or other ethnicity (4%, 2%). The percentages of men and women of each ethnicity in the UCLA sample were: Asian (49%, 39%), White (28%, 31%), Hispanic/Latino/a (9%, 14%), Black (2%, 3%), Biracial/Multiracial (2%, 5%), or other ethnicity (10%, 8%).

### *Measures*

*Body Matrix of Women.* The matrix can be viewed in Appendix A. Participants were presented with this matrix, which contains 32 images of women varying systematically in body fat and breast size (Frederick and Peplau, 2007). The matrix contains eight levels of body fat (from very slender to very fat) and four levels of breast size (from small to large). All possible combinations of body types that can be generated from across the breast size and body fat dimensions were created (very fat woman with small breasts, very fat woman with large breasts, very slender woman with medium sized breasts, etc.). The body types do not map on precisely to specific body mass indexes or cup sizes, but instead represent equal steps in body mass and breast size increases according to the settings in the computer graphics program Poser. If an image is selected, it can be converted into both a body fat and a breast size score. The thinnest body is scored a 10 and the heaviest an 80 (i.e., scores increase by 10 units for each increase in body fat). The smallest breasts are scored a 10 and the largest a 40.

Women were asked the following questions in all sites: Which image represents... “your current body,” “the typical body,” “your ideal body,” “the body of a good mother,” and “the body of an attractive, short-term mate?” Men were asked: Which image represents... “the typical body,” “the body of a good mother,” “the body of an attractive, short-term mate,” and “the body you find most ideal/attractive?”

*Body Matrix of Men – Shorts Version.* The matrix can be viewed in Appendix B. Participants were presented with this matrix, which contains 28 images of men varying systematically in muscularity and body fat (Frederick and Peplau, 2007). The matrix contains seven levels of muscularity (from non-muscular to very fat) and four levels of body fat (very thin to very fat). All possible combinations of body types that can be generated from across the muscularity and body fat dimensions were created (very fat men with little muscularity, very fat men with high levels of muscularity, very slender men with moderate muscularity, etc.). The body types do not map on precisely to specific body mass indexes or muscularity measurements, but instead represent equal steps in body mass and muscularity increases according to the settings in the computer graphics program Poser. If an image is selected, it can be converted into both a muscularity and body fat score. The least muscular body is scored a 10, and the most muscular a 70 (i.e., scores increase by 10 units for each increase in muscularity).

There are two versions of the matrix: one in which the men are depicted in shorts,

which reveals increasing muscularity and body fat in both the legs and the upper body, and one in which images display men in jeans, showing only changes in the upper body. In this study, we used the version displaying men in shorts.

Men were asked the following questions in all sites: Which images represents... “your current body”, “the typical body”, “your ideal body”, “the body of a wealthy man”, “the body of a good father”. Women were asked the following questions in all sites: Which image represents “the typical body”, “the body of a wealthy man”, “the body of a good father”, and “the body you find ideal/most attractive”. A subset of U.S. participants were also asked the questions: Which man do you find most attractive as a... “long-term marriage/dating partner” and “short-term partner”.

## **Results**

Table 1 reveals the mean overall ratings of women’s body fat level and breast size across the samples, and Table 2 reports on ratings of men’s muscle size and body fat level. Table 3 indicates whether men’s and women’s ratings of their current bodies differed from their perceptions of the ideal, average, ideal short-term woman, and wealthiest male, and Table 4 indicated whether these perceptions differed from their perceptions of the typical body. Tables 5 and 6 show whether ratings of one’s own body type is related to one’s body type preferences and ideals. Figures 1 and 2 show the percentage of women and men who desire larger or smaller body types in terms of body fat level, breast size, and muscularity.

Follow up analyses (within or between subjects *t*-tests) were conducted after omnibus statistical tests to compare cell means. In the between subject *t*-tests, if the Levene’s test for equality of variances was significant, this indicates that equality cannot be assumed and thus we relied on the raised *p*-value estimate for those comparisons.

For all mean comparisons, we calculated *Cohen’s d*, which is a measure of the difference in means between two samples, expressed in standard deviation units. In within-subject comparisons, the effect size formula is adjusted to take into account the degree of inter-correlation between the two variables being compared. The small sample sizes from St. Kitts lowers the probability of finding statistically significant effects, and the large Internet and UCLA samples make it easier to detect effects. For example, due to larger sample sizes, the difference between ratings of body fat level of a wealthy man is significant in the Internet vs. UCLA samples ( $d = .28$ ), even though the effect is smaller than Web vs. St. Kitts comparison ( $d = .53$ ). Therefore, in addition to focusing on tests of statistical significance, we also suggest that attention also be paid to the absolute effect sizes. Cohen (1988) suggested that effect sizes could be roughly interpreted as follows: .20 is small, .50 is moderate, and .80 is large.

