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FIT OF CLOTHING RELATED TO BODY IMAGE, BODY BUILD, AND SELECTED CLOTHING ATTITUDES

by

Ardis A. Williams

A Dissertation Submitted to
the Faculty of the Graduate School at
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Approved by

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APPROVAL PAGE

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WILLIAMS, ARDIS ADA. Fit of Clothing Related to Body Image, Body Build, and Selected Clothing Attitudes. (1974) Directed by: Dr. Pauline E. Keeney, Pp. 159.

The purpose of this study was to explore the relationships between the closeness or looseness of the fit of clothing and body image, body build, and selected clothing attitudes. Data were used from 140 females between 19 and 23 years of age enrolled in classes in the clothing and textiles area of the School of Home Economics of The University of North Carolina at Greensboro during the 1973-1974 academic year.

Six items of background information were obtained from the subjects. Body image was determined from a body impression scale, a body cathexis scale, and a body build self rating. Body build was determined from somatographs of the subjects by a panel of judges. The selected clothing attitudes were determined from three subscales on comfort, dependence, and modesty. Somatographs were prepared according to precise specifications. The closeness or looseness of fit was determined at the bust, waist, and hips from the back view clothed and semiclothed somatographs.

Five significant correlations were found between fit at the bust, waist, or hips and background information variables. There were no significant correlations between fit at the bust, waist, or hips and body image, body build, and clothing attitude variables. Correlations adequate ($p \leq .20$) to be noted as trends were listed.

Stepwise multiple regression analyses were performed for fit at the bust, waist, and hips regressed on body image mean score, body build, and clothing attitude mean score variables from a model equation including individual variables, squares, and interactions. It was concluded that 4.7 percent of fit at the bust, 6.9 percent of fit at the waist, and

9.3 percent of fit at the hips were accounted for by the variables. When stepwise multiple regression analyses were performed for fit regressed on body image compcnent scores (body impression, body cathexis, and body build self rating), body build, and clothing attitude mean score, 8.2 percent of fit at the bust, 21.8 percent of fit at the waist, and 21.1 percent of fit at the hips were accounted for by the variables. When stepwise multiple regression analyses were performed for fit regressed on body image mean score, body build, and clothing attitude subscales (comfort, dependence, and modesty), 12.4 percent of fit at the bust, 14.4 percent of fit at the waist, and 12.0 percent of fit at the hips were accounted for by the variables.

From the increases in percent of fit accounted for by the component and subscale variables, the decision was made to do further analyses grouping the subjects by body build. Stepwise multiple regression analyses were performed for fit regressed on body image mean score, body build, and clothing attitude mean score variables for slender, average, and stocky body builds with the results interpreted as trends. For the slender body build group it was concluded that 28.2 percent of fit at the bust, 52.8 percent of fit at the waist, and 42.2 percent of fit at the hips were accounted for by the variables. For the average body build group 10.9 percent of fit at the bust, 21.8 percent of fit at the waist, and 29.6 percent of fit at the hips were accounted for by the variables. For the stocky body build group 8.6 percent of fit at the bust, 18.4 percent of fit at the waist, and 40.6 percent of fit at the hips were accounted for by the variables.

Relationships were shown to exist between the closeness or looseness of fit and body image, body build, and clothing attitudes. The amount of variability accounted for by these research variables indicates the complex nature of clothing behavior.

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TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Studies conducted in the area of clothing behavioral research in recent years have provided ample evidence that individuals differ in attitudes toward clothing, awareness of clothing, values in clothing, and expectations of the impressions given by clothing. Also, it appears from casual observation that individuals differ in their desire for clothing which either clings closely to the body or hangs apart from the body.

Closeness or looseness of clothing fit is the result of the design, the pattern size, the flexibility and extensibility of the fabric, and the garment construction in relation to the individual's body. The standardized sizing of ready-to-wear garments and commercial patterns is based on anthropometric measurements. However, an individual may not select garments or patterns based on these measurements, but may select and wear garments that fit the body closer or looser according to one's own complex attitudes.

The reasons for wearing clothing are numerous, complex, and interrelated. The attitudes an individual holds toward clothing influence one's choice of clothing even though one may be unaware of the specific reasons for certain clothing choices. If attitude toward clothing does influence the choice of clothing, then these attitudes may affect apparel choices in the closeness or looseness of fit.

English and English (1958) define body image as the mental picture an individual has of his or her own body. This image influences the

perception an individual has when the body is clothed. Also, body image may influence the degree to which an individual conceals or reveals the body.

Recently, the clothing industry has increased attention to the actual physical dimensions of women's bodies through personalized computer patterns and through speciality shops catering to specific body builds. Little attention has been given to the psychological reasons for an individual's choice in the closeness or looseness of clothing fit.

This study was designed in an attempt to increase an understanding of some of the factors an individual uses in choosing clothing. The purposes of this research were the exploration of relationships among selected attitudes about body image, body build, and clothing and their relationship to the closeness or looseness of clothing worn by individuals.

HYPOTHESES

In order to test the relationships among the variables, the primary hypothesis was formulated:

There will be statistically significant relationships between the closeness or looseness of clothing fit at the bust or highest measurable underarm level, the waist level, and the widest hip level determined from somatographs and

1. the body image mean scores
2. the body build ratings by judges and
3. the clothing attitude mean scores.

In order to understand the relationships between closeness or looseness of clothing fit and the component scores of body image and clothing attitude, the following secondary hypotheses were formulated:

1. There will be statistically significant relationships between the closeness or looseness of clothing fit at the bust or highest measurable underarm level, the waist level, and the widest hip level determined from somatographs and

   a. the body impression mean scores
   b. the body cathexis mean scores
   c. the body build self ratings
   d. the body build ratings by judges and
   e. the clothing attitude mean scores.

2. There will be statistically significant relationships between the closeness or looseness of clothing fit at the bust or highest measurable underarm level, the waist level, and the widest hip level determined from somatographs and

   a. the body image mean scores
   b. the body build ratings by judges
   c. the clothing comfort mean scores
   d. the clothing dependence mean scores and
   e. the clothing modesty mean scores.

DEFINITIONS

For the purpose of clarification, the following terms are defined for use in this study.

Anterior-posterior view refers to a side view which shows the profile of the front and back of the body.

Back view refers to the silhouette of the side contours of the body when the subject is standing with her back to the graphic screen.

Body build refers to the observable human body structure and the pattern of relationships among the several members and features of the body (English & English, 1958). For the purpose of this study, body build was used as a research variable and refers to the body build rating by judges.

Body cathexis refers to the degree of feeling of satisfaction or dissatisfaction with selected parts of the body as measured by a modification of the Secord and Jourard Body Cathexis Scale (Secord & Jourard, 1953).

Body image refers to the mental picture an individual has of his or her body including both its physical characteristics and attitudes toward these characteristics (Golderson, 1970).

Body image score refers to a mean score derived from 1) a self rating of body build according to the Douty Body Build Scale, 2) impression of the attractiveness of the body and its parts according to the Douty Physical Inventory for Women, and 3) body cathexis or the satisfaction or dissatisfaction of a subject with her body according to the Secord and Jourard Body Cathexis Scale.

Body impression refers to the degree of attractiveness a woman believes her body to have. In the literature this attractiveness was referred to as figure impression.

Closeness refers to clothing which is tight fitting or conforming to the body surface.

Closeness or looseness of fit refers to the measured difference between the clothed body and the semiclothed body as measured from somatographs at the bust or highest measurable underarm level, the waist level, and the widest hip level.

Clothing or garment, unless otherwise designated, refers to the outer layer of wearing apparel excluding protective garments such as coats, capes, and rainwear.

Clothing comfort refers to the use of clothing to achieve satisfaction as related to the tightness or looseness of garments (Creekmore, 1971).

Clothing dependence refers to feelings of sensitivity to the influence of clothing on sense of well being, general good feeling, and changes in mood (Creekmore, 1971).

Clothing modesty refers to preference for clothing conservative in closeness of fit and degree of body exposure (Creekmore, 1971).

Douty Body Build Scale refers to a scale used as a criterion for rating figures according to height-weight relationship. Five figure types are classified and defined (Douty, 1968c).

Ease refers to the total amount of fabric exceeding the body measurements which a designer provides in a garment.

Graphic somatometry refers to a procedure developed by Douty (1968c) in which a source of light, the subject, a graphically marked screen, and a camera are used to produce a somatograph.

Looseness refers to that quality of fit being not so unduly tight as to bind or constrain.

Semiclothed refers to the subject dressed in normally worn minimal underwear which may include brassiere, panties, girdle, and pantyhose. Somatograph refers to a graphically marked silhouette photograph of a subject (Douty, 1968c).

LIMITATIONS

This study was limited to the difference in closeness or looseness of clothing fit obtained by graphic somatometry. The closeness or looseness of fit was determined by measurement of the somatograph of the subject clothed in the dress or skirt combination garments such as a suit or jumper which she considered to be the most flattering clothing and the semiclothed somatograph of the same subject. Differences were determined between the two sets of measurements. Measurements were taken at the bust or highest underarm level, waist level, and widest hip level. There was no assessment of the correctness of clothing fit according to any authority, guidelines, or compilation of standards. No other aspects of clothing fit deemed necessary by designers or clothing specialists, such as freedom from wrinkles, seam location, dart location, proportion, appropriateness of style, grain of fabric, balance of flare, or overextension of stretchy fabric were considered. Also, no assessment was made of the subjects' concept of the closeness or looseness of fit.

The subjects of this study were enrolled in clothing and textiles classes in the School of Home Economics at The University of North Carolina at Greensboro, Greensboro, North Carolina. This accidental sample limited the analysis and interpretation of data to the subjects

included in the study. Generalizations to other populations cannot be made.

ASSUMPTIONS

The first assumption was that each subject had in her wardrobe one dress or combination of clothing items with a skirt she considered to be most flattering. Also, the assumption was made that the garment or garments the subject considered most flattering resembled the closeness or looseness of clothing fit she considered appropriate for herself.

The second assumption was that closeness or looseness of garment fit could be determined by measurement of somatographs. Also, the assumption was made that the measurement of the back view somatographs yielded similar closeness or looseness of fit to that measured from other views of the body.

CHAPTER II

REVIEW OF LITERATURE

The literature cited substantiates the definitions and instruments used for this research and reviews recent related research. The following presentation consists of three major sections: body image, body build, and clothing attitudes; psychological aspects of the closeness or looseness of clothing fit; and somatometry.

BODY IMAGE, BODY BUILD, AND CLOTHING ATTITUDES

Body image was one of a number of terms in the literature describing an individual and his psychological relationship to his physical body. Literature based on terms such as body awareness, body concept, body experience, body percept, and body schema was reviewed for information on the relationship of the body and clothing.

The definition of body image by Golderson (1970:168) was selected for this study for its simplicity and succinctness. Body image was defined as "the mental image we form of our body as a whole, including both its physical characteristics and our attitudes toward these characteristics." Increased understanding of the term body image came from the comprehensive definition by English and English (1958:70). They defined body image as:

> . . . the picture or mental representation one has of his own body at rest or in motion at any moment. It is derived from internal sensations, postural changes, contact with outside objects and people, emotional experiences, and fantasies.

The definition of English and English supported the theory of a psychological relationship between the body and clothing when they stated that the mental image was derived in part from outside objects which could include clothing. Additional authors substantiated the relationship of body image and clothing through examples of the effect of clothing on an individual's behavior. In the Preface to Body Experience in Fantasy and Behavior, Fisher (1970:vii) stated that:

> Whether it is his need to decide the kind of clothing he ought to buy or to evaluate if the world is a safe enough place for him to pursue goals and aspirations, his feelings about his body will participate in the decision process.

Fisher and Cleveland (1968:23) cited the expenditure of time and effort in altering the body appearance as evidence of the relationship of body image to clothing and appearance.

> The importance of body image to our culture as a whole is obvious in terms of the widespread expenditure of time and effort that is given to altering the body's appearance. Individuals are constantly seeking by means of clothes, bleaches, skin preparations, cosmetics, tattooing, and even plastic surgery to change their appearance and to make themselves look more like some ideal image they have in mind.

Clothing has been recognized as important to the development of body image both visually and psychologically. The development of the relationship between the body, body image, and clothing has been explored by several authors. Schilder (1950) believed that clothing became incorporated into the body image due to the surface contact with the body. He further believed that when an individual changed clothing, the body image changed, especially when the clothing was either more or less closely connected to the surface of the body.

Clothing also may have a negative effect on the development of body image. Fisher (1973) stated that individuals have difficulty in

developing a realistic body image since the body is covered by clothing most of the time.

The closeness of the relationship of body image and clothing was explained by Fisher (1973:89) in his statement:

> After all, when we change clothing it is the appearance of our own body that we alter, and in that sense we are much more ego-involved with the alteration than with one we perceive in another person. Furthermore, costume shifts may actually involve tactual and kinesthetic shifts that are not apparent to the outside observer . . . . One set of clothes may be experienced as tighter or looser than another and therefore affect how free or inhibited we feel.

The feelings and attitudes about the body derived from clothing have been explored by psychologists since the late nineteenth century. Some of the earliest authors included Lotze (1885), Hall (1898), and Flaccus (1906). An early treatise on the relationship of the body and clothing was The Psychology of Clothes by Flugel (1930). Flugel theorized explanations of the symbolism of clothing and the use of clothing to satisfy psychological needs, some of which were related to body image.

Research to substantiate the early theories regarding the relationship of body image and clothing has been more recent. Generally, research relating body image and clothing has been limited to aspects of body image such as body awareness, body boundaries and barriers, body cathexis, figure impression, body build or type, body intensity, or body prominence. While such research assists in understanding the relationship of given aspects of body image and clothing, not all of it was pertinent to this research. Therefore, only literature pertaining to the two aspects of body image measured in this study are reported. These two aspects are figure impression and body cathexis. Literature related to a

third aspect of body image, the self rating of body build, is reported under the section entitled body build.

Figure Impression

Research on figure impression has been reported by several authors (Douty, 1973, 1970, 1968a, 1968b, and 1968c; Jones, 1972; and Robinson, 1967).

The Douty Physical Inventory for Women contained a group of six items entitled figure impression. Of these six, four items related to specific body parts: bust, waist, derriere, and legs; and two items related to the overall or global figure. These items were developed to measure one aspect of a subject's attitude about her body--the degree of attractiveness a woman believed her body to have. During development of the Douty Physical Inventory for Women, Robinson (1967) found correlations significant at the $p \leq .01$ level between self-ratings of figure impression--mean attitude toward the self, global attitude toward the body, and mean attitude toward the body. Self-ratings of figure impression were significantly correlated with the mean of segmental (specific body parts) ratings of figure impression and the global attitude toward the body. From this finding, Robinson (1967:49) concluded:

> It would seem logical to infer that the total impression would be similar to an average of segmental ratings. However, in actual work with this, many exceptions were found. It seemed that psychologically, responses are not made to equal stimuli.

From the study of 150 college women it was concluded that if a subject had a favorable attitude toward her body and toward her self, she was pleased with her figure.

In a more recent study Jones (1972) found significant correlations at the .01 level between self ratings of figure impression and variables such as anxiety level, attitude toward the body, attitude toward the figure, and body build self rating. It was concluded from this study of 136 high school girls that as the body became more slender the subjects perceived themselves as more attractive in accord with the ideal of slender proportions. A further conclusion was that as the subject's figure impression became more positive there was a tendency for anxiety level to decrease.

Robinson (1967:68) stated that "several checks on the [Douty Physical] Inventory [For Women] were made to test reliability. These have been previously mentioned in the chapter on Results and Discussion." The reliability of the figure impression items of the inventory could not be verified from the chapter on Results and Discussion.

Body Cathexis

The degree to which an individual is satisfied or dissatisfied with his body is referred to as body cathexis. A widely used measure of body cathexis is the Secord and Jourard Body Cathexis Scale. Secord (1953) first developed a homonym word association technique (H test) for measuring body cathexis. Using the H test, a body cathexis scale, a self cathexis scale, and the Maslow Test of Psychological Security-Insecurity, Secord and Jourard (1953) found significant correlations between the H test scores and body cathexis scores for 56 women. The split-half reliability coefficient corrected by the Spearman-Brown formula for the body cathexis scale scores of females was .83. This was considered

moderately high, especially when 13 subjects showing response sets were removed from the sample, reducing the sample to 43 subjects.

In a later study with 60 female students, Jourard and Secord (1955) explored the relationship between a modified body cathexis scale and size, including self-estimated size, self ratings of ideal size, and actual measured size. The modified body cathexis scale contained 12 items believed by the authors to be the body aspects most important to women. The correlations were significant at the $p \leq .01$ level for the cathexis rating and the actual measured size for weight, hips, thighs, calves, ankles, and feet; significant at the $p \leq .05$ level for the bust and waist. A positive cathexis was associated with small size for all the body parts except bust where small size was associated with dissatisfaction. Correlations between estimated size and body cathexis were obtained for five parts only and were similar in magnitude and direction to those of measured size and body cathexis. Small standard deviations for ideal size ratings suggested that the concept of the ideal female figure is a shared concept rather than a reflection of normal figure variability--the ideal size was smaller for weight, waist, and hip measurements and larger for bust measurement.

Jourard and Remy (1957) used a forty-part body cathexis scale to measure the variability of cathexis responses to the body. The variability was measured between a group of 51 female and a group of 48 male college students. The variability also was measured within the group of female subjects and within the group of male subjects. The body cathexis scores of women showed greater variability than those of the men. It was concluded that women have more highly differentiated body

images than men. The finding of variability in body satisfaction of women was reported also by Wenger (1969). Of the 100 women who participated in the study, 50 percent were satisfied with their busts, while 49 percent were dissatisfied with their waists, and 54 percent were dissatisfied with their hips.

In a recent comprehensive study, Berscheid, Walster, and Bohrnstedt (1973) used a modified Secord and Jourard Body Cathexis Scale as part of a body image questionnaire reported in the July, 1972, issue of Psychology Today. They were unable to use the 62,000 responses from the readership, but analyzed a selected stratified sample of 2,000 questionnaires, approximating national distributions of sex and age. In discussing body cathexis, Berscheid, Walster, and Bohrnstedt (1973:120) "assumed that respondents would have a high level of dissatisfaction with their bodies, since our society places so much emphasis on physical appearance." However, only seven percent of the women reported being quite or extremely dissatisfied and only 16 percent were slightly dissatisfied with their overall body appearance--slightly less than half (45 percent of the women) were quite or extremely satisfied with overall body appearance. When various body parts were analyzed separately, there was increased dissatisfaction. Almost half (48 percent) of the women were unhappy about their weight and of that number, 21 percent were very dissatisfied with this aspect. The authors (1973:121) related:

> The great concern that society places on a trim figure, especially for females, is reflected in their answers . . .
>
> Perhaps because excess weight tends to settle in the mid-torso area--abdomen, buttocks, hips and thighs--people who were unhappy about their weight were also unhappy about these particular body parts. Women may not be worrying about the size of their breasts, but they are worrying about the size of their

> hips--49 percent are dissatisfied . . . . Among all respondents, those who are happy with their weight are also more satisfied with their bodies.

While the findings of Wenger (1969) and Berscheid, Walster, and Bohrnstedt (1973) disagree on the satisfaction of women with their busts, they agree on the dissatisfaction of women with their hips.

Body Build

Many systems for determining body build were found in the literature. These systems ranged from visual observation to elaborate anthropometric measurements put into mathematical formulas.

Among the authors who discuss systems for determining body build, Domey, Duckwork, and Morandi (1964:417) stated that:

> . . . in somatotyping one of the major problems in the past has been the diversity of classification systems used in the investigations of a specific problem area. The result of this seems to be that no one system has shown a clear-cut advantage over another.

This review of literature was limited to research using the Douty Body Build Scale. Douty (1968c:27-28) states:

> The development of the Body Build Scale has been based on the assumption that it is the relation of all the body segments to each other in terms of size and weight that determines impressions and should be used as a basis for typing. This is not dependent upon height. A figure of any height could be located in any one of the categories selected.

The Douty Body Build Scale was developed as a criterion for reference and comparison in order to classify and quantify information about women. The scale was based on work previously done in visual somatography. The Douty Body Build Scale evolved from silhouette photographs (somatographs) of 300 women students at Auburn University. Three judges distributed the photographs by consensus into five groupings ranging from thin to heavy. Composite figure silhouettes were evolved

from the five groups. Verbal listings of body segment qualities for each grouping were added to the groupings. To be classified in a grouping, a woman need not have all the qualities listed, but sufficient to make her more like that category than any other. Half intervals were added to the scale to allow for the continuum of human variation. Women having a composite figure such as a small bust and large hips received inbetween ratings. Douty[1] reported that certain specific body segments, especially the hips, tend to influence the total impression and cause the subject to be classified as a larger body build. The Douty Body Build Scale has been used in research for body build self ratings and body build ratings by judges.

Body build self rating. In the study mentioned above Douty[1] used 95 college women subjects for several comparisons of body build self ratings and body build ratings by judges. The correlation significant at the .01 level found between body build self rating and the mean of segmental ratings indicated that the body build rating was generally a reliable indicator of the mean of segmental ratings. However, it was observed that the subjects tended to exaggerate their size as larger than the body build ratings by judges.

Robinson (1967), in a study of 150 college women, found body build self rating significantly correlated with the body build rating by judges, subject's figure impression, mean attitude toward the self, global attitude toward the body, and mean attitude toward the body.

[1]Douty, H. I. A study of silhouette photography: Nature and extent of progress. (Unpublished manuscript obtained from the author), Auburn University, 1966.

Robinson (1967:43) concluded that "If a girl were pleased with her figure, satisfaction with her body build usually followed."

Jones (1972), in a study of 147 female high school students, found body build self rating significantly correlated with mean attitude toward the body, figure impression rating by both subjects and judges, mean attitude toward the figure, global posture rating, and body build rating by judges. It was concluded that as a subject rated her body as more slender, she perceived herself more attractive.

Body build rating by judges. Robinson (1967) and Jones (1972) also used the Douty Body Build Scale as a criterion for the rating of body build by a panel of judges. Both authors included criteria for selection of judges, training of judges, and procedure for judging.

Robinson (1967) found that body build rating by judges correlated significantly with the figure impression scores of both subjects and judges and with the subject's global attitude toward the body. The reliability of the body build ratings by the judges was established by the test-retest method. The two ratings were in agreement 90 percent of the time. Because most changes in rating were minor, it was concluded that the reliability of the ratings was excellent.

In the Jones (1972) study, the body build rating by the judges was significantly and negatively correlated at $p \leq .05$ level with the self rating of figure impression, subject's attitude toward the figure, judges' rating of figure impression, and judges' rating of face and hair. There was a significant positive correlation between the body build rating by the judges and the body build self ratings. Jones concluded that

the negative correlations may have been the result of the reversed numerical scoring for high or ideal on the body build scale.

Clothing Attitudes

Just as an individual's perception of his body influences both his actions and his interactions with others, attitudes toward clothing influence the manner in which an individual presents the clothed body. From a survey of clothing attitude instruments, Gurel (1974:8,12) concluded that "attitudes are closely related to interests and the two words are often used interchangeably, particularly in clothing research." She also summarized a definition of clothing interest as "the attitudes and beliefs about clothing, the knowledge of and attention paid to clothing, the concern and curiosity a person has about his own clothing and that of others."

One of the frequently used clothing attitude instruments is one developed by Creekmore (1963) for study of the relationships between clothing behaviors, general values, and strivings for fulfillment of basic needs. The instrument has been used, analyzed, and revised by several researchers. Gurel (1974) credited 14 researchers as having used or adapted the Creekmore instrument. In 1967 the instrument was modified by five graduate students under the supervision of Creekmore (1971). The revised instrument referred to as the Creekmore Scales of Eight Clothing Variables contained subscales entitled: aesthetics, approval, attention, comfort, psychological dependence, interest, management, and modesty. Each subscale contained 11 items.

Fetterman (1968) analyzed the reliability and validity of the Creekmore Scales of Eight Clothing Variables. The reliability of the

responses of 236 boys and 269 girls was measured separately using Hoyt's analysis of variance method. Fetterman concluded that the most satisfactory reliability coefficients (above .70) were obtained for the interest, dependence, attention, approval, and modesty scales. No conclusions could be made about the validity of the scales.

Gurel (1974) used factor analysis to identify underlying dimensions of clothing behavior in order to demonstrate construct validity of the Creekmore Scales of Eight Clothing Variables. Eight clusters of items were found through factor extraction, by means of principal components analysis, followed by varimax rotation. Strong relationships were obtained by phi coefficients, point-biserial correlations, and the chi square test for independence between the Creekmore Scales and the factor analytically derived clusters. The relationship between the Creekmore Scales and the factor scores was interpreted as an indication of construct validity for the Creekmore Scales of Eight Clothing Variables. However, Gurel (1974:127) suggested that the instrument could be shortened without loss of reliability and that poorly discriminating items could be reworded.

PSYCHOLOGICAL ASPECTS OF THE CLOSENESS OR LOOSENESS OF CLOTHING FIT

The fit of clothing has long been of concern to individuals as well as authorities in clothing. Historically, concern for the welfare of the human body has been expressed when items of clothing fitted so tightly as to physiologically distort parts of the anatomy. Very little empirical research has been concerned with the psychological effects of close or loose fitting clothing. There are several aspects of close

and loose fitting clothing which Flugel (1930) explained as having psychological symbolism. In the 1930 discourse entitled The Psychology of Clothes, Flugel theorized that "Tightness, by its firm pressure on the body may symbolize a firm control over ourselves, the opposite of that 'looseness' or 'dissoluteness' that we associate with immorality (p. 76)." Speaking specifically about the closeness and looseness of fit he stated that:

> Tightly gripping garments, also, have their moral significance; and women too have, at one time or another, enjoyed their share of this by means of corsets, bone collars, and bodices whose tightness was only matched by their rigidity.
>
> All garments of this kind contrast with the gayer, looser, softer, and lighter clothes that are considered to befit a holiday.

Another of the symbolic aspects of clothing was theorized as modesty or immodesty. Flugel (1930) considered that even though the surface of the body is covered, a closely fitted body form revealing garment is an example of exhibitionism. Such garments were considered artificial skin and arroused disgust in others in the same manner as exhibiting the natural skin.

In analyzing attitudes about clothing, Flugel (1930) grouped people into several psychological types by combinations of traits. He stated that such introductory groups were made for the purpose of understanding and organizing individual differences not definitely categorizing individuals. He contrasted the rebellious, resigned, and unemotional types, annoyed by tight clothing and not interested in clothing, with the prudish and duty types who are interested in clothing but do not receive a great deal of satisfaction from it. The types Flugel believed receive a positive satisfaction from clothing, wear closer fitting clothing, and

are more interested in clothing; he called protected, supported, and sublimated types.

In a later article Flugel (1931:52) credited tight clothing with increasing the wearer's psychic power by "allowing a sublimation of sexual energy through phallic symbolism . . . enlisting the approval and cooperation of the super-ego." In order to satisfy the ego, women may use tight fitting garments to satisfy themselves as being smaller.

Fisher (1973:110) offered other psychological reasons for wearing close or loose fitting clothing. He stated that "aside from any real reduction in body volume they (girdles and tight belts) produce, they also give rise to a sense of being compact, squeezed in, and smaller." In contrast, he also noted that bulky garments may increase apparent size beyond the actual thickness of the garments. He believed people choose such garments for a sense of security from their expanded size.

The research by Wenger (1969) was one of the few studies that attempted to measure the relationship between closeness or looseness of garment fit and selected psychological variables. Wenger used four separate sets of sketches of street dresses with loose, moderate, and tight fitting areas at the bust, waist, and hip as a method of obtaining information on the frequency of wearing and preferences for looseness or tightness of fit in clothing. The sample was 100 women in Shawnee, Kansas. Preference for loose, moderate, or tight fitting clothing areas was compared to general questions on age, activities, occupation, and extent of education, modified Body-Cathexis and Self-Cathexis Scales by Secord and Jourard, and body measurements consisting of height, weight, bust, waist, and hips. Using chi-square, observed relationships

significant at the $p \leq .01$ level were found between preference for fit of clothing at the bustline and level of education and body measurements. Significant relationships at the $p \leq .01$ level were found for preference for fit at the waist and level of education, fit of favorite dress, selected dresses, reasons for preferences, and body cathexis. Preference for fit at the hips was significantly related at the $p \leq .01$ level to variables of age, level of education, and fit of favorite dress. An attempt was made to eliminate the influence of fashion trends and comfort by measuring the frequency of wear of three dress styles. The desire for comfort was found to have a significant influence on preference for fit, but the desire for fashion did not. This study made no attempt to measure the actual tightness or looseness of garment fit.

