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Boys and Girls Prefer Hyper-Muscular Male Action Figures over Normally-Muscular Action Figures: Evidence that Children have Internalized the Muscular Male Body Ideal

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We sought evidence of internalization of the muscular ideal body among boys and girls by comparing their preferences for hyper-muscular action figures versus their normally-muscular counterparts. Children observed pairings of action figures and reported their preference. Most boys and girls significantly preferred the hyper-muscular figures, and were more likely to provide a physical reason for their preference (e.g., more muscular) than children who preferred the normally-muscular figures. Sex did not affect rates of preference for preferring the hyper-muscular figures, suggesting physical reasons were the main reason why both boys and girls preferred the hyper-muscular figures. Figure preference differed significantly as a function of sex; boys were significantly more likely to report a preference for the hyper-muscular figures (90.3%) than girls (80.7%), $\chi^2(1, N = 347) = 6.53, p = .011$. The results tentatively point to internalization of the muscular ideal body among both boys and girls. Clinicians might consider exploring and dismantling internalization-related beliefs among child clients.

Western nations venerate muscle in boys and men (Kanayama & Pope, 2011), but recent data suggest that the ideal woman is moving away from being excessively thin (Roberts & Muta, 2017). Internalization of the muscular male body ideal, which is endorsed by societal norms of an 'ideal' male body size and appearance (Thompson, Van den Berg, Roehrig, Guara & Heinsber, 2004), is a key cause for eating disorders and body dissatisfaction among males. For example, the tripartite influence model of body dissatisfaction (Thompson, Heinberg,

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Altabe & Tantleff-Dunn, 1999), since revised for males (Tylka, 2011; Tylka & Andorka, 2012), posits that peer-pressure to obtain a muscular body from friends, family, romantic partners, and the media cause males to internalize the muscular body ideal. This, in turn, causes dissatisfaction with both body muscularity and body fat, leading to consequent development of thinness- and muscularity-focused pathology, include eating disorders (Ricciardelli & McCabe, 2004), muscle dysmorphia (Murray et al., 2012; Pope et al., 2005;) and anabolic steroid use (Kanayama, Hudson & Pope, 2012; Parent & Moradi, 2011; Smolak & Stein, 2010). Recent data indicating a rise in the prevalence of male eating disordered behaviour (Aruguete, Griffith, Edman, Green, & McCutcheon, 2014; Mitchison, Hay, Slewa-Younan & Mond, 2014) and anabolic steroid use (Memedovic, Iversen, Geddes, & Maher, 2016) highlighted the need for increased research into precursor constructs, including internalization of the male muscular ideal body, which was the focus of the present study.

Do children internalize the muscular body idea? Children's internalization of positive beliefs surrounding muscularity, and of the importance of having a muscular body, is of particular interest, because research suggests that body dissatisfaction begins in early adolescence and intensifies throughout adolescence (Calzo et al., 2012). In one study, young boys were shown a pairing of action figures; a contemporary, hyper-muscular figure, and the historical counterpart of the figure containing markedly less and more realistic levels of muscularity (Baghurst, Carlston, Wood & Wyatt, 2007). The boys were asked to choose which figure they preferred and to provide a reason. Overwhelmingly, the boys chose the contemporary, hyper-muscular action figure, and the primary reason for this preference was the figures' larger physical size and muscularity, suggesting that the boys had internalized the muscular body ideal (Baghurst et al., 2015).

Partially underpinning heterosexual males' preference for a muscular body may be the belief that greater muscularity is associated with greater desirability and attractiveness to girls (Pope et al., 2000). Data suggests that these beliefs are, to some extent, grounded in reality. Women rate muscular males as more attractive and sexually desirable than non-muscular males (Frederick & Haselton, 2007). However, we are unaware of any published research examining the internalization of the male muscular ideal body among girls. This is an important gap in our current evidence-base, as examining the potentially early internalization of a preference for muscular male bodies among girls may offer compelling insights into the pressures that boys experience around muscularity.

Thus, the present study aimed to examine sex differences in the preferences of children for hyper-muscular versus normally-muscular

action figures, and the reasons underlying these choices. Secondary re-analysis of archival data collected in a previous study by Baghurst and colleagues (2007) were conducted. In the present study, however, both boys' and girls' data were examined, and sex differences therein were explicitly compared. It was hypothesized that boys would prefer the hyper-muscular action figures more than girls.

METHOD

Participants

Participants were 176 boys and 171 girls with an average age of 10.67 years ($SD = 0.99$; range = 9-14) recruited from two schools located in an independent school district in a southwestern state of the United States. No differences were found in the ages of boys and girls, $t(345) = 0.09$, $p = .929$, and all students were enrolled in fourth, fifth, or sixth grade. Students were Caucasian (61.2%), Hispanic (15.1%), other or declined to answer (11.1%), African American (9.0%), and Native American (3.0%).

Materials

Action figures. Five pairs of male action figures were employed: Batman, G. I. Joe, Spiderman, Superman, and Incredible Hulk (Figure 1).



FIGURE 1 Pictorial Representation of Historical & Current Action Figures of Batman, GI Joe, Hulk, Spiderman, & Superman.

These figures were chosen because they were humanoid and because they exhibited enduring popularity: all had been in production for at least a 25-year period. Contemporary figures were purchased in 2005 and were considerably larger and more muscular than the historical figures, to the extent that the contemporary figures depict a level of muscularity that is unobtainable by humans (Baghurst, Hollander, Nardella & Haff, 2006).

Physical dimensions of the contemporary and historical action figures used in the present study are presented in Table 1 (Baghurst et al., 2006).

Questionnaire. A questionnaire for preadolescent children was designed specifically for the present study. The questionnaire used simple written language and was brief to avoid reactive inhibition. Participants were asked their age, sex, a closed-answer question “Which toy do you like the most? Toy A / Toy B,” and an open-ended question, “Why do you like it?” Pilot testing for the study took place using 34 undergraduate males, and 41 undergraduate females, mean age = 23.7

TABLE 1 Measurements of Original & Current Action Figures (cm)
Extrapolated to a Height of 70 in/177.8cm^a.

Body Part	G.I. Joe		Hulk		Superman	
	Original	Current	Original	Current	Original	Current
Calf	32.2	98.3	63.6	99.2	44.9	66.8
Thigh	46.7	96.7	68.8	105.6	55.9	80.8
Waist	76.9	166.4	97.9	116.1	85.7	108.7
Forearm	26.2	64.9	54.2	88.1	33.8	54.9
Arm	32.1	85.6	61.2	94.5	41.4	62.5
Chest	104.4	213.9	148.2	205.9	113.7	156.3
Neck	39.1	87.1	46.7	77.6	44.3	68.9

Body Part	Batman		Spiderman	
	Original	Current	Original	Current
Calf	41.9	69.8	43.1	53.1
Thigh	53.8	81.4	47.8	72.3
Waist	83.9	95.4	88.7	82.2
Forearm	33.7	58.3	30.3	37.3
Arm	40.1	61.2	38.5	45.5
Chest	103.9	170.8	104.9	146.9
Neck	46.7	61.2	47.8	48.4

years who completed the same questionnaire. Responses were used to improve the interpretability of the questionnaire and to help design the classification system (see Table 2) for the qualitative data produced from the closed-answer question.

Procedure

The study was conducted during participants’ physical education classes in groups ranging from 20 to 30. Teachers in each group presented a randomly selected pair of action figures – the current version and the original version, labelled A and B. Actual action figures were presented rather than figure silhouettes or photographs because the latter

TABLE 2 Classification Scheme Used to Classify Responses to the Question, “Why do you like it [action figure chosen by the child]?”

Category	Subcategory
1. Physical	i. Size and dimensions
	ii. Muscularity and appearance of strength
2. Decorative	i. Clothes and outfit design
	ii. Colours, features, and details
3. Other	i. Previous ownership or previous knowledge
	ii. No reason given
	iii. Any other reason given

have an increased potential for misinterpretation by children. Figures were presented simultaneously and spatial positioning was randomized (A B / B A). Participants were not allowed to touch the figures. After viewing the figures, participants were instructed to complete the questionnaire, which was collected immediately upon completion. The true purpose of the study was concealed; participants were told it was a study of their general opinions about action figures. The study was approved by an accredited Institutional Review Board and the independent school district, and informed consent was obtained from parents and participants. The authors declare that they have no competing interests in the manuscript.

Data analysis

Three researchers familiar with the data and study independently assigned categories prior to analysis. The researchers discussed the categories together before reaching a consensus. Then, individual statements were independently categorized. The inter-rater reliability of

the classifications assigned to participants' reasons for preferring one figure to the other was calculated using Fleiss' Kappa (1971). The calculated Kappa coefficient, $k = .83$, exceeded published standards for a research design with three raters, seven categories, and a large number of participants (Sim & Wright, 2005). We then examined potential differences in children's preferences for the hyper-muscular and normally-muscular figures, and whether sex moderated this difference, using χ^2 goodness-of-fit tests and χ^2 tests-of-independence, respectively. Omnibus χ^2 goodness-of-fit tests were followed-up by calculating and examining adjusted residuals, in accordance with published recommendations (Sharpe, 2015), and omnibus χ^2 tests-of-independence were followed-up with Z-tests for column proportions. SPSS version 22 and Microsoft Excel version 15 were used for calculations and data analysis.

RESULTS

Action Figure Preference as a Function of Sex

Significantly more children preferred the hyper-muscular figures (85.6%) than their normally-muscular counterparts (14.4%), $\chi^2(1, N = 347) = 175.82, p < .001$. Figure preference differed significantly as a function of sex; boys were significantly more likely to report a preference

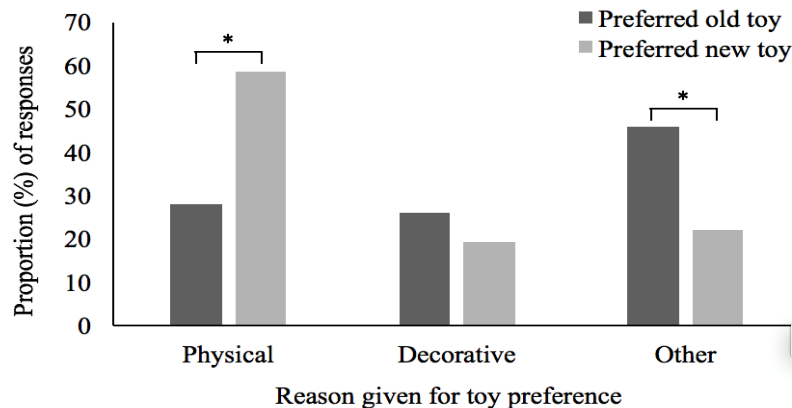


FIGURE 2 Proportion of Children (%) Selecting Each Response Category (physical, decorative, & other) as Their Reason for Preferring Old (normally-muscular) or New Toy (hyper-muscular)
* = $p < .05$.

for the hyper-muscular figures (90.3%) than girls (80.7%), $\chi^2(1, N = 347) = 6.53, p = .011$. Examining each sex separately, preference for the hyper-muscular figures over the normally-muscular figures was significant among boys, $\chi^2(1, N = 176) = 114.57, p < .001$, and girls, $\chi^2(1, N = 171) = 64.47, p < .001$. Overall, both sexes expressed a clear preference for the hyper-muscular figures.

Reasons for Figure Preference

Significant differences emerged in the reasons given for the action figure preference as a function of whether the normally-muscular or hyper-muscular figure was preferred (see Figure 2), $\chi^2(2, N = 347) = 17.81, p < .001$. Follow-up tests revealed that participants who preferred the hyper-muscular figures were significantly more likely to provide a physical reason for their preference (e.g., more muscular, larger) than those who preferred the normally-muscular figures, $p < .05$. Further, participants who preferred the normally-muscular figures were significantly more likely to provide “other” as a reason (not related to the physical size or decoration of the figure) than those who preferred the hyper-muscular figures, $p < .05$.

There were no significant sex differences in the reasons given for preferring the hyper-muscular figure (see Figure 3), $\chi^2(2, N = 297) = 2.34, p = .311$. Follow-up comparisons revealed that participants were

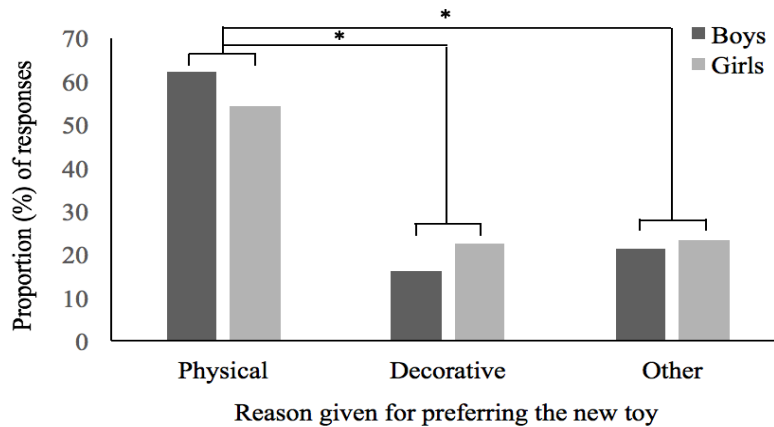


FIGURE 3 Proportion of Boys & Girls (%) Selecting Each Response Category (physical, decorative, & other) as Their Reason for Preferring the New Toy (hyper-muscular).

* = $p < .05$.

more likely to report preferring the hyper-muscular figures for physical reasons compared to decorative reasons, $p < .05$, and that participants were more likely to report preferring the hyper-muscular figures for physical reasons compared to “other” reasons (i.e., not physical or decorative), $p < .05$. Overall, it appeared that the predominant reason why boys and girls preferred the hyper-muscular figures related to the more muscular physique of the hyper-muscular figures.

DISCUSSION

The present study examined sex differences in young children’s preferences for hyper-muscular versus normally-muscular action figures and aimed to offer insight into whether young girls also report a preference for the muscular body ideal. Results suggested that girls, like boys, overwhelmingly prefer hyper-muscular action figures over their normally-muscular counterparts. For both girls and boys, the predominant reason for choosing the hyper-muscular figure related to the improved physical size and muscularity of the figure. No sex differences emerged in this pattern of preference. Taken together, the findings are interpreted to provide modest evidence that both young girls and boys have internalized the Western muscular male body ideal.

Whilst the study did not explicitly assess whether the preference for muscularity amongst girls only extended to their preference for male bodies, or whether this preference was applicable to one’s own body, these data raise an important question relating to the role of muscularity in preadolescent female body preferences. At present, data show that women are overrepresented in mental disorders for which thinness is overvalued (Hoek & Van Hoeken, 2003), and men are overrepresented in mental disorders for which muscularity is overvalued (Olivardia, Pope, & Hudson, 2000). Boys’ and girls’ valuation of muscularity may disproportionately increase the pressure on boys to obtain a more muscular body, which, in turn, may result in boys developing a drive for muscularity (McCreary & Sasse, 2000). Unfortunately, for some of these boys, the drive for muscularity may pathologize into muscularity-oriented body image and eating disorders (Pritchard & Parker, 2011).

It may benefit clinicians who work with children to be aware of the potential for boys to have internalized the muscular ideal body. Further, clinicians might note that this internalization may not solely reflect consumption of media that venerates male muscularity, but also, pressures emanating from an internalization of the muscular ideal among girls. For example, Aruguete and colleagues (2014) reported that celebrity admiration might lead to negative perceptions of body image, especially in males. Therefore, clinicians should note that internalization of the muscular ideal body among young boys is not benign – evidence is

mounting that internalization of the muscular body ideal contributes to the development of body image and eating disorders among adolescent boys and young adult men (Griffiths, Mond & Murray, 2015; Murray et al., 2012; Pope et al., 2005).

Limitations of the study are noted. First, although both girls' and boys' patterns of preferences for action figures were closely aligned, girls may be less likely to play with action figures in the first place, and instead prefer to play with figures marketed predominantly toward girls, such as dolls. Second, the action figures chosen for the present study may not be representative of all action figures, and the children recruited for the present study may not be representative of the general child population, at least in the United States. Third, the ability of young children to evaluate the body types of action figures and to compare these with their own bodies is equivocal, as is the link between preference for action figures and internalization. For all these reasons, we believe the experimental evidence presented here provides only modest evidence of internalization of the muscular male ideal body among male and female children. Nevertheless, the results are sufficiently compelling to warrant additional research in this area.

In conclusion, the present study observed that girls and young boys prefer hyper-muscular action figures over their normally-muscular counterparts, and that the predominant reason for this preference is the same regardless of sex: Contemporary action figures are larger and more muscular. Limitations notwithstanding, the study provides modest evidence that young boys and girls have internalized the male muscular ideal body, and we encourage additional, more robust experimental research into the nature and mechanisms of ideal body internalization among both boys and girls.

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