

Relationship of sport commitment, task  
involvement, and role knowledge to female bicyclists'  
use and interests in sport apparel

by

Marsha Ann Casselman

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Signatures have been redacted for privacy

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## Introduction

During the 20th century sports have become a phenomenon of great importance and focus in western culture (Kenyon & Loy, 1981). Just as participation in running spiraled upward in the 1970s, participation in bicycling is currently experiencing a similar explosion in growth. Cycling U S A ("U S C F growth", 1989) reports a 350% increase since 1980 in the number of cyclists licensed by the United States Cycling Federation, the governing body of amateur bicycle racers in the U.S. These cyclists range widely in their degree of involvement in the sport, as do the vast numbers of unlicensed cyclists who participate in organized club rides, triathalons, or just ride with a few friends.

Not only has participation in cycling risen, use of clothing once worn by only the most serious cyclist has increased. Currently cycling apparel, or clothes made to look like cycling clothing, has appeared on the fashion scene (McCarten, 1989).

In order to serve the growing number of bicyclists, many large sport clothing manufacturers previously known for their running clothing are adding cycling apparel to their lines of merchandise. In addition to these companies are several well established cycling apparel firms. Several of the major cycling apparel manufacturers have expressed interest in learning what factors contribute to a female bicyclist's choice of clothing. Women are of special interest to cycling apparel manufacturers as many have just begun to offer lines of apparel designed especially for women. An aim of the

present study is to clarify needs, consumer behaviors, and interests of target markets of bicyclists at higher and lower levels of involvement in the sport.

### Role Theory

Role theory is a collection of ideas that provide a focus for the present study of human behavior. The term role refers to a part played by a person. In a sense, roles are like scripts, loosely guiding how the role is usually performed (Goffman, 1961; Sarbin & Allen, 1968; Thomas & Biddle, 1966). Individuals may vary in level of role embracement (Goffman, 1961) depending on level of commitment and involvement in the role.

Props are essential to carrying out any role (Goffman, 1959). Clothing is a prop that can be used as an internal cue that acts as support to the individual's self-confidence or an external cue that facilitates acceptance by the audience of an individual's position in a particular role (Solomon, 1986; Solomon & Douglas, 1985). Level of embracement in a role may influence adoption of role appropriate clothing.

Cyclists with varied levels of commitment and involvement to the role of cyclist will probably behave in different manners when they act out the role. Attitudes, interest, and use of cycling clothing may be one way the cyclists at higher and lower levels of commitment and involvement behave differently.

### Purpose

The purpose of this study was to determine how female cyclists at two levels of involvement in the sport differ in their attitudes, interests, expenditures, and uses of apparel for bicycling. Only one study (Weaver, 1989) was found that directly related to bicyclists and cycling apparel. Research related to sport commitment and involvement, role knowledge, and interests in dress provided a background for the study.

This study took a multimethods approach by combining qualitative techniques of open ended interviewing and content analysis with adaptations of existing measures for quantitative measure and analysis. The combination of data collection methods provides several approaches to the research problem and protects against methodological ethnocentrism (Guba, 1981; Strauss, 1987).

### Objectives

- \* The first objective was to compare cyclists with higher and lower levels of involvement on their attitudes and interests toward and use of apparel for bicycling, including:
  - \* use of special bicycling apparel to communicate competence in the sport.
  - \* use of special bicycling apparel as an aid to physical performance.
  - \* concern with conforming to peers by means of bicycling apparel.

- \* concern about appropriateness of apparel for different cycling activities.
  - \* self-expression in choice of bicycling apparel.
  - \* amount spent on bicycling apparel.
- \* The second objective was to explore the relationship of commitment to cycling with level of involvement in the sport and use and attitudes toward cycling apparel.
- \* The third objective was to make recommendations for further research of a national sample of athletes and to present recommendations related to marketing practices to sports apparel producers and retailers.

#### Definition of Terms

Commitment: The degree of attachment to an activity based on length of participation in the activity, rejection of alternative activities, amount of side bets, affective attachment, and positive addiction (Becker, 1960; Buchanan, 1985; Carmack & Martens, 1979; Ragheb & Beard, 1982).

Task Involvement: The degree of interest in an activity for its own sake, based on the length of time participated in the activity and the amount of time spent practicing the activity (Duda, 1988; Nicholls, 1984).