SOMATOMETRY

Douty (1968a) used the term visual somatometry to describe a method of visually measuring the body. The method simplified the multiple stimuli of seeing the actual body by projecting the body silhouette onto a graphic screen then photographically recording the silhouette. The method also has been referred to as silhouette photography, graphic somatometry, and graphic anthropometry. The resulting photograph has been termed by Douty (1968c) as a somatograph.

Photography utilizing reference graphs has been used in medical photography, physical education, and clothing and textiles. Selected literature was reviewed on various photographic techniques. Rolls (1968) compared several methods of preparing shadowgraphs. Diagrams of four arrangements of light source, object, screen, and camera were discussed.

The technique used by Douty (1954) was first reported to require a standard-size bed sheet marked with braid stretched over a doorway, a strong light, and camera.

Robinson (1967) used a graphic screen of architect's linen marked off into six-inch squares, a 500 watt photoflood light and stand, 35 mm camera on a tripod, and a stand on which subjects posed. The arrangement of equipment was diagrammed as 11 feet from camera to screen and 13 feet from screen to photoflood light adjusted three feet from the floor. Later Douty (1968c) reported that other space divisions of the graphic screen were being considered. Jones (1972) reported using one inch squares with a balance line on the six foot by eight foot architect's linen screen. It was observed that three widths of lines were visible on the somatographs included in the Jones study, but no mention was made of material used to make the lines. In discussion of the photographic set up, Douty (1968a) called attention to the need for a balance of light in front of the screen in order to record the graph over the silhouette. No information was given about the type of light or its placement.

CHAPTER III

PROCEDURE FOR THE STUDY

The procedure for the study is presented in four major parts: 1) selection of the subjects, 2) background information obtained from the subjects, 3) scores and scale instruments, and 4) statistical analyses.

Data were obtained by somatographs of the semiclothed and the clothed body, body build ratings by the subjects and by a panel of judges, two summated rating scales, and selected background information questions and checklists. The closeness or looseness of fit was determined by difference measurements made at the bust level or highest measurable underarm level, the waist level, and the widest hip level of the back view clothed and semiclothed somatographs.

SUBJECTS

The study was originally designed for members of a large organization of women such as the Federated Women's Clubs. Due to the difficulty in gaining their participation, the subjects of the study were changed to females between 19 and 23 years of age enrolled in classes in the clothing and textiles area of the School of Home Economics of The University of North Carolina at Greensboro, during the academic year of 1973-1974.

The instruments and procedures were pretested with 15 students enrolled in Home Economics 121, Section 1, Fall Semester, 1973, at The University of North Carolina at Greensboro. The instruments and procedures were revised and again tested on a group of 15 students enrolled in Home Economics 121, Section 2, Fall Semester, 1973. No further revisions were made and data were included in the study.

The design of the several statistical models for multiple regression analyses suggested 200 subjects for optimum interpretation of the analyses of models with factor partitions. The multiple regression model of the main dependent and independent variables required a minimum of 90 subjects. Although the enrollment of students in courses in the clothing and textiles area was well over the needed 200 subjects, some students were enrolled in more than one course. As a result of the overlap in enrollment, the unwillingness of some students to participate, and difficulties in scheduling, data from 151 students were collected. Eleven subjects were eliminated because of photographic difficulties and age limitations leaving a total of 140 subjects.

The subjects were contacted in class and asked to participate in a research study which dealt with the space relationship of clothing and the body. Each subject was instructed to select and to wear the dress, or combination garment with skirt from her wardrobe she considered to be most flattering. The subjects were told that they would be asked to undress to basic underwear in order to determine photographically the space occupied by the outerwear clothing. Each subject scheduled approximately one half hour to participate in the research. Twenty

minutes were allowed for completing the background information and the rating scales and 10 minutes for the photography.

BACKGROUND INFORMATION

The background information consisted of six items. The first item asked was the subject's date of birth. The second and third items requested percentage estimations among several methods and sources of obtaining outerwear clothing. The fourth item was a check list of factors influencing choice of garment. The fifth and sixth items were check lists of possible alterations needed for ready-to-wear garments and commercial patterns. The background information schedule consisted of two pages which may be seen in Appendix A.

The second item asked for an estimation of the percentage of outerwear clothing including dresses, suits, and sportswear obtained by six different methods such as "purchase ready-to-wear" and "sew for myself." The third item asked the subjects to estimate the percentage of clothing or fabric obtained from each of seven different sources such as catalogs, department stores, discount stores, gifts, mill outlets, second hand stores, and specialty stores.

The fourth item instructed the subject to identify factors that may have contributed to her choice of the clothing worn on that day. From a list of 14 factors, each subject was asked to check as many factors as necessary that influenced her choice of this garment as her most flattering.

The fifth and sixth items were checklists of garment areas frequently needing alterations. The fifth item was the checklist for

ready-to-wear clothing while the sixth item was for commercial patterns. Each subject was instructed to check as many areas as applied from the identical lists of 10 garment areas such as collar or neckline, shoulders, sleeves, bodice darts, and skirt length.

SCORES AND SCALE INSTRUMENTS

Body Impression Score

The body impression score was obtained from the Douty Physical Inventory for Women (Douty, 1969). In the review of literature this section of the inventory was referred to as figure impression. However, since four of the items dealt with body parts while only two dealt with figure, it seemed appropriate to refer to this instrument as body impression. The instrument may be seen in Appendix A.

After consultation with Dr. Helen I. Douty, October, 1973, the suggestion to use the six items of body impression was accepted. The four items dealing with body parts asked the subject to check one of five categories which described her bust, waist, derriere, and legs. The fifth item asked for her impression of her overall figure. The descriptions for these five items ranged from "very attractive," through "average," to "unappealing." The sixth item asked the subject to check her degree of satisfaction with her figure on a five interval scale. Values from one (favorable impression) to five (unfavorable impression) were assigned to the intervals.

Body Cathexis Score

The body cathexis score was the mean of the values encircled by a subject on the body cathexis scale modified from the Secord and Jourard

Body Cathexis Scale (Secord & Jourard, 1953). This scale was developed to measure the degree of feeling of satisfaction or dissatisfaction with 46 body parts and functions on a five point scale. For the purposes of this research, the scale was modified to 23 items by elimination of items not relating to the fit of dresses, by replacement of two general items, and by addition of items relating to the fit of dresses. The resulting Body Image Scale consisting of 23 items appears in Appendix A. For the purpose of this research, the values were reversed from the original scale. The assigned values range from one indicating "consider myself fortunate" to five indicating "have strong feelings and wish change could somehow be made."

Body Build Self Rating

Body build self rating was determined from the Douty Body Build Scale (Douty, 1968c). The Douty Body Build Scale may be seen in Appendix A. The basis of the scale is an integrated or gestalt impression of the relationship of size and weight, independent of height. The scale includes five back view silhouette drawings of different body builds, a verbal listing of qualities describing each major body build, and whole and half interval designations. Quarter interval designations were added to the scale for this study. The resulting scale was a continuum of 21 intervals from 0.5 to 5.5. Each subject was asked to circle the number of the body build on the Douty Body Build Scale that she believed most closely resembled herself. The whole interval, half interval, or quarter interval circled by the subject was recorded as the body build self rating.

Body Image Score

The body image score was developed specifically for this research. It is the mean derived from the sum of the body impression score, the body cathexis score, and the body build self rating for each subject.

Clothing Attitude Score

The clothing attitude score was the mean obtained from the entire Clothing Attitude Scale which may be seen in Appendix A. The clothing comfort score, clothing dependence score, and clothing modesty scores were the means obtained from the three subscales comprising the Clothing Attitude Scale. The Clothing Attitude Scale was modified from three subscales of the Creekmore Scales of Eight Clothing Variables (Creekmore, 1971). Each subscale consisted of 11 statements which the subject was asked to rate from "almost always" (score of 1) to "almost never" (score of 5). In order to complete correlations, values for each item of the scale were reversed from the original scale. Three items on conservatism were replaced on the modesty scale. Items from the three subscales were randomly combined into a single instrument containing 33 items called the Clothing Attitude Scale.

Preparation of Somatographs

Somatographs (graphic silhouette photographs) were used for determining body build and for determining the closeness or looseness of the fit of clothing. Three somatographs including one back view clothed, one back view semiclothed, and one anterior-posterior view semiclothed were made of each subject.

The procedure for obtaining the somatographs used in this study was adapted from that of Douty (1968c). Adaptations were required for precise measurements to objectively determine closeness or looseness of garment fit. Also procedural adaptations resulted from the facilities and equipment available at The University of North Carolina at Greensboro. Adaptations were made in consultation with Dr. Hugh Hagaman, Assistant Professor School of Education, and Director of the Instructional Resources Center, University of North Carolina at Greensboro.

Equipment. The graphic somatometry technique utilizes a strong light to cast a shadow, the subject, a translucent screen, camera and film, and light control within adequate space to produce somatographs. The television studio of the Instructional Media Center was the facility used at The University of North Carolina at Greensboro. This studio had ample space with the capability of complete darkness for control of light. Also, the studio had storage space available for the equipment between data gathering sessions. The darkroom of the Instructional Media Center was used for developing negatives, for enlarging, and for printing somatographs. All somatographs were taken and the majority of photographic work was done by the researcher. Any work requiring assistance was supervised by the researcher to assure consistency in results.

The equipment used for the graphic somatometry included:

3 120-220 mm cameras

Kodak Plus X Pan Professional film in 120 and 220 mm sizes

3 tripods

graphic screen and frame

plastic holder for code identification numbers

set of cardboard numbers for code identification

2 side screens

1 650 watt tungsten halogen light with barn doors

2 photoflood light holders and diffusing covers

2 100 watt incandescent light bulbs

1 650 watt photoflood light

4 pieces light absorbing black fabric

1 stand on which subjects posed

measuring tape

large scale protractor

32 foot length of rubber matting 36 inches wide

24 inch carpenter's level

Graphic screen. The most critical piece of equipment was the graphic screen. After testing several materials including matte acetate, draftsman's tracing vellum, and architect's drafting linen, it was determined that the architect's drafting linen as suggested by Douty (1968c) gave the sharpest silhouette lines with the least distraction. Architect's drafting linen 45 inches wide was squared on a large table and firmly taped to it. Lines were then penciled onto the linen using a large T square and draftsman's scale for accuracy and squareness. The lines were spaced 50 millimeters apart in horizontal and vertical directions. After testing lines drawn with India ink, with felt tip pens, and formed by matte black and matte white pressure sensitive graphic tape, it was decided that the lines formed by the white tape were the most suitable. On the somatographs the matte white pressure sensitive graphic tape appeared black where there was no silhouette of the subject and

white where the silhouette appeared. Except for the center vertical line where 1/8 inch wide tape was used, all lines were formed by 1/16 inch tape placed on the dull side of the drafting linen screen. The finished 44 x 80 inch (inside measurements) graphic screen was placed in a frame with the dull side positioned toward the cameras. The frame and the screen were checked for true vertical and horizontal position with a carpenter's level before permanent attachment of the screen to the frame.

Auxiliary equipment for the graphic screen included a plastic holder for the cardboard identification code numbers. A strip of pockets, cut from a plastic 35 millimeter slide indexing page, was taped to the graphic screen. Easily changed cardboard bulletin board numbers were inserted into the pockets for the identification code.

Two folding screens, one placed at each side of the graphic screen, were used to block out excessive light around the sides. Light absorbing black fabric was taped to the sides of the graphic screen covering the side screens both on the silhouette creating light side and on the camera side. Light absorbing black fabric was placed on the floor for several feet to each side of the graphic screen to reduce reflected light.

Arrangement of equipment. The spacing of the silhouette creating light, the graphic screen, and the cameras was determined by the size of the television studio and the range finders and film of the cameras. See Figure 1 for a diagram of the arrangement of the equipment. In order to give a sharp silhouette, a single silhouette creating light was placed as far as possible away from the screen to reduce fading the graphic tape lines on the screen. The cameras were placed as close to the screen as

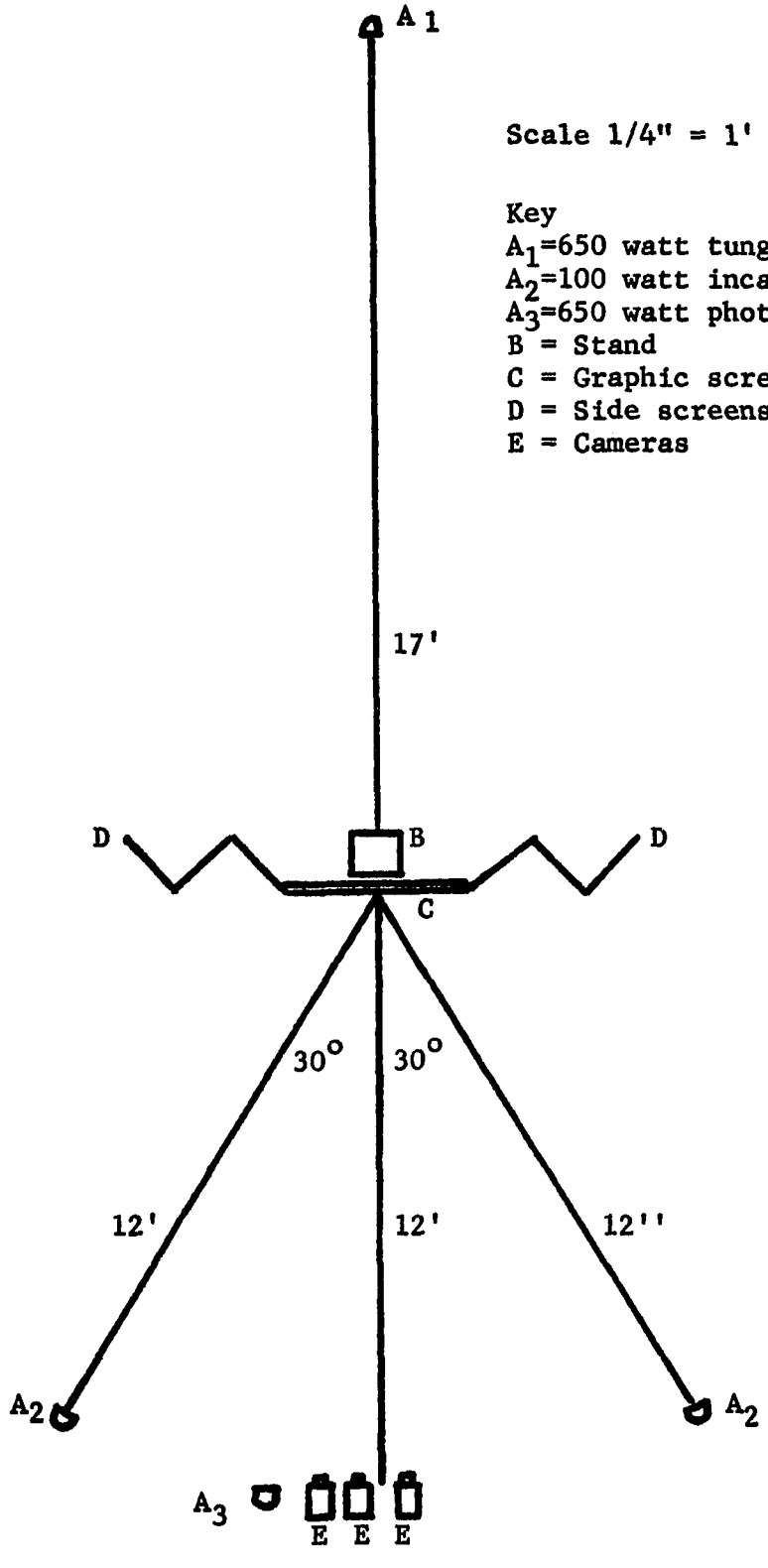

Figure 1

Diagram of Equipment and Its Arrangement

possible so that the image would fill the rangefinder and the film. The spacing of the silhouette creating light, the graphic screen, and the cameras was marked on rubber floor matting with masking tape so that the equipment could be disassembled and reassembled with minimum time required for remeasuring. The rubber matting had the added feature of reducing extraneous light reflection from the polished terrazzo floor.

The silhouette was created on the graphic screen by means of a 650 watt tungsten halogen type lamp. This lamp was selected for its features of consistent light output and long life. The lamp was placed 17 feet from the graphic screen, with the lamp center 36 inches from the floor. The reflector barn doors were adjusted to limit the light to slightly beyond the dimensions of the graphic screen.

On the camera side of the screen, two photoflood light holders with 100 watt incandescent light bulbs and diffusing covers were used. After testing 25, 40, 60, 75, and 100 watt incandescent bulbs, it was determined that the 100 watt incandescent bulbs gave the best reflectance of the matte white pressure sensitive graphic tape over the silhouette of the subject without reducing the surrounding graphic tape lines. The two photoflood light holders were tested twelve feet from the center line of the graphic screen in an arc at 0^{o}, 15^{o}, 30^{o}, 45^{o}, and 60^{o} from the cameras. The best results were obtained when the photoflood light holders were 30^{o} from the cameras. The center of each photoflood light holder was located 48 inches from the floor. The photoflood lights were directed toward the graphic screen. A photoflood light holder with a 650 watt photoflood bulb was positioned immediately to the left of the cameras. This light was used only for a nonsilhouette identification

photograph to put the subjects at ease. It was not part of this research.

Photographic procedure. Twin lens reflex cameras accepting 120 mm or 220 mm film were used. These cameras were selected because the 2 1/4 x 2 1/4 inch negatives would permit ease in handling during development and enlargement. Two identical twin lens reflex Yashica Mat-124 G cameras were used to ensure that a single clear negative would be available which would be interchangeable during enlargement and printing. One exposure of each subject in each position was made with each camera. A third twin lens reflex Rolliflex camera was used for the non-silhouette identification photograph. The three cameras were placed on tripods with the camera base of each tripod 36 inches from the floor. The two identical cameras were placed as close as possible to each other, 12 feet from the graphic screen, at a 90° angle to the graphic screen, and centered in front of the center line of the graphic screen. The third camera was placed as close as possible to the two identical cameras, but to the left when facing the front of the screen.

Kodak Plus X Pan Professional film was used in the three cameras. This medium speed film was selected for its latitude in exposure time, adequately fine grain for sharp silhouette lines, and ease in handling during development. Either 120 mm or 220 mm lengths were used depending on the number of subjects to be photographed during a given data collection session.

Pretesting was done to determine the most suitable aperture and shutter speed with the given light conditions. Trials were made by varying the aperture from f/11 to f/4 combined with varying shutter

speeds from one second to 1/250 second. The pretesting determined that the most desirable somatographs were achieved with the cameras set at f/4 for 1/15 second.

Positioning of subjects. A wooden stand was placed on the silhouette creating light side of the screen to compensate for the frame at the bottom of the graphic screen and to raise the level at which the subjects were posing. The stand was covered with light absorbing black fabric and marked with a white line perpendicular to the center line of the graphic screen. The white line was used to position the subject's feet during the various poses. During the back view somatographs, the subject's feet were positioned equally from the white line on the stand so that the shadows of the ankles were equally distant from the center line of the graphic screen. The subjects were instructed to stand with their feet as normal and comfortable as possible. Also, each subject was instructed to stand facing the light with her back to the graphic screen as near the graphic screen as possible but not touching the screen. During the anterior-posterior view somatograph, the malleolus of the ankle was centered over the white line on the stand so that the ankle shadow was centered over the center line of the graphic screen. Two negatives were exposed of each subject in each position.

In order to pose the subject's arms consistently and be able to measure width near the bust level, a large scale protractor of the type used at elementary school chalkboards was used to position the arms consistently. The protractor was rested vertically on the camera with the center 0^{o} line over the center line of the graphic screen. Each subject was instructed to keep her arms straight, then raise her arms out to the

side slowly until told to stop. When the uppermost edge of the arms was 30^{o} from the center 0^{o} line, the subject was told to hold the position until the photographs were taken. See Figure 2.

The film negatives were developed, enlarged, and printed in the darkroom of the Instructional Media Center at The University of North Caroline at Greensboro. The procedure for film negative development followed Agfa Rodinal instruction specifications provided with the developer. The negative of each subject in each pose with the sharpest and clearest silhouette and graphic lines was selected for enlargement. The negative was inserted into the enlarger adjusted so that the graphic screen lines on the photographic paper would be five millimeters apart. Single weight glossy No. 3 grade paper was exposed for optimum presentation. The prints were developed in Kodak Dektol developer, Kodak stop bath, and Kodak fixer according to instructions on the product label. The prints were rinsed, soaked in a flattening solution, and dried. The photographic prints are referred to as somatographs. Examples of the somatographs are seen in Appendix C.

Interpretation of the Somatographs

Use of the somatographs in determining the closeness or looseness of the fit of clothing. The closeness or looseness of the fit of clothing was determined by measurement of the somatographs. For each subject, the somatograph of the anterior-posterior view, back view semiclothed, and back view clothed were positioned next to each other so the lines on the graphic screen were straight and continuous between somatographs. The anterior-posterior view somatograph was used to determine the height

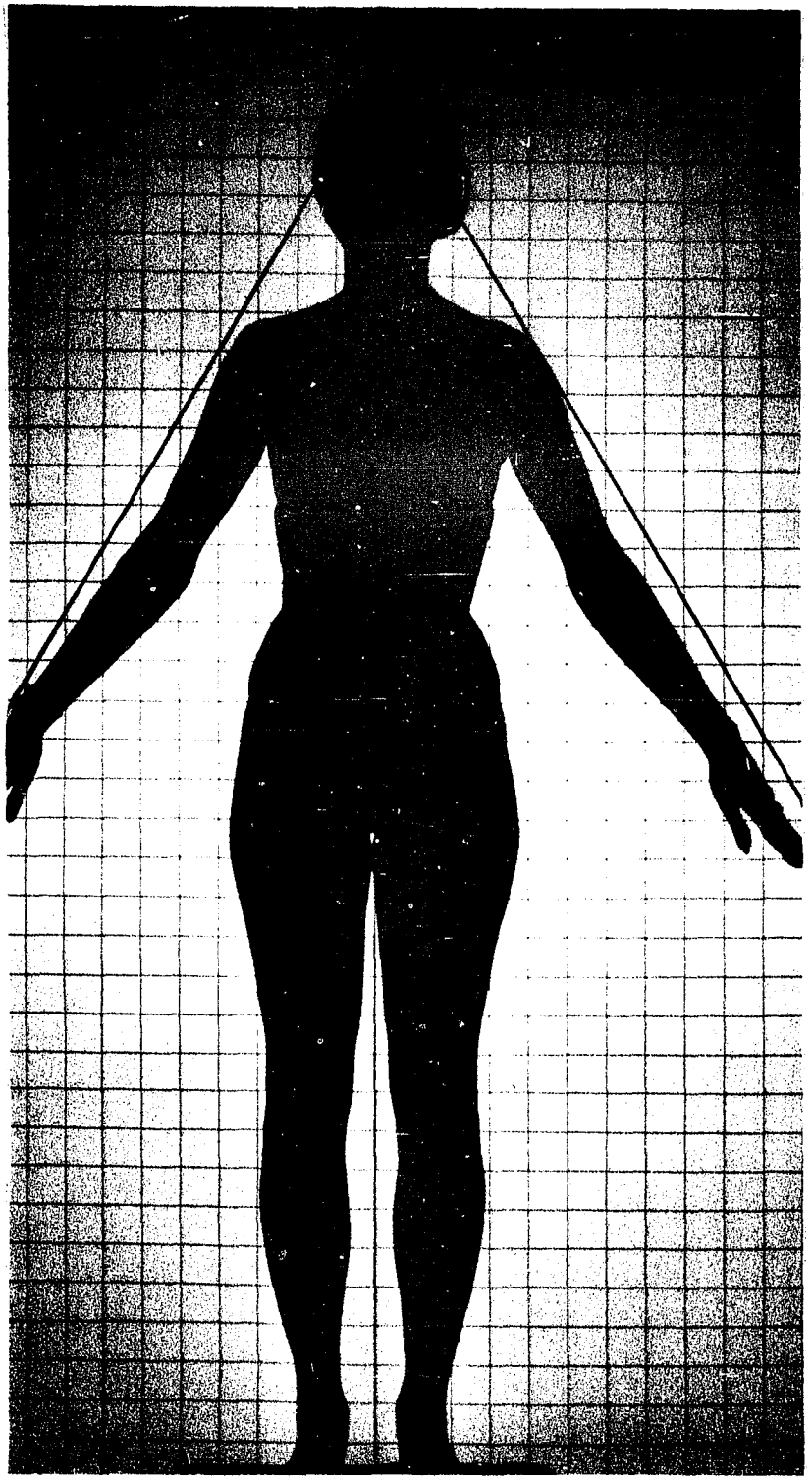

Figure 2

Somatograph Showing Subject's Arms
at 30° to Center Line

at which the bust and waist measurements were to be taken. If the height of the bust on the anterior-posterior view somatograph was higher than the highest silhouette at the intersection of the bodice and sleeve areas of the garment on the back view clothed somatograph, the bust measurement was taken at the highest underarm level measurable, whether or not this was the true bust level. If any subject's waist could not be located from the back view semiclothed somatograph, the anterior-posterior view also was used to determine the waist level. The deepest hollow of the back or the navel were used to determine the waist level.

The level of the hip width measurement was determined from the back view semiclothed somatograph. The hip was measured at the widest point regardless of whether the greatest width was at the pelvic or thigh areas. If the hip width was the same at several levels, the hip width measurement was taken at the highest level so that the corresponding clothed body measurement could be made consistently.

The graphic lines were used to find the same location on the clothed and semiclothed somatographs. If a level to be measured on the semiclothed somatograph occurred between the graphic lines, a judgment was made of the same level for the clothed somatograph. The measurements were taken using Gramercy needle point dividers and Tacro No. 4842 metric scale. The dividers were used to measure the somatograph without covering any of the silhouette. The dividers were adjusted to determine the exact line that formed the silhouette. The dividers were then transferred to the metric scale where the measurement was read to the nearest .5 millimeter. The measurements were recorded for semiclothed bust, waist, and hip and for clothed bust, waist, and hip. Each of the

semiclothed somatograph measurements were subtracted from the corresponding clothed somatograph measurements to determine the closeness or looseness of the fit of clothing at the bust, waist, and hip.

During the pretesting of the photographic procedure for the somatographs, bodysuits were tested for increased modesty while preparing the semiclothed somatographs. An additional negative was exposed of each subject in the pretest group dressed in a lightweight knit bodysuit. The results indicated that the bodysuits made the definition of the waist level much more difficult and that the bodysuits added about two millimeters to the width of the body compared to the semiclothed body. The subjects did not seem additionally at ease posing in the bodysuits so the bodysuits were eliminated from further consideration.

Body build rating by judges. The body build rating by judges score was determined from the back view semiclothed somatographs by consensus of a panel of three judges. The three judges were experienced clothing instructors from the School of Home Economics at The University of North Carolina at Greensboro. They were selected on the basis of their ability to understand body classifications and quickly arrive at a consensus judgment of body build. A copy of the Douty Body Build Scale was placed on a stand in front of the judges. The three judges working together considered each individual somatograph as it was presented in random order. The back view semiclothed somatograph of each subject was compared to the Douty Body Build Scale both by body shape and by description of body parts. The somatographs of the subjects were first categorized by the whole or half interval. Next, the judges took each stack of whole or half interval classifications and again compared each

somatograph with the Douty Body Build Scale, placing it into the whole, half, or quarter interval classifications. After several sessions of classifying the subjects according to whole, half, and quarter intervals another judging session was held for within category consistency. Any somatograph not consistent with the others in the same classification was reclassified. Few changes were made in classifications. The body build classification interval was then recorded for each subject.

STATISTICAL ANALYSES

Appropriate statistical tests were chosen for the analysis of data. The Statistical Package for the Social Sciences (SPSS) computer programs were used for descriptive analyses, Pearson product-moment correlations, and stepwise multiple regressions. The Statistical Analysis System (SAS) computer programs were used for the computation of scores for individual subjects as found in the Master Data Table in Appendix B. The computer programs were available from Triangle Universities Computer Center April through June, 1974.

Significance at the probability levels of .05, and .01 were reported. The alternate hypotheses were accepted at the .05 level of significance. Trends were reported for correlations which equaled or exceeded the .20 level of significance. Two tailed tests of significance were used. There were no missing data. Except for the analyses by body builds, all other analyses were performed with 140 subjects.

CHAPTER IV

RESULTS AND DISCUSSION OF FINDINGS

This study was designed to investigate the relationship of the closeness or looseness of garment fit to body image, body build, and selected clothing attitudes. The results, based on data collected from 140 subjects are reported in four major parts: descriptive analyses, relationships between closeness or looseness of garment fit with background variables, and relationships between closeness or looseness of garment fit with body image variables, body build, and clothing attitude variables. The final section deals with analyses of the relationships between body image, body build, and clothing attitudes according to several body builds.

DESCRIPTIVE ANALYSES

Sample

The research sample in this study consisted of 140 female subjects between the ages of 19 and 23 years. The students were enrolled in classes in the clothing and textiles area of the School of Home Economics of The University of North Carolina at Greensboro during the academic year, 1973-1974. Although data were collected from 151 subjects, 11 subjects were eliminated due to age beyond the limitations designated for the study or because of errors in data collection. The age of the subjects was determined by subtracting the year of birth from

1974. The mean age for the group was 20.76 years. The distribution of the ages of the subjects is seen in Table 1.

Table 1

Distribution of Ages of Subjects

Age in years	Number of subjects	Percentage of subjects
19	25	17.86
20	27	19.28
21	51	36.43
22	30	21.43
23	7	5.00
	Total 140	Total 100.00

Background Information

Methods and sources for obtaining outerwear clothing. The two questions on methods and sources of obtaining outerwear clothing required each subject to divide her answers so that the total equaled 100 percent. At the time of data collection, a cursory check was made of the accuracy of the mathematics in distributing the 100 percent to the various categories. Any obvious errors were called to the attention of the subject for immediate correction.

The two methods of obtaining outerwear clothing which most frequently received large percentage estimations were "purchase ready-to-wear" and "sew for myself." The mean and the standard deviation for each of these methods indicate wide variation in responses. Some subjects

primarily purchased their outerwear clothing, others primarily sewed their own clothing, while others obtained clothing by both methods. The distribution of percentages for methods of obtaining outerwear clothing is found in Table 2.

Table 2

Distribution of Percentages for Methods of Obtaining Outerwear Clothing (N = 140)

Method of obtaining outerwear clothing	Range of percentages	Mean percent	Standard deviation
Purchase Ready-to-wear	0-99	41.81	27.09
Dressmaker sews for me	0-50	1.36	6.08
Sew for myself	0-95	41.69	28.26
Relative sews for me	0-80	6.10	14.21
Gift	0-90	8.77	10.96
Other	0-20	0.30	2.39

The sources from which outerwear clothing was obtained which received the largest percentage estimations were department stores and specialty stores for both ready-to-wear clothing and fabric. Sources following closely in rank order were discount stores and mill outlets. For some subjects another major source was gifts from family. The least utilized sources were catalogs, gifts from friends, and second hand stores. The distribution of percentages for sources of outerwear clothing is seen in Table 3.

Table 3

Distribution of Percentages for Sources from Which Outerwear Clothing Was Obtained (N = 140)

Sources from which outerwear clothing was obtained	Ranges of percentages	Mean percent	Standard deviation
Catalog--ready-to-wear	0-50	2.86	6.82
Catalog--fabric	0-30	0.61	3.27
Department Store--ready-to-wear	0-95	26.21	21.26
Department Store--fabric	0-80	17.94	17.97
Discount Store--ready-to-wear	0-50	4.87	7.54
Discount Store--fabric	0-50	6.84	11.99
Gift--family	0-90	8.42	11.28
Gift--friends	0-15	2.06	3.15
Mill Outlet--ready-to-wear	0-30	3.25	6.20
Mill Outlet--fabric	0-75	4.72	10.52
Second Hand Store	0-5	0.16	0.70
Specialty Store--ready-to-wear	0-85	8.96	16.85
Specialty Store--fabric	0-95	13.86	20.07

Factors influencing choice of most flattering dress. From a list of factors which may have influenced the subject's choice of flattering dress, subjects were instructed to check as many factors as influenced their choice. The four factors checked most frequently (by over 75 percent of the subjects) were "style," "comfort," "fit," and "color." The next group of most frequently checked factors were: "received compliments when I wear it," "feel well dressed when I wear it," "ease of putting garment on," and "easy to clean and maintain." A few subjects added factors of their own for selecting the garment worn. Most of the added factors were related to pants as the prevailing campus fashion resulting in a minimal number of dresses in the campus wardrobes of the subjects. The number and percentage of subjects responding to factors influencing choice of most flattering dress is seen in Table 4.

Frequently needed alterations. The subjects were instructed to check as many alterations as were frequently needed for both ready-to-wear garments and commercial patterns. Commercial pattern alterations received over 100 more responses than were received for ready-to-wear garment alterations. The most frequently needed alteration was skirt length--86 percent of the subjects expressed this need in ready-to-wear clothing and 79 percent in commercial patterns. The second and third most frequently needed alterations for ready-to-wear garments were in the areas of waist circumference and sleeves. The second and third most frequently needed alterations in commercial patterns were bodice length and waist circumference. The least frequently needed alterations for both ready-to-wear clothing and commercial patterns were in the collar

Table 4

Number and Percentage of Subjects Responding to Factors in the Choice of Their Most Flattering Dresses (N = 140)

Factors in choice of most flattering dresses	No. of subjects checking factor	Percentage of subjects checking factor
Color	107	76.29
Comfort	119	84.00
Style	122	87.14
Fit	113	80.71
Size	50	35.71
Brand	6	4.29
Texture	47	33.57
Cool	20	14.29
Warm	39	27.86
Easy to put on	66	47.14
Easy to clean and maintain	66	47.14
Receive compliments when I wear it	91	65.00
Feel well dressed when I wear it	84	60.00
Made for me	29	20.71

or neckline. A summary of the data on the most frequently needed alterations is seen in Table 5.

Table 5

Responses to Questions on Areas of Ready-to-Wear Clothing and Commercial Patterns Most Frequently Needing Alteration (N = 140)

Garment areas that most frequently need alteration	Ready-to-wear clothing		Commercial patterns	
	Number of responses	Percentages	Number of responses	Percentages
Collar or neckline	3	2.14	8	5.71
Shoulders	19	13.57	39	27.86
Sleeves	42	30.00	44	31.43
Bodice darts	24	17.14	46	32.86
Bodice length	31	22.14	62	44.29
Bodice width	12	8.57	23	16.43
Waist circumference	51	36.43	56	40.00
Skirt darts	9	6.43	16	11.43
Skirt width	18	12.86	33	23.57
Skirt length	121	86.43	111	79.29
Total Responses	329	Total Responses	438	

Body Image

The mean score of body image tended slightly toward the ideal or favorable direction of a one (favorable) to five (unfavorable) scale. There was less variation in the body image mean score than in any of the three component scores as indicated by the standard deviation.

The mean score of body impression was the only component score of body image on the unfavorable side of the midpoint (three) of a one to five scale. Although subjects tended to consider their body impression as slightly less than attractive to others, they were satisfied with their bodies and rated their body builds toward the slender end of the scale. The range of body build self ratings and the size of the standard deviation indicated that the body build component contributed to the variability of the body image mean score. The distribution of body image scores is seen in Table 6.

Table 6

Distribution of Body Image Scores
(N = 140)

Body image variables	Range	Mean	SD
Body image (mean score)	1.97-4.19	2.97	0.48
Body impression (mean score)	1.83-4.50	3.13	0.54
Body cathexis (mean score)	1.83-3.91	2.89	0.49
Body build self rating	1.00-4.50	2.88	0.67

Body Build

The body build scores ranged from 1.00 indicating thin to 5.00 indicating heavy. The mean body build rating was 2.86, the median rating 2.75, and the mode 2.50 (17 subjects). The distribution of subjects by body build is seen in Figure 3. The body build distribution curve was skewed toward the slender and was thicker at the ends of the curve than could be expected for a normally distributed curve. The unevenness of

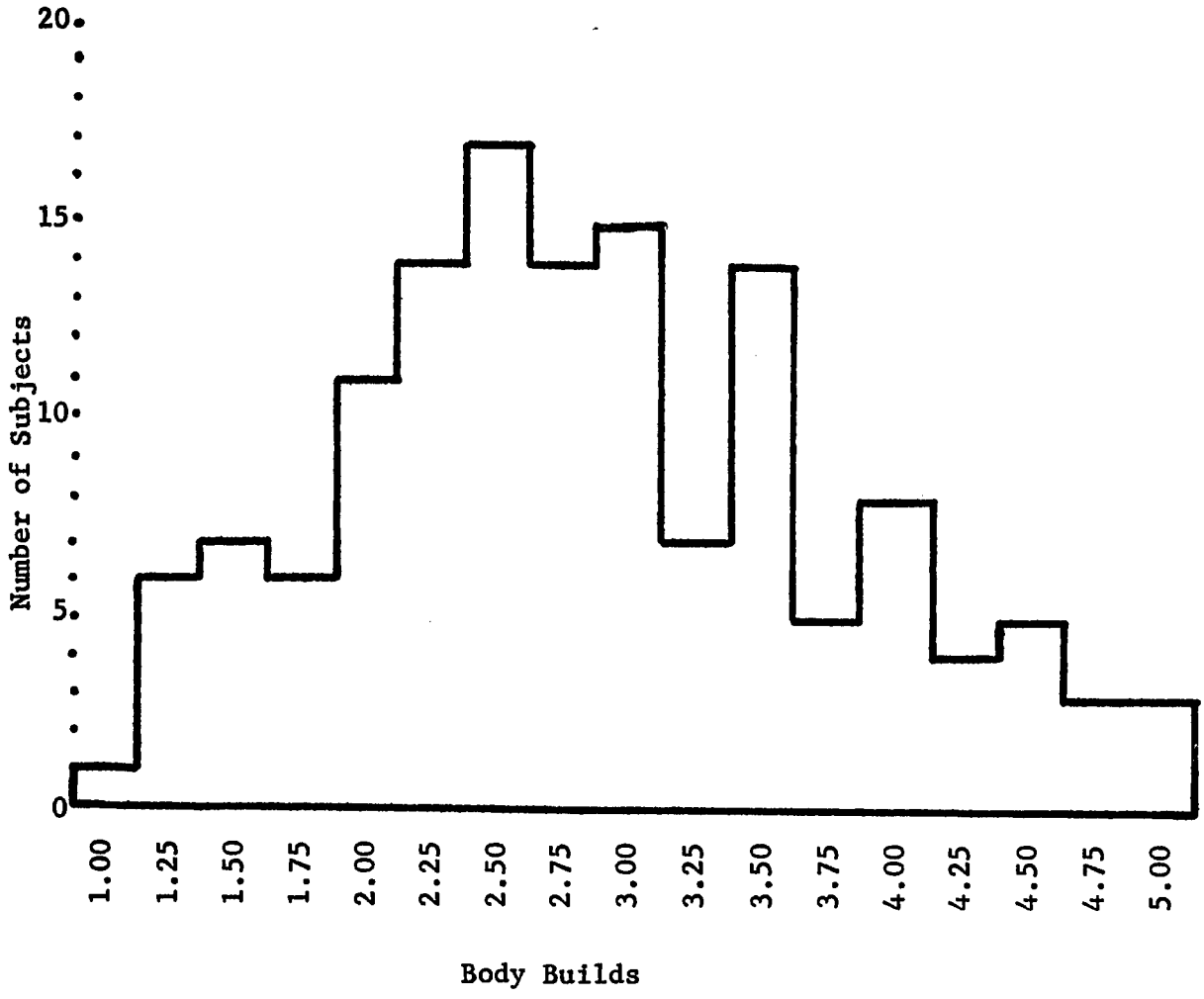

Figure 3

Distribution of Subjects by Body Builds

the distribution curve for body builds 3.25 through 3.75 cannot be fully explained. A partial explanation might be that for these builds there is a greater incidence of composite figures (those having small bust and large hips in proportion to other body parts) which are difficult to place in specific body build classifications. An example of a composite body build is found in Appendix C.

Clothing Attitudes

The clothing attitude mean scores ranged from 1.82 to 4.03 on the five interval scale. The subscale mean scores for comfort and dependence had lower mean scores than the clothing attitude mean score. The modesty subscale had a higher mean score. These subscale scores indicated the sample was more concerned with comfort and dependence on clothing than with modesty in clothing. However, the standard deviations indicated some variability in all scales, with the greatest amount in the modesty subscale. The distribution of clothing attitude mean scores is seen in Table 7.

Table 7

Distribution of Clothing Attitude Scores
(N = 140)

Clothing attitude variables	Range	Mean	SD
Clothing attitude (mean score)	1.82-4.03	2.85	0.38
Clothing comfort (mean score)	1.73-4.00	2.74	0.45
Clothing dependence (mean score)	1.46-4.18	2.53	0.55
Clothing modesty (mean score)	1.91-5.00	3.29	0.60

Closeness or Looseness of Garment Fit

The fit at the bust level had the narrowest range while fit at the hip level had the widest range of difference measurements. The range of difference measurements at the waist yielded one negative quantity. The somatograph indicated that the garment squeezed the waist to the extent that the semiclothed body at the waist level was wider than when clothed. The distribution of difference measurements of the closeness or looseness of garment fit is seen in Table 8.

Table 8

Distribution of Difference Measurements Indicating Closeness or Looseness of Garment Fit (N = 140)

Area measured	Range (in millimeters)	Mean (in millimeters)	SD
Fit at bust	0.0-11.0	2.15	1.78
Fit at waist	-1.5-12.0	3.42	2.21
Fit at hips	0.0-13.0	3.90	2.31

RELATIONSHIPS BETWEEN CLOSENESS OR LOOSENESS OF GARMENT FIT AND BACKGROUND VARIABLES

Correlations Between Fit and Age

Pearson product-moment correlations between age and the closeness or looseness of fit at the bust, at the waist, and at the hips were not statistically significant at the $p \leq .05$ level. However, correlation of fit at the hips with age was -.171, a trend which showed that as age

increased, there was closer fit at the hips. The correlations between fit and age are presented in Table 9.

Table 9

Correlations Between Fit and Age
(N = 140)

Variable	Closeness or looseness of fit		
	Bust	Waist	Hip
Age	.101	.038	-.171

Correlations Between Fit, and Methods and Sources of Obtaining Outerwear Clothing

The Pearson product-moment correlations between fit at the bust, waist, and hips and these background variables are presented in Table 10. The correlations between the fit at the bust and at the waist with the background variables of methods and sources of obtaining outerwear clothing were not statistically significant. The fit at the hips was significantly correlated with two variables--"sew for myself" ($r = .222$; $df = 140$; $p \leq .05$) and "speciality stores--fabrics" ($r = .304$; $df = 140$; $p \leq .01$)--indicating that, as the subjects wore dresses which increased in looseness at the hips there were increases in sewing and in the purchase of fabric from specialty stores.

Correlations Between Fit and Factors Influencing Choice of Dress

It can be seen in Table 11 that there was one significant correlation with fit at the bust from among the factors influencing choice of dress as most flattering--with "warm" ($r = .202$; $df = 140$; $p \leq .05$).

Table 10

Correlations Between Fit, and Methods and Sources of Obtaining Outerwear Clothing (N = 140)

Variable	Closeness or looseness of fit		
	Bust	Waist	Hip
Methods of obtaining outerwear clothing			
Purchase ready-to-wear	.112	-.032	-.128
Dressmaker sews for me	-.013	.071	-.030
Sew for myself	-.137	.017	.222*
Relative sews for me	.011	.019	-.110
Gifts	.052	-.013	-.113
Other	.091	-.090	.084
Sources from which clothing was obtained			
Catalog--ready-to-wear	-.002	-.047	-.052
Catalog--fabric	-.049	-.059	-.099
Department store--ready-to-wear	.019	-.013	.043
Department store--fabric	-.069	.051	.065
Discount store--ready-to-wear	-.075	-.134	-.088
Discount store--fabric	-.086	-.059	-.035
Gift from family	-.004	-.020	-.155
Gift from friends	-.102	-.096	-.073
Mill outlet--ready-to-wear	.151	-.001	-.074
Mill outlet--fabric	-.116	-.071	-.057
Second hand store	.111	.043	.067
Specialty store--ready-to-wear	.142	.055	-.129
Specialty store--fabric	.037	.115	.304**

*$p \leq .05$
**$p \leq .01$

Table 11

Correlations Between Fit and Factors Influencing Choice of Dress (N = 140)

Factors influencing choice of dress	Closeness or looseness of fit		
	Bust	Waist	Hip
Color	.017	-.073	.014
Comfort	.048	.072	-.087
Style	.062	-.175	-.002
Fit	-.052	-.165	-.031
Size	-.120	-.157	.093
Brand	.191	.015	-.022
Texture	-.016	.021	-.080
Cool	-.103	-.069	.048
Warm	.202*	.248*	-.060
Ease of putting garment on	.054	.062	-.038
Easy to clean & maintain	-.135	-.108	.074
Receive compliments when I wear it	.052	-.089	.156
Feel well dressed when I wear it	.014	-.071	.035
Made for me	-.017	.074	.017

*$p \leq .05$

The correlation between fit at the bust and "brand" ($r = .191$; $df = 140$; $p \leq .20$) was considered adequate to indicate a trend. Between the fit at the waist and the factors influencing choice of dress as most flattering, there was also one significant correlation--with "warm" ($r = .248$; $df = 140$; $p \leq .05$). In addition, there were two correlations with fit at the waist which were significant at the .20 level to indicate trends. These negative correlations were "style" ($r = -.175$) and "fit" ($r = -.165$) indicating that as looseness of fit decreased there was an increased tendency to check "style" and "fit" from among the factors influencing choice of dress. There were no statistically significant correlations between fit at the hips and the factors influencing choice of dress as most flattering.

Correlations Between Fit and Frequently Needed Alterations

Table 12 shows that there were no correlations significant at the $p \leq .05$ level between fit at the bust and the most frequently needed pattern alterations. The correlation between fit at the bust and sleeve alteration of commercial patterns ($r = .187$; $df = 140$; $p \leq .20$) was considered adequate to indicate a trend. There was one significant correlation between fit at the waist and frequently needed alteration variables--the shoulders of commercial patterns ($r = .220$; $df = 140$; $p \leq .05$). Also, there was one correlation adequate to be considered a trend--between fit at the waist and frequently needed alterations of the shoulders of ready-to-wear clothing. There were no significant correlations between fit at the hips and frequently needed alteration variables. However, it is of interest that correlations between fit at the hips and

Table 12

Correlations Between Fit and Frequently Needed Alterations (N = 140)

Garment type and alteration area	Closeness or looseness of fit		
	Bust	Waist	Hip
Ready-to-wear clothing			
Collar or neckline	.002	.005	.006
Shoulders	.047	.186	-.006
Sleeves	.134	.118	-.119
Bodice darts	-.022	.019	.003
Bodice length	-.122	-.079	.007
Bodice width	.011	-.024	.007
Waist circumference	-.067	-.069	.162
Skirt darts	-.128	.016	-.002
Skirt width	-.098	-.030	-.180
Skirt length or hem location	-.044	.001	.133
Commercial pattern			
Collar or neckline	-.090	-.027	.057
Shoulders	.048	.220*	-.037
Sleeves	.187	.051	-.053
Bodice darts	-.020	-.104	-.167
Bodice length	.066	-.100	.067
Bodice width	.114	-.005	.036
Waist circumference	.100	.015	.042
Skirt darts	.053	-.008	-.049
Skirt width	.044	-.050	-.109
Skirt length or hem location	.027	.067	-.046

*$p \leq .05$

alterations of the skirt width for ready-to-wear garments and bodice darts for commercial patterns were significant at the $p \leq .20$ level to indicate trends in correlations.

RELATIONSHIPS BETWEEN CLOSENESS OR LOOSENESS OF FIT AND BODY IMAGE, BODY BUILD, AND CLOTHING ATTITUDES

Correlations

Relationships between fit and body image variables. It can be seen in Table 13 that no correlations reached the minimum $p \leq .05$ level of significance between fit at the bust, the waist, or the hips, and body image variables. However, it should be noted that all correlations between fit at the bust and body image variables were negative except the correlation with bust impression. This trend indicated that as the fit of garments at the bust decreased in looseness, there was a tendency for body image scores to increase toward the unfavorable. Correlations which equaled or exceeded the .20 level of significance to be reported as trends were noted between fit at the waist and body cathexis ($r = .172$; $df = 140$; $p \leq .20$) and between fit at the hips and bust impression ($r = -.171$; $df = 140$; $p \leq .20$)

Correlations between fit and body build. The closeness or looseness of fit at the bust and at the hips are negatively but not significantly correlated at the $p \leq .05$ level with body build rating by judges. The relationships negative and significant at the $p \leq .20$ level indicate a tendency for greater amount of looseness at the bust and hips with the

Table 13

Correlations Between Fit and Body Image Variables (N = 140)

Body image variables	Closeness or looseness of fit		
	Bust	Waist	Hip
Body image (mean score)	-.128	.143	-.020
Body impression (mean score)	-.071	.140	.056
Bust impression	.083	-.031	-.171
Waist impression	-.081	.156	.007
Derriere impression	-.062	.143	.028
Legs impression	-.106	-.001	-.003
Figure impression I	-.031	.103	.026
Figure impression II	-.039	.133	.006
Body cathexis (mean score)	-.088	.172	.074
Body build self rating	-.153	.064	-.143

smaller body builds. The correlations between fit at the bust, waist, and hips with body build are presented in Table 14.

Table 14

Correlations Between Fit and Body Build
(N = 140)

	Closeness or looseness of fit		
	Bust	Waist	Hip
Body build	-.171	.065	-.182

Correlations between fit and clothing attitude variables. Table 15 shows that although no correlations were significant at the $p = .05$ level, one correlation approached the minimum level $p \leq .20$, between clothing comfort and fit at the waist ($r = -.163$; $df = 140$; $p \leq .20$). The interpretation was made that as garments fit with decreased looseness at the waist concern for clothing comfort increased. It should be noted that all but two correlations between fit and clothing attitude were negative.

Multiple Regression Analyses

The purpose of multiple regression was to produce a linear combination of independent variables which correlated as highly as possible with the dependent variable while taking into account the interrelationships among the independent variables. Stepwise multiple regression was used to select from a model equation the independent variables which provided the best prediction equation possible for the dependent variable with the fewest independent variables. From the variables offered in the model equation, a regression equation was constructed one variable at a

time in order of decreasing strength of relationship in conjunction with variables previously in the equation until no other variable made a significant predictive contribution (Nie, et al., 1970:175,180). In order to determine various relationships, the model equations offered three types of variables: individual variables (linear relationships), squares of variables (curvilinear relationships), and product variables (linear interactions) (Ezekiel and Fox, 1959).

Table 15

Correlations Between Fit and Clothing Attitude Variables (N = 140)

Clothing attitude variables	Closeness or looseness of fit		
	Bust	Waist	Hip
Clothing attitude (mean score)	-.088	-.041	-.037
Clothing comfort (mean score)	-.152	-.163	-.071
Clothing dependence (mean score)	-.034	.071	.021
Clothing modesty (mean score)	-.022	-.022	-.036

The computer results of the stepwise multiple regression analyses consisted of two types of tables. The first stepwise table was of the variables as they were entered into the equation. As each variable was added, the result was an F-ratio that measured the statistical significance of the regression equation obtained from the sums of squares and mean squares due to regression and residual. A step summary table included B, the regression coefficient for each variable, and F to remove, which showed the significance of each variable after the inclusion of the

additional variable (Nie, et al., 1970:185; Draper and Smith, 1966:171-172; Kerlinger and Pedhazur, 1973:290-295).

After the stepwise multiple regression computer program entered as many variables as made a significant contribution, a summary table presented the entry order, multiple R, R^2, and B weight values for the variables entered into the regression equation. Multiple R is the product-moment coefficient of correlation between the dependent variable and a linear combination of the independent variables (Kerlinger and Pedhazur, 1973:36; Snedecor and Cochran, 1967:402). R^2 (coefficient of determination) expresses the proportion of variability in the dependent variable accounted for by the regression equation (Nie, et al., 1970: 185). The regression equation may use the regression coefficient values (B) for each independent variable with the scores for an individual subject to predict the dependent variable for that subject. An example of the use of the B values will be presented in the section on multiple regressions for fit at the bust, waist, and hips on body image, body build, and clothing attitude when the subjects were grouped by body builds.

Multiple regressions for fit at the bust, waist, and hips on body image mean score, body build, and clothing attitude mean score. Stepwise multiple regression analysis was used to examine the relationships between the dependent variables (fit at the bust, waist, and hips) and the independent variables (body image mean score, body build, and clothing attitude mean score). The following model equation was used to test the relationships between the primary variables:

Fit (at the bust, waist, or hips) = body image + body image^2 + body build + body build^2 + clothing attitude + clothing attitude^2 + body image x body build + body image x clothing attitude + body build x clothing attitude

The stepwise multiple regression analysis for fit at the bust yielded the results which are presented in Table 16. At the first step, the variable body build x clothing attitude entered the equation with an F-ratio of 5.371, significant at the $p \leq .05$ level. The second step added the variable body build squared with an F-ratio of 2.874, which was not significant. When body build squared entered the equation in addition to body build x clothing attitude, the F to remove values for the two variables were 2.294 (body build x clothing attitude) and 0.400 (body build squared), also not significant.

The summary table (Table 17) for the regression equation shows that the highest multiple R achieved was .217; the highest R^2 was .047. The R^2 indicated that 4.7 percent of the variability in closeness or looseness of fit at the bust could be accounted for by the body image, body build, and clothing attitude variables. The small increases in the multiple R and R^2 values after the entrance of body build x clothing attitude into the equation indicated that this variable accounted for 3.7 percent and the addition of the other eight variables added 1.0 percent of the explained variability.

Stepwise multiple regression analysis for fit at the waist on the dependent variables showed that none of the variables entered the equation with an F-ratio at the $p \leq .05$ level of significance. The values of the multiple R and R^2 were .262 and .069 respectively. Of the

Table 16

Stepwise Regression, Steps 1 and 2, for Fit at the Bust Regressed on Body Image, Body Build, and Clothing Attitude

Step Number 1 Variable entered: Body build x clothing attitude

Standard error = 1.752

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	16.494	16.494	5.371*
Residual	138	423.754	3.071	

Step 1 Summary

Variables in the equation:	B	F to remove
Body build x clothing attitude	-0.122	5.371*
(Constant)	3.137	

Step Number 2 Variable entered: Body build^2

Standard error = 1.756

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	17.728	8.864	2.874
Residual	137	422.520	3.084	

Step 2 Summary

Variables in the equation:	B	F to remove
Body build$_2$x clothing attitude	-0.197	2.294
Body build^2	0.041	0.400
(Constant)	3.380	

* $p \leq .05$

Table 17

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body build x clothing attitude	.194	.037	0.004
Body build^2	.201	.040	0.259
Body image x body build	.208	.043	-0.435
Body image^2	.214	.046	0.294
Body image	.215	.046	0.242
Body image x clothing attitude	.216	.047	-0.338
Body build	.216	.047	0.477
Clothing attitude	.217	.047	0.254
Clothing attitude^2	.217	.047	-0.116
(Constant)			1.979

relationship found between fit at the waist and the dependent variables, the total accounted for by the variables was 6.9 percent. The entry order, multiple R, R^2, and B weight values for the regression of fit at the waist on body image, body build, and clothing attitude are presented in Table 18.

Table 18

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body image	.142	.020	4.536
Body image^2	.180	.032	0.813
Body image x body build	.184	.034	-2.106
Body build^2	.211	.044	0.620
Body build	.233	.055	1.360
Clothing attitude^2	.235	.055	-1.132
Clothing attitude	.256	.066	7.800
Body build x clothing attitude	.258	.067	0.446
Body image x clothing attitude	.262	.069	-0.841
(Constant)			-17.749

Table 19, showing the stepwise multiple regression analysis for fit at the hips on the independent variables, indicates a stronger relationship with fit at the hips than with fit at the bust or at the waist from the regression on the dependent variables. Body build squared

Table 19

Stepwise Regression, Steps 1, 2, and 3, for Fit at the Hips Regressed on Body Image, Body Build, and Clothing Attitude

Step Number 1 Variable entered: Body build^2

Standard error = 2.275

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	25.357	25.357	4.898*
Residual	138	714.460	5.177	

Step 1 Summary

Variables in the equation:	B	F to remove
Body build^2	-0.075	4.898*
(Constant)	4.580	

Step Number 2 Variable entered: Body image^2

Standard error = 2.250

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	46.483	23.242	4.592*
Residual	137	693.334	5.061	

Step 2 Summary

Variables in the equation:	B	F to remove
Body build^2	-0.150	9.100**
Body image^2	0.200	4.174*
(Constant)	3.457	

Step Number 3 Variable entered: Body image x body build

Standard error = 2.257

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	3	47.052	15.684	3.079
Residual	136	692.765	5.094	

Step 3 Summary

Variables in the equation:	B	F to remove
Body build^2	-0.037	.011
Body image^2	0.304	.864
Body image x body build	-0.220	.112
(Constant)	3.427	

*p .05
**p .01

entered the equation with an F-ratio of 4.898, significant at the $p \leq .05$ level. When body image squared was entered into the equation in the next step, both the F-ratio and F to remove values were still above the minimum 3.92 for significance at the $p \leq .05$ level. However, when the third variable, body image x body build was added to the equation, the F to remove values of all three variables were below the $p \leq .05$ level.