### *Women’s Body Fat and Breast Size Satisfaction?*

*Body Fat.* As shown on Table 1, there was no difference in the perceived average weight between the St. Kitts and Web samples, and the UCLA women were significantly thinner. The UCLA women had a thinner ideal body than the two groups, and differed from the St. Kitts sample by almost a full body unit (mean = 29 vs. 38;  $d = .92$ ). The difference between St. Kitts and the Web was not significant, though the effect size was

**Table 1.** Cross-cultural differences in perceptions of women's body fat level and breast size

	Women's Ratings				Men's Ratings				Statistical Analyses				Female Comparisons				Male Comparisons					
	Kitts		UCLA		Web		Kitts		UCLA		Sample		Sex		KvW		KvU		KvW		KvU	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>F</i> ( $\eta_p^2$ )	<i>F</i> ( $\eta_p^2$ )	<i>F</i> ( $\eta_p^2$ )	<i>X</i> ( $\eta_p^2$ )	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	
<i>Body Fat</i>																						
Current	46 (16)	45 (13)	37 (10)	-	-	-	-	-	-	42.1** (.10)	-	-	-	.07	.67*	.69**	-	-	-	-	-	-
Ideal	38 (12)	34 (8)	29 (7)	37 (9)	36 (9)	32 (8)	43.1** (.07)	1.3 (0)	.8 (0)	.51**	.39	.92*	.51**	.11	.59*	.47**						
Typical	50 (19)	45 (10)	39 (8)	53 (17)	47 (8)	42 (8)	59.3** (.10)	5.9* (.01)	.1 (0)	.66**	.33	.75*	.66**	.45	.83*	.63**						
Short Term	34 (15)	32 (11)	27 (9)	39 (14)	34 (11)	32 (7)	21.9** (.04)	11.0** (.01)	1.9 (0)	.50**	.15	.57	.50**	.39	.63*	.22*						
<i>Breasts</i>																						
Current	27 (12)	27 (10)	22 (8)	-	-	-	26.5** (.07)	-	-	.55**	0	.49	.55**	-	-	-	-	-	-	-	-	-
Ideal	22 (10)	30 (8)	28 (7)	26 (9)	31 (9)	32 (7)	12.7** (.02)	8.9* (.01)	7.0* (.01)	.27**	-.88*	-.70*	.27**	-.56*	-.74*	-.12						
Typical	28 (9)	26 (7)	25 (7)	26 (10)	27 (8)	25 (7)	3.5* (.01)	.6 (0)	.9 (0)	.14	.25	.37	.14	-.11	.12	.27*						
Short- Term	27 (9)	33 (9)	32 (7)	27 (11)	32 (9)	33 (7)	9.2* (.02)	.1 (0)	1.6 (0)	.12	-.67*	-.62*	.12	-.50	-.65*	-.12						

Note: \*  $p < .05$ ; \*\*  $p < .001$ . The comparisons between samples are abbreviated as: KvW (St. Kitts vs. Web), KvU (St. Kitts vs. UCLA), and WvU (Web vs. UCLA). A positive effect size indicates that the mean for the first group listed was higher than the second group listed. A negative effect size indicates that the mean for the first group listed was lower than the second group listed. The first three effect sizes refer to comparisons between the different groups of women and the second three effect sizes refer to comparisons between different groups of men. The degrees of freedom for all main effects of sample were (2, 1089), for main effects of sex were (1, 1089), and for interactions were (2, 1089). The degrees of freedom for women's ratings of their current body fat and breast size were (2, 741).

**Table 2.** Cross-cultural differences in perceptions of men's muscularity and body fat level

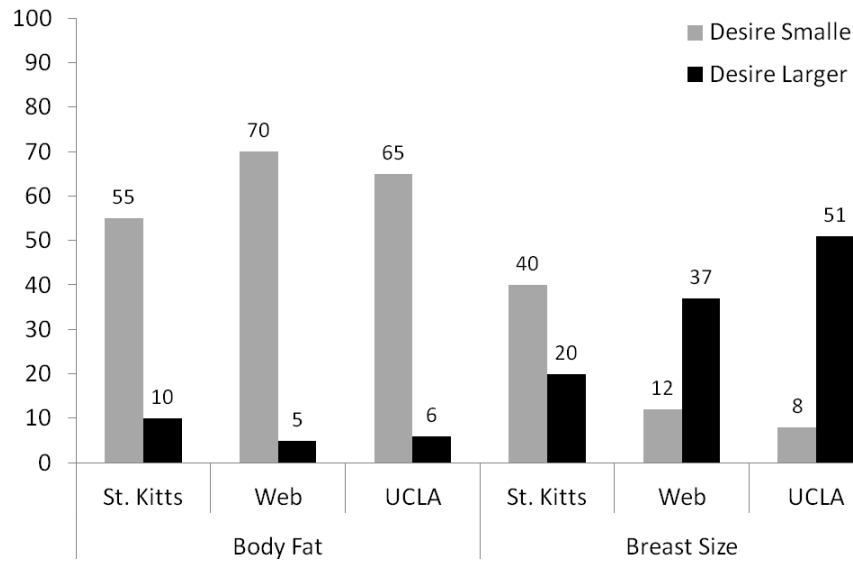
	Women's Ratings				Men's Ratings				Statistical Analyses				Female Comparisons				Male Comparisons			
	Kitts	Web	UCLA		Kitts	Web	UCLA		Sample	Sex	X		KvW	KvU	WvU		KvW	KvU	WvU	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )		<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )		<i>F</i> ( $\eta^2$ )	<i>F</i> ( $\eta^2$ )	<i>F</i> ( $\eta^2$ )		<i>d</i>	<i>d</i>	<i>d</i>		<i>d</i>	<i>d</i>	<i>d</i>	
<i>Muscles</i>																				
Current	-	-	-		32 (14)	25 (14)	26 (10)		2.4 (.01)	-	-		-	-	-		.50	.49	-	-.08
Ideal	38 (9)	35 (13)	39 (10)		46 (15)	44 (14)	47 (13)		11.3** (.02)	38.3** (.03)	.1 (0)		.27	-.11	-.34		.14	-.07	-.22*	
Typical	29 (15)	22 (11)	24 (10)		37 (18)	24 (15)	25 (13)		14.0** (.03)	7.2* (.01)	1.7 (0)		.53	.39	-.19		.78**	.76**	.07	
Wealthy	32 (18)	34 (15)	34 (13)		35 (20)	30 (17)	36 (17)		5.8* (.01)	.1 (0)	4.5* (.01)		-.12	-.13	0		.27	-.05	.35**	
<i>Body Fat</i>																				
Current	-	-	-		27 (7)	27 (6)	25 (6)		5.9* (.03)				-	-	-		0	.31	.33	
Ideal	25 (5)	22 (4)	22 (4)		24 (5)	23 (5)	23 (5)		4.6* (.01)	1.3 (0)	.7 (0)		.66*	.66*	0		.20	.20	0	
Typical	26 (6)	26 (6)	23 (4)		28 (5)	28 (6)	24 (5)		76.7** (.12)	7.8* (.01)	.8 (0)		0	.59*	.59*		0	.80**	.72**	
Wealthy	31 (7)	26 (7)	25 (6)		33 (7)	29 (8)	27 (6)		19.8** (.04)	8.5* (.01)	.5 (0)		.71*	.92**	.15		.53	.92**	.28*	

*Note:* \*  $p < .05$ ; \*\* $p < .001$ . The comparisons between samples are abbreviated as: KvW (St. Kitts vs. Web), KvU (St. Kitts vs. UCLA), and WvU (Web vs. UCLA). A positive effect size indicates that the mean for the first group listed was higher than the second group listed. A negative effect size indicates that the mean for the first group listed was lower than the second group listed. The first three effect sizes refer to comparisons between the different groups of women and the second three effect sizes refer to comparisons between different groups of men. The degrees of freedom for all main effects of sample were (2, 1089), for main effects of sex were (1, 1089), and for interactions were (2, 1089). The degrees of freedom for men's ratings of their current body fat and muscularity were (2, 348).

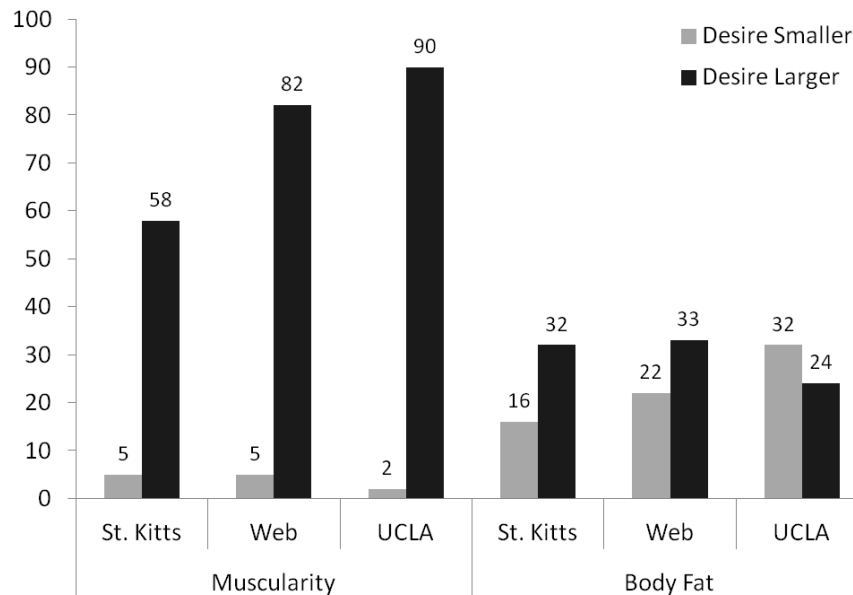
moderate ( $d = .39$ ).

Are women dissatisfied with their body fat levels? As shown in Figure 1, the majority of women in all samples wanted to be thinner, from a low of 55% in St. Kitts, to 65% at UCLA, and to a high of 70% from the Web. As shown on Table 3, there was a substantial difference between the average woman's perception of their current body fat and their ideal body fat: *St. Kitts*  $d = .76$ , *Web*  $d = 1.08$ , *UCLA*  $d = .93$ . Thus, among women, thin was clearly in, across all samples. They also perceived that their current bodies were heavier than what men desire in a short-term partner, although the effect wasn't quite as large, and did not reach significance in the St. Kitts sample ( $d = .47$ ).

**Figure 1.** Percent of women who desire a change in their body fat or breast size



**Figure 2.** Percent of men who desire a change in their muscularity or body fat



*Breast size.* As shown on Table 1, there was no difference in the perceived average breast size across the samples, and the UCLA women reported having smaller breasts. The women in St. Kitts had substantially smaller ideal breasts compared to the women in the Web ( $d = .88$ ) and UCLA ( $d = .70$ ) samples, differing by almost a full breast size (St. Kitts mean = 22 vs. Web mean = 30; UCLA mean = 28). There was a small difference in ideal breast size between the Web and UCLA women.

Are women dissatisfied with their breast sizes? As shown in Figure 1, about half of UCLA women and one-third of Web women wanted larger breasts, and only a small number desired smaller breasts. The results for St. Kitts were the opposite: 40% of women desired smaller breasts, and half this number desired larger breasts. As shown on Table 3, there was a substantial difference between the average woman's perception of their current breast size and ideal breast size for UCLA women ( $d = .75$ ) and a small difference for Web women ( $d = .33$ ), with women desiring larger breasts on average. The effect ran in the opposite direction for St. Kitts women, with them desiring smaller breasts, though this did not reach significance ( $d = .43$ ).

The difference between women's ratings of their current breast size and what men find most attractive in a short-term mate were also discrepant. On average, women in St. Kitts thought that men's preferences did not differ from their current breast size, whereas women in the Web samples ( $d = .63$ ) and UCLA samples ( $d = 1.10$ ) thought that men preferred partners with substantially larger breasts.

#### *Men's Preferences for Female Body Fat and Breast Size?*

*Body fat.* As shown on Table 1, there was no difference in the perceived average weight between the St. Kitts and Web samples, although the effect size was moderate ( $d = .45$ ). The UCLA women were thought to be significantly thinner than the Web and St. Kitts women. The UCLA men also preferred thinner women than the other samples, both in their ratings of the ideal body and the ideal short-term partner. The St. Kitts and Web men did not differ significantly in these ratings, although the effect sizes indicated that Web men tended towards preferring thinner women ( $d = .39$ ). The UCLA men preferred thinner women than the Web and St. Kitts samples, although the effect size was small in comparison to the Web sample.

Overall, men preferred moderately slender women across the samples, with the ideal body types ranging between body fat levels 30-40. As shown on Table 4, across all samples, men preferred women who were thinner than average in their ratings of the ideal and best short-term partner. This was especially true of the U.S. samples.

*Breast size.* As shown on Table 1, there was no difference in the perceived average breast size between the St. Kitts versus the UCLA and Web samples, and there was only a small difference in the ratings between the UCLA and Web samples. The UCLA men did not differ from the Web men in ratings of ideal breast size or the breast size of the best short-term partner. The men from St. Kitts had a smaller ideal breast size than men in the Web ( $d = .56$ ) and UCLA ( $d = .74$ ) samples. They also preferred smaller breasts in a short-term partner than the Web ( $d = .50$ ) and UCLA ( $d = .65$ ) men, although the comparison with Web men did not reach statistical significance. As shown on Table 4, men in the U.S. samples, but not in the St. Kitts samples, preferred women with larger than average breasts



when considering both the ideal body and the best short-term partner. Thus, the results matched those for women: smaller breasts were preferred more in St. Kitts than in the U.S.

**Table 3.** Discrepancies between women's and men's perceptions of the ideal body, typical body, and ideal short-term partner

	Within Subjects Comparisons			Statistical Analyses		
	Kitts	Web	UCLA	Sample	Body Type	X
	<i>d</i>	<i>d</i>	<i>d</i>	<i>F</i> ( $\eta_p^2$ )	<i>F</i> ( $\eta_p^2$ )	<i>F</i> ( $\eta_p^2$ )
<i>Women's Ratings of Body Fat</i>				81.0** (.18)	96.9** (.12)	2.9* (.01)
Current vs. Ideal	.76*	1.08**	.93**			
Current vs. Typical	-.15	0	-.17**			
Current vs. Short Term	.47	.80**	.81**			
<i>Women's Ratings of Breast Size</i>				17.2** (.04)	15.7** (.02)	12.4** (.03)
Current vs. Ideal	.43	-.33**	-.75**			
Current vs. Typical	-.06	.10*	-.32**			
Current vs. Short Term	0	-.63**	-1.10**			
<i>Men's Ratings of Muscles</i>				7.3** (.04)	60.5** (.15)	3.3* (.02)
Current vs. Ideal	-.97*	-1.36**	-1.65**			
Current vs. Typical	-.20	.06	.06			
Current vs. Wealthy	-.14	-.27*	-.53**			
<i>Men's Ratings of Body Fat</i>				28.9** (.14)	26.6** (.07)	4.6** (.03)
Current vs. Ideal	.41	.56**	.28**			
Current vs. Typical	.13	-.12*	.12			
Current vs. Wealthy	-.56*	-.20*	-.22*			

*Note:* \*  $p < .05$ ; \*\* $p < .001$ . A positive effect size indicates that the mean for the ratings of current body were higher than the comparison rating. A negative effect size indicates that the mean for the ratings of current body were lower than the comparison rating. The degrees of freedom for all main effects of sample were (women = 2, 741; men = 2, 348), for main effects of body type were (women = 3, 2223; men = 3, 1044), and for interactions were (women = 6, 2223; men = 6, 1044).

*Men's Muscularity and Body Fat Satisfaction?*

*Muscularity.* As shown on Table 2, there was no difference in the perceived average muscularity between the UCLA and Web samples based on men's ratings of their current bodies and the typical body. The perceived muscularity of the typical man was substantially higher in the St. Kitts sample than in the Web ( $d = .78$ ) and UCLA ( $d = .76$ ) samples, and the means were non-significant but in this same direction for ratings of current body type in the Web ( $d = .50$ ) and UCLA ( $d = .49$ ) samples. Overall, the St. Kitts men perceived themselves to be approximately one level of muscularity higher than the UCLA and Web men (mid-30s vs. mid-20s). In terms of their ideal level, of muscularity, however, they did not differ substantially: The men across all samples desired to have around a muscularity level in the mid-40s range. Muscularity was prized in all sites.

*Body fat.* As shown on Table 2, there was no difference in the perceived average body fat between the St. Kitts and Web samples based on men's ratings of their current bodies and the typical body. The perceived typical body fat level was lower in the UCLA sample than in the St. Kitts and Web samples. The groups did not differ in their ratings of the ideal level of body fat.

*Women's Preferences for Male Muscularity and Body Fat?*

*Muscularity.* As shown on Table 2, there was no difference in the perceived average or ideal muscularity levels across the different sites, although there was a trend towards the men in St. Kitts being more muscular. In all three samples, women indicated that the ideal male body was more muscular than the typical male body. The effect size was smaller in the St. Kitts sample than the U.S. samples, although this is explainable by the fact that there was a trend towards the typical man in St. Kitts being more muscular to start with. Men had an ideal body type that was more muscular than what women found ideal in all samples: St. Kitts  $t(1, 29.36) = 2.07, p = .05, d = .65$ ; Web  $t(1, 436) = 6.77, p < .001, d = .67$ ; UCLA  $t(1, 257.1) = 7.70, p < .001, d = .69$ . The differences between women's ratings of the ideal short-term partner and men's ideals were not nearly as discrepant: Web  $t(1, 436) = 1.44, p = .15, d = .15$ ; UCLA  $t(1, 327) = 1.47, p = .14, d = .16$ .

*Body fat.* As shown on Table 2, there was no difference in the perceived average body fat between the St. Kitts and Web samples based on women's ratings of the typical body. The perceived typical body fat level was lower in the UCLA sample than in the St. Kitts and Web samples. The ideal body fat level was somewhat higher in St. Kitts than in the U.S. samples.

*Perceptions of Wealth?*

As shown in Table 2, when it comes to perceptions regarding the links between wealth and male muscularity, there was little in the way of differences across samples and sexes, except for a small difference between UCLA and Web men. As shown on Table 3, on average, men rated their current bodies as somewhat less muscular than the man most likely to be wealthy. In parallel, as shown on Table 4, women rated the wealthy man as being more muscular than the typical man.

As shown on Table 2, women and men in St. Kitts rated the wealthy man as fatter compared to their counterparts in U.S. samples, although this difference did not reach

significance for the male St. Kitts versus Web comparison ( $d = .53$ ). As shown on Table 3, men on average rated themselves as somewhat thinner than the man most likely to be wealthy. As shown on Table 4, women in St. Kitts rated the wealthy man as being fatter than the typical man, and this was also true of the UCLA sample to a lesser extent.

**Table 4.** Discrepancies between women's and men's perceptions of the ideal body, typical body, and ideal short-term partner

	Within Subjects Comparisons			Statistical Analyses		
	Kitts	Web	UCLA	Sample	Body Type	X
	$d$	$d$	$d$	$F$ ( $\eta_p^2$ )	$F$ ( $\eta_p^2$ )	$F$ ( $\eta_p^2$ )
<i>Men's Ratings of Women's Body Fat</i>				24.5** (.12)	125.0** (.26)	2.8* (.02)
Typical vs. Ideal	.76*	1.05**	1.11**			
Typical vs. Short Term	.54*	1.10**	1.10**			
<i>Men's Ratings of Women's Breast Size</i>				3.4* (.02)	20.3** (.06)	4.7* (.03)
Typical vs. Ideal	0	-.36**	-.61**			
Typical vs. Short Term	-.12	-.46**	-.91**			
<i>Women's Ratings of Men's Muscles</i>				5.9* (.02)	54.7** (.07)	4.0* (.01)
Typical vs. Ideal	-.51*	-.94**	-1.17**			
Typical vs. Wealthy	-.12	-.76**	-.71**			
<i>Women's Ratings of Men's Body Fat</i>				34.2** (.08)	30.7** (.04)	12.8** (.03)
Typical vs. Ideal	.15	.63**	.18*			
Typical vs. Wealthy	-.66*	0	-.30**			

*Note.* \*  $p < .05$ ; \*\* $p < .001$ . A positive effect size indicates that the mean for the ratings of current body were higher than the comparison rating. A negative effect size indicates that the mean for the ratings of current body were lower than the comparison rating. The degrees of freedom for all main effects of sample were (women = 2, 741; men = 2, 348), for main effects of body type were (women = 2, 1482; men = 2, 696), and for interactions were (women = 6, 2223; men = 4, 1482).

#### *Is One's Own Body Type Linked to Body Type Ratings and Preferences?*

The associations between perceptions of one's current body and the ratings of women's body types are shown on Table 5, and the associations for men's body types are shown on Table 6. Of particular interest was whether or not one's own body type was linked to perceptions of the ideal body or best short-term partner in the other sex.

*Muscular and slender men.* Contrary to the predictions, muscular men and slender men were not more likely to rate thinner and larger-breasted women as ideal or as the best short-term partners, save for one statistically significant but small association for UCLA men.

*Slender and large-breasted women.* Also contrary to the predictions, thinner and larger-breasted women were not more likely to rate thinner and more muscular men as ideal, save for a one statistically significant but small association for Web women. The correlation sizes were larger for the women in St. Kitts than in the U.S. samples, but they but did not reach significance.

**Table 5.** Associations between perceptions of one's current body and the ideal, typical, and ideal short-term female body type

	Women's Body Fat			Women's Breast Size		
	Ideal	Typical	Short-Term	Ideal	Typical	Short-Term
	<i>Partial r</i>	<i>Partial r</i>	<i>Partial r</i>	<i>Partial r</i>	<i>Partial r</i>	<i>Partial r</i>
<i>Women's Current Fat</i>						
St. Kitts	.77**	-.05	-.16	.06	.26	.08
Web	.51**	.09	.24**	-.08	.02	-.05
UCLA	.49**	.16**	.15**	-.06	-.10*	-.06
<i>Women's Current Breast</i>						
St. Kitts	-.41	-.35	-.38	.39	-.28	.27
Web	-.05	.02	-.04	.48**	.20**	.15*
UCLA	-.03	-.09	-.02	.43**	.21**	.27**
<i>Men's Current Muscles</i>						
St. Kitts	-.02	.03	.24	-.20	-.12	.07
Web	.03	-.13	.09	-.09	-.03	.02
UCLA	-.07	-.17*	-.06	-.03	.03	.03
<i>Men's Current Fat</i>						
St. Kitts	-.18	.18	-.25	-.26	-.06	.02
Web	.14	.06	.16*	-.06	.01	-.04
UCLA	.16*	.13	.08	-.03	.05	-.13

*Note.* \*  $p < .05$ ; \*\* $p < .001$ . The partial correlations between perceptions of one's own body and perceptions of women's body types are reported. The partial correlations control for the other aspect of one's body. For example, the first partial correlation (.77) represents the association between women's ratings of their current level of body fat and their reports of their ideal levels of body fat, controlling for their ratings of their breast size.

#### *Do Women Prefer Men with Greater Muscularity in a Short-Term Partner than a Long-Term Partner?*

Yes. Women preferred a more muscular short-term partner than long-term partner in the Web sample: (*ST Mean* = 41.7, *SD* = 15.4 versus *LT Mean* = 31.7, *SD* = 12.9),  $t(1$ ,

281) = 11.1,  $p < .001$ ,  $d = .67$ . This was also true in the UCLA sample: ( $ST\ Mean = 45.4$ ,  $SD = 12.3$  versus  $LT\ Mean = 37.8$ , 12.3),  $t(1, 152) = 9.3$ ,  $p < .001$ ,  $d = .69$ .

**Table 6.** Associations between perceptions of one's current body and the ideal, typical, and wealthy male body type

	Men's Muscles			Men's Body Fat		
	Ideal	Typical	Wealthy	Ideal	Typical	Wealthy
	<i>Partial</i> <i>r</i>	<i>Partial</i> <i>r</i>	<i>Partial</i> <i>r</i>	<i>Partial</i> <i>r</i>	<i>Partial</i> <i>r</i>	<i>Partial</i> <i>r</i>
<i>Women's Current Fat</i>						
St. Kitts	.31	-.12	.05	-.41	.28	-.37
Web	.12*	.08	.16*	.12	.10	.02
UCLA	.06	-.03	-.07	.11	.13	.01
<i>Women's Current Breast</i>						
St. Kitts	-.21	-.26	-.33	-.23	-.05	-.13
Web	0	.04	-.09	-.03	-.04	-.04
UCLA	0	.06	.09	-.06	-.05	-.11*
<i>Men's Current Muscles</i>						
St. Kitts	.31	-.26	.16	.09	.28	.21
Web	.30**	.28**	.26**	.04	.03	-.07
UCLA	.39**	.05	.01	.14	-.04	-.04
<i>Men's Current Fat</i>						
St. Kitts	.18	.04	-.10	.26	.15	-.14
Web	.14	.11	.27**	.16*	.08	.03
UCLA	-.07	.11	.12	.13	-.12	-.13

*Note:* \*  $p < .05$ ; \*\* $p < .001$ . The partial correlations between perceptions of one's own body and perceptions of men's body types are reported. The partial correlations control for the other aspect of one's body. For example, the first partial correlation (.31) represents the association between women's ratings of their current level of body fat and their reports of their ideal levels of body fat, controlling for their ratings of their breast size.

## Discussion

### Summary of Findings

This cross-cultural investigation of body image in the Caribbean island of St. Kitts and the U.S. revealed many similarities. In all sites, women and men expressed preferences for thinner-than-average female bodies. Preferences for thinness were strongest in the U.S. college samples, perhaps reflective of the fact that thinness is also more common in this population.

In both St. Kitts and the U.S., men expressed preferences for more muscular physiques. Men tended to be fatter than either men or women preferred. Contrary to predictions, people with more prestigious body types did not report greater idealization of

prestigious bodies in the other sex, although the strength of the correlations in the St. Kitts suggest further follow-up research may be warranted despite the lack of statistical significance. In perhaps the most noteworthy cross-cultural difference, men and women in St. Kitts preferred smaller breasts participants in U.S. samples by wide margin when rating the ideal woman and ideal short-term partner ( $d = .50$  to  $.88$ ).

### *Limitations and Strengths*

There are several notable limitations and strengths of this research. One limitation was that the sample size for St. Kitts was smaller than typical samples collected in Western setting. This St. Kitts sample size was in line with behavioral studies conducted in smaller-scale societies entailing more face-to-face interactions and individualized questionnaire administration (e.g., Henrich, Heine and Norenzayan, 2010). A second limitation of the study was that there was less control over the testing environment in Internet studies than in lab studies and the samples were not nationally representative. An advantage of using an Internet sample, however, is that Internet research enables the participation of people from a broad range of backgrounds and geographic locations (Gosling, Vazire, Srivastava, and John, 2004).

Several strengths of the study are notable. First, rather than relying on hand-drawn silhouette measures of body types, we utilized higher quality computer-generated images of men and women that varied systematically in body type that do not confound breast size and body fat level. Second, we were able to compare the St. Kitts sample to both an adult community sample and a university sample. The results for St. Kitts often differed more from the younger University sample than from the Web sample, providing further evidence for the importance of including age-matched comparison samples when doing cross-cultural research. Third, we were able to draw relatively large samples of university students and adults in the U.S. samples, providing additional power to identify relationships in the within-subjects comparisons. Fourth, our findings contribute to the relatively small literature on Caribbean body image, where previous work has largely been restricted to female adolescent fatness. Our data suggest notable cross-cultural differences in St. Kitts female breast size preferences compared with the U.S. and indicate some similarities in male musculature (e.g., males wanting to be more muscular) that, to our knowledge, have not been previously reported.

### *Women's Body Fat and Breast Size*

*Body fat.* There was no statistically significant difference between preferred female fatness in the U.S. Internet sample and St. Kitts. Men's and women's preferences for ideal and short-term mates, however, were all in the direction of preference for fatter females in St. Kitts compared with the U.S. Internet sample. The effect sizes for several of these analyses suggest that some of these null cross-cultural findings may be due to inadequate power, although the effects were still small to moderate in size. We highlight these null patterns because they appear to contradict previous body image research on African-descendant populations identifying fewer female body image concerns over fatness and are worth follow-up studies with larger samples.

Why were slender women preferred in both St. Kitts and the U.S.? One

consideration is that the conditions (e.g., food insecurity, prioritizing high female fertility) favoring fatter women are not present in St. Kitts. In St. Kitts today, like much of the Caribbean, imported calorically dense packaged items provide for caloric needs and average body weight has increased. Furthermore, fertility has dropped dramatically in recent decades, with women having relatively few children, possibly also diminishing mate preferences for fat reserves that could aid high fertility. Finally, exposure to the forces of globalization, including access to Western media, may be forging stronger links between thinness and prestige.

This last observation may provide one possible solution to the evolutionary mystery regarding preferences for thinness. People across the world compete to display markers of prestige and social status. If individuals of high status no longer need to store their wealth in their bodies, and thinness becomes associated with high status, then people will strive to emulate the traits associated with status. Thus, one hypothesis is that increasing industrialization may jumpstart this process where thinness becomes associated with prestige (see also Frederick, Fessler, and Haselton, 2005).

*Breast size.* People across the sites preferred breast enlargement (i.e., they typically did not idealize the smallest breast size), but participants in St. Kitts preferred smaller breasts than U.S. participants. This finding represents perhaps the most novel contribution of the present study, given the dearth of information on breast size preferences in the cross-cultural record, including the Caribbean.

Why did this pattern emerge? Several possibilities could be relevant to this difference. First, the “culture” of breast augmentation, and its greater media reinforcement, may be operating more strongly in the United States. Second, changes in breast morphology associated with child-bearing and nursing could lead to diminished focus on larger breast sizes in contexts characterized by earlier age of first reproduction, more normative reproduction, and by extended duration of nursing. In other words, while men and women may recognize the sexual salience of breasts across cultures, particularly at adolescence, the importance placed on breasts may vary according to the reproductive context. In one of the few cross-cultural studies of male preference for female breast stimuli, Dixon et al. (2011) found that men in New Zealand, Samoa, and Papua New Guinea preferred medium- and large-sized breasts; however, these preferences were greatest in Papua New Guinea, and the findings also indicated the importance of areola size and coloration as salient breast stimuli. It may be that preferences for larger female breasts occur both in higher-fertility subsistence contexts, where female fat plays important reproductive roles (as in the rural highlands of New Guinea), and social contexts in which large female breasts are valued for sexual signaling functions (e.g., Los Angeles).

#### *Male Muscularity and Body Fat*

Sexual selection theory indicates that male-male competition favors male traits such as extra musculature to facilitate contest competition (Dixon, 2009; Puts, 2010) and that women attend to muscularity in mate selection (Frederick and Haselton, 2007; Lassek and Gaulin, 2009). Women preferred greater than average muscularity across all sites, and where it was tested, women preferred short-term partners who were more muscular than their preferred short-term partners. The finding that both men and women in St. Kitts

expressed a preference for higher-than-average levels of male musculature is, to our knowledge, a novel research finding in the Caribbean. These results suggest that identifying the factors shaping preferences for muscularity – such as connotations of fighting ability, prestige, protective capacities, labor benefits, or evidence of a rigorous fitness regime – are worth further investigation. The results for male body fat were also consistent across samples: relatively slender men were preferred, although perhaps slightly less in St. Kitts than the U.S. based on (non-statistically significant) effect sizes.

One pattern we flag in the data is sex differences in ratings of muscularity. Men's ideal level of muscularity was most consistent with what women find attractive in a short-term sexual partner. When aiming for their ideal level of muscularity, men may desire high levels of muscularity in order to both be attractive to women as short-term sexual affairs as well as to appear formidable to other males. These higher levels of muscularity may be a mixed blessing to females who may enjoy some of the benefits attendant to a partner's extra musculature (such as his status or protective services) but also subject to potential costs thereof (such as intimidation, volatility, or sexual coercion) (Frederick and Haselton, 2007). Consistent with Snyder et al. (2011), it is worth further investigation to determine what factors (e.g., fear of crime) predict the degree to which women and men prefer higher levels of muscularity across cultures.

These findings suggest that body image dissatisfaction is widespread in St. Kitts and the U.S. This study took the first steps of identifying the degree to which people desire a change in their current body type in the Caribbean. Documenting now how intense that desire is, and how much it impacts people's daily lives, is an important next step, particularly as the Caribbean faces increasing levels of Westernization and tourism (e.g., Anderson-Fye, 2004).

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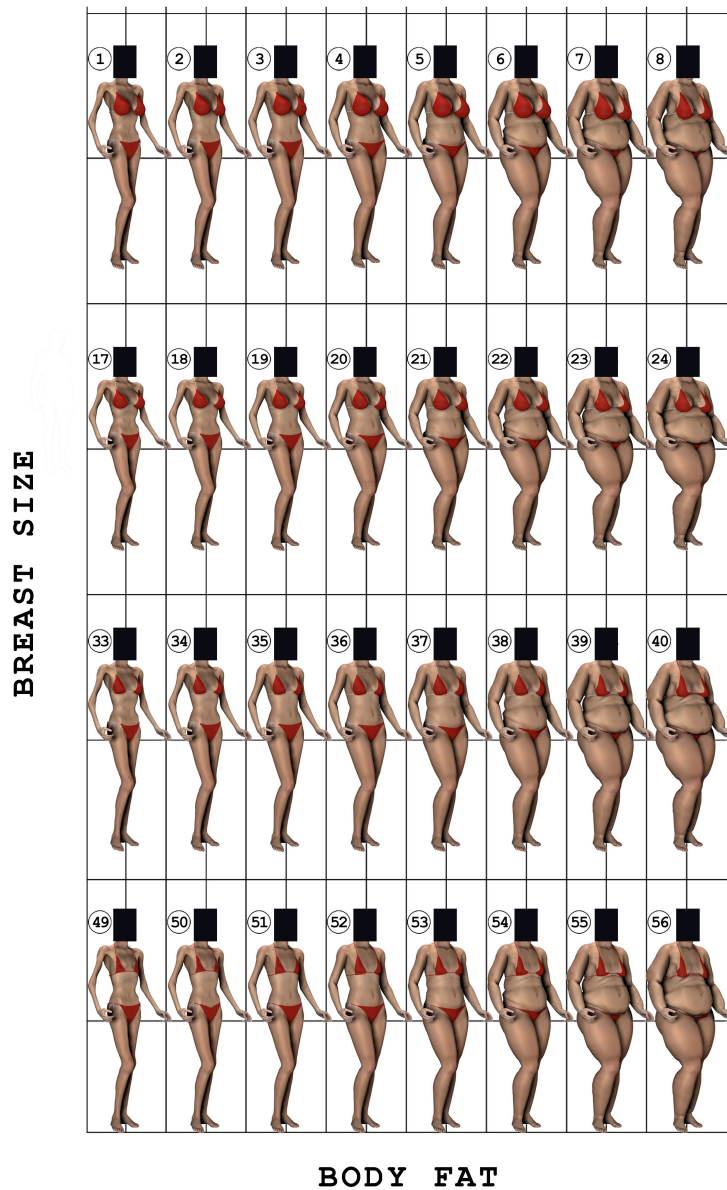
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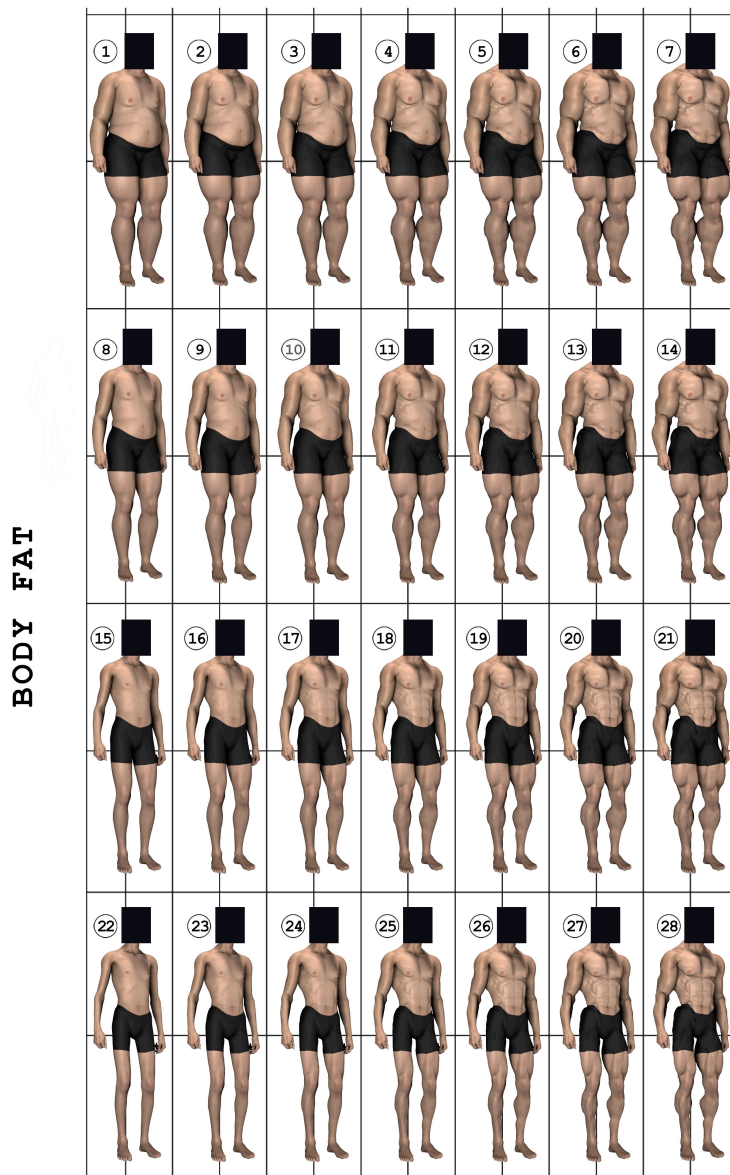
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## Appendix A



*Note:* On the body fat dimension, the thinnest images (1, 17, 33, 49) are coded as body fat level 10 and the heaviest images (8, 24, 40, 56) are coded as body fat level 80. On the breast size dimension, women with the smallest breasts are coded as breast size 10 (e.g., image 49) and women with the largest breasts are coded as breast size 40 (e.g., image 1).

## Appendix B



**MUSCULARITY**

*Note:* On the body fat dimension, the thinnest images (22-28) are coded as body fat level 10 and the heaviest images (1-7) are coded as body fat level 40. On the muscularity dimension, men with the least muscularity are coded as muscularity level 10 (1, 8, 15, 22) and men with the most muscularity are coded as muscularity level 40 (e.g., image 7, 14, 21, 28).