Ego Involvement: The degree of interest in demonstrating more competence than others at an activity (Duda, 1988; Nicholls, 1984).



Competence: The extent of mastery and personal skill improvement (Duda, 1988; Nicholls, 1984).

Role Knowledge: The degree to which an individual has mastered a role through observation and practice, including competence in fulfilling role expectations or demands, and understanding of how to achieve competence (Sarbin & Allen, 1968; Solomon, 1983).

Role Enactment: The extent that an individual can be involved in an activity, affected by the number of roles played, the degree of involvement, and the amount of time spent in a role (Sarbin & Allen, 1968; Swenson, 1973).

Conformity in Dress: The extent that changes in dress are made in order to appear in agreement with real or imagined group norms (Kaiser, 1985).

Individuality in Dress: The willingness to forego economic and convenience considerations in clothing in order to wear unique and attention getting styles. Attention to dress is preferred and negative evaluation from others is not threatening (Gurel & Gurel, 1979)

## Review of Literature

### Commitment

Differences in the degree of commitment an individual has to a role is an integral part of role theory and may be a crucial variable for segmenting bicyclists according to use and interest in cycling apparel. No literature has been found concerning commitment to cycling, and limited research dealing with commitment to sport in general exists. Existing literature attempts to define commitment in an operational manner.

### Defining Commitment

Side Bets. Becker (1960) describes commitment as involvement in an activity that persists over time and that results in the rejection of other activities. Commitment is further indicated by the extent that the individual uses "side bets". Side bets are something of value to the individual, such as time and money, which are invested in the activity as participation is continued. When side bets are used extensively it becomes expensive to discontinue the activity to which the individual is committed.

Side bets for cyclists might include expenditures put forth on specialized equipment and clothing. In addition, time spent bicycling would certainly decrease the amount of time available for the pursuit of other activities. In this study I will investigate whether investment in clothing--in terms of money, number of items, care, and concern--is a side bet correlated with degree of

commitment. An alternative finding may be that individuals who are just starting out in a sport spend more on clothing as they try to equip themselves for the role of bicyclist. Acquisition of clothing side bets may help to move the newer cyclist toward a greater degree of commitment.

Behavioral Consistency. Buchanan (1985) makes further attempts to operationalize the concept of commitment. His work focuses on commitment in the leisure and recreational setting. Buchanan (1985) agrees that side bets and behavioral consistency are components of commitment. Behavioral consistency includes, among other things, length of participation in the activity and rejection of alternate behaviors. In addition to side bets and behavioral consistency, Buchanan suggests combining these components with the degree of affective attachment to the goals and values of an activity to assess level of commitment.

Affective Attachment. Affective attachment is described as the continuance of an activity because of positive feelings for the activity that are stronger than feelings for alternative activities. A strong affective attachment results from extreme acceptance and belief in the ideals of the activity (Buchanan, 1985). A cyclist with lower affective attachment to the sport may participate only because of a dislike for running and the lack of accessibility of an aerobics class or to a pool for swimming laps. A bicyclist with higher affective attachment to the sport may feel that he or she is

involved in a superior form of exercise and the individual is likely to be dedicated to learning all the intricacies of cycling such as correct pedalling style and the status of current top riders. Being a committed cyclist is very much a part of the affectively attached person's self-identity and much effort would be made to abide by the norms that regulate the role of cyclist (Buchanan, 1985).

Intrinsic and Extrinsic Motivators. Riding through the countryside, taking in the fresh air, and enjoying nature may have a hedonic effect which leads to a commitment to the pleasure of riding. Snyder (1983) suggests that the feelings of fun, goodness, and accomplishment are important intrinsic factors that determine level of commitment. An even greater level of commitment and investment of identity results when extrinsic motivators take precedence over intrinsic motivators (Snyder, 1983). Examples of extrinsic motivators are money, awards, and number of wins. However, unsuccessful performance may weaken the identity achieved in the sport role and thus lower the commitment of an individual who engages in sports (Snyder, 1983).

In addition to intrinsic and extrinsic motivators, Snyder (1983) feels that social support is a factor determining level of commitment. Social support is often enhanced by the fact that all of an athlete's friends participate in the same sport. Snyder (1983) combines these three factors in a model to describe commitment. The

possible levels of commitment in his model range from nonparticipant to professional and more formal sport participant.