The summary table for the regression of fit at the hips is presented in Table 20. The multiple R and R^2 values were higher for fit at the hips than for fit at the bust or at the waist. Approximately 9.3 percent of the variability in closeness or looseness of fit at the hips is accounted for by body image, body build, and clothing attitude.

Multiple regressions for fit at the bust, waist, and hips on body image component variables, body build, and clothing attitude mean score. The following model equation was used to examine the relationships between fit at the bust, waist, and hips and the body image component variables (body impression, body cathexis, and body build self rating), body build, and clothing attitude mean score:

Table 20

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body build^2	.185	.034	-0.007
Body image^2	.251	.063	1.087
Body image x body build	.252	.064	-0.709
Body build	.258	.066	-2.262
Body image	.262	.069	-0.343
Body build x clothing attitude	.263	.069	1.270
Body image x clothing attitude	.301	.091	-1.048
Clothing attitude^2	.303	.092	0.573
Clothing attitude	.305	.093	-3.673
(Constant)			12.118

Fit (at the bust, waist, or hips) = body impression + body impression^2 + body cathexis + body cathexis^2 + body build self rating + body build self rating^2 + body build + body build^2 + clothing attitude + clothing attitude^2 + body impression x body build self rating + body impression x body cathexis + body impression x body build + body impression x clothing attitude + body cathexis x body build self rating + body cathexis x body build + body cathexis x clothing attitude + body build self rating x body build + body build self rating x clothing attitude + body build x clothing attitude

Examination of the stepwise multiple regression equation for fit at the bust on the body image component variables, body build, and clothing attitude reveals that the first two steps are exactly the same as the stepwise multiple regression equation using the body image mean score as appears in Table 16 (p. 64). Again, the only step in which an added variable achieved an F-ratio significant at the $p \leq .05$ level was the first step when the variable body build x clothing attitude was entered.

However, examination of Table 21 in comparison to Table 16 (p. 64) showed that the multiple R and R^2 values achieved a slightly higher level when the body image variable was divided into its three components. The highest achieved multiple R was .287 and R^2 was .082. This indicated that the equation using the body image component variables accounted for 8.2 percent of the variability of fit at the bust, approximately twice as much as the equation using the body image mean score.

Table 22 shows steps 1 and 2 of the stepwise regression equation for fit at the waist on body image component variables, body build, and

Table 21

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image Component Variables, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body build x clothing attitude	.194	.037	0.679
Body build^2	.201	.040	0.299
Body build	.207	.043	-2.844
Body build self rating x clothing attitude	.213	.045	-1.409
Body build self rating	.222	.049	4.880
Clothing attitude	.225	.051	2.060
Clothing attitude^2	.229	.053	-0.331
Body build self rating x body build	.231	.053	-0.159
Body build self rating^2	.239	.057	0.051
Body impression x body build self rating	.240	.058	-0.812
Body impression	.249	.062	5.842
Body impression x body build	.250	.062	0.273
Body cathexis x body build	.250	.063	-0.503
Body cathexis x clothing attitude	.253	.064	1.707
Body cathexis	.260	.068	-8.536
Body cathexis^2	.272	.074	1.184
Body impression x clothing attitude	.278	.078	-1.134

Table 21 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Body impression x body cathexis	.282	.080	-1.241
Body impression^2	.285	.081	0.430
Body cathexis x body build self rating	.287	.082	0.636
(Constant)			0.574

Table 22

Stepwise Regression, Steps 1 and 2, for Fit at the Waist Regressed on Body Image Component Variables, Body Build, and Clothing Attitude

Step Number 1 Variable entered: Body cathexis

Standard error = 2.184

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	20.164	20.164	4.228*
Residual	138	658.094	4.769	

Step 1 Summary

Variables in the equation:	B	F to remove
Body cathexis	0.776	4.228*
(Constant)	1.180	

Step Number 2 Variable entered: Body cathexis^2

Standard error = 2.174

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	30.983	15.492	3.279
Residual	137	647.274	4.725	

Step 2 Summary

Variables in the equation:	B	F to remove
Body cathexis	6.790	2.893
Body cathexis^2	-1.050	2.290
(Constant)	-7.180	

*$p \leq .05$

clothing attitude. The first step was the entrance of body cathexis with an F-ratio of 4.229, significant at the $p \leq .05$ level. The second step was the addition of body cathexis squared with an F-ratio of 3.279 which was not significant. Neither were the two F to remove values significant in the step summary.

From the regression equation summary table (Table 23) it was found that approximately 21.8 percent of the variability in fit at the waist can be explained by the body image component variables, body build, and clothing attitude. It should be noted that of the eight variables which first entered the equation, seven variables were related to the body image component variables. Also, it should be noted that one variable (body build self rating x body build) did not make a contribution to the equation and was not included by the computer.

Table 24 shows steps 1 through 4 of the stepwise multiple regression equation for fit at the hips on body image component variables, body build, and clothing attitude. It is seen that three variables entered with F-ratios significant at the $p \leq .05$ level. The first step entered body build squared at an F-ratio of 4.898, the second step entered body impression x body cathexis with an F-ratio of 5.648, and the third step entered body build self rating x body build with an F-ratio of 4.091. The fourth step entered body build self rating which was not significant. However, as variables continued to enter the equation up to the ninth step, the F to remove value of body impression x body cathexis continued to be above 3.92 for significance at the $p \leq .05$ level.

Comparison of Table 25 (p. 79) with Table 23 (p. 75) shows that the multiple R and R^2 values were about the same for fit at the hips as

Table 23

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image Component Variables, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body cathexis	.172	.030	4.213
Body cathexis^2	.214	.046	-0.863
Body impression	.216	.047	-2.990
Body impression^2	.226	.051	-0.087
Clothing attitude^2	.228	.051	-2.110
Body impression x clothing attitude	.260	.067	1.959
Body cathexis x clothing attitude	.264	.070	-0.165
Body impression x body cathexis	.271	.073	-0.434
Clothing attitude	.273	.075	12.002
Body build self rating x clothing attitude	.275	.076	-4.559
Body cathexis x body build self rating	.286	.082	4.974
Body build self rating^2	.300	.090	-1.438
Body build self rating	.303	.092	12.917
Body build x clothing attitude	.305	.093	2.594
Body cathexis x body build	.416	.173	-3.936
Body build^2	.444	.197	0.480
Body impression x body build	.451	.203	1.896

Table 23 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Body impression x body build self rating	.459	.210	-2.040
Body build	.467	.218	-4.453
Body build self rating x body build[a]			
(Constant)			-27.603

[a]Did not enter equation

Table 24

Stepwise Regression, Steps 1 to 4, for Fit at the Hips Regressed on Body Image Component Variables, Body Build, and Clothing Attitude

Step Number 1 Variable entered: Body build^2

Standard error = 2.275

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	25.357	25.357	4.898*
Residual	138	714.460	5.177	

Step 1 Summary

Variables in the equation:	B	F to remove
Body build^2	-0.075	4.898*
(Constant)	4.580	

Step Number 2 Variable entered: Body impression x body cathexis

Standard error = 2.234

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	56.357	28.179	5.648*
Residual	137	683.460	4.989	

Step 2 Summary

Variables in the equation:	B	F to remove
Body build^2	-0.130	10.621**
Body impression x body cathexis	0.200	6.214*
(Constant)	3.227	

Step Number 3 Variable entered: Body build self rating x body build

Standard error = 2.234

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	3	61.231	20.410	4.091*
Residual	136	678.587	4.990	

Step 3 Summary

Variables in the equation:	B	F to remove
Body build^2	0.009	0.004
Body impression x body cathexis	0.231	7.189**
Body build self rating x body build	-0.189	0.977
(Constant)	3.334	

Table 24 (continued)

Step Number 4 Variable entered: Body build self rating

Standard error = 2.234

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	4	66.282	16.570	3.321
Residual	135	673.536	4.990	

Step 4 Summary

Variables in the equation	B	F to remove
Body build^2	0.309	0.866
Body impression x body cathexis	0.248	7.979**
Body build self rating x body build	-0.769	1.602
Body build self rating	1.600	1.012
(Constant)	0.932	

*$p \leq .05$
**$p \leq .01$

Table 25

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image Component Variables, Body Build, and Clothing Attitude

Independent variables according to entry order	Multiple R	R^2	B
Body build^2	.185	.034	-0.047
Body impression x body cathexis	.276	.076	3.075
Body building self rating x body build	.288	.083	0.503
Body build self rating	.299	.090	-6.961
Body impression x body build	.303	.092	1.278
Body impression^2	.322	.103	-1.832
Body cathexis^2	.361	.130	-1.476
Body cathexis x body build self rating	.373	.139	4.374
Body cathexis x body build	.386	.149	-2.506
Body build self rating^2	.411	.169	-1.773
Body build	.421	.169	1.886
Body cathexis	.427	.182	-3.246
Body build x clothing attitude	.433	.187	-0.178
Body cathexis x clothing attitude	.439	.193	-0.894
Clothing attitude^2	.441	.195	1.468
Clothing attitude	.447	.200	-11.656

Table 25 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Body build self rating x clothing attitude	.455	.207	1.653
Body impression x clothing attitude	.457	.209	0.643
Body impression x body build self rating	.459	.211	-0.744
Body impression[a]			
(Constant)			31.788

[a]Did not enter equation

they were for fit at the waist. With 19 variables in the equation, the final multiple R was .459 and the final R^2 was .211. It can be said that the body image component variables, body build, and clothing attitude accounted for about 21.1 percent of the variability of fit at the hips.

Multiple regressions for fit at the bust, waist, and hips on body image, body build, and clothing attitude subscales. The stepwise multiple regression equation for fit at the bust, waist, and hips on body image, body build, and the clothing attitude subscale variables was obtained by the following model equation:

Fit (at the bust, waist, or hips) = body image + body image^2 + body build + body build^2 + clothing comfort + clothing comfort^2 + clothing dependence + clothing dependence^2 + clothing modesty + clothing modesty^2 + body image x body build + body image x clothing comfort + body image x clothing dependence + body image x clothing modesty + body build x clothing comfort + body build x clothing dependence + body build x clothing modesty + clothing comfort x clothing dependence + clothing comfort x clothing modesty + clothing dependence x clothing modesty

Table 26 of the stepwise multiple regression equation for fit at the bust indicates that the first variable to enter the equation was the interaction, body image x clothing comfort with an F-ratio of 6.747, significant at the $p \leq .05$ level. The second variable to enter the equation was the interaction, body build x clothing modesty. Neither the F-ratio of this variable, nor the F to remove values of the two variables in the equation surpassed the 3.92 needed to be significant at the $p \leq .05$ level.

Table 26

Stepwise Regression, Steps 1 and 2, for Fit at the Bust Regressed on Body Image, Body Build, and Clothing Attitude Subscales

Step Number 1 Variable entered: Body image x clothing comfort

Standard error = 1.744

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	20.522	20.522	6.747*
Residual	138	419.727	3.042	

Step 1 Summary

Variables in the equation	B	F to remove
Body image x clothing comfort	-0.223	6.747*
(Constant)	3.949	

Step Number 2 Variable entered: Body build x clothing modesty

Standard error = 1.745

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	23.180	11.590	3.807
Residual	137	417.068	3.044	

Step 2 Summary

Variables in the equation	B	F to remove
Body image x clothing comfort	-0.173	2.965
Body build x clothing modesty	-0.050	0.873
(Constant)	4.015	

*$p \leq .05$

It can be seen in Table 27 that one variable (body image x body build) did not enter the equation. When the 19 variables contributing to the equation were entered, the summary table (Table 27) shows that the highest multiple R obtained by the combination of variables was .352 and the highest R^2 was .124. When Table 27 is compared to Table 17 (p. 65) it is seen that body build x clothing attitude was the first variable entered and therefore had the highest correlation with fit at the bust. It is noted in Table 27 that the first four variables entering the equation were related to the clothing attitude subscales. Comparison of Table 17 with Table 27 shows the increase in multiple R (from .217 to .352) and R^2 (from .047 to .124) which supports the division of the clothing attitude mean score into the subscale scores to strengthen and clarify the relationship to the dependent variable. The subscales of clothing attitude along with body image and body build account for 12.4 percent of the variability in the fit at the bust.

From examination of the stepwise multiple regression equation for fit at the waist on body image, body build, and clothing attitude subscales it was found that none of the variables entered the equation with a significant F-ratio. Neither were any of the F to remove values significant.

However, comparison of Table 28 with Table 18 (p. 66) shows that there was an increase in the multiple R (from .262 to .380) and R^2 (from .069 to .144) when the clothing attitude subscale scores were used in the model equation rather than the clothing attitude mean score. Body image, body build, and clothing attitude subscales account for about 14.4

Table 27

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image, Body Build, and Clothing Attitude Subscales

Independent variables according to entry order	Multiple R	R^2	B
Body image x clothing comfort	.216	.047	-1.484
Body build x clothing modesty	.229	.053	-0.401
Body image x clothing modesty	.236	.056	-0.286
Body build x clothing comfort	.258	.066	0.825
Body build^2	.262	.068	0.167
Body build	.267	.071	-1.192
Body image	.272	.074	4.846
Clothing comfort^2	.285	.081	0.502
Clothing modesty	.290	.084	5.161
Clothing modesty^2	.295	.087	-0.277
Body image^2	.301	.090	-0.418
Clothing comfort	.303	.092	-4.544
Clothing comfort x clothing dependence	.304	.093	1.258
Clothing dependence^2	.330	.109	-0.383
Clothing dependence x clothing modesty	.341	.116	-0.445
Body image x clothing dependence	.346	.120	0.817

Table 27 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Body build x clothing dependence	.351	.123	-0.330
Clothing dependence	.352	.124	-1.300
Clothing comfort x clothing modesty	.352	.124	-0.103
Body image x body build[a]			
(Constant)			-1.805

[a]Did not enter equation

Table 28

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image, Body Build, and Clothing Attitude Subscales

Independent variables according to entry order	Multiple R	R^2	B
Clothing comfort	.163	.027	-0.008
Body image x clothing dependence	.228	.052	-0.365
Body image x clothing modesty	.233	.054	0.318
Body build x clothing modesty	.236	.055	-0.597
Body build x clothing comfort	.241	.058	1.011
Body image x body build	.276	.076	-1.425
Clothing modesty^2	.289	.084	-0.919
Clothing comfort x clothing modesty	.315	.099	1.307
Body build^2	.331	.110	0.420
Clothing modesty	.338	.114	2.638
Body image	.346	.119	7.053
Body image x clothing comfort	.353	.125	-0.898
Clothing comfort^2	.357	.128	-0.502
Clothing dependence x clothing modesty	.362	.131	0.358
Clothing comfort x clothing dependence	.372	.139	-1.063
Clothing dependence	.377	.142	3.894

Table 28 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Clothing dependence^2	.378	.143	-0.232
Body build x clothing dependence	.379	.144	0.152
Body build	.380	.144	0.707
Body image^2 [a]			
(Constant)			-17.589

[a]Did not enter equation

percent of the variability in fit at the waist with 19 variables in the equation.

In the stepwise multiple regression equation for fit at the hips regressed on body image, body build, and clothing attitude subscales, only one variable--body build x clothing comfort--entered with an F-ratio significant at the $p \leq .05$ level. (See Table 29.) Not seen in the abbreviated stepwise table is that the variable body build x clothing comfort continued to have a significant F to remove value through the fourth step.

It can be seen in Table 30 that three variables did not make an adequate contribution in order to enter the regression equation. In this summary table it can be seen that the highest multiple R achieved was .347 and the highest R^2 was .120. While both the multiple R and R^2 were higher (.305 to .347 and .093 to .120 respectively), when the clothing attitude mean score was divided into the three subscales there was not as much increase for the fit at the hips as there was for fit at the bust and fit at the waist as a result of the division of the clothing attitude mean score into the subscale scores.

Multiple regressions for fit at the bust, waist, and hips on body image, body build, and clothing attitudes when the subjects were grouped by body builds. Both the body image and the clothing attitude variables were divided into the three components or subscales with resulting increases in multiple R and R^2 values. With the increased specificity of variables, there was an increase in the strength of the relationships between the closeness or looseness of clothing fit and the independent variables.

Table 29

Stepwise Regression, Steps 1 and 2, for Fit at the Hips Regressed on Body Image, Body Build, and Clothing Attitude Subscales

Step Number 1 Variable entered: Body build x clothing comfort

Standard error = 2.274

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	26.047	26.047	5.036*
Residual	138	713.770	5.172	

Step 1 Summary

Variables in the equation:	B	F to remove
Body build x clothing comfort	-0.153	5.036*
(Constant)	5.103	

Step Number 2 Variable entered: Body image x clothing dependence

Standard error = 2.267

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	35.497	17.748	3.452
Residual	137	704.321	5.141	

Step 2 Summary

Variables in the equation:	B	F to remove
Body build x clothing comfort	-0.204	6.895*
Body image x clothing dependence	0.140	1.838
(Constant)	4.443	

*$p \leq .05$

Table 30

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image, Body Build, and Clothing Attitude Subscales

Independent variables according to entry order	Multiple R	R^2	B
Body build x clothing comfort	.188	.035	0.295
Body image x clothing dependence	.219	.048	-0.665
Body image x clothing comfort	.232	.056	-0.259
Clothing modesty^2	.243	.059	-0.609
Body build x clothing dependence	.252	.063	0.677
Clothing modesty	.259	.067	3.354
Body build^2	.262	.069	-0.026
Body image^2	.300	.090	1.012
Body image x body build	.317	.100	-0.744
Clothing comfort x clothing dependence	.327	.107	0.624
Clothing dependence	.330	.109	-3.511
Clothing dependence^2	.337	.114	0.388
Clothing comfort	.340	.115	-4.883
Clothing comfort^2	.343	.118	0.354
Body build	.345	.119	-1.020
Clothing comfort x clothing modesty	.346	.120	0.324

Table 30 (continued)

Independent variables according to entry order	Multiple R	R^2	B
Body image x clothing modesty	.347	.120	-0.110
Body image[a]			
Body build x clothing modesty[a]			
Clothing dependence x clothing modesty[a]			
(Constant)			10.774

[a]Did not enter equation

The behavior of a group of persons becomes increasingly predictable as limitations defining the group become more specific. The assumption was made that behavior related to the closeness or looseness of the fit of clothing could better be predicted if the description of the population of college women were additionally limited by grouping the women into the several body build classifications. It was assumed that women within certain body build classifications would exhibit similar behaviors which are more predictable than the behaviors of the total group.

The next step in the analysis of the data was to divide the subjects according to body build to determine whether there were increased relationships between the research variables associated with certain body builds. In order to identify distinct groups of body builds, the half interval classifications were omitted. The body builds and classifications used in these multiple regression analyses were:

1 thin, from classification 1.00 to 1.25, 7 subjects

2 slender, from classification 1.75 to 2.25, 31 subjects

3 average, from classification 2.75 to 3.25, 36 subjects

4 stocky, from classification 3.75 to 4.25, 17 subjects

5 heavy, from classification 4.75 to 5.00, 6 subjects

The original design of this investigation did not include analyses by body builds. However, analyses by body builds are reported since they indicate trends for further research. The multiple regression analyses are reported in greater detail than the Pearson product-moment correlations because the multiple regression analyses show both the relationships and the interrelated nature of the variables.

Inspection of the Pearson product-moment correlations for the three body builds analyzed between fit at the bust, waist, and hips with body image, body build, and clothing attitude variables revealed that there were no correlations significant at the $p \leq .05$ level. Trends were indicated by the following correlations which were found to be significant at the $p \leq .10$ level:

Slender body build:

fit at the waist with body image ($r = .392$; $df = 31$; $p \leq .10$)

fit at the hips with body image ($r = .369$; $df = 31$; $p \leq .10$)

Average body build:

fit at the hips with body build ($r = .340$; $df = 36$; $p \leq .10$)

It should be noted both in the correlations and in the multiple regression analyses that there are differences between the findings for each of the body builds.

Kerlinger and Pedhazur (1973:446-447) recommended that the sample size for multiple regression analysis be at least 100 subjects. Large samples increase the stability of the results and the precision of the statistical estimate while decreasing the bias of R^2 and B weight values. Also, the results of multiple regression analyses are affected by the ratio of the number of independent variables to the size of the sample (Kerlinger and Pedhazur, 1973:282).

With a maximum of 36 subjects in any classification, the sample size for regressions for fit on the nine independent variables was less than desirable. However, stepwise multiple regression analyses were computed using the slender, average, and stocky body builds. The results of

these regressions can only be interpreted as trends which may indicate direction for further research.

For each of the three body builds (slender, average, and stocky), stepwise multiple regression analyses were used to examine the relationships between fit at the bust, waist, and hips and the primary independent variables body image, body build, and clothing attitude. The following model equation was used for each analysis:

Fit (at the bust, waist, or hips) = body image + body image^2 + body build + body build^2 + clothing attitude + clothing attitude^2 + body image x body build + body image x clothing attitude + body build x clothing attitude

Stepwise multiple regression analysis for fit at the bust for the slender body build indicated that none of the variables entered the regression equation with an F-ratio significant at the $p \leq .05$ level. Table 31 summarizes the entry order, multiple R, R^2, and B weight values. The values of multiple R and R^2 achieved .531 and .282 respectively, after the inclusion of eight variables in the regression equation. These values indicate that the regression equation for fit at the bust for the slender body build using body image, body build, and clothing attitude accounts for approximately 28.2 percent of the variability of fit. When Table 31 is compared to Table 17 (p. 65) it can be seen that both the multiple R and R^2 values are higher when only the slender body build is considered.

Table 32 shows steps 1 through 8 of the stepwise regression for fit at the waist for the slender body build regressed on the dependent variables. All eight variables which entered the regression equation

Table 31

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image, Body Build, and Clothing Attitude for Slender Body Build (N = 31)

Independent variables according to entry order	Multiple R	R^2	B
Body image x body build	.221	.049	14.995
Body image x clothing attitude	.256	.065	-2.490
Clothing attitude	.270	.073	21.324
Body build x clothing attitude	.491	.241	-4.625
Clothing attitude^2	.503	.253	-0.979
Body image	.506	.256	-37.640
Body build^2	.514	.265	-5.687
Body image^2	.531	.282	3.088
Body build[a]			
(Constant)			16.122

[a]Did not enter equation

Table 32

Stepwise Regression, Steps 1 to 8, for Fit at the Waist Regressed on Body Image, Body Build, and Clothing Attitude for Slender Body Build (N = 31)

Step Number 1 Variable entered: Body image^2

Standard error = 2.793

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	50.121	50.121	6.424*
Residual	29	226.249	7.802	

Step 1 Summary

Variables in the equation	B	F to remove
Body image^2	0.735	6.424*
(Constant)	-1.610	

Step Number 2 Variable entered: Body image

Standard error = 2.487

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	103.174	51.587	8.340**
Residual	28	173.197	7.186	

Step 2 Summary

Variables in the equation:	B	F to remove
Body image^2	6.210	9.830**
Body image	-52.594	8.577**
(Constant)	66.533	

Step Number 3 Variable entered: Body build^2

Standard error = 2.529

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	3	103.745	34.582	5.409*
Residual	27	172.626	6.394	

Step 3 Summary

Variables in the equation:	B	F to remove
Body image^2	10.442	8.401**
Body image	-51.160	7.344*
Body build^2	-0.184	0.089
(Constant)	65.526	

Table 32 (continued)

Step Number 4 Variable entered: Body build

Standard error = 2.466

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	4	118.311	29.578	4.865**
Residual	26	158.059	6.079	

Step 4 Summary

Variables in the equation:	B	F to remove
Body image^2	10.081	8.199**
Body image	-49.299	7.141*
Body build^2	-23.922	2.430
Body build	95.961	2.306
(Constant)	-32.911	

Step Number 5 Variable entered: Body image x body build

Standard error = 2.482

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	5	122.301	24.460	3.969**
Residual	25	154.069	6.163	

Step 5 Summary

Variables in the equation:	B	F to remove
Body image^2	11.262	8.616**
Body image	-68.130	5.199*
Body build^2	-22.582	2.111
Body build	74.333	1.196
Body image x body build	6.320	0.647
(Constant)	12.946	

Step Number 6 Variable entered: Body build x clothing attitude

Standard error = 2.511

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	6	125.054	20.842	3.306*
Residual	24	151.317	6.305	

Step 6 Summary

Variables in the equation:	B	F to remove
Body image^2	10.562	6.895*
Body image	-66.149	4.744*
Body build^2	-25.122	2.410
Body build	83.463	1.417
Body image x body build	7.032	0.769
Body build x clothing attitude	-0.345	0.437
(Constant)	2.888	

Table 32 (continued)

Step Number 7 Variable entered: Body image x clothing attitude

Standard error = 2.386

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	7	145.449	20.778	3.650*
Residual	23	130.922	5.692	

Step 7 Summary

Variables in the equation:	B	F to remove
Body image^2	12.323	9.813**
Body image	-92.390	8.328**
Body build^2	-28.957	3.486
Body build	110.534	2.632
Body image x body build	9.124	1.405
Body build x clothing attitude	-6.793	3.894
Body image x clothing attitude	4.869	3.583
(Constant)	10.438	

Step Number 8 Variable entered: Clothing attitude

Standard error = 2.434

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	8	146.055	18.257	3.082*
Residual	22	130.316	5.923	

Step 8 Summary

Variables in the equation:	B	F to remove
Body image^2	11.931	8.090**
Body image	-84.773	4.400*
Body build^2	-27.280	2.679
Body build	111.283	2.560
Body image x body build	7.748	0.749
Body build x clothing attitude	-8.125	2.226
Body image x clothing attitude	3.908	0.960
Clothing attitude	5.488	0.102
(Constant)	-8.789	

*$p \leq .05$
**$p \leq .01$

entered with significant F-ratios. Two variables (body image and body image x body build) entered at the $p \leq .01$ level of significance. The other six variables entered the equation at the $p \leq .05$ level. Clothing attitude squared did not enter the regression equation. Through the entrance of the other variables, the variables body image squared and body image continued to have F to remove values above the $p \leq .05$ level of significance.

Examination of Table 33 shows that the highest multiple R achieved was .727 and the highest R^2 was .528. This indicated that for the slender body build, 52.8 percent of the variability of fit at the waist could be accounted for by the body image, body build, and clothing attitude variables. Comparison of Table 33 with Table 18 (p. 66) shows the increase in multiple R and R^2 when the slender body build is considered alone.

The R^2 value for fit at the waist regressed on body image, body build, and clothing attitude for the slender body build group was considered sufficient to illustrate the prediction capacity of multiple regression analysis. Using subject number 68 from the slender body build classification as seen in Appendix C and substituting her scores from the Master Data Table seen in Appendix B into the multiple regression equation with the B weight values, the following prediction may be made:

Table 33

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image, Body Build, and Clothing Attitude for Slender Body Build (N = 31)

Independent variables according to entry order	Multiple R	R^2	B
Body image[2]	.426	.181	11.931
Body image	.611	.373	-84.773
Body build[2]	.613	.375	-27.280
Body build	.654	.428	111.283
Body image x body build	.665	.443	7.748
Body build x clothing attitude	.673	.452	8.125
Body image x clothing attitude	.725	.526	3.908
Clothing attitude	.727	.528	5.488
Clothing attitude[2] [a]			
(Constant)			-8.789

[a]Did not enter equation

Predicted fit
at the waist = 11.931 x body image^2 (2.4^2)

- 84.773 x body image (2.4)
- 27.280 x body build^2 (2.00^2)
+ 111.283 x body build (2.00)
+ 7.748 x body image x body build (4.8)
- 8.125 x body build x clothing attitude (6.8)
+ 3.908 x body image x clothing attitude (8.2)
+ 5.488 x clothing attitude (3.4)
- 8.789 constant

Performing the computations for subject number 68 results in 2.57 millimeters of predicted closeness or looseness of fit at the waist. It may be seen in the Master Data Table in Appendix B that the actual fit at the waist for this subject was 2.5 millimeters. The standard error or typical error in prediction at the eighth step is 2.434 which allows for variability in the difference between predicted and actual fit, even though the actual closeness or looseness of fit of subject 68 was near the predicted closeness or looseness of fit.

It can be seen in Table 34 that five variables entered the regression equation for fit at the hips for slender body build with significant F-ratio levels--body image and body image x clothing attitude at $p \leq .01$ and body image squared, clothing attitude, and body build at $p \leq .05$. Through the sixth step, body image squared continued to have an F to remove above $p \leq .05$ level of significance.

The summary table (Table 35) shows that all nine variables entered the regression equation. The highest multiple R achieved was

Table 34

Stepwise Regression, Steps 1 to 6, for Fit at the Hips Regressed on Body Image, Body Build, and Clothing Attitude for Slender Body Build (N = 31)

Step Number 1 Variable entered: Body image^2

Standard error = 2.323

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	1	30.272	30.272	5.609*
Residual	29	156.502	5.397	

Step 1 Summary

Variables in the equation:	B	F to remove
Body image^2	0.572	5.609*
(Constant)	0.401	

Step Number 2 Variable entered: Body image

Standard error = 2.085

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	2	65.049	32.525	7.482**
Residual	28	121.725	4.347	

Step 2 Summary

Variables in the equation:	B	F to remove
Body image^2	8.658	9.118**
Body image	-42.583	8.000**
(Constant)	55.573	

Step Number 3 Variable entered: Body image x clothing attitude

Standard error = 2.122

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	3	65.250	21.750	4.832**
Residual	27	121.524	4.501	

Step 3 Summary

Variables in the equation:	B	F to remove
Body image^2	8.456	7.586*
Body image	-41.412	6.461*
Body image x clothing attitude	-0.067	0.045
(Constant)	54.410	

Table 34 (continued)

Step Number 4 Variable entered: Clothing attitude

Standard error = 2.144

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	4	67.261	16.815	3.658*
Residual	26	119.513	4.597	

Step 4 Summary

Variables in the equation:	B	F to remove
Body image^2	7.802	5.739*
Body image	-32.819	2.449
Body image x clothing attitude	-1.941	0.463
Clothing attitude	5.192	0.438
(Constant)	35.573	

Step Number 5 Variable entered: Body build x clothing attitude

Standard error = 2.179

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	5	68.085	13.617	2.868*
Residual	25	118.689	4.748	

Step 5 Summary

Variables in the equation:	B	F to remove
Body image^2	8.059	5.729*
Body image	-33.063	2.405
Body image x clothing attitude	-2.328	0.585
Clothing attitude	5.621	0.488
Body build x clothing attitude	0.333	0.173
(Constant)	34.114	

Step Number 6 Variable entered: Body build^2

Standard error = 2.218

Analysis of variance	DF	Sum of squares	Mean square	F
Regression	6	68.675	11.446	2.326
Residual	24	118.100	4.921	

Step 6 Summary

Variables in the equation:	B	F to remove
Body image^2	7.986	5.407*
Body image	-33.227	2.342
Body image x clothing attitude	-2.192	0.493
Clothing attitude	1.860	0.019
Body build x clothing attitude	1.951	0.169
Body build^2	-1.164	0.120
(Constant)	40.250	

*$p \leq .05$ **$p \leq .01$

Table 35

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image, Body Build, and Clothing Attitude for Slender Body Build (N = 31)

Independent variables according to entry order	Multiple R	R^2	B
Body image^2	.403	.162	6.892
Body image	.590	.348	-22.722
Body image x clothing attitude	.591	.349	-1.418
Clothing attitude	.600	.360	1.483
Body build x clothing attitude	.604	.365	0.416
Body build^2	.606	.368	-21.029
Body build	.646	.417	93.246
Body image x body build	.650	.422	-3.489
Clothing attitude^2	.650	.422	0.202
(Constant)			-65.246

.650 and the highest R^2 was .422. It can be said for the slender body build that 42.2 percent of the variability can be accounted for by body image, body build, and clothing attitude. Comparison of Table 35 with Table 20 (p. 69) shows that the regression using the body build groupings increased the multiple R from .305 to .650 and R^2 from .093 to .422 for the fit at the hips for the slender body build group.

For the average body build, the stepwise multiple regression analysis entered no variables into the regression equation at $p \leq .05$ level of significance. It should be noted in the summary table (Table 36) that four variables made a contribution to the predictive ability of the regression equation and were included by the computer. The highest multiple R achieved was .330 and the highest R^2 was .109. When compared to the regression for all the body builds together, (Table 17, p. 65) there was an increase in multiple R and R^2 when the average body build was considered alone. The increases were from .217 to .330 for multiple R and from .047 to .109 for R^2.

Also, the stepwise multiple regression equation for fit at the waist for the average body build indicated that no variables were entered at a $p \leq .05$ level of significance. However, Table 37 shows that eight variables contributed to the regression equation and were included. The highest multiple R achieved was .467 (compared to .262 for all body builds together) and the highest R^2 was .218 (compared to .069 for all body builds together). It can be said that the variables body image, body build, and clothing attitude account for 21.8 percent of the variability of fit at the waist for the average body build group.

Table 36

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image, Body Build, and Clothing Attitude for Average Body Build (N = 36)

Independent variables according to entry order	Multiple R	R^2	B
Body image	.268	.072	0.497
Body image^2	.299	.090	1.239
Body image x body build	.300	.090	-2.915
Body build	.330	.109	8.730
Body build^2 [a]			
Clothing attitude[a]			
Clothing attitude^2 [a]			
Body image x clothing attitude[a]			
Body build x clothing attitude[a]			
(Constant)			-10.979

[a]Did not enter equation

Table 37

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image, Body Build, and Clothing Attitude for Average Body Build (N = 36)

Independent variables according to entry order	Multiple R	R^2	B
Body image	.065	.004	0.517
Body image^2	.184	.034	-2.287
Clothing attitude^2	.197	.039	-4.108
Clothing attitude	.428	.183	22.745
Body image x body build	.429	.184	4.932
Body build	.463	.214	-18.407
Body build x clothing attitude	.465	.216	1.288
Body image x clothing attitude	.467	.218	-0.681
Body build^2 [a]			
(Constant)			-2.850

[a]Did not enter equation

Examination of the stepwise multiple regression equation for fit at the hips for the average body build indicated that one variable, body build squared, entered the equation at the $p \leq .05$ level of significance. The F to remove value for body build squared remained above the $p \leq .05$ level for the second step when body image was entered. Neither the F-ratio for body image, nor later F to remove values was significant.

The summary table (Table 38) for the regression equation for fit at the hips for the average body build indicates that eight variables were included in the equation. The highest multiple R achieved was .544 and the highest R^2 was .296. The variables body image, body build, and clothing attitude can be said to account for 29.6 percent of the variability of fit at the waist for the average body build group. Comparison of Table 38 to Table 20 (p. 69) indicates that both the multiple R and R^2 increased when the average body build alone was regressed on the independent variables.

The stepwise multiple regression equations for fit at the bust, waist, and hips for the stocky body build showed that no variables entered any of the three equations at a $p \leq .05$ level of significance. The regression equation for fit at the bust entered three variables, while the one for fit at the waist entered five variables, and the one for fit at the hips entered five variables. The variable clothing attitude squared entered each of the three equations; body image x clothing attitude and body build x clothing attitude entered the equations for fit at the waist and fit at the hips.

The summary tables (Tables 39, 40, and 41) indicate the entry order, multiple R, R^2, and B weight values for the three regression

Table 38

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image, Body Build, and Clothing Attitude for Average Body Build (N = 36)

Independent variables according to entry order	Multiple R	R^2	B
Body build[2]	.341	.117	-0.929
Body image	.369	.136	-26.271
Body image x body build	.405	.164	1.559
Body image x clothing attitude	.435	.189	3.246
Clothing attitude[2]	.497	.247	-3.438
Body image[2]	.522	.273	1.983
Clothing attitude	.541	.293	8.047
Body build x clothing attitude	.544	.296	1.473
Body build[a]			
(Constant)			23.432

[a]Did not enter equation

Table 39

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Bust on Body Image, Body Build, and Clothing Attitude for Stocky Body Build (N = 17)

Independent variables according to entry order	Multiple R	R^2	B
Body build	.119	.014	1.465
Clothing attitude^2	.148	.022	-3.218
Clothing attitude	.293	.086	17.417
Body image[a]			
Body image^2 [a]			
Body build^2 [a]			
Body image x body build[a]			
Body image x clothing attitude[a]			
Body build x clothing attitude[a]			
(Constant)			-27.111

[a]Did not enter equation

Table 40

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Waist on Body Image, Body Build, and Clothing Attitude for Stocky Body Build (N = 17)

Independent variables according to entry order	Multiple R	R^2	B
Body build[2]	.078	.006	3.897
Clothing attitude[2]	.101	.010	3.438
Body build x clothing attitude	.131	.017	-11.665
Body image x clothing attitude	.139	.020	8.138
Body image[2]	.429	.184	-3.379
Body image[a]			
Body build[a]			
Clothing attitude[a]			
Body image x body build[a]			
(Constant)			6.180

[a]Did not enter equation

Table 41

Entry Order, Multiple R, R^2, and B for Regression of Fit at the Hips on Body Image, Body Build, and Clothing Attitude for Stocky Body Build (N = 17)

Independent variables according to entry order	Multiple R	R^2	B
Body image x clothing attitude	.405	.164	-0.927
Body image^2	.433	.187	0.853
Clothing attitude^2	.546	.298	8.937
Body build x clothing attitude	.557	.311	-10.919
Body build	.637	.406	29.331
Body image[a]			
Body build^2 [a]			
Clothing attitude[a]			
Body image x body build[a]			
(Constant)			-64.292

[a]Did not enter equation

equations. The multiple R values were .293, .429, and .637 for fit at the bust, waist, and hips respectively for the stocky body build. Each of these multiple R values was higher than the multiple R when the body builds were considered as one group. The R^2 values were .086, .184, and .406 for fit at the bust, waist, and hips respectively for the stocky body build. Also, these R^2 values were higher for the stocky body build than when the body builds were considered as one group.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Research in the social and psychological aspects of clothing attempts to explain behavior related to clothing. One clothing behavior is the selection or construction and wearing of clothing which an individual finds satisfying. An aspect of wearing such clothing is the closeness or looseness with which it conforms to the body. The major purpose of this investigation was to explore the relationship between the closeness or looseness of the fit of clothing and body image, body build, and selected clothing attitudes.

In this chapter the investigation is summarized, major results and conclusions are presented, and recommendations for future research are set forth. This chapter is organized into the following sections: 1) a summary of the investigation procedure, 2) relationships between fit at the bust, waist, and hips and the background variables, 3) relationships between fit at the bust, waist, and hips and body image, body build, and clothing attitudes, and 4) recommendations for further investigation.

SUMMARY OF THE INVESTIGATION PROCEDURE

The subjects who participated in this investigation were 140 females between 19 and 23 years of age enrolled in classes in the clothing and textiles area of the School of Home Economics of The University

of North Carolina at Greensboro, Fall Semester, 1973, or Spring Semester, 1974. Data were collected by means of:

1. six items of background information,
2. a body image mean score composed of a six item body impression rating scale, a 23 item body cathexis scale, and body build self rating,
3. a 33 item clothing attitude scale consisting of three subscales of 11 items each on clothing comfort, clothing dependence, and clothing modesty, and
4. three somatographs of each subject.

The somatographs were prepared according to precise specifications to permit accurate body measurement at specific locations. The three somatographs included one back view of the subject clothed in the dress she considered most flattering, one back view semiclothed, and one anterior-posterior view semiclothed. Measurements in millimeters were obtained at the bust or highest underarm level, waist level, and widest hip level from the back view clothed and semiclothed somatographs. Differences were calculated between the clothed and semiclothed somatographs then recorded as the closeness or looseness of fit. Data were analyzed by descriptive statistics, Pearson product-moment correlations, and stepwise multiple regression analyses.

The achievement of the sharp silhouette while retaining the graphic lines, both those surrounding the silhouette and those over the silhouette, was considered a major accomplishment of this investigation. The adapted somatographic technique and controlled photographic technique improved the accuracy, clarity, consistency, and reproducibility of the

somatographs. Somatographs, silhouette photographs, and graphic figure photography have been used in such fields as physical education, health, and medicine as well as clothing. The refinements in somatography and photography needed for this study may be of benefit to these other fields as well.

A related benefit of this research was the use of the somatographs by the subjects in understanding figure problems and improving garment fit in clothing construction classes. The use of somatographs in the clothing construction classroom has been advocated by Douty since the publication of an article in 1954. While the use of somatographs in classroom teaching was not a part of this investigation, this investigator also advocates the use of somatographs in assisting students to understand and compensate for figure problems.

RELATIONSHIPS BETWEEN FIT AT THE BUST, WAIST, AND HIPS AND BACKGROUND VARIABLES

The correlation found to be significant at the $p \leq .05$ level between fit at the bust and the background variables, was with the "warm" factor influencing the choice of most flattering dress. This finding indicated that as fit at the bust increased in looseness, there was an increased tendency to check the "warm" factor influencing the choice of dress. Perhaps this finding was influenced by cold weather on several days of data collection. The looseness of fit may actually be the result of additional layers of clothing.

The following correlations were not sufficient to be statistically significant, but were considered adequate ($r > .164$; $df = 140$; $p \leq .20$) to indicate trends:

1. Fit at the bust was correlated with age indicating that as fit at the bust increased in looseness, the age of the subjects increased in years.
2. Fit at the bust was correlated with "brand" as a factor influencing the choice of dress indicating that as fit at the bust increased in looseness, brand was more likely to be of influence.
3. Fit at the bust was correlated with frequent need for alteration of commercial pattern sleeves indicating that as fit at the bust increased in looseness, there was increased need for the alteration of commercial pattern sleeves.

Two correlations were found to be significant at the $p \leq .05$ level between fit at the waist and background variables. The two variables were the "warm" factor influencing the choice of dress and the frequent need for alteration of the shoulders of commercial patterns. It was concluded that as the fit at the waist increased in looseness, there was an increased tendency to be influenced by the "warm" factor in choice of dress and increased need for alteration of the shoulders of commercial patterns.

The following correlations were not sufficient to be statistically significant, but were considered adequate ($r > .164$; $df = 140$; $p \leq .20$) to indicate trends:

1. Fit at the waist was negatively correlated with "style" and "fit" as factors influencing the choice of dress indicating that as fit at the waist decreased in looseness, "style" and "fit" were more influential in the choice of dress.

2. Fit at the waist was correlated with frequent need for alteration of ready-to-wear clothing shoulders indicating that as fit at the waist increased in looseness there was increased need for alteration of the shoulders of ready-to-wear clothing.

Between fit at the hips and the background variables, two correlations were found to be significant. Fit at the hips correlated at the $p \leq .05$ level with "sew for myself" as a method of obtaining outerwear clothing and at the $p \leq .01$ level with "specialty store--fabric" as a source of obtaining outerwear clothing. It was concluded that as the fit at the hips increased in looseness the subjects increasingly obtained clothing by sewing for themselves with fabric from specialty stores.

The following correlations were not adequate to be statistically significant, but were considered adequate ($r > .164$; $df = 140$; $p \leq .20$) to indicate trends:

1. Fit at the hips was negatively correlated with age to indicate that as fit at the hips decreased in looseness, the age of the subjects was older.
2. Fit at the hips was negatively correlated with frequent need for alteration of the skirt width of ready-to-wear clothing and the bodice darts of commercial patterns indicating that as fit at the hips decreased in looseness, there was increased need for the alteration of skirt width of ready-to-wear clothing and bodice darts of commercial patterns.

RELATIONSHIPS BETWEEN FIT AT THE BUST, WAIST, AND HIPS AND BODY IMAGE, BODY BUILD, AND CLOTHING ATTITUDES

Relationships Between Fit at the Bust, Waist, and Hips and Body Image Mean Score, Body Build, and Clothing Attitude Mean Score

There were no correlations significant at the $p \leq .05$ level between fit at the bust, waist, or hips and body image, body build, or clothing attitude. While the following correlations were not adequate to be statistically significant, they were considered adequate ($r > .164$; $df = 140$; $p \leq .20$) to indicate trends:

1. Fit at the bust was negatively correlated with body build indicating that as fit at the bust decreased in looseness, there was an increase toward larger body builds.
2. Fit at the hips was negatively correlated with body build indicating that as fit at the hips decreased in looseness, there was an increase toward larger body builds.

Stepwise multiple regression analysis for fit at the bust, waist, and hips was used to select from a model equation, the independent variables which provided the best prediction (regression) equation. The stepwise multiple regression analysis for fit at the bust regressed on body image, body build, and clothing attitude variables showed that one variable entered the regression equation at a significant level. With nine variables in the regression equation, the final multiple R was .217 and the final R^2 was .047.

Stepwise multiple regression analysis for fit at the waist regressed on body image, body build, and clothing attitude showed that

none of the variables entered into the regression equation at a significant level. With nine variables in the regression equation, the final multiple R was .262 and the final R^2 was .069.

Stepwise multiple regression analysis for fit at the hips regressed on body image, body build, and clothing attitude showed that two variables entered the regression at significant levels. With nine variables in the regression equation, the final multiple R was .305 and the final R^2 was .093.

The conclusion may be drawn that 4.7 percent of fit at the bust, 6.9 percent of fit at the waist, and 9.3 percent of fit at the hips may be predicted by the body image, body build, and clothing attitude variables. The primary hypothesis of a significant relationship between the closeness or looseness of fit at the bust, the waist level, and the widest hip level and body image mean scores, body build rating by judges, and clothing attitude mean scores cannot be accepted. While the existence of relationships was established and trends were indicated, additional or more closely related variables are needed to increase the usefulness of the prediction of the closeness or looseness of fit at the bust, waist, and hips with any reasonable degree of accuracy.

Relationships Between Fit at the Bust, Waist, and Hips and Body Image Component Variables, Body Build, and Clothing Attitude Mean Score

There were no correlations significant at the $p \leq .05$ level between fit at the bust, waist, or hips and body image component variables--body impression, body cathexis, and body build self rating--body build, or clothing attitude. While the following correlations were

not adequate to be statistically significant, they were considered adequate ($r > .164$; df = 140; $p \leq .20$) to indicate trends:

1. Fit at the waist was correlated with body cathexis indicating that as fit at the waist increased in looseness, there was an increase in satisfaction with the body.
2. Fit at the hips was negatively correlated with bust impression indicating that as fit at the hips decreased in looseness, there was an increase in favorableness of bust impression.
3. Fit at the hips was negatively correlated with body build indicating that as fit at the hips decreased in looseness, there was an increase in size of body build.

Stepwise multiple regression analysis for fit at the bust regressed on the body image component variables, body build, and clothing attitude resulted in the same significant variable entering on the first step as had entered using the body image mean score. However, the use of the body image component variables in the model equation increased the results of the regression equation multiple R to .287 and the R^2 to .082.

Stepwise multiple regression analysis for fit at the waist regressed on body image component variables, body build, and clothing attitude showed that only the variable body cathexis entered the regression equation at a significant level. With 19 variables in the regression equation, the final multiple R was .467 and the R^2 was .218.

The stepwise multiple regression analysis for fit at the hips regressed on body image component variables, body build, and clothing

attitudes shows that three variables entered the regression equation at significant levels. With 19 variables in the regression equation, the final multiple R was .459 and the R^2 was .211.

It was concluded that 8.2 percent of fit at the bust, 21.8 percent of fit at the waist, and 21.1 percent of fit at the hips may be predicted by the body image component variables, body build, and clothing attitude. It was further concluded that rather than the body image mean score, the use of the body image component variables increased the predictive accuracy of the regression equation. The secondary hypothesis of a significant relationship between the closeness or looseness of fit at the bust, the waist, and the hip with body impression mean score, body cathexis mean score, body build self rating, body build, and clothing attitude mean score cannot be accepted. While the analyses failed to confirm the hypothesis, the analyses did indicate the interrelated and complex relationships between attitudes toward one's body and the selection and wearing of clothing, part of which may be explained by the variables in this investigation.

Relationships Between Fit at the Bust, Waist, and Hips and Body Image Mean Score, Body Build, and Clothing Attitude Subscales

There were no correlations significant at the $p \leq .05$ level between fit at the bust, waist, or hips and body image, body build, or the clothing attitude subscales--clothing comfort, clothing dependence, and clothing modesty. Also, no correlations were significant at the $p \leq .20$ level to indicate trends.

Stepwise multiple regression analysis for fit at the bust regressed on body image, body build, and the clothing attitude subscales entered one variable at a significant level. With 19 variables in the regression equation, the final multiple R was .352 and the R^2 was .124.

Stepwise multiple regression analysis for fit at the waist regressed on body image, body build, and the clothing attitude subscales showed that no variables entered at a significant level. With 19 variables in the equation the final multiple R was .380 and the R^2 was .144.

Stepwise multiple regression analysis for fit at the hips regressed on body image, body build, and the clothing attitude subscales showed that one variable entered the regression equation at a significant level. With 17 variables in the regression equation, the final multiple R was .347 and the R^2 was .120.

It was concluded that 12.4 percent of fit at the bust, 14.4 percent of fit at the waist, and 12.0 percent of fit at the hips may be predicted by body image, body build, and the clothing attitude subscales. It was further concluded that rather than the use of the clothing attitude mean score, the use of the subscale scores increases the prediction accuracy of the regression equation. The secondary hypothesis of a significant relationship between the closeness or looseness of fit at the bust, the waist, and the hip with body image, body build, clothing comfort, clothing dependence, and clothing modesty cannot be accepted. While the analyses failed to confirm the hypotheses, the analyses did indicate the interrelated and complex relationships between attitudes toward

clothing and the selection and wearing of clothing, a part of which may be explained by the variables in this investigation.

Relationships Between Fit at the Bust, Waist, and Hips and Body Image, Body Build, and Clothing Attitude When the Subjects are Grouped by Body Builds

The total group of subjects was divided by body build classifications in order to determine whether relationships between the research variables were associated with certain body builds. In order to identify distinct groups of body builds, the half interval classifications were omitted and the quarter interval classifications were grouped with the nearest whole interval. Of the five build groups the three (slender, average, and stocky) containing the largest numbers of subjects were analyzed.

Pearson product-moment correlations and stepwise multiple regression analyses were performed to investigate possible relationships within the various body builds even though the sample size for each body build group was less than desirable. The results may be interpreted as trends. Stepwise multiple regression analyses were performed for fit at the bust, waist, and hips using the primary independent variables based on body image mean score, body build, and clothing attitude mean score.

For the slender body build the following results were found:

1. Fit at the bust: 8/9 variables were entered; multiple R = .531; R^2 = .282.
2. Fit at the waist: 8/9 variables were entered; multiple R = .727; R^2 = .528)

3. Fit at the hips: 9/9 variables were entered; multiple R = .650; R^2 = .422.

For the average body build the following results were found:

1. Fit at the bust: 4/9 variables were entered; multiple R = .330; R^2 = .109.
2. Fit at the waist: 8/9 variables were entered; multiple R = .467; R^2 = .218.
3. Fit at the hips: 8/9 variables were entered; multiple R = .544; R^2 = .296.

For the stocky body build the following results were found:

1. Fit at the bust: 3/9 variables were entered; multiple R = .293; R^2 = .086.
2. Fit at the waist: 5/9 variables were entered; multiple R = .429; R^2 = .184.
3. Fit at the hips: 5/9 variables were entered; multiple R = .637; R^2 = .406.

It was concluded that the division of the subjects by body build classifications tended to improve the usefulness of the regression equation in predicting the closeness or looseness of fit. It was also concluded that the group of subjects within a body build classification tended to exhibit different attitudes than the subjects within another body classification.

RECOMMENDATIONS FOR FURTHER INVESTIGATION

The recommendations for further investigation may be divided into three groups--those related to the validity of the study, those related

to the reliability of the study, and those related to additional topics for investigation. It was assumed that somatographs could be used to measure the closeness or looseness of the fit of clothing. To test the validity of somatography used in this manner, the following investigations are recommended:

1. Comparison of the closeness or looseness of the fit of clothing as determined by somatographs with the closeness or looseness of the fit of clothing as determined by a panel of judges.
2. Comparison of the closeness or looseness of the fit of clothing as determined by somatographs with the closeness or looseness of clothing determined by measurement of the body and the clothing of the subject.
3. Comparison of the closeness or looseness of the fit of clothing at five millimeter intervals from the highest underarm level to the hem level of dresses.
4. Comparison of the closeness or looseness of the fit of clothing from back view somatographs with anterior-posterior view somatographs, clothed and unclothed for both views.

To test the reliability of somatographs used as a measure of the closeness or looseness of the fit of clothing, the following investigations are recommended:

1. Replication of this investigation with a larger sample for increased reliability of the multiple regression analyses.
2. Replication of this investigation using a large sample in each body build classification in order to increase the

validity of the trends found for the slender, average, and stocky body builds as well as to investigate the thin and heavy builds. Such replication would also permit comparisons of the relationships and differences within the body build classifications.

3. Replication of this investigation with refinement of the background information instrument based on the statistical analyses and the inclusion of these items into the regression analyses.

Using somatography to measure the closeness or looseness of the fit of clothing, the following investigations are suggested:

1. Determine whether differences in the closeness or looseness of the fit of clothing exist between subjects who primarily purchase ready-to-wear clothing and those subjects who primarily sew their own clothing.
2. Compare the closeness or looseness of the fit of clothing between several age groups from a wider range of ages.
3. Compare the closeness or looseness of fit for subjects who closely resemble the Douty Body Build Scale classifications with subjects who have composite body builds.

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APPENDIX A

DATA COLLECTION INSTRUMENT

Background Information Identification Code_____

Date of birth_____
Month Day Year

Estimate the percentage of outerwear clothing including dresses, suits, and sportswear you obtain by the following methods:

_____purchase ready-to-wear

_____dressmaker sews for me

_____sew for myself

_____relative sews for me

_____gifts

_____other (specify)

100%

Estimate the percentage of clothing you obtain from each of the following sources:

_____catalog--ready-to-wear

_____catalog--fabric

_____department store--ready-to-wear

_____department store--fabric

_____discount store--ready-to-wear

_____discount store--fabric

_____gift from other members of my family

_____gift from friends

_____mill outlet--ready-to-wear

_____mill outlet--fabric

_____second hand or used clothing store

_____specialty store--ready-to-wear

_____specialty store--fabric

100%

APPENDIX A (continued)

You were instructed to wear your most flattering item or combination of items of clothing. Place an X before as many of the following factors as necessary that influenced your choice of clothing to wear today.

_____color	_____cool
_____comfort	_____warm
_____style	_____ease of putting garment on
_____fit	_____easy to clean & maintain
_____size	_____receive compliments when I wear it
_____brand	_____feel well dressed when I wear it
_____texture	_____made for me

When I buy ready-to-wear clothing, the areas that most frequently need alteration include: (Place an X before as many as necessary.)

_____collar or neckline	_____bodice width
_____shoulders	_____waist circumference
_____sleeves	_____skirt darts
_____bodice darts	_____skirt width
_____bodice length	_____skirt length or hem location

When I sew or when someone sews for me, the areas of a commercial pattern that most frequently need alteration include: (Place an X before as many as necessary.)

_____collar or neckline	_____bodice width
_____shoulders	_____waist circumference
_____sleeves	_____skirt darts
_____bodice darts	_____skirt width
_____bodice length	_____skirt length or hem location

APPENDIX A (continued)

Check one term in each category which most accurately describes you.

