

Apparel Product Development for Plus-sized Tween and Teen Boys

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Project Team

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Abstract

This research investigates the physical and social-psychological dimensions of demand for apparel by tween boys (ages 9-14), particularly the growing niche market of those who are overweight or obese. Tweens are regarded as a significant market. However, sizing options for adolescents are not based on any current anthropomorphic data that reflects the body size and shape changes driven by either physical growth during this period or demographic changes in the culture. Appearance and clothing are important to tweens, affecting their identity and social relationships, but there is little knowledge of the links between their body images, their emotional needs for desirable clothing styles that physically fit their bodies, and the influence of significant others on these links. During the first year of the project, data sets consisting of questionnaires, 3D body scans, and dialogue from focus group content were gathered from 44 pairs of tween boys and their mothers. A total of eight focus groups (4 with tween boys and four with their mothers) were conducted with groups segmented by BMI and age as younger (9-11) normal and plus size and older (12-14) normal and plus size tween boys. During Year Two of the project, content analysis began on data gathered during the focus group sessions of Year One. This year an additional 105 boys and between the ages of 9-14 along with their mothers completed questionnaires regarding clothing choices, body satisfaction, and body image. Three dimensional (3D) body scans captured the physical measurements for each of the 105 boys.

Goal Statement

Current data indicate that Americans are larger in physical stature and heavier than in previous generations. Through Size U.S.A., an anthropometric research study conducted by [TC]² using 3D body scanning, apparel product developers have better insight into sizing issues for American adults. However, sizing issues for the appearance-focused age group of tweens and young teen boys have not been addressed. This study develops a research process to understand the social, psychological, and physical issues related to product development and marketing to boys ages 9-14, with an emphasis on the niche market of overweight and obese boys. This project extends the range of the current NTC research project, S04-AC01 which explored product development and sizing issues for young tween and teen girls.

Over the life of the project, the research team expects to discover answers to: 1) What are the physical and psychological characteristics of young boys ages 9-14 who are overweight or obese? 2) Where is the market potential for developing apparel products for this niche market? 3) How should sizing categories be developed within this range of ages? The research team expects to define the market potential, understand sizing and fit problems, and develop guidelines for sizing for overweight and obese males reflecting body shape, social psychological needs, and shopping behaviors.

The research will provide apparel designers and product developers, marketing personnel, and retail executives with information about this niche market with respect to body shape, sizing and fit problems, clothing needs and wants, and clothing selection practices. Understanding size and body shape and the related social and psychological issues will lead to identification of market voids providing manufacturers' and retailers' information on product development needs to match the physical bodies and clothing preferences of this age range.

Focus Group Research

A series of eight focus groups were completed in the fall of year one of the project. Tween boys ages 9-14 were the primary focus of the discussion sessions. However, literature and anecdotal information indicated that mothers are a primary influence on the clothing choices for boys in this age range. Because mothers play such a vital role in the selection and purchase of clothing for tweens, they were interviewed as well. Focus groups were segmented by age and size as calculated by Body Mass Index (BMI) calculated for each tween boy:

M 9-11 Normal Size Boys and Mothers M 12-14 Normal Size Boys and Mothers

M 9-11 Plus-size Boys and Mothers M 12-14 Plus-size Boys and Mothers

Normal and plus-sized groupings for boys were determined by guidelines approved by the U.S. Center for Disease Control (CDC). Boys were defined as overweight or at risk of being overweight when their BMI scores reached the level at or above the 85th percentile in their age category.

Mothers and boys were interviewed in focus groups separate from their sons with each group having 8-12 participants for a total of 44 pairs of boys and mothers. Focus group moderators included a female veteran moderator for the mothers groups. The moderator for the boys was a graduate student in human development with experience in working with groups of young males. Scripted questions were followed during the focus groups with probing for emergent issues that were not scripted. Focus groups were completed in December, 2006. All focus groups were transcribed from video and work has begun on content analysis for each group.

During the data collection period and before the focus groups began, boys and their mothers were body scanned using a [TC]² NX 12 Body Scanner. Both mothers and sons completed a questionnaire probing body image and attractiveness issues, feelings about clothing, and apparel selection experiences. To examine body image, the questionnaire included a set of

line drawings (Stunkard, Sorenson, & Schulsinger, 1983) used to represent body image from a small, thin frame to a large obese male body. Boys were asked to identify their current body image and their ideal body image. Mothers were also asked to identify the size closest to their son's body and the ideal body for that age (i.e. tween or adult). The questionnaire also examined influential individuals in clothing decisions for tween boys. Boys were asked about how their friends felt about dieting and weight gain and how happy they were with their height and weight. Self-esteem was measured using the Rosenberg Self Esteem Scale (1965).

Analysis of 3D Scans for Focus Groups

Research by Pisut (2002), Alexander (2003) and Simmons, Istook, and Devarajan (2004) used body scan data to explore the adult female body shape. Results showed a distribution of varying body shapes including hourglass, rectangular, and pear-shaped figures could be found in the adult female population. A current NTC project investigating young female tweens/teens indicates a wide range of body measurements and shapes exist within this apparel category (Connell & Ulrich, 2005). However, young males have not been studied in a similar manner to understand body shape and the breadth of body measurements across the age category. The 44 3D body scans of tween males suggest a wide range of body sizes and shapes exist among boys ages 9-14 as depicted in Figures 1 and 2.

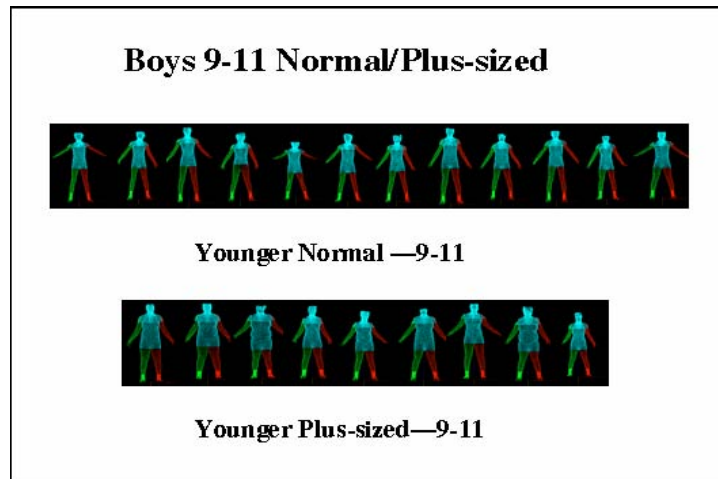


Figure 1 shows the 3D body scans of 21 boys, 9-11 years old with body sizes ranging from normal to plus size.

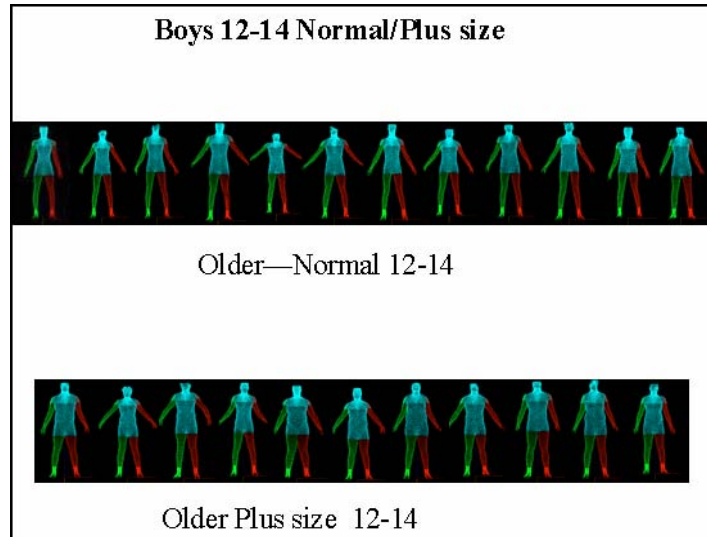


Figure 2 shows the 3D body scans of 21 boys, 12-14 years old with body sizes ranging from normal to plus size.

There is little information on body size and shape for men. Sheldon (1940) studied the male figure using photography and developed the body classifications of endomorph, ectomorph, and mesomorph. Brannon (1971) used graphic somatography to develop a scale for body size and posture for men. These studies, based on data from adult males, are a starting point for our research to identify and develop classifications for body size and shape for tween males. We are in the process of using visual analysis and anthropometric measures to develop a classification system for body shape for young males.

BMI's for the younger (9-11) normal size tween boys in the focus groups ranged from 11.42-21.57. The mean BMI for the younger normal size boys' was 16.58 . When compared to the range of 50th percentile BMI's of 16.2-17.2 for 9-11 year-olds, it falls within the mean range. The mean for older boys' (12-14) in the focus groups was 19 with a range of 16.85-21.84. Compared to the CDC's 50th percentile BMI's ranging from 17.8-19.2 for 12-14 year-olds, the mean for the older boys was at the top of the range.

The mean BMI scores for the two plus size groups were above the CDC's defining 95th percentile for identifying an overweight young male. The younger boys' mean BMI was 29.53. BMI's for this group ranged from 19.65-39.24. BMI's posted by the CDC for the 9-11 year old group at the 95th percentile range from 21.2-23.2. The average age for the younger boys in this sample was 10. Surprisingly, the older boys' mean BMI was lower than that of the younger group at 27.53. This compares to CDC's 95th percentile BMI's of 24.2-26 for 12-14 year-olds. BMI's for older plus size boys in this sample ranged from 21.35-33.60. The mean age for the older plus size boys was 13. This small sample seems to indicate that as boys grow taller, their BMI's may actually fall as their height increases. However, though taller, the BMI's for the older boys, were still several points over the CDC's definition of an overweight young male.

Classification of Additional 3D Scan Data Set

During the summer of 2008, an additional 105 tween boys were scanned and along with their mothers and completed the same questionnaires previously used in the focus group data collection. Initial classification of the scans by BMI indicates that the though the groups were fairly well distributed by age, the sample contains fewer husky boys. The age break down was 55 boys aged 9-11 and 50 boys aged 12-14; 32% were husky and 68% were normal size. A little less than a fourth of the sample was African American. The experimental protocol was designed to extract body measurements, height and weight using the 3D body scanner ([TC]² NX 16 scanner), and calculate the BMI. According to the cut off set in Table-1, the subjects were classified as “Normal” and “Husky”. Table-2 shows the grouped classification of the subjects.

Table-1 Cut-off preset in protocol

Age	“Normal” cut-off	“Husky” cut-off
9	18.5 or less	18.6 or higher
10	19.3 or less	19.4 or higher
11	20.1 or less	20.2 or higher
12	20.9 or less	21 or higher
13	21.7 or less	21.8 or higher
14	22.5 or less	22.6 or higher

Table-2 Classification of test subjects

Age	Normal Boys	Husky boys	Ethnicity		Total Number Of Boys
			AA	C	
9	15	5	3	17	20
10	13	6	2	17	19
11	7	9	1	15	16
12	11	7	4	14	18
13	14	5	7	12	19
14	7	6	2	11	13
Final total	67	38	19	86	105

Analysis for data from 3D scans of both the focus groups and the 105 additional scans is on-going. Future analysis will include charts of extracted measurements useful for apparel product developers for application in apparel development for all age and BMI categories of tween boys.

A cursory observation of the total 149 tween boys scans from both data collection phases is the wider array of heights observed than in the comparable number of scans of tween girls. Even within the same age group, boys could range from short and slight to very tall and thin or husky. Mothers of boys who were small for their age spoke of how difficult it was to find age-appropriate apparel to fit. A specific frustration expressed by boys and their mothers, particularly in the husky segments, was the big jump in size specifications between boys' and men's size categories.

Social/Psychological/Self Image Factors Focus Group Data Set

Our study also explores the social and psychological implications of body size and shape for boys. Previous research found that boys chose ideal figures that were moderately but significantly heavier than their perceptions of their own bodies, supporting the idea that boys maturing through puberty see increasing body mass as desirable. This was true for our normal size groups. However, initial analysis of data from boy's responses to the body image scale in the questionnaire used in the focus groups, indicates that when plus-sized boys rated their current body size and their ideal body size on a 7-point scale, on average, their average self ratings were higher than their average ideal ratings. (Figures 3 and 4). This was true for both the older and younger plus-sized groups.

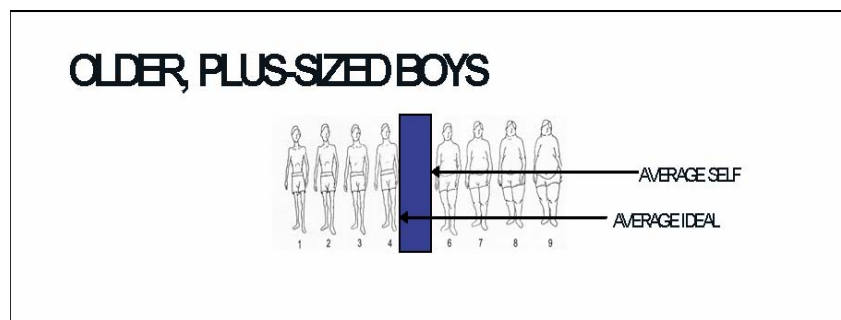


Figure 3 shows the mean scores for older plus-sized boys' ratings for average and ideal body image.

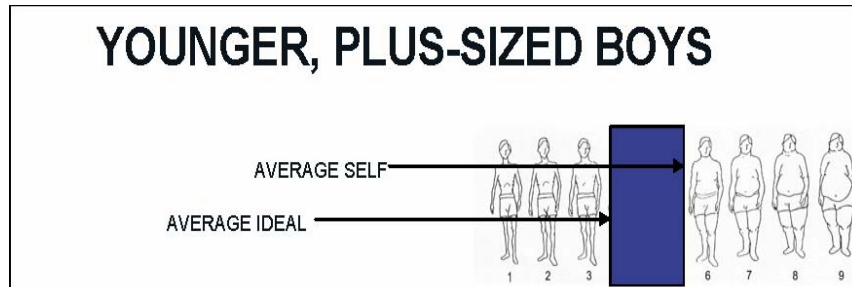


Figure 4 shows the mean scores for younger plus-sized boys' ratings for average and ideal body image.

Apparel Sizing and Selection Focus Group Data

Data analysis of boys' focus groups revealed more than 400 comments on fit and comfort, primarily concerning jeans, pants and shirts. When asked about the body areas where jeans don't fit, 36% of the comments made were about the length for pants and shirts. All of the comments expressed discontent with the length of jeans in the marketplace.

Husky (plus sized) boys discussed the difficulty of finding pants, shirts and shoes that fit their bodies. Half of their comments pertained to the difficulty they faced in finding shoes in their size. Pants and shirts were hard to find due to fit discomfort and size limitations. Some boys were too big for Husky Boys' sizes but not tall enough to wear Men's sizes. These husky boys had to buy the waist size to fit, and the result was rises and inseams that were much too long. The worst case scenario was complete unavailability; some mothers reported their sons could wear only sweatpants to school because there were not jeans that fit. Boys discussed how they wanted their jeans to fit, but their mothers' comments revealed greater segmentation in the desired fit than was observed with girls. Mothers of plus size girls reported buying garments and bringing them home for their daughters. Mothers of husky boys went a step further; several purchased multiple garments in multiple sizes to bring home for their sons to try, with the plan of returning the rejects; the home became the substitute dressing room. With few exceptions, mothers rather than fathers bore major responsibility for shopping with or for their sons. These findings suggest that husky tween boys can identify some fit preferences, but can be frustrated by the lack of availability of garments to match those fit preferences. This study is a starting point in understanding the demands of this fast growing consumer group by providing more in-depth knowledge about gaps in product assortments.

An indication that current sizing of apparel for young males may not fit the target market, can be found in comments from both boys and their mothers. Comments from the older and younger normal size boys and their mothers included:

“My son is 12 and he's extremely tall for his age, and very thin. We have always had difficulty finding him clothes.”

"It's hard to find my size because different brands always have different sizes."

"It's hard to find things to wear because I'm a string bean."

Though both mothers of boys in both the normal and plus-sized groups indicated difficulty in finding clothing to fit their sons, mothers' of plus-sized boys made more comments regarding the difficulty of shopping for their sons. Some of the following comments indicate the problems expressed by mothers and their sons:

"It's hard to find jeans because my size runs in between the adults and the younger."

"All the thinner children can wear what's popular, but for the huskies its harder to find."

"I have to shop in the men's section and I don't like that."

"You hold up his pants now, and they look so out of proportion because you had to cut off much of the length (to hem the pants)."

"I don't want to have to send my son to high school in sweats"

"I try to avoid shopping with him, I buy things, bring them home, and if they don't fit, I'll just return them. I'm the world's biggest returner."

"It's hard to get things to fit him so he doesn't necessarily go after style, but he wants things to fit him, you know, go around his waist and fasten, and not just not the stretchy gym shorts."

Comments regarding selection and styling also emerged from the focus group series.

"I wish there were a better selection of boys dress shirts..like plaid, stripes,

like that."

"My son always had big self-image problems to start with, so going shopping has always been a big downer."

"I got five pair of pants from the internet cause the store didn't have my size."

This project compliments and extends an earlier project focused on apparel sizing for plus size tween girls. As with the girls, this project expects to conduct a survey (1500 pairs of sons and mothers) applying concepts gleaned from the focus group study to better understand the anthropometric and social and psychological issues related to manufacturing and marketing to tween boys.

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Project website: <http://www.ntcresearch.org/projectapp/?project=S06-AC03>