Some sport researchers have used identity theory to look at committed behavior (Curry & Parr, 1988; Curry & Weaner, 1987; Stryker & Serpe, 1982). In identity theory, commitment is defined as the number of persons that the role player relates to in a given role and the degree of importance these individuals have to the role player. If persons in cycling role relationships are highly important to the rider, commitment to cycling may be enhanced and cycling becomes part of identity. However, since cyclists may spend many hours riding alone, possibly resulting in limited relationships with others, this interpersonal dimension of commitment was not pursued in this study.

#### Commitment Measures

Ragheb and Beard (1982) developed an instrument to measure likelihood of participation in leisure activities. The questionnaire was composed of items representing the three components of attitudes: affective, cognitive, and behavioral. The affective component was the feelings and degree of liking or disliking the individual had toward leisure activities. A cognitive component included the individual's beliefs and general knowledge about leisure activities and their effects on quality of life. The behavioral component included actions of the individual toward leisure in the past and present and intended actions for the future.

Administration of the questionnaire to 1,042 individuals resulted in an overall internal item reliability of .94. The affective portion of the instrument was most reliable at .93 whereas the cognitive portion had a reliability of .91 and the behavioral items followed with a reliability of .89. The Ragheb and Beard instrument was a more reliable instrument for determining attitude toward leisure than instruments that had been developed previously (Ragheb & Beard, 1982).

Positive Addiction. Positive addiction might be considered a form of intrinsic motivation to participate in sport. Carmack and Martens (1979) introduced the concept of positive addiction in their development of an instrument to measure commitment to running. Positive addiction was defined as a source of mental strength that a runner may experience as a result of running; when running is missed, the positively addicted runner may experience pain, misery, and psychological and physical upset.

The 12 item questionnaire, made up of statements reflecting affective feelings and cognitive beliefs toward running and running behaviors, was administered to 315 runners. Inter-item reliability for the Commitment to Running instrument was .93. A higher Commitment to Running score corresponded with individuals who ran for longer times, perceived they were addicted to running, and experienced discomfort when a run was missed. Perceived addiction and average distance run, along with data concerning the runner's

state of mind during different portions of the run accounted for 42% of the variance in the Commitment to Running scale.

Sachs and Pargman (1979) proposed that greater participation in running may not necessarily indicate an addiction. It was hypothesized that some runners may participate regularly in running merely for health reasons or because a significant other does so. In order to test this hypothesis, Sachs and Pargman (1979) used the Carmack and Martens (1979) Commitment to Running scale to measure addiction and the average number of days per week that a person ran to measure commitment. The addiction scores and the amount of running in minutes and miles of 540 runners were positively correlated at the .001 level of significance ( $r$  not reported in study). The results compared favorably to the original results found by Carmack and Martens (1979) thus providing support that addiction is part of commitment to running.

#### Involvement

The concept of involvement may be related to commitment. Kenyon (1968) distinguishes sport involvement at a primary or participatory level and at a secondary level typical of the vicarious involvement of spectators. In addition, Kenyon (1968) sees involvement as occurring in three stages: becoming involved, being involved, and becoming uninvolved. A persistent behavior would be indicative of the being involved stage.

Although Kenyon (1968) provides a rudimentary analysis of involvement, Snyder (1983) defines it more clearly and concisely as the degree of participation in a sport, including the extent to which self-identity is acquired through the role. The amount of identity that is invested into the sport role may be indicated by the amount of side bets.

#### Commitment vs. Involvement

Although it is unclear whether commitment to bicycling and involvement in bicycling are completely the same, Duda's (1988) test of Nicholls' theory of motivation provides a link. Nicholls' (1984) contended that task and ego involvement are two types of involvement that individuals can have in attempting to reach a major goal such as competence in an activity. Task involvement is based on mastery and personal skill improvement and is intrinsically motivated. Ego involved behavior is characterized by attempts to demonstrate that the individual is more competent at a task than are others. In ego involvement feelings of competence are augmented when little effort is required by the individual to show higher achievement than others.

Duda (1988) hypothesized that individuals who were task involved would be more continually and intensely involved in a leisure activity. One hundred thirty-four individuals who participated regularly in a sport were administered a two part questionnaire. Part 1 allowed them to identify with either task or ego involvement, while Part 2 inquired as to the length of time and number of hours



per week that the individual participated in the sport. Individuals with high task involvement were likely to have participated in their sport for longer lengths of time and practiced their sport more than those with high ego involvement. Task involvement is also thought to encourage feelings of success and accomplishment and thus contributes to a positive addiction (Duda, 1988).