IMPRESSION OF BUST

___Very attractive
___Better than average
___Average
___Not quite average
___Unappealing

IMPRESSION OF WAIST

___Very attractive
___Better than average
___Average
___Not quite average
___Unappealing

IMPRESSION OF DERRIERE

___Very attractive
___Better than average
___Average
___Not quite average
___Unappealing

IMPRESSION OF LEGS

___Very attractive
___Better than average
___Average
___Not quite average
___Unappealing

FIGURE IMPRESSION

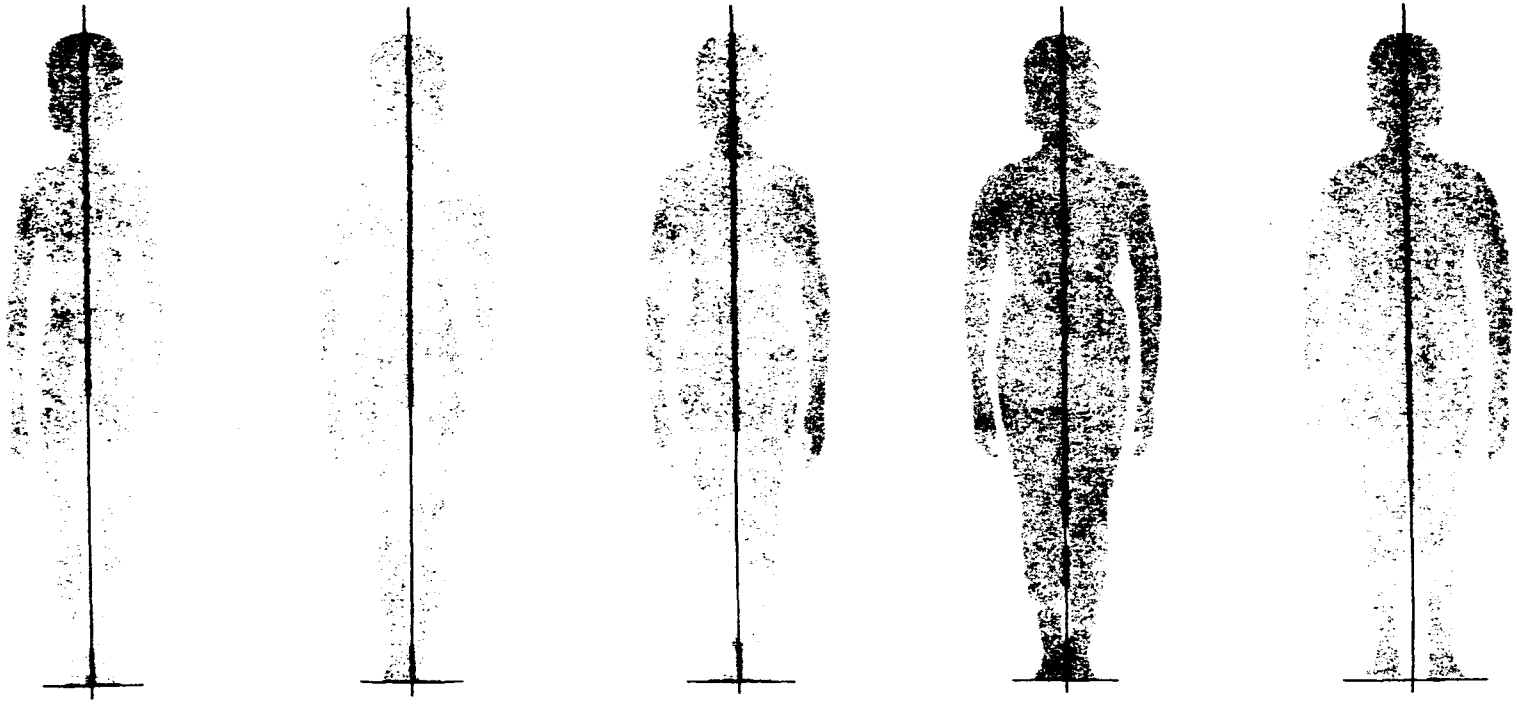
___Very attractive
___Better than average
___Average
___Not quite average
___Unappealing

HOW I FEEL ABOUT MY FIGURE

___I'm proud of it
___I'm satisfied
___It's OK--about average
___I don't like it but can put up with it
___I'm quite unhappy with it and wish I could make changes

DOUTY BODY BUILD SCALE

Circle the number of the body build that you believe most closely resembles yourself.



0.5 0.75 **1** 1.25 **1.5** 1.75 **2** 2.25 **2.5** 2.75 **3** 3.25 **3.5** 3.75 **4** 4.25 **4.5** 4.75 **5** 5.25 **5.5**

THIN	SLENDER	AVERAGE	STOCKY	HEAVY
SHOULDERS VARIABLE	SHOULDERS VARIABLE	SHOULDERS VARIABLE	SHOULDERS VARIABLE	SHOULDERS VARIABLE
WAIST VERY THIN	WAIST SLENDER	WAIST AVERAGE	WAIST THICK	WAIST NOT DEFINED
HIPS VERY LEAN	HIPS SLENDER	HIPS ROUNDED	HIPS PLUMP	HIPS HEAVY
THIGHS VERY THIN	THIGHS SLENDER	THIGHS AVERAGE	THIGHS HEAVY	THIGHS VERY HEAVY
ARMS AND LEGS BONY	ARMS AND LEGS SLENDER	ARMS AND LEGS ROUNDED	ARMS AND LEGS FULL	ARMS AND LEGS HEAVY
BUST USUALLY FLAT	BUST USUALLY SMALL	BUST AVERAGE	BUST AVERAGE TO LARGE	BUST AVERAGE TO PROMINENT
MIDRIFF USUALLY FLAT	MIDRIFF USUALLY FLAT	MIDRIFF AVERAGE	MIDRIFF FLAT TO OBVIOUS	MIDRIFF USUALLY PROMINENT
ABDOMEN USUALLY FLAT	ABDOMEN USUALLY FLAT	ABDOMEN SLIGHTY ROUNDED	ABDOMEN PROTRUDING	ABDOMEN USUALLY PROMINENT

APPENDIX A (continued)

Body Image Scale

On this page is listed a number of things characteristic of yourself or related to you. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other.

Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

1. Consider myself fortunate
2. Am satisfied
3. Have no particular feelings one way or the other
4. Don't like, but can put up with
5. Have strong feelings and wish change could somehow be made

1	2	3	4	5	wrists	1	2	3	4	5	thighs
1	2	3	4	5	waist	1	2	3	4	5	derierre
1	2	3	4	5	back	1	2	3	4	5	length of arms
1	2	3	4	5	neck	1	2	3	4	5	abdomen
1	2	3	4	5	body build	1	2	3	4	5	girth of arms
1	2	3	4	5	body profile	1	2	3	4	5	calves of legs
1	2	3	4	5	height						
1	2	3	4	5	age						
1	2	3	4	5	width of shoulders						
1	2	3	4	5	chest						
1	2	3	4	5	hips						
1	2	3	4	5	knees						
1	2	3	4	5	posture						
1	2	3	4	5	weight						
1	2	3	4	5	trunk						
1	2	3	4	5	slope of shoulders						
1	2	3	4	5	size of bust						

APPENDIX A (continued)

Clothing Attitude Scale

Read the following statements and rate each according to the scale given below. Encircle the number corresponding to your choice in front of each statement. The statements generally refer to a social or public situation.

1. Almost always
2. Usually--majority of the time
3. Sometimes
4. Seldom--not very often
5. Almost never

1 2 3 4 5 I select outer garments that fit loosely to disguise the figure.
1 2 3 4 5 Days when I feel low I wear my gayest clothes.
1 2 3 4 5 I think that halter dresses are too revealing.
1 2 3 4 5 I am aware of being more friendly and out going when I wear particular clothes.
1 2 3 4 5 I wear my pants or slacks with an easy fit even when tight ones are fashionable.
1 2 3 4 5 I avoid outer garments that fit closely to reveal the figure.
1 2 3 4 5 I am irritable if my clothes are uncomfortable.
1 2 3 4 5 Certain clothes make me feel more sure of myself.
1 2 3 4 5 I decide on the clothes to wear according to the mood I'm in that day.
1 2 3 4 5 I avoid garments that bind the upper arm.
1 2 3 4 5 The way my clothes feel to my body is important to me.
1 2 3 4 5 There are certain textures in fabrics that I like and especially try to buy, for example, soft, fuzzy, sturdy, smooth.
1 2 3 4 5 I get rid of garments I otherwise like because they are not comfortable.
1 2 3 4 5 I would buy a comfortable bathing suit even if it were not the current style.
1 2 3 4 5 I am more sensitive to environmental temperature changes than others and I have difficulty being comfortable in my clothes as a result.
1 2 3 4 5 I have more self confidence when I wear my best outfit.

APPENDIX A (continued)

Clothing Attitude Scale continued

1. Almost always
2. Usually--majority of the time
3. Sometimes
4. Seldom--not very often
5. Almost never

1 2 3 4 5 The first time in the season that I go to a public beach or pool I feel exposed in my bathing suit.
1 2 3 4 5 It surprises me that some clothes are more comfortable than others.
1 2 3 4 5 I get bored with wearing the same kind of clothes all the time.
1 2 3 4 5 I select clothes which do not call attention to myself in any way.
1 2 3 4 5 I hesitate to associate with those whose clothes seem to reveal too much of their body.
1 2 3 4 5 I feel and act differently according to whether I am wearing my best clothes or not.
1 2 3 4 5 I "dress-up" to make an ordinary occasion seem more exciting.
1 2 3 4 5 I feel uncomfortable when someone has forgotten to close their zipper.
1 2 3 4 5 I am extremely sensitive to the texture of the fabrics in my clothing.
1 2 3 4 5 I wonder why some clothes make me feel better than others.
1 2 3 4 5 I feel embarrassed when I see someone in a dress cut too low.
1 2 3 4 5 I buy many items of clothing which will boost my morale.
1 2 3 4 5 Unlined sheer dresses or blouses reveal too much of the body.
1 2 3 4 5 I find it difficult to buy clothes suitable to the temperature.
1 2 3 4 5 I feel embarrassed when I see someone in clothes that are too tight.
1 2 3 4 5 I wonder why some people wear clothes that are immodest.
1 2 3 4 5 When things are not going well I like to wear brighter and lighter colors.

APPENDIX B

MASTER DATA TABLE OF SCORES OF INDIVIDUAL SUBJECTS

Subject	Difference measurements for closeness or looseness of fit			Body image scores			Body build	Clothing attitude scores		
	Bust fit	Waist fit	Hip fit	Body impression	Body cathexis	Build self rating		Comfort	Dependence	Modesty
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2	0.5	4.0	3.5	3.2	2.4	3.00	3.00	2.8	2.6	3.1
3	3.0	5.0	6.5	3.0	3.5	3.00	2.50	3.4	3.3	3.3
4	3.0	1.5	4.0	2.8	2.8	2.75	3.00	2.1	2.5	2.8
5	2.0	4.0	6.5	3.3	3.3	3.00	3.25	2.9	2.6	3.2
6	1.5	2.5	5.5	3.2	3.8	3.00	3.25	2.6	2.8	3.3
7	1.0	3.0	4.0	3.7	2.6	3.00	3.00	3.9	2.6	3.7
8	2.0	3.0	1.5	3.0	3.7	2.50	2.50	2.8	2.3	3.2
10	1.5	3.0	1.0	4.0	3.1	3.50	4.00	3.0	1.9	2.7
11	7.0	8.0	1.0	2.3	2.8	3.00	3.50	2.9	2.0	3.5
12	3.5	3.0	4.0	3.0	3.5	2.50	2.50	2.5	1.6	3.4
13	5.0	1.0	7.0	2.5	2.1	2.00	2.00	3.4	2.9	3.4
14	1.5	2.5	1.0	2.7	3.1	2.50	3.00	2.7	2.6	2.9
15	2.5	3.5	2.0	3.2	3.1	3.00	2.75	3.7	2.7	4.1
16	2.5	4.0	4.0	3.5	3.6	4.00	2.50	1.8	3.2	3.7
17	2.5	5.0	3.5	3.7	3.3	2.00	1.50	2.2	2.5	2.6
18	1.0	4.5	1.5	3.8	3.3	4.00	4.75	2.5	1.8	3.6
19	4.5	0.0	3.0	2.0	1.8	3.00	2.25	2.4	1.6	4.6
21	1.0	1.0	4.0	3.7	3.7	3.25	2.75	2.7	3.0	2.5
22	0.0	2.0	4.0	2.5	2.4	2.00	2.25	3.2	2.4	2.5
23	1.0	4.0	2.0	2.5	2.7	2.00	2.25	2.5	1.8	3.2
24	1.0	2.0	4.5	3.5	3.7	3.75	4.00	2.4	1.5	2.5
26	1.5	4.0	0.5	4.5	2.6	2.00	1.50	3.5	3.4	5.0
27	1.0	1.5	7.5	4.0	3.4	3.50	4.00	2.7	4.0	2.8
29	1.5	1.0	3.0	3.2	3.3	2.00	2.25	4.0	3.6	4.5
30	2.0	4.0	1.4	4.3	3.5	4.50	5.00	2.9	2.0	2.9
31	4.0	4.0	1.5	3.3	3.1	3.50	4.25	2.3	2.2	3.4

APPENDIX B (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
32	3.5	3.0	5.5	2.8	3.0	3.00	2.50	2.1	2.1	2.5
33	5.0	2.5	2.5	2.7	2.3	2.00	1.75	3.0	2.9	4.4
35	2.5	3.0	2.0	2.8	2.1	2.00	1.50	2.8	1.5	3.7
36	3.5	-1.5	3.0	3.2	2.8	3.00	3.50	2.5	2.2	2.2
37	2.5	5.0	1.0	3.3	2.8	2.75	2.75	2.5	2.1	2.9
38	2.0	4.0	3.5	3.3	3.9	3.00	3.25	2.3	3.3	3.3
39	0.0	8.0	6.5	3.5	2.7	2.00	2.00	3.6	2.7	3.8
40	1.0	5.5	1.0	3.3	3.3	3.00	3.25	2.6	2.1	2.9
41	1.0	2.5	5.5	3.3	3.1	2.00	1.75	2.4	2.1	2.4
42	0.0	8.5	8.0	3.5	3.4	2.75	1.75	2.7	2.9	3.4
44	0.0	3.0	6.0	3.0	3.0	3.25	3.25	3.5	3.0	4.5
45	1.0	2.0	3.5	2.7	3.0	3.00	2.75	3.3	3.2	2.9
46	2.0	9.5	7.0	4.0	3.3	4.00	5.00	2.6	3.5	2.7
47	2.0	4.0	4.0	3.7	3.7	4.00	4.00	2.5	2.1	2.6
48	2.0	1.5	0.0	4.0	3.2	4.00	4.25	3.1	2.9	3.6
50	1.0	7.0	4.5	3.3	2.8	3.00	3.00	2.6	3.2	3.5
51	1.5	3.0	7.5	2.8	2.8	2.50	1.25	2.4	1.7	3.3
52	2.0	2.0	1.0	2.8	3.2	3.50	4.00	2.5	2.0	3.8
53	1.0	4.0	1.5	3.0	3.3	3.00	2.75	2.6	2.1	2.7
54	0.0	5.0	4.5	3.0	2.8	2.50	2.50	3.4	2.0	3.7
55	0.5	1.0	7.5	4.5	3.3	4.00	4.25	2.6	2.7	3.6
56	1.0	2.5	4.5	4.3	3.7	4.50	4.50	2.3	2.7	3.3
57	1.0	4.0	2.5	3.8	3.2	4.00	4.50	2.1	2.4	3.5
58	0.0	4.5	10.0	3.5	3.3	3.25	3.50	3.0	1.6	4.0
59	3.5	11.0	13.0	3.5	3.5	3.00	2.00	1.7	1.5	2.2
60	1.5	5.0	2.0	3.5	3.2	3.00	2.50	2.7	2.1	2.6
61	4.0	4.0	3.0	3.0	3.5	2.75	3.00	3.2	3.3	3.7
62	1.0	4.5	6.0	2.2	2.1	2.50	2.50	2.1	3.5	3.6
63	0.0	5.0	3.0	3.0	2.9	3.25	2.75	2.8	2.6	3.5
64	2.0	1.5	3.0	3.0	2.8	3.00	2.00	2.9	2.4	3.3
65	4.5	1.5	5.0	2.2	1.9	2.50	3.00	2.3	1.7	3.3
66	1.5	3.0	4.0	3.2	2.9	3.25	4.00	2.8	3.2	3.6
67	4.0	2.5	3.0	2.5	2.8	3.00	2.75	3.0	2.8	2.2
68	1.0	2.5	2.5	2.8	2.4	2.00	2.00	2.7	2.8	4.8
69	2.0	1.0	2.5	2.2	2.3	3.00	2.25	3.3	3.1	3.0
70	1.0	4.5	1.0	3.7	3.3	3.00	3.75	2.9	2.5	3.3
72	3.0	0.0	6.5	3.5	2.9	2.00	2.50	2.0	1.8	2.6
73	8.5	1.5	3.0	3.3	2.4	1.00	1.25	2.7	2.7	3.7
74	1.5	3.0	3.0	2.3	2.5	2.75	2.25	3.5	2.0	4.1
75	1.0	6.0	0.5	2.8	2.4	3.00	3.50	2.5	2.1	3.5
76	1.0	4.0	4.5	2.7	3.0	3.25	3.25	2.9	2.7	3.2
77	1.0	2.0	3.0	4.0	3.4	3.25	3.00	2.2	2.9	3.2
78	3.0	3.5	5.5	3.3	2.7	3.25	3.50	3.1	2.2	2.7

APPENDIX B (continued)

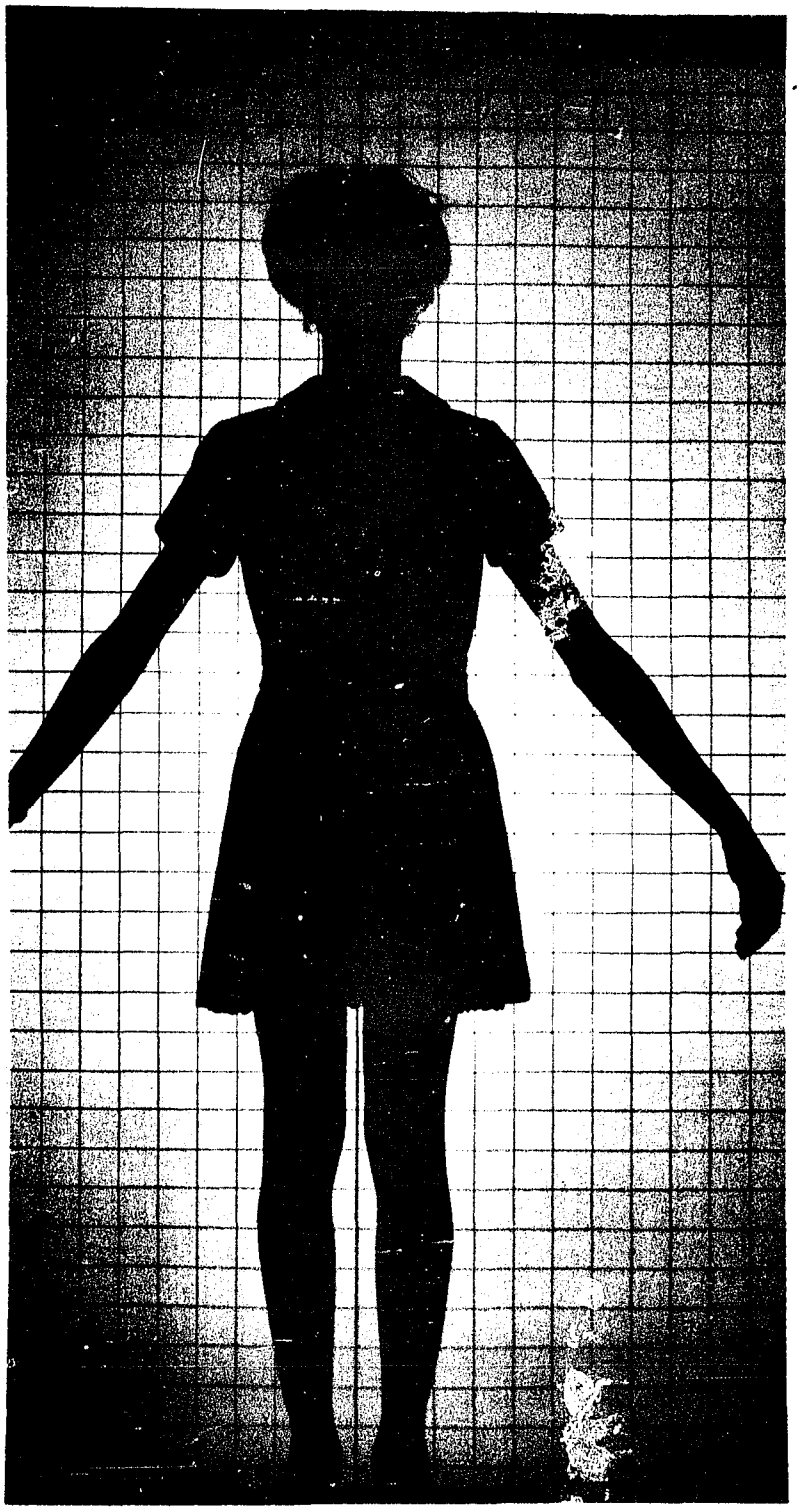
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
79	4.5	3.5	7.0	3.2	2.9	2.00	1.25	2.5	2.5	3.5
80	5.0	1.5	4.5	3.3	3.1	2.00	1.25	2.7	2.4	2.7
81	4.0	1.5	2.0	2.8	2.9	2.75	2.25	2.7	2.1	3.1
82	0.0	6.0	3.5	3.3	3.2	4.00	4.50	3.2	2.5	2.5
83	3.5	1.5	5.0	2.8	2.6	1.75	1.00	3.2	3.5	3.7
85	1.0	1.5	3.0	2.7	2.6	3.00	1.50	3.1	1.7	4.2
86	1.0	1.0	1.5	2.8	2.4	3.00	2.50	2.8	2.2	3.2
87	2.0	0.0	3.5	2.8	2.1	3.00	2.00	2.8	3.3	2.8
88	2.0	2.5	4.0	1.8	2.1	2.00	2.25	2.3	2.5	2.9
89	2.0	4.5	8.0	2.7	2.4	2.25	2.00	2.5	2.3	3.3
90	3.0	4.5	3.5	2.7	2.1	3.00	2.75	3.0	2.2	3.5
91	1.5	0.5	3.5	2.5	1.9	2.75	2.75	2.5	1.5	3.6
92	2.0	2.0	4.0	3.7	3.0	3.50	3.50	3.3	2.9	3.2
93	1.5	1.5	2.0	2.7	2.7	3.50	4.25	3.0	3.1	3.5
94	3.0	4.0	1.0	3.8	3.6	4.00	5.00	2.9	3.7	3.5
95	2.5	3.5	4.0	3.5	3.0	3.00	3.00	2.2	2.7	3.5
96	1.0	4.0	1.5	3.5	3.4	4.00	4.50	2.8	3.2	3.2
97	2.0	1.0	4.0	3.3	2.7	2.00	3.25	2.7	2.5	2.0
98	1.0	2.0	4.0	3.2	2.4	2.00	1.25	2.9	2.5	4.2
99	1.0	4.0	3.0	2.0	2.4	2.25	1.75	2.0	3.2	4.0
100	2.0	0.5	3.5	2.7	2.5	2.00	2.00	3.6	2.9	3.8
101	4.0	1.0	3.0	2.8	1.9	2.75	3.00	3.9	2.9	4.2
102	4.0	2.0	7.0	2.7	3.0	3.00	2.25	3.5	2.1	3.7
103	0.5	4.0	13.0	3.2	2.8	3.00	2.50	3.1	3.1	4.2
104	1.0	1.5	7.5	2.7	2.4	2.25	2.25	2.8	2.0	2.5
105	1.0	5.0	6.5	3.3	3.2	3.00	2.50	2.5	2.1	3.6
106	1.0	4.5	5.5	3.2	2.7	2.50	2.25	2.9	2.4	3.3
107	1.0	4.5	4.0	2.8	2.6	2.50	2.75	2.5	2.2	3.8
108	1.0	4.0	5.0	3.2	3.4	3.00	3.50	2.7	2.9	3.1
109	2.5	4.5	7.5	2.8	2.4	2.00	2.75	3.1	2.5	3.5
110	0.5	1.0	3.5	3.5	3.0	2.50	1.75	2.4	1.8	1.9
111	1.0	3.0	4.0	2.8	3.0	1.75	1.25	2.3	3.0	2.3
112	10.0	12.0	2.5	3.0	3.0	2.75	2.00	2.1	2.9	3.5
113	2.0	9.0	4.0	3.5	3.3	3.50	4.00	2.6	2.9	4.2
114	1.5	1.5	1.0	3.8	3.5	4.00	4.75	2.9	2.5	2.5
115	2.0	2.5	4.0	4.2	3.6	3.25	3.50	2.7	2.5	2.9
116	1.0	0.0	2.5	4.2	3.9	4.00	3.75	2.4	2.0	3.6
117	4.0	4.0	2.5	3.0	2.1	2.75	2.50	3.1	2.1	3.1
118	2.5	4.0	2.0	3.2	2.7	2.50	2.50	3.2	2.8	2.6
119	0.0	0.5	1.5	2.7	3.2	3.25	3.75	2.5	2.7	3.6
120	4.0	6.0	2.5	3.3	3.0	3.00	3.75	2.8	2.7	2.5
121	2.0	7.0	4.0	3.0	1.9	1.00	2.00	2.7	2.8	3.4
122	3.0	1.5	6.0	3.2	2.7	2.00	1.50	2.3	2.0	3.7

APPENDIX B (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
123	1.0	3.5	5.0	3.5	2.8	2.00	2.00	3.3	2.8	3.8
124	1.0	5.5	8.5	3.2	2.8	3.00	3.50	2.9	2.7	2.7
125	11.0	5.5	3.0	3.2	2.6	3.00	2.25	2.2	2.0	2.5
126	0.5	0.5	2.5	3.0	2.3	3.00	3.00	3.5	3.3	3.9
127	1.0	5.5	3.5	2.3	2.7	2.00	1.50	2.5	2.2	3.2
128	1.5	1.0	3.0	3.3	3.4	4.00	4.50	3.5	2.5	2.8
129	1.0	1.0	2.0	2.7	2.5	3.00	3.00	3.1	2.2	4.0
130	2.0	5.5	3.0	2.7	2.3	2.00	3.00	2.9	3.0	3.4
131	2.5	2.5	2.0	2.8	2.8	3.00	2.50	2.4	2.4	3.1
132	3.5	5.0	2.5	3.7	3.4	3.50	4.75	2.4	2.2	3.0
133	0.0	4.5	1.0	2.2	2.0	3.00	2.75	2.8	1.8	2.8
134	2.0	4.0	2.0	2.7	2.5	2.75	2.25	2.0	2.5	2.5
136	1.5	2.0	3.0	2.7	2.3	3.00	2.25	2.5	2.0	2.8
137	2.5	4.5	6.5	3.3	3.2	3.00	3.50	2.2	1.9	2.8
138	3.0	3.0	1.0	3.7	3.2	3.00	2.75	2.5	1.7	4.5
139	3.5	5.0	6.0	3.2	3.6	3.00	2.50	2.4	2.7	4.2
140	5.0	6.0	6.0	4.3	3.7	4.00	4.00	2.8	3.1	3.2
141	2.5	2.5	7.0	3.2	2.5	2.00	1.50	2.5	2.5	3.1
142	3.0	3.0	6.0	3.0	3.0	2.50	3.00	2.2	3.2	3.8
143	2.0	2.0	5.0	3.0	2.5	3.00	3.75	2.5	3.1	3.7
144	2.0	2.0	1.5	2.2	2.2	2.50	1.75	2.5	2.5	3.5
145	1.0	4.0	2.0	3.3	2.7	3.50	2.75	2.3	3.1	3.5
146	2.0	5.0	3.0	2.3	2.4	2.75	3.00	2.6	4.2	3.0
147	4.0	6.0	3.0	3.5	3.4	3.50	3.50	2.5	2.9	2.7
148	1.0	2.5	3.0	2.3	2.6	3.00	3.50	2.5	3.2	3.5
149	1.0	2.5	3.0	3.8	3.3	3.75	3.50	2.3	1.8	2.1
150	0.0	1.0	8.0	3.0	3.3	3.00	3.50	2.6	1.7	3.3
151	6.0	9.0	5.0	3.3	3.1	3.00	2.50	2.5	2.5	3.6

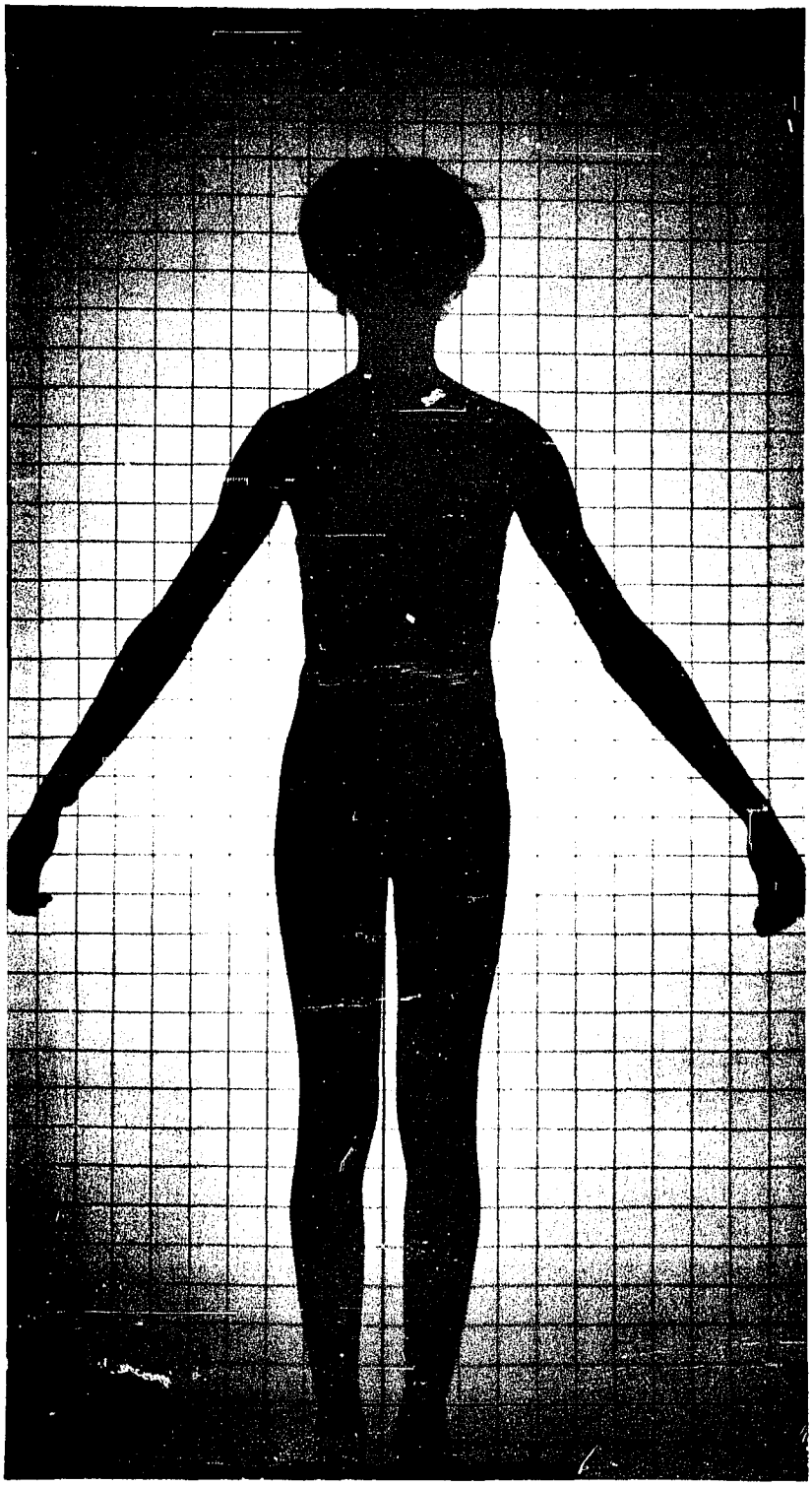
APPENDIX C

EXAMPLES OF SOMATOGRAPHS



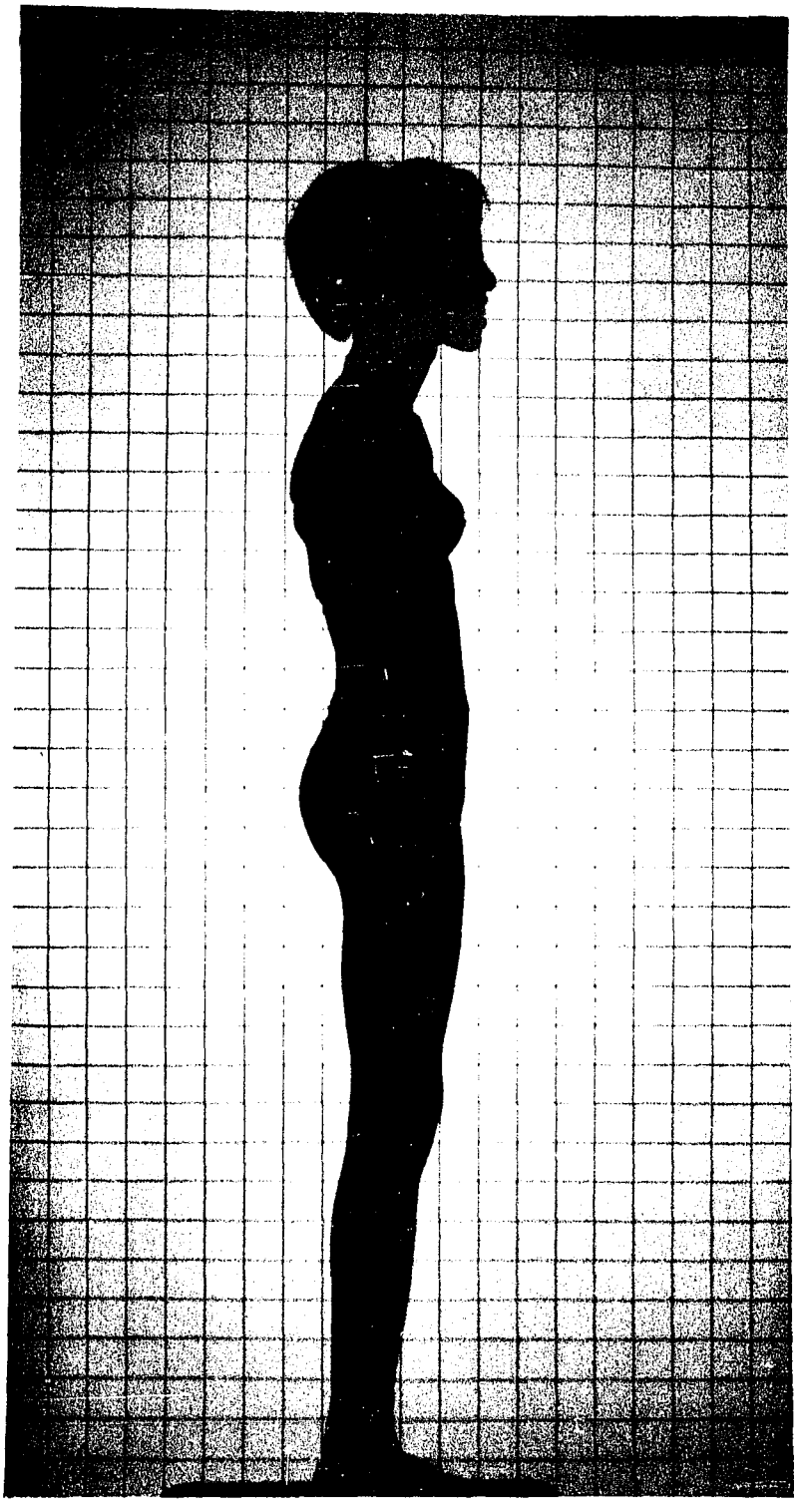
Subject with Thin Body Build (1.00), Back View, Clothed

APPENDIX C (continued



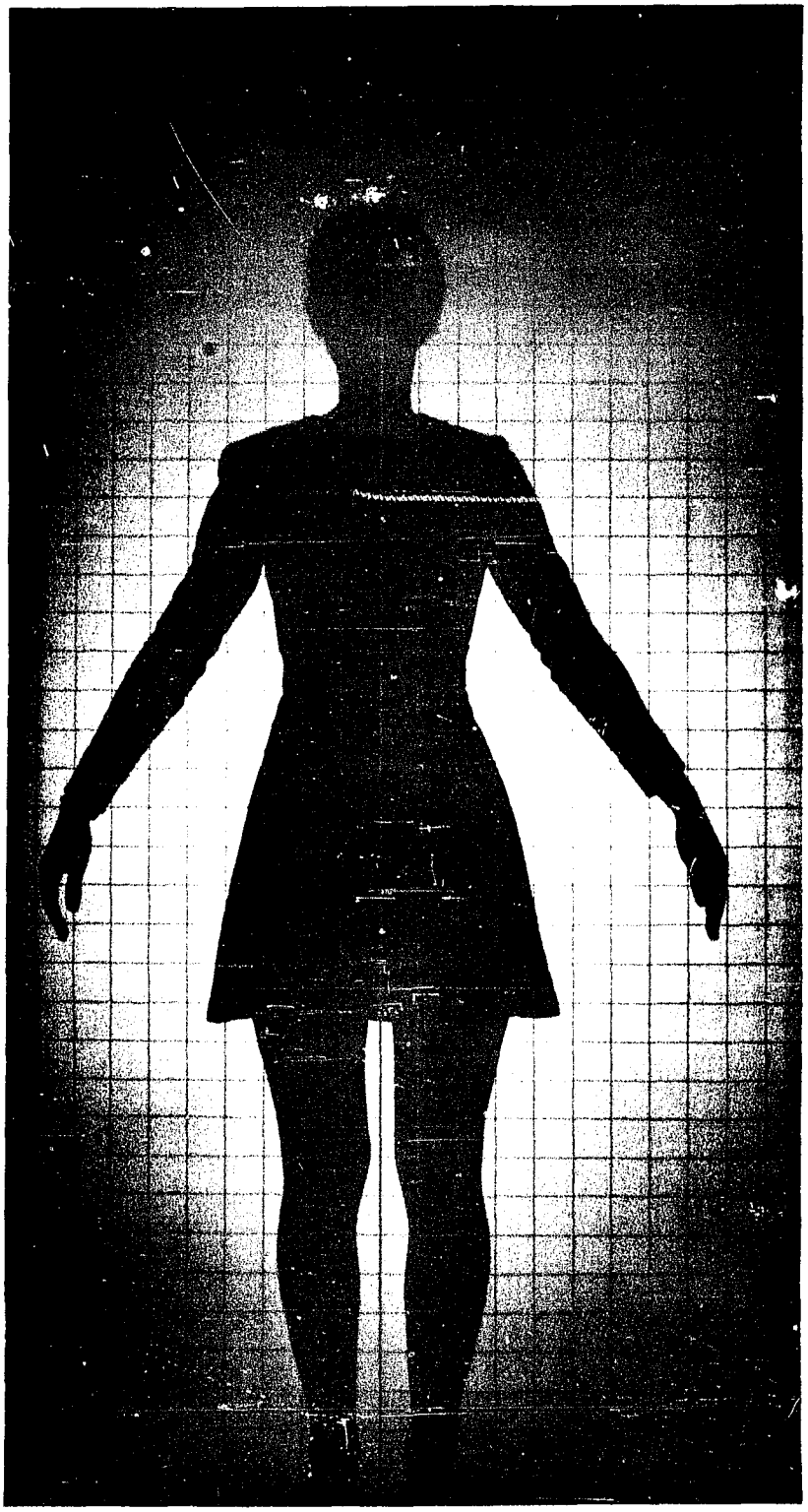
Subject with Thin Body Build (1.00), Back View, Semiclothed

APPENDIX C (continued)



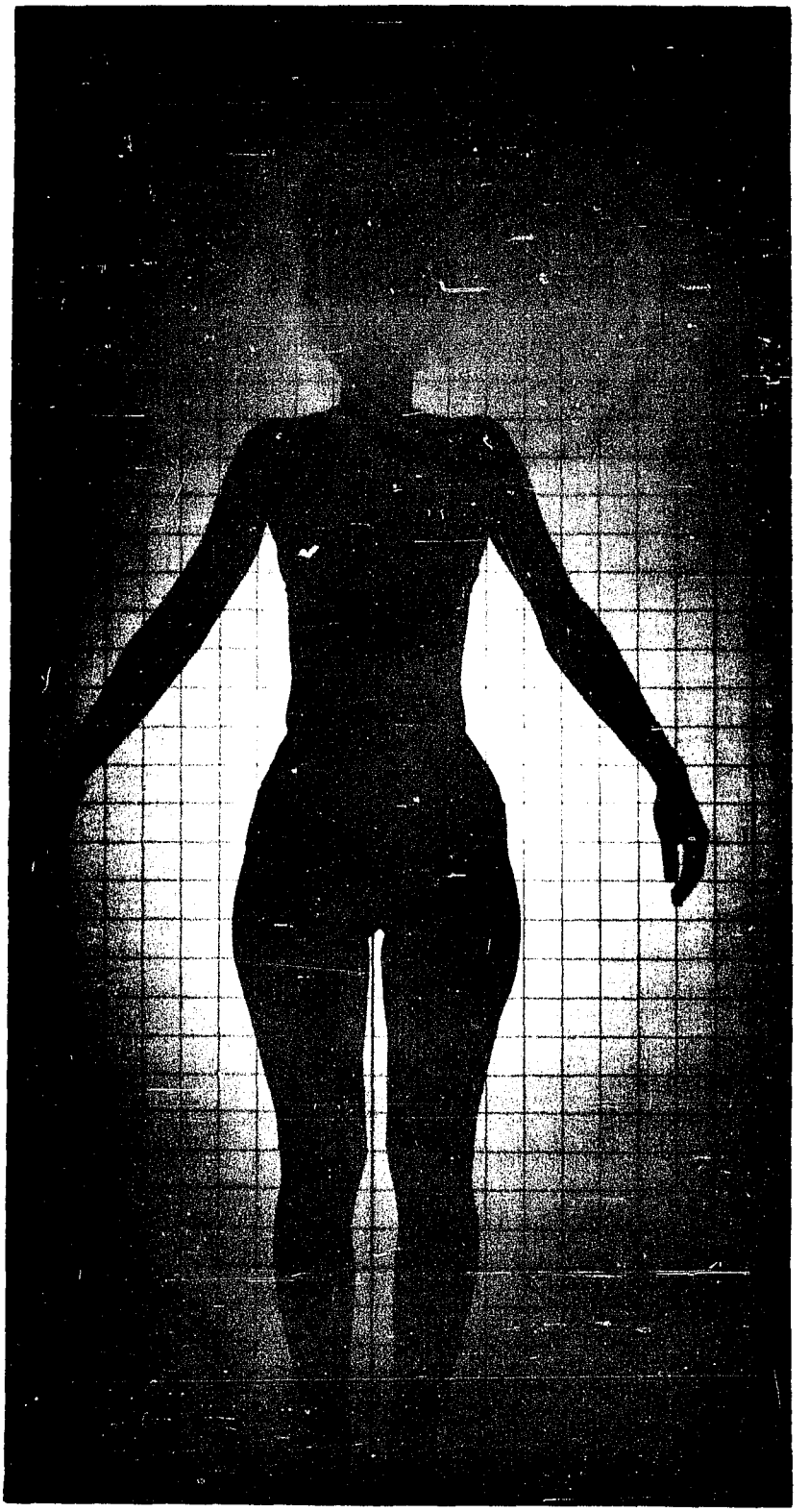
Subject with Thin Body Build (1.00),
Anterior-posterior View, Semiclothed

APPENDIX C (continued)



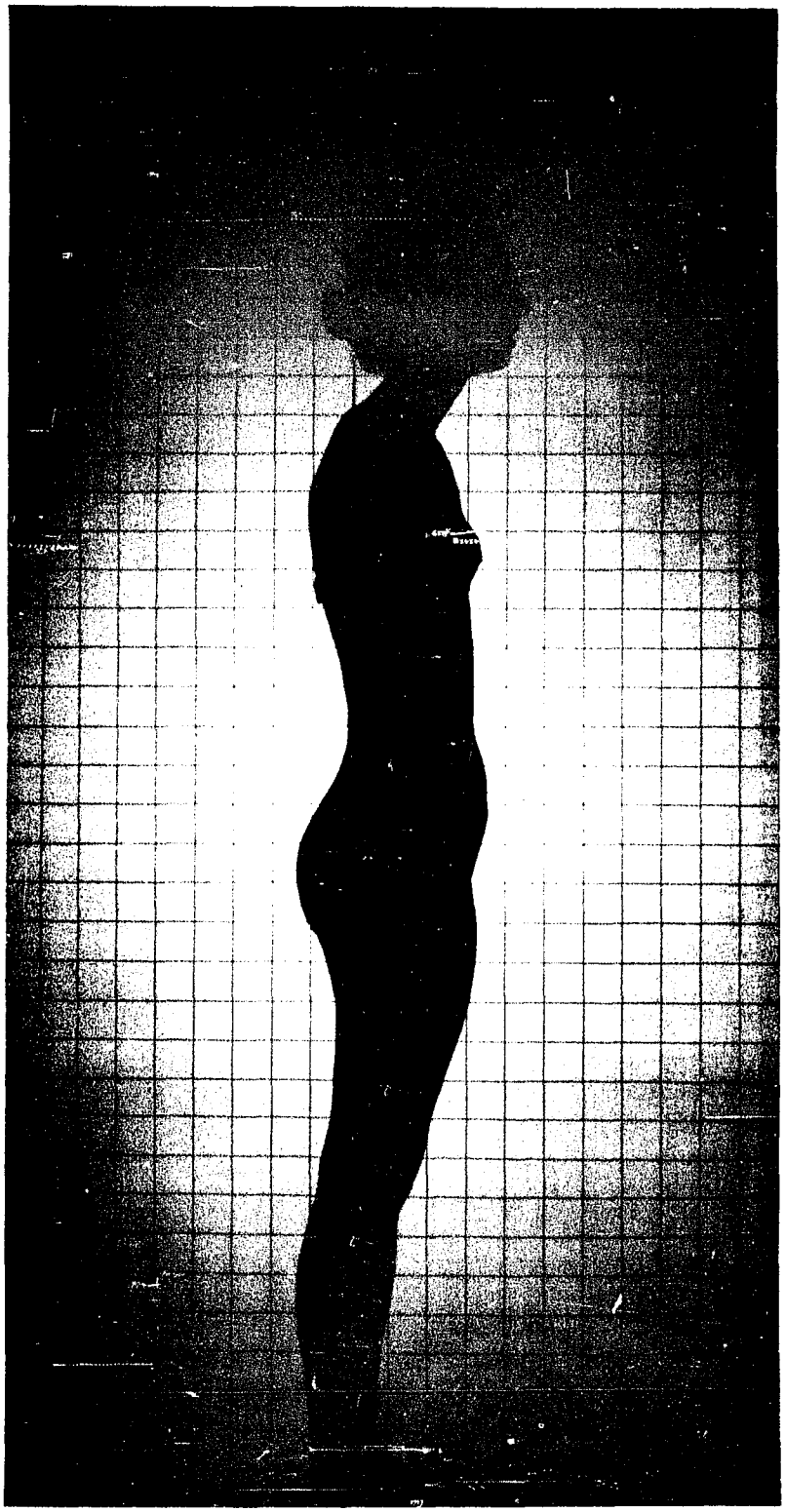
Subject with Composite Body Build (1.50), Back View, Clothed

APPENDIX C (continued)



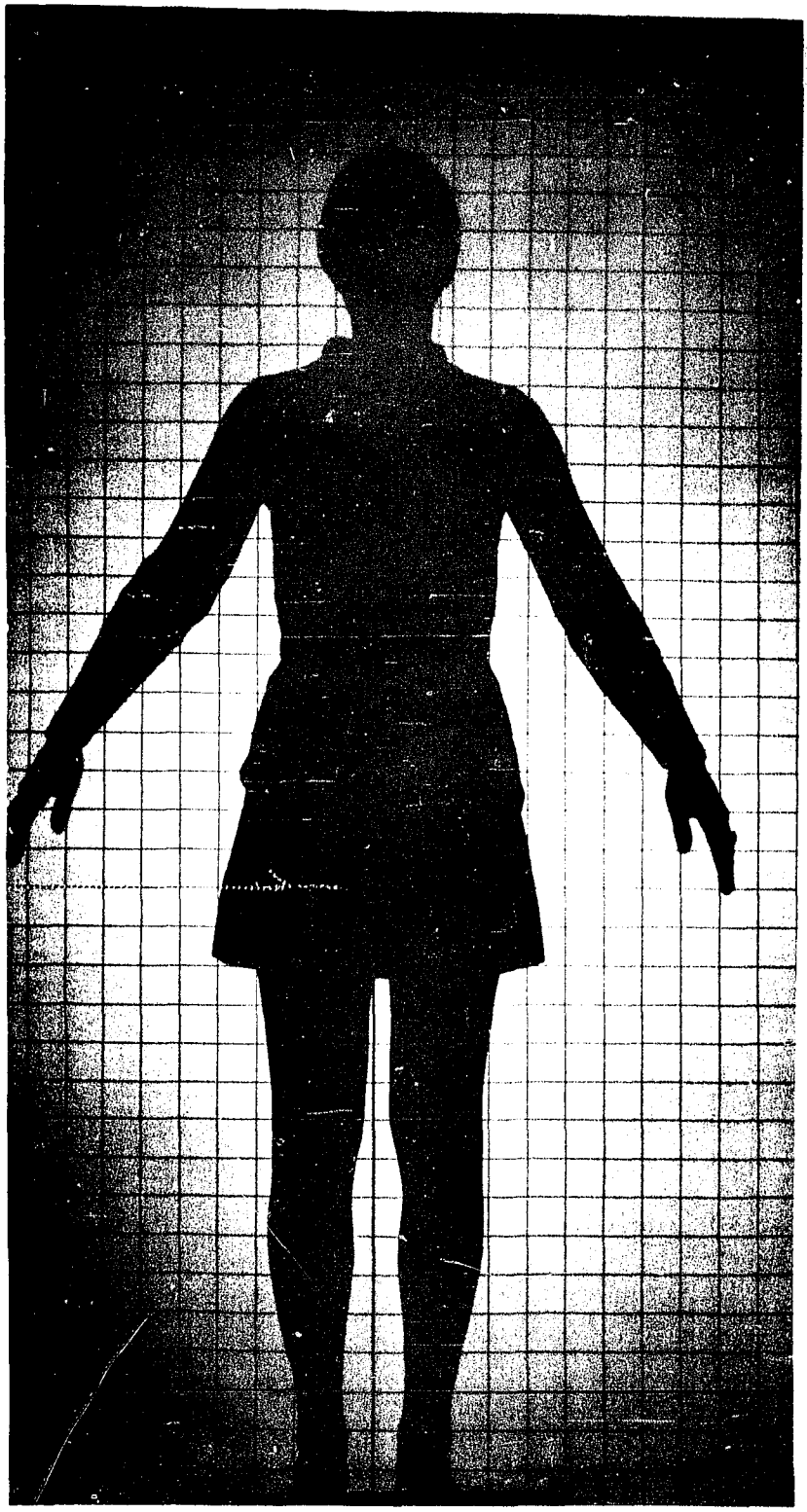
Subject with Composite Body Build (1.50), Back View, Semiclothed

APPENDIX C (continued)



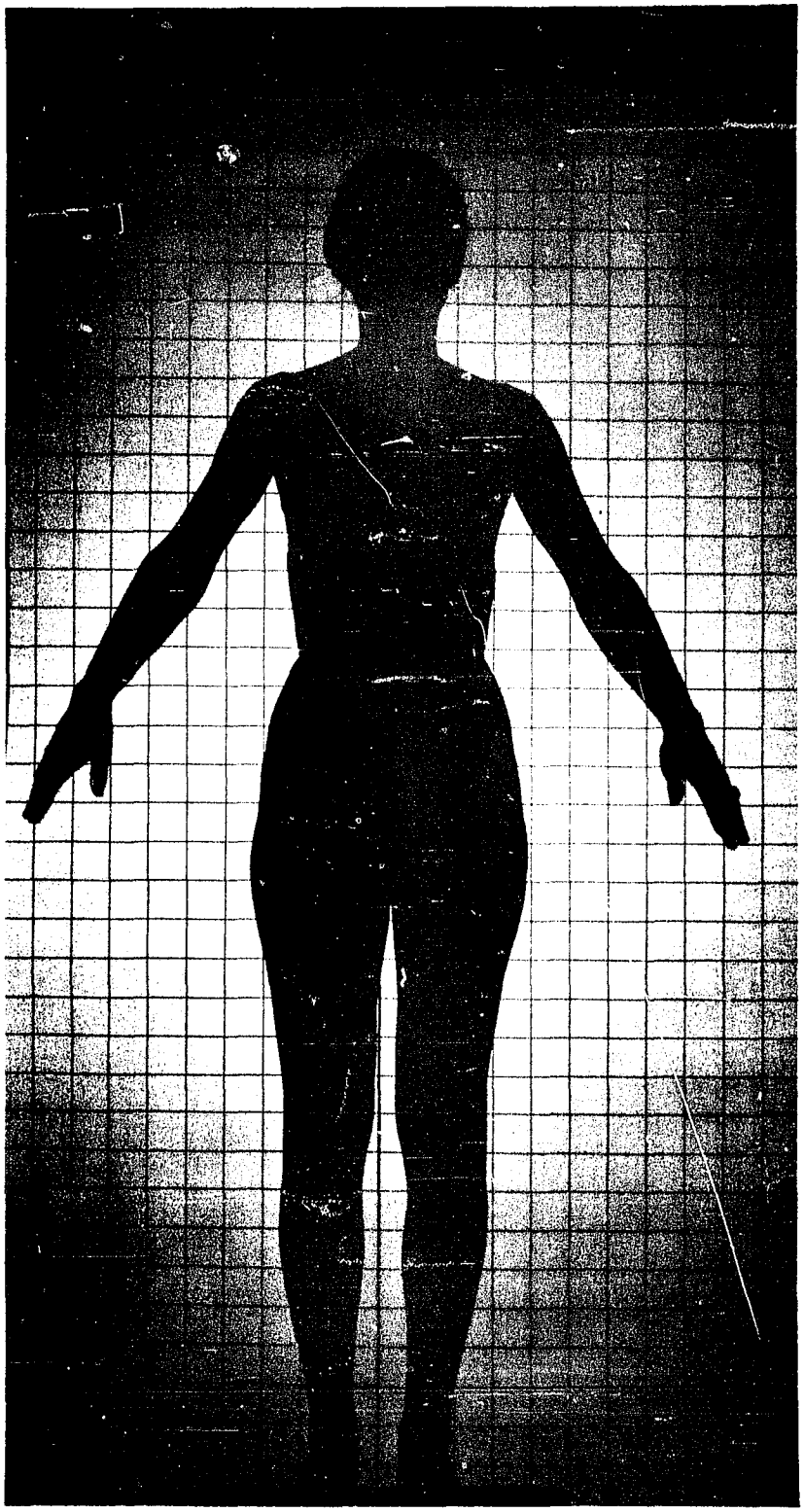
Subject with Composite Body Build (1.50),
Anterior-posterior View, Semiclothed

APPENDIX C (continued)



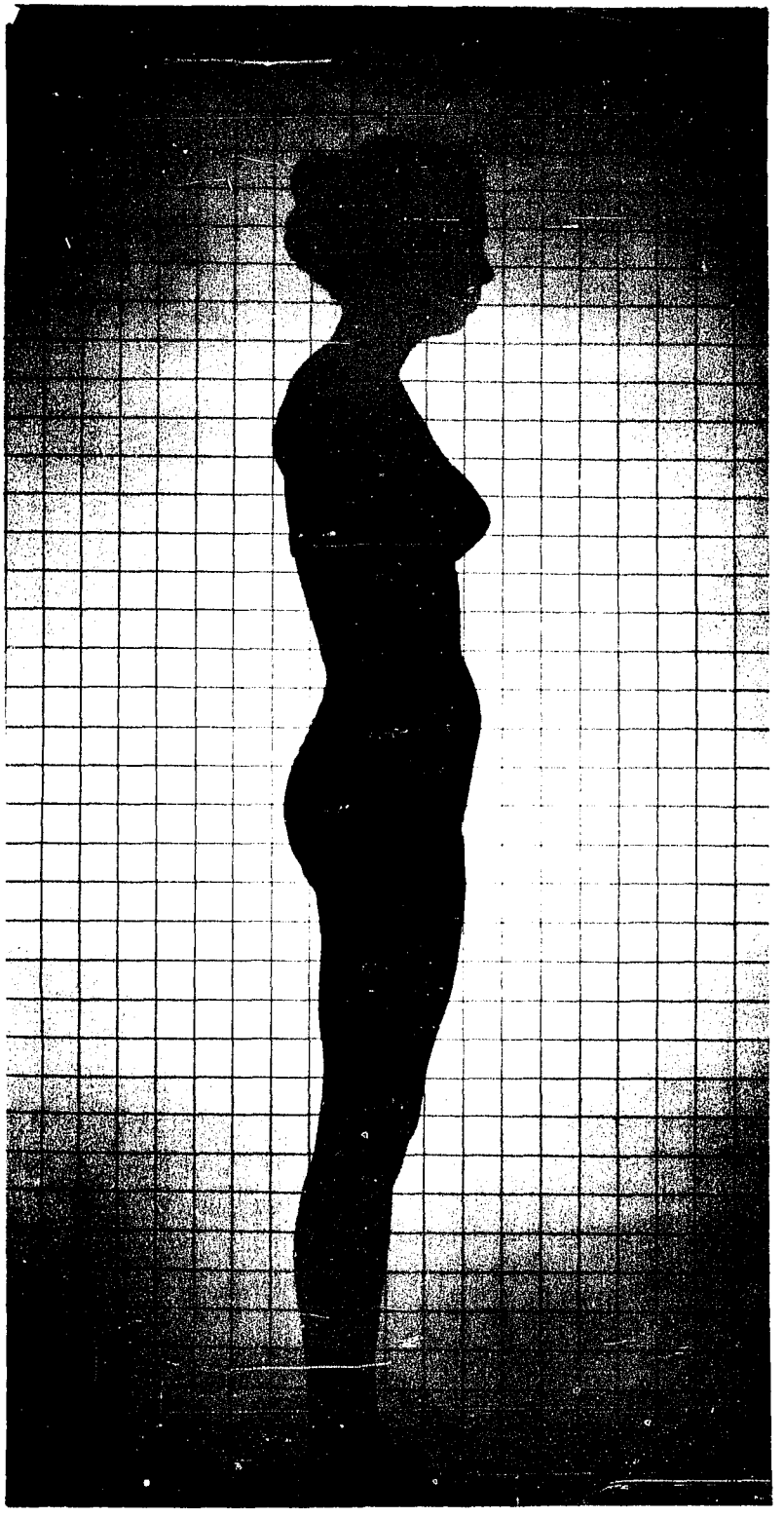
Subject with Slender Body Build (2.00), Back View, Clothed

APPENDIX C (continued)



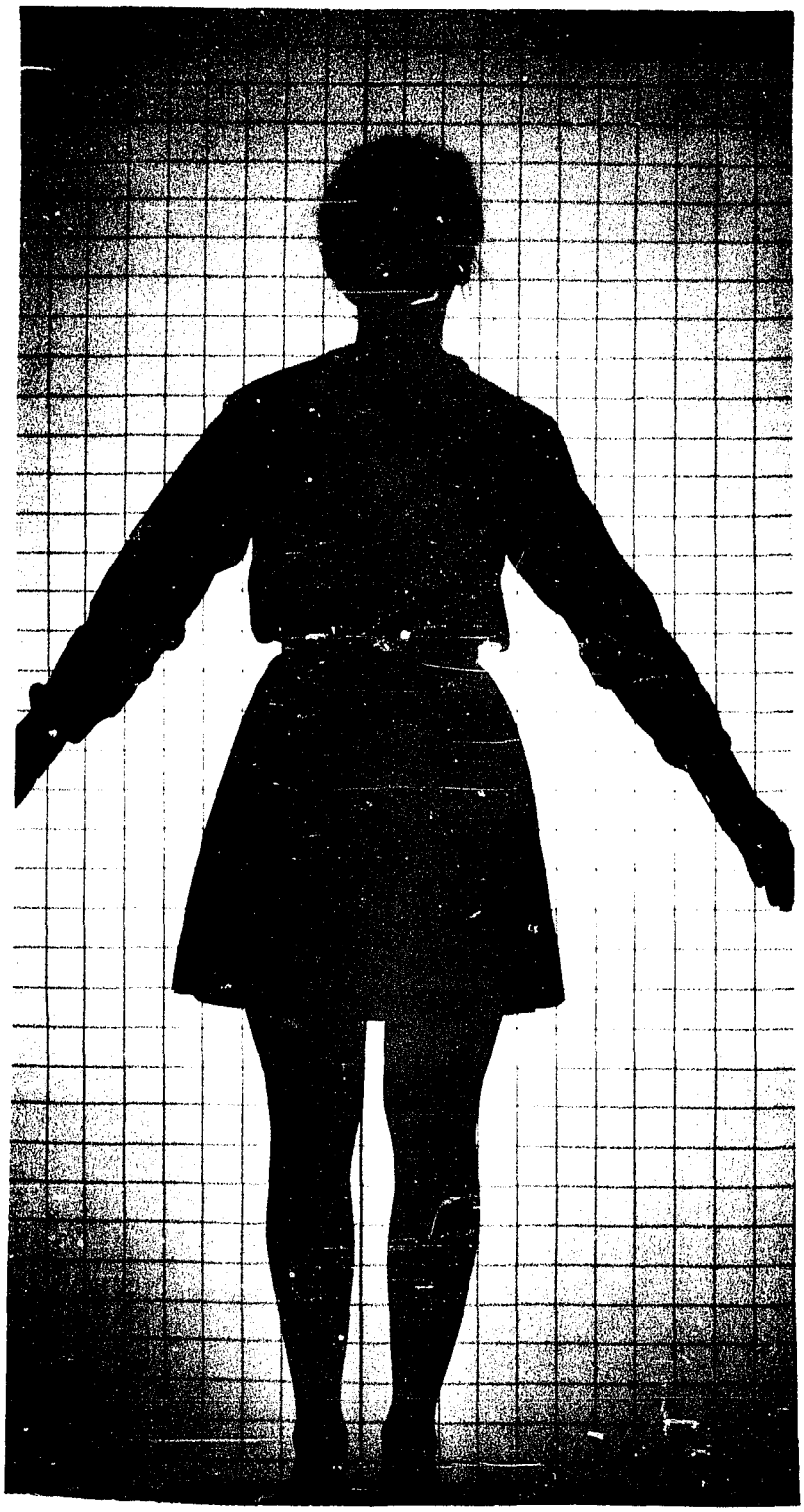
Subject with Slender Body Build (2.00), Back View, Semiclothed

APPENDIX C (continued)



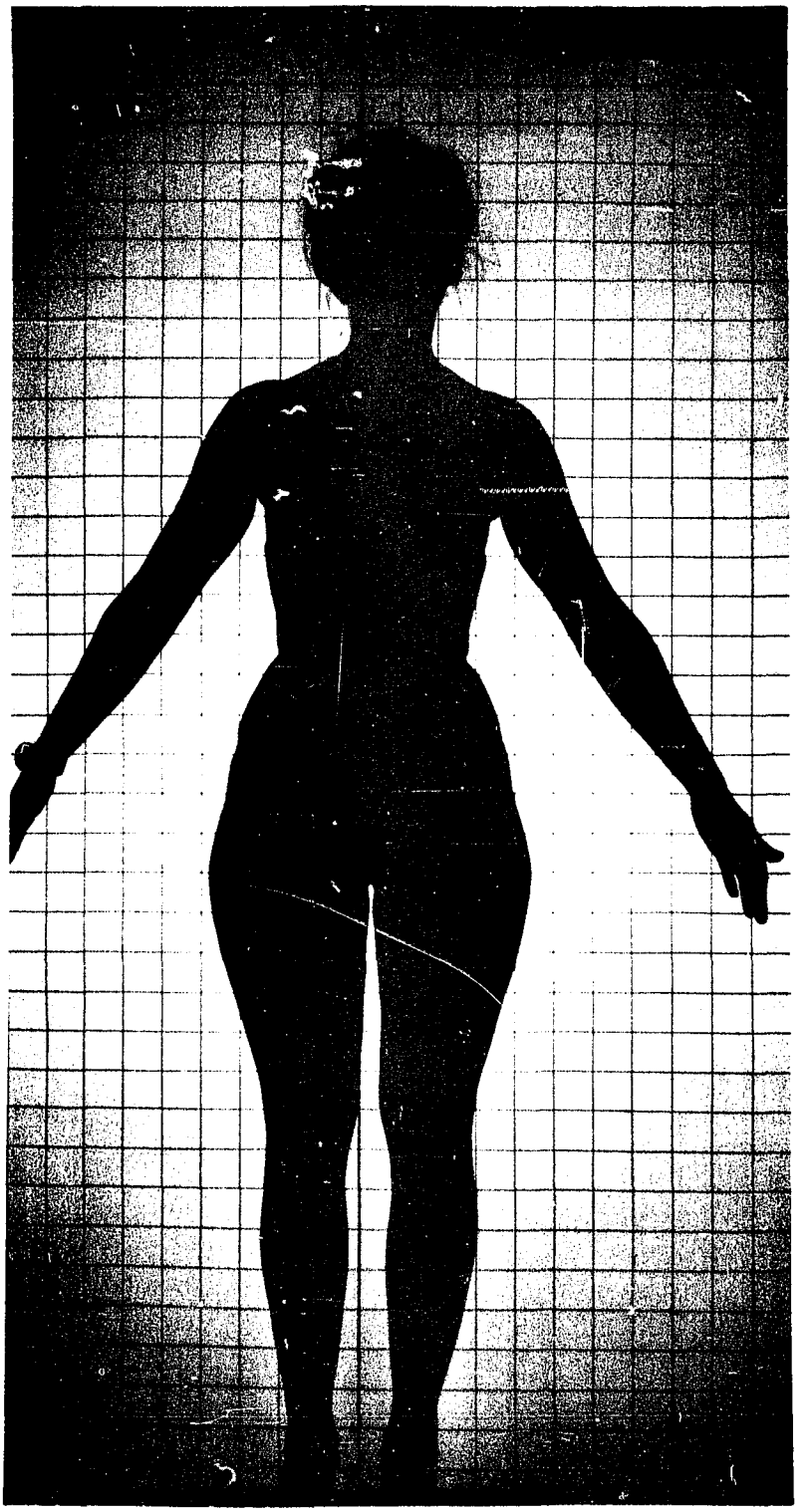
Subject with Slender Body Build (2.00),
Anterior-posterior View, Semiclothed

APPENDIX C (continued



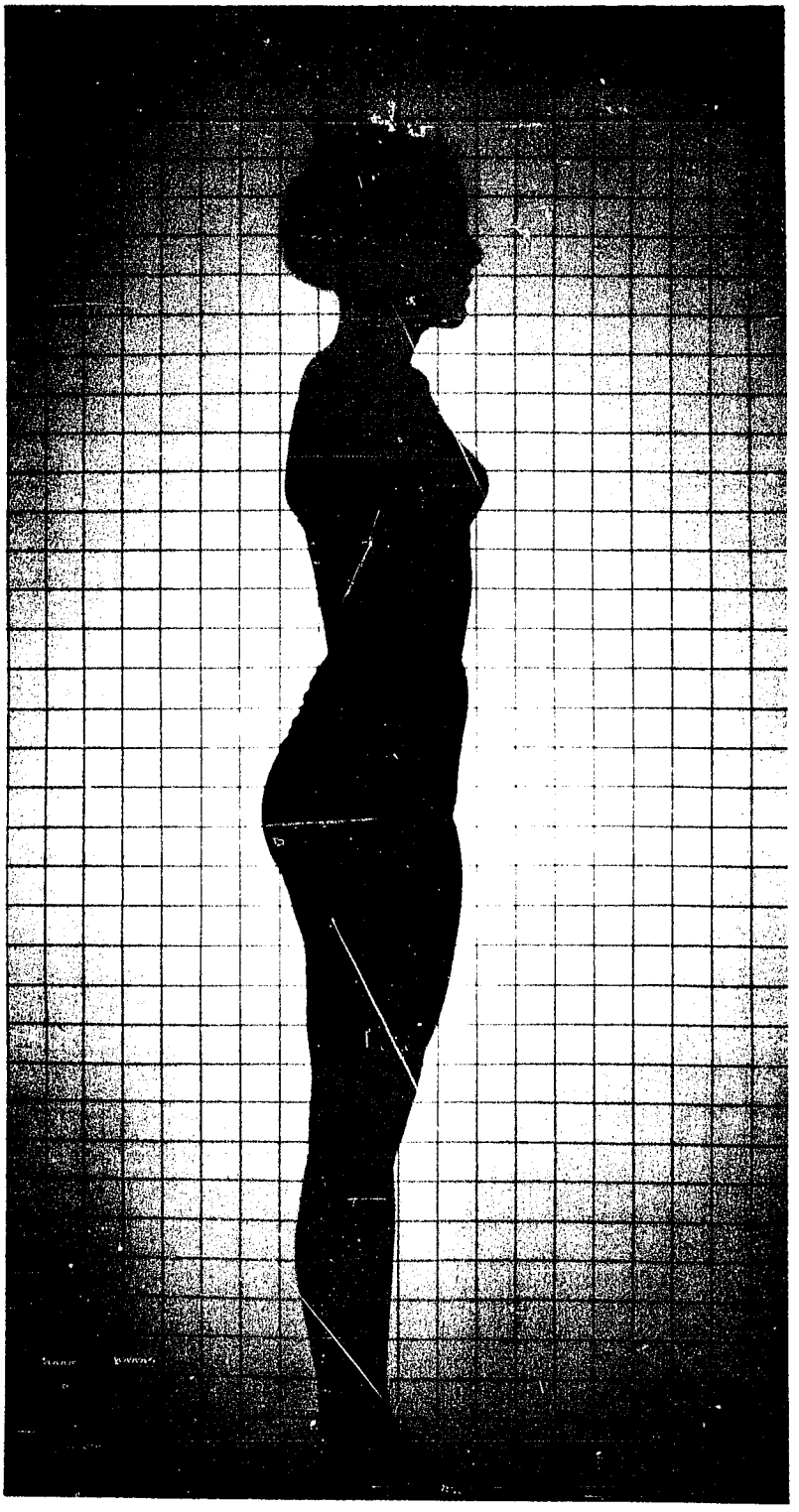
Subject with Average Body Build (3.00), Back View, Clothed

APPENDIX C (continued)



Subject with Average Body Build (3.00), Back View, Semicothed

APPENDIX C (continued)

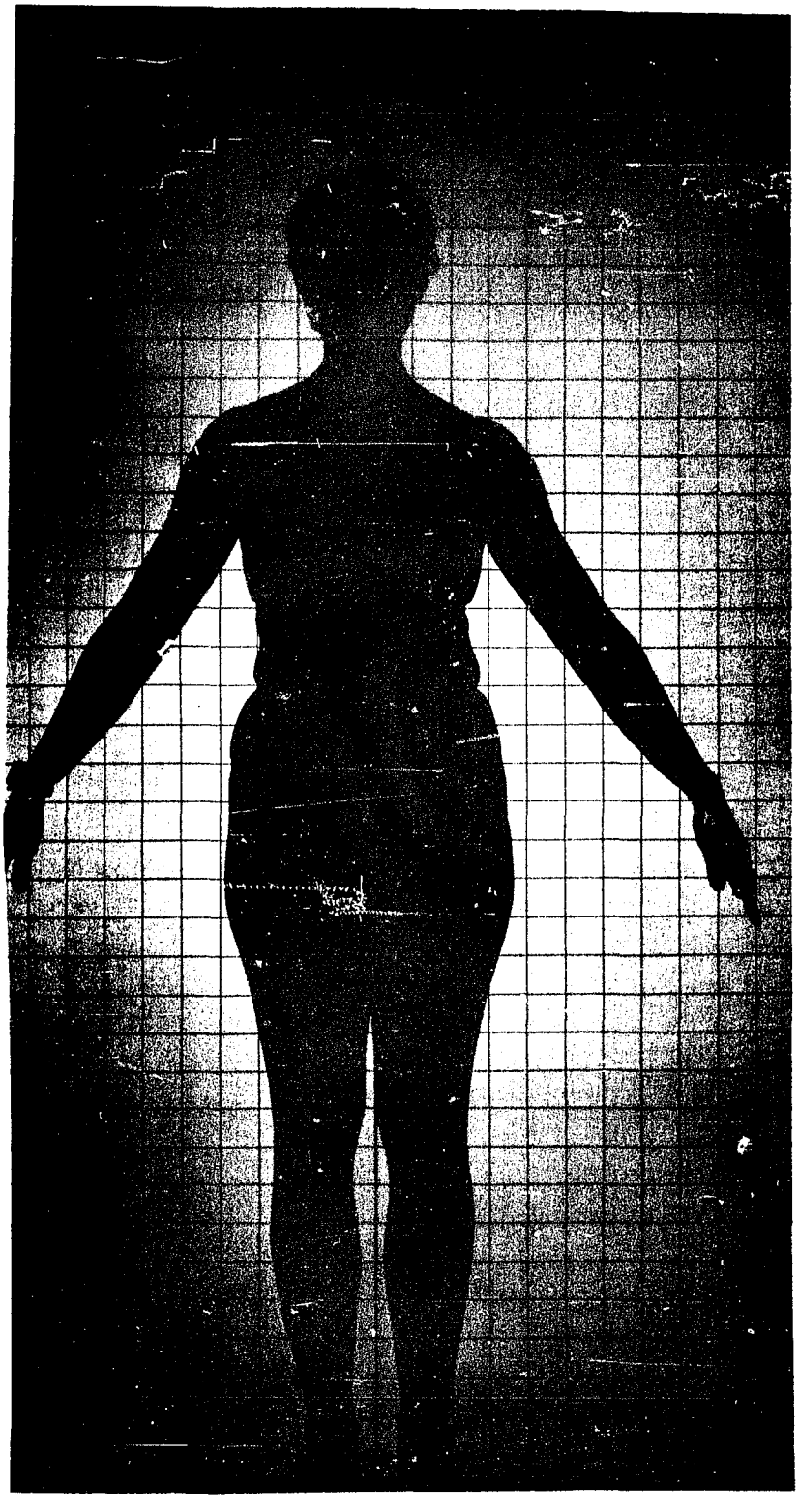


Subject with Average Body Build (3.00),
Anterior-posterior View, Semiclothed

APPENDIX C (continued)

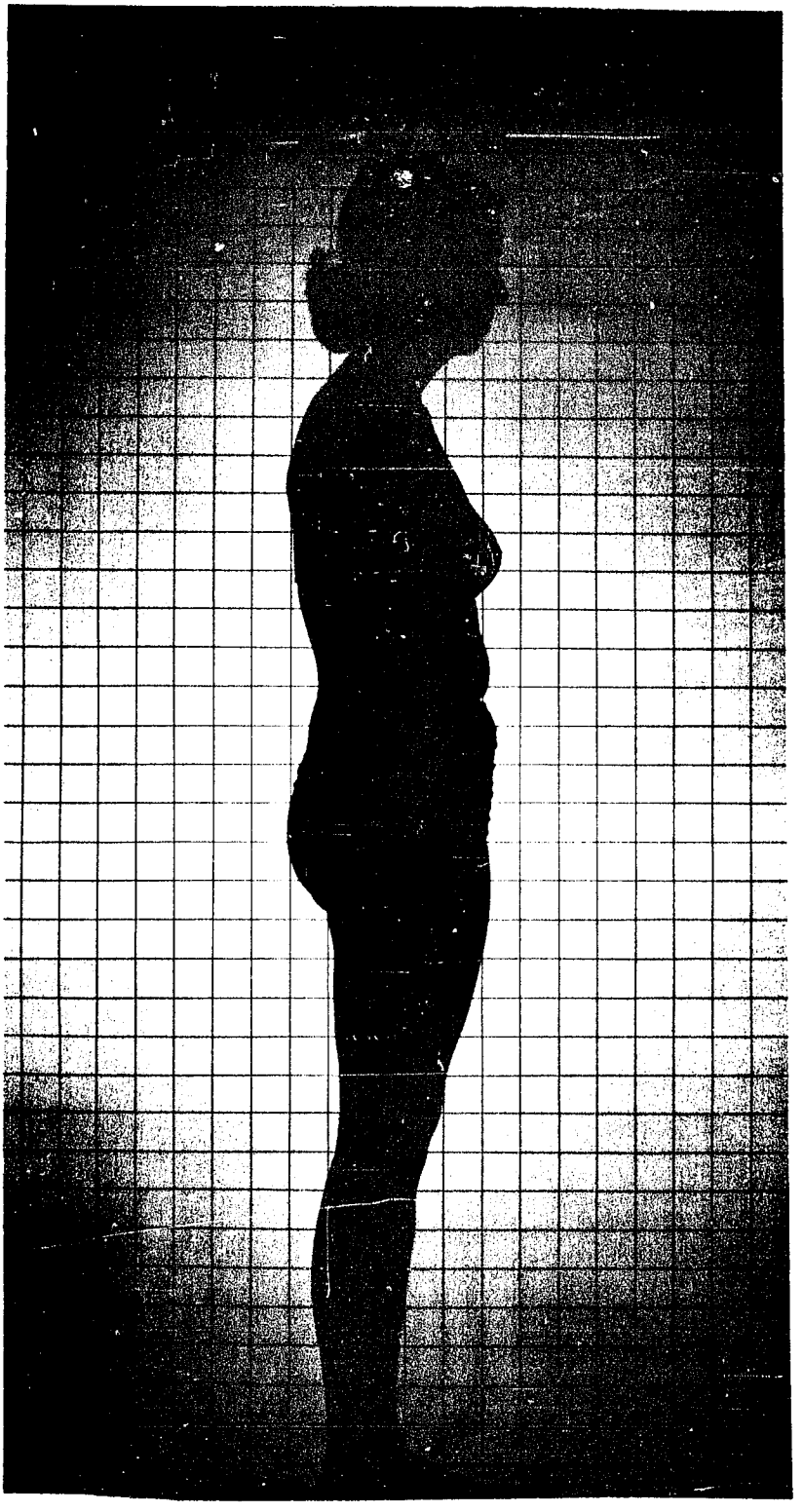
Subject with Stocky Body Build (4.00), Back View, Clothed

APPENDIX C (continued)



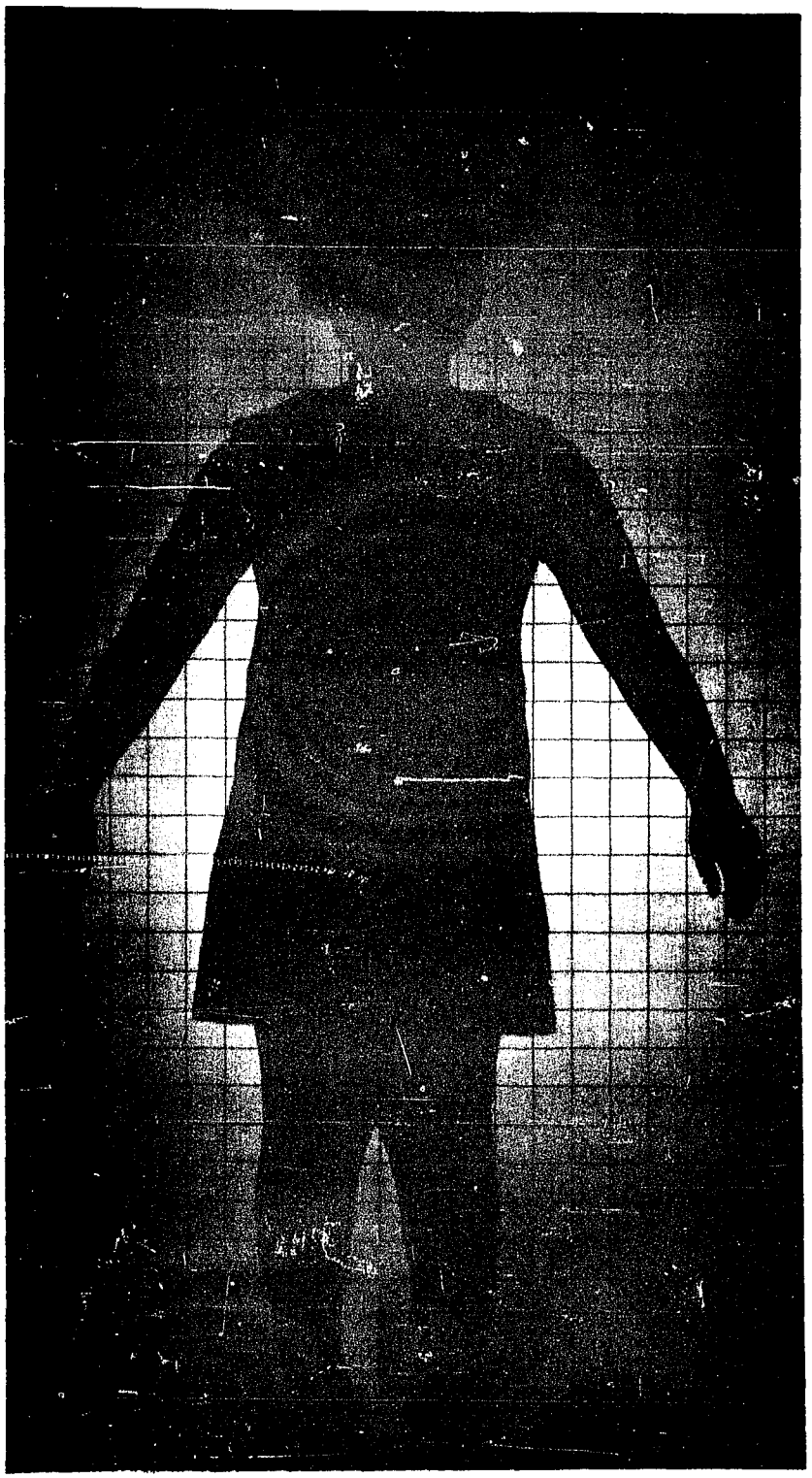
Subject with Stocky Body Build (4.00), Back View, Semiclothed

APPENDIX C (continued)



Subject with Stocky Body Build (4.00),
Anterior-posterior View, Semiclothed

APPENDIX C (continued)

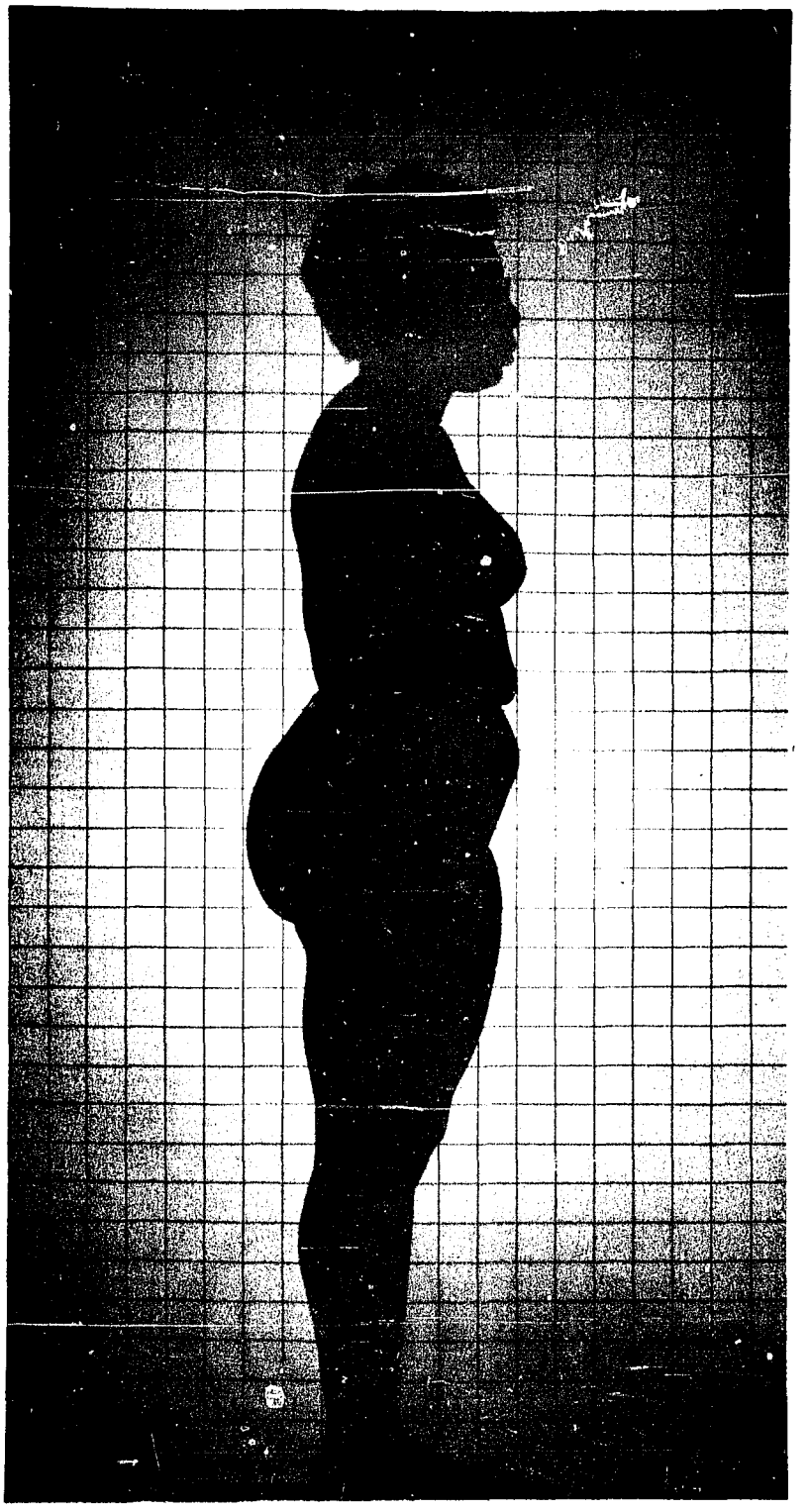


Subject with Heavy Body Build (5.00), Back View, Clothed

APPENDIX C (continued)

Subject with Heavy Body Build (5.00), Back View, Semiclothed

APPENDIX D (continued)



Subject with Heavy Body Build (5.00),
Anterior-posterior View, Semiclothed