Therefore, task involvement seems to be a component in some of the previous definitions of commitment. However, ego involvement may be an attitudinal component separate from commitment. Ego involvement could be considered a type of extrinsically motivated behavior.

#### Role Theory

Role theory proposes that each one of us during our lives acts out a variable number of roles (Swenson, 1973). Individuals occupy numerous social positions, or roles, that are acted out during a lifetime in relation to other human beings. A role is influenced by knowledge of the norms and expectations held by others for how the role should be enacted (Goffman, 1961).

The number of roles an individual is involved in, the extent of involvement in each role, and the amount of time spent in a particular role compared to other roles will all affect role enactment (Sarbin & Allen, 1968; Swenson, 1973). Roles may be enacted with different levels of intensity that might range from casual involvement to extreme effort and involvement. Individuals

will spend far more time in some roles, such as those associated with their occupation, than they likely will spend in other roles (Sarbin & Allen, 1968). An individual committed to a certain role may develop an attachment to the role that makes the role become very much a part of the individual's self-identity (Goffman, 1961).

Role embracement incorporates attachment or linking of identity to a role, personal ability to perform a role, and current involvement and submersion in the role (Goffman, 1961). Since actual time spent in the performance of a role is a component of role embracement, highly involved bicyclists will embrace the cyclist role more than other riders.

How well a role seems to fit the identity and abilities of the performer is defined as role congruence. Acting in a way that is parallel to the individual's self-concept usually results in role performance that is much more convincing than when the role is incongruent with self-identity (Sarbin & Allen, 1968).

Sometimes, by using the correct props, individuals' feelings of congruence with a role can be bolstered. Certain products may symbolize or be associated with a role. By using these products, it may be easier for an individual to perform a role, thus increasing the chances that the performance will be convincing both to the actor and the audience (Solomon, 1983).

### Role Knowledge

This study was based on a model developed by Solomon (1983) in which he proposed a schemata of how people use products both as response and stimuli in acting out a role. Role knowledge is a key component in the model. An individual who has spent considerable amounts of time in a role and who has achieved accomplishments in the role will likely have fairly high role knowledge and will be able to convince others that the role fits her or his identity (Solomon, 1983). According to Solomon's model, a person who is less knowledgeable of the expectations of a role may use products such as certain articles of clothing to compensate for lack of knowledge and accomplishments.

The symbolic properties inherent in certain products including some clothing items can either support or detract from the role player's performance. Increased confidence and feelings of competence may result from choosing products for their symbolic qualities. The symbolic properties of role props may facilitate the audience's acceptance of an individual's position in a particular role (Solomon, 1983, 1986; Solomon & Douglas, 1985).

Closely tied to the idea of using products to increase the audience's acceptance is Belk's (1988) concept of possessions extending the self. Clothing may be used to convince the self and others that the wearer is a certain type of person or has certain qualities considered important to a role. "Thus having possessions

can contribute to our capabilities for doing and being" (Belk, 1988, p. 145).

Differences in role knowledge can be indicated in many different ways through clothing, including choice of appropriate clothing, use of clothing to assist self-definition, and use of clothing for compensation. A person more knowledgeable about a role may make less use of products to establish the role as part of self-identity since the individual has already incorporated the role into identity. The knowledgeable role player may use products simply as communication that a particular role is one of the many that she or he possesses or may use products as an intrinsic reward for past accomplishments in a role (Solomon, 1983; Solomon & Douglas, 1985).

Norms for Dress. Some roles have formal clothing requirements with clear guidelines for dress. Other roles have less specific and informal rules for dress, making it necessary for the role player to discover what is appropriate. Women's business dress, for example, has only a moderately refined definition of what is appropriate, thus making many business women unsure of their clothing selections. Solomon and Douglas (1985) propose that anxiety is especially prevalent in women who are new and are less established in their careers. Women who are more successful and established in their careers may not feel a strong need to use clothing as a symbol of their competence around colleagues and clients who are aware of their competence.

Douglas and Solomon (1983) found that female executives had some diversity in choice of business clothing to support their career roles. Styles considered most appropriate included suits and dresses worn with a jacket. The women felt that it was necessary to dress appropriately for business situations. Wearing clothing that was appropriate for work was more important than wearing more fashionable clothing or displaying the ability to dress fashionably. Nevertheless, the variety of clothing styles considered by career women to be appropriate career dress indicates that the business executive role for women may not have as clear a definition as do men's business roles (cf. Damhorst & Reed, 1986; Kanter, 1977).

Although Solomon's model would seem to imply that more experienced and successful business women would be open to more variety in their career dress than women with less experience, this tendency for individuality may still be limited to the confines of styles considered appropriate for business. Erickson and Sirgy (1985) found that business women who were highly achievement motivated wore business dress more often than those who were less achievement motivated. Descriptions of women with high achievement motivation did not indicate, however, whether differences in role knowledge could be expected within the group.

#### Role Transition

Solomon's (1983) model takes into account the process of role transition and its connection with role knowledge. Role transition

is the process of taking on a new role. Often when a particular role is new, or when the individual has been rushed in the transition to a new role, the individual will feel less sure of the behaviors expected for the role and draw information from past experiences that do not accurately apply to the new role (Hopson & Adams, 1976; Sarbin & Allen, 1968).

The process of becoming knowledgeable about role expectations can be quite involved. An individual who plans to take on a new role will gather information about role expectations through media and other persons involved with the role. In addition, much will be learned by observing how others' behave in the role and what props they use to ensure that their performance is believable (Sarbin & Allen, 1968; Stone, 1985). This process that occurs before an attempt is made to enact the role is called anticipatory socialization and may include a type of "dress rehearsal" (Stone, 1985). Persons in this situation may anticipate the behaviors expected of them, though they are not completely sure their inclinations are correct. Individuals who are new in a role will likely use products that they think symbolize the new role they are undertaking, in hopes that use of the product will make their performance of the role more believable to themselves as well as to their audience (Solomon, 1983, 1986). Zaltman and Wallendorf (1983) identify this process as aspirational overbuying that occurs when the

individual questions her or his ability to perform the role adequately.

Donnelly and Young (1988) have proposed a model of the developing roles of individuals in sport subcultures. The four step model realizes the importance of dress in presocialization stages, selection and recruitment stages, socialization stages, and acceptance stages. In the presocialization stage, the use of stereotypical knowledge of how members of the subculture dress is often inaccurate and makes the outsider easily identifiable to the group's members. In the selection and recruitment stage an individual's life situations determine whether she or he will become a member of the group, either by seeking out membership or being recruited for membership. The socialization stage is an ongoing training period for members of a subculture as they learn the values of the group. Often during socialization, members discover the *faux pas* in dress made during the presocialization stage. Socialization culminates in either acceptance or ostracism by the group's members depending on how well the new member has carried out the requirements of the new role.

Dress for Competence. Solomon (1983) proposed that the better a role seems to fit a person, the less that person will rely on props to convince the audience of that fit. In a business setting, women who are more advanced and successful in their career progress may be less worried about the effects of their clothing choices on their

audience (Solomon & Douglas, 1985). Additionally, the self-confidence of the successful career woman is usually high, perhaps alleviating the need to use clothing props to prove competence (Solomon & Douglas, 1985).

Symbolic self completion theory may be tied in with the concept that an individual lacking in the ability to perform a role will rely more on clothing to express competence. Symbolic self completion theory suggests that persons wish to think of themselves as having certain qualities (Wicklund & Gollwitzer, 1982). These self-definitions are supported by the use of symbols to express that self-definition is complete and truly a part of the person's identity. Each self-definition has a number of symbols that may indicate self-completion to an audience (Wicklund & Gollwitzer, 1982).

A study of male students in an M.B.A. program looked at whether or not students with less chance of success in the business world used more symbols that aided self-definition in the business world than did students with greater chance of success. Students who were not expected by the researcher to be as successful in business careers presented themselves for a bogus testing situation wearing more business role props such as luxury watches, formal dress shoes, shorter haircuts, and cleanshaven faces. The researchers determined that these symbols were an attempt at self-completion. The business role symbols were used significantly more by students lacking the



academic and background credentials found to increase chances of business success (Wicklund & Gollwitzer, 1982).

### Misrepresentation

People may not always truly be involved in the roles that their appearance lends the audience to believe. A performance may not be consistent with the actor's identity and is a misrepresentation of the identity (Goffman, 1961). Individuals who might wish to define themselves as bicyclists, but do not have the ability necessary to do so, may feign role embracement to hide this fact. This misrepresentation could be furthered with the use of clothing associated with accomplished cyclists, i.e., wearing clothing similar to professional team's uniforms.

Some individuals get caught up in the attempt to appear to be involved in a particular role, but spend so much time trying to look the part they do not have time to actually perform the role (Goffman, 1959). An individual who spends large amounts of time organizing races, obtaining sponsors, and shopping for correct clothing to wear in the role of bicyclist may find that night has fallen and they again have not even performed the actual role of bicyclist.

### Interest in Appearance

Interest in appearance is an individual's tendency to use clothing to express characteristics of self or perceive other individual's characteristics (Kaiser, 1985). An extensive amount of attention and concern toward appearance and an allocation of much

money, resources, and time are behavioral ramifications of interest in appearance. An individual's complex system of values plays an important role in interest in appearance as particular foci of interests in appearance reflect larger values held by the individual (Kaiser, 1985).

Interest in appearance is multi-faceted and may be relayed through concern with appearance, experimentation, awareness of others' appearance, and use of clothing to boost self-confidence (Gurel & Gurel, 1979). Littrell, Damhorst, and Littrell (in press) also report interest in appearance relayed through experimentation, self-confidence, conformity, and modesty, as well as a factor relating to practicality that includes economic and physical concerns. Simpson and Littrell (1984) extracted an additional factor centered around a desire for appearance to generate compliments and the approval of others.

Level of commitment, task involvement, and role knowledge may shape the interests bicyclists have in clothing. A bicyclist with higher role knowledge and involvement may feel confident to express personal interests and individuality through dress. Bicyclists at differing levels of commitment, task involvement, and role knowledge may also have different interests in using clothing as a means of performance enhancement and to display level of competence in the role (Friedman, 1985).

### Performance Enhancement

Although research has shown that some special cycling clothing will assist performance (Kyle & Zahradnik, 1987; Pavelka, 1986), the average athlete may not be at the caliber necessary to see a benefit in their performance due to functional features (Friedman, 1985). It seems likely however, that bicyclists at both levels of involvement could feel a psychological advantage by wearing high performance clothing or may wish to express a level of competence in the sport with special cycling clothing.

### Self-Confidence

An interest in clothing as related to self-confidence results in the use of clothing to express assurance in situations (Gurel & Gurel, 1979). A number of researchers have found that female subjects used clothing to positively affect their self-confidence (Gurel & Gurel, 1979; Littrell, Damhorst, & Littrell, in press; Solomon & Schopler, 1982) .

An example of possible psychological advantages gained through wearing high performance athletic clothing is illustrated by a situation that occurred at the women's tennis competition at Wimbledon in 1985. A relatively unknown player took to the courts wearing a high performance body suit--a far cry from the standard tennis uniform. Possibly lifted psychologically by the clothing and the crowd's approval, the player won the match over a top ranked player. Ruling was made prior to the final match between the players

that disallowed the untraditional clothing; subsequently, the lower ranked player lost the match (Kirkpatrick, 1985). One can only speculate that the outcome might have been different had the player not worn the high performance clothing, but the episode lends credence to the idea that high performance clothing may boost self-confidence.

#### Symbolic Expression of Competence

Cycling clothing may be used to express that a rider is competent in the role of cyclist. In addition, the clothing worn by cyclists may indicate to other riders the level of competence held by that rider.

In an ethnographic study of runners, Nash (1977) observed how the clothing of long distance runners communicated information about ability and involvement as a runner. Brand logos on the shoes, types of shirts and messages on the shirt, and additional pieces such as headbands and watches were used by runners to judge other runners' status. Harris, Ramsey, Sims, and Stevenson (1974) found that athletes in team uniform were perceived to be more professional and have more team spirit, natural ability, and over-all ability than athletes in casual street clothes. It is likely that bicyclists at both levels of involvement also use clothing to express their abilities as cyclists and to judge other cyclists' abilities.

### Experimentation

Experimentation with appearance involves the degree that an individual tries out new combinations of clothing, plans clothing combinations, and searches for information about new styles of clothing (Gurel & Gurel, 1979; Littrell, Damhorst, & Littrell, in press). Some people speculate that the advent of new, fashionable cycling clothing may have contributed to the growth in cycling since the availability of new styles and fabrics corresponds to increased sales of cycling apparel (McCarten, 1989). Another possibility may be that accessibility of new, stylish items of clothing for bicycling, a result of growth in cycling participation, may allow experimentation in clothing to be an important factor in interests in cycling appearance.

### Modesty

Modesty is the extent of embarrassment an individual feels as a result of clothing that brings focus to the body or to sexuality (Gurel & Gurel, 1979; Littrell, Damhorst, & Littrell, in press). The body hugging styling of athletic clothing has the potential to bring about feelings of modesty (Friedman, 1985). High performance sportswear tends to make the body more visible and can increase sexual attractiveness for fit cyclists. For those individuals who have a ways to go on their fitness program, the increased visibility may increase self-consciousness. Weaver's (1989) study of female

cyclists found that respondents were unhappy with the clingy fabrics widely available in cycling apparel.

### Individuality

Individuality as a factor of interest in appearance indicates the willingness of some people to forego convenience and economic considerations in clothing in order to wear unique and attention getting styles (Gurel & Gurel, 1979). Although individuality of a rider may be seen in her or his bike (Albert, 1982), it is possible that some cyclists express individuality with their appearance as well. A cyclist may stand out by constantly wearing the newest, boldest, or most improved styles, regardless of the price.

### Conformity

Conformity involves the degree to which individuals change their appearance to look as they think others wish them to look (Kaiser, 1985). Some individuals may have more of a tendency to feel pressured by a group's appearance expectations or what they imagine are the group's expectations of appearance.

In some cycling groups there is much pressure to conform put on cyclists who arrive for a ride without wearing a helmet. The errant cyclist may change his or her behavior before the next ride or may choose not to accompany the group in the future. In other cycling circles, quite the opposite is true as the group chides and belittles those riders who arrive with a helmet.

### Economics and Practicality

Economic and practicality aspects of interest in appearance relates to individuals' use of clothing price and comfort characteristics as priority in the selection of clothing (Littrell, Damhorst, & Littrell, in press). Economic interest in cycling appearance is possible due to the price variety in the clothing that is available. In addition, there is much emphasis put on the importance of comfort in cycling apparel. Some cyclists may find that the practical concerns of price and comfort outweigh their interest in wearing the latest styles.

### Concern with Appearance

Concern with appearance is the extent that time, money and energy is invested in clothing and appearance (Gurel & Gurel, 1979). In a survey conducted through Bicycling magazine, Weaver (1989) asked over 600 women about their concerns related to cycling clothing. Over 46% of the respondents had difficulty finding cycling clothing that fit well. They also discussed their dislike of clothing in feminine, pastel colors since those styles would advertise to passing motorists that the rider was a woman--something the women wished to avoid when riding alone as it could result in physical or mental harassment. It is possible that women cyclists who are unhappy with the selection available to them will spend considerable time looking for acceptable alternatives.

### The Research Approach

Researchers in the social sciences are increasingly recognizing the necessity of employing a variety of methodological perspectives in social research (Daly, 1984; Harré & Secord, 1973; Lincoln & Guba, 1985). Use of naturalistic and interpretive approaches allows for a deeper understanding of the individuals that are studied (Ozanne, 1989). In the present study, qualitative interview responses were collected.

One approach to interpretive analysis of qualitative data is grounded theory. Grounded theory is the development of theory based on emergent patterns found through exhaustive examination of the data. Coding of qualitative data involves a detailed, phrase by phrase examination of the data to uncover complex meanings and their linkage to core categories that emerge through the process (Strauss, 1987). Thus theory is grounded in the data. Personal experience and knowledge that the researcher brings to the study aids in the development of theory, but the researcher remains aware of the possibility of researcher bias engendered by past experience and knowledge (Strauss, 1987).

The use of multimethods or triangulation in data collection protects against methodological biases in the interpretation of data (Guba, 1981). A combination of qualitative and quantitative measures can illuminate varying shades of meaning in responses. This study used a combination of open-ended interviews and questionnaires for



data collection. Analysis of two types of data provided mutual checks on the validity of both types of measures and increased confidence in the ability to draw conclusions from the findings.

### Hypotheses

This study was developed to address the following hypotheses concerning bicyclist's attitudes and interests toward cycling apparel and the use of cycling apparel to enhance physical and role performance. The hypotheses were based on general role theory premises presented by Solomon (1983) and the researcher's own extensive personal experience with the role of cyclist. It was proposed that varied levels of commitment and involvement of cyclists would affect their use of cycling apparel. Since *a priori* selection of bicyclists was required, level of involvement was most readily used in selecting subjects at two levels. The inter-correlation of sport commitment and task involvement was examined to extend findings of hypothesis tests to the larger concept of sport commitment.

The dependent variables included use of cycling clothing for competence, appropriateness and conformity, self-expression, and economics. In all hypothesis tests, the independent variable was level of task involvement. The hypotheses are stated in directional format to indicate expected findings.

#### Competence: Symbolic and Physical Performance

As Solomon and Douglas (1985) proposed, business women who are more advanced and successful in their careers make less use of clothing to symbolically prove their competence. More advanced and successful cyclists were also expected to rely less on clothing to symbolically prove their competence. Therefore:

H1. Cyclists high in involvement make less use of clothing to communicate level of competence in the role than cyclists low in involvement.

It was expected to be unlikely that a cyclist with lower involvement would be in a competitive situation that would merit the use of high performance clothing. In addition, cyclists with lower involvement may not have the degree of role knowledge necessary to make them fully aware of how their performance could be enhanced with certain clothing.

H2. Cyclists high in involvement make greater use of clothing to enhance their physical athletic performance than cyclists low in involvement.

#### Appropriateness/Conformity

Although there is a tendency for individuals to dress similarly to their peers (Gurel & Gurel, 1979), cyclists with higher involvement were expected to feel more competent in their role as cyclist and not have the need to show they belong to the role through conforming to the clothing choices of their peers.

H3. Cyclists low in involvement are more concerned with conforming to their peers by means of dress than cyclists high in involvement.

Cyclists with lower involvement were expected to have had less of an opportunity to observe and interact with more experienced cyclists. Less interaction with role performers was expected to

increase the uncertainty of the less involved cyclist in making clothing decisions.

- H4. Cyclists low in involvement are more uncertain about what athletic clothing is appropriate for the role than cyclists high in involvement.

#### Self-Expression

The extensive role experience of a cyclist with higher involvement was expected to provide the individual with a feeling that the role fit them well. When there is high self-congruency with a role, the individual may be less likely to feel the need to use clothing as a symbol of belonging in the role (Solomon, 1983).

- H5. Cyclists high in involvement are more likely to express individuality with their cycling appearance than cyclists low in involvement.

#### Economics

Becker (1960) states that the investment of money in an activity may increase commitment and involvement in the activity. A cyclist who has spent a large sum of money to outfit herself in cycling clothing may continue riding in order to avoid the financial loss that would occur if she were to cut back or quit entirely.

- H6. Cyclists high in involvement spend more on clothing for cycling than cyclists low in involvement.

### Methods

The purpose of the study was to compare female cyclists with high levels of task involvement with female cyclists with lower levels of task involvement in their sport commitment and attitudes and interests toward cycling clothing. Methods for the study, including sampling, development of instruments, procedure, and data analysis, were designed to facilitate comparison of higher and lower involved cyclists.

### Sample

Purposive sampling was necessary due to the limited accessibility of female cyclists with varied levels of involvement. Cyclists were approached at bicycle races, tours, and bicycling seminars.

At first contact with potential participants, the cyclists were screened to determine the length of time they had been bicycling and the average number of miles or hours they bicycled per week. Only cyclists who had participated in the sport for two or more months were included. In addition, guidelines were established that the cyclists ride an average of 20 to 55 miles per week or 100 or more miles per week to ensure sampling only of persons with higher and lower task involvement. Two to four hours and seven or more hours per week were the criteria used to determine eligibility if the cyclist was unsure of the number of miles ridden per week.

Cyclists who met the predetermined requirements were asked to participate in an interview and complete questionnaires in exchange for two free pairs of cycling socks. Cycling socks were donated by Avia, Cannondale, and Nike. Other cyclists whose names were obtained from bicycle shops, bicycle clubs, and other participants, were contacted by telephone and appointments were arranged. A goal was established to sample 30 higher involvement cyclists and 30 lower involvement cyclists.

#### Instruments

Data collection instruments consisted of four parts; one interview schedule and three questionnaires. The 23 item interview schedule included questions about the cycling clothing the subject owned and use of cycling clothing for self-expression, attractiveness, conformity, and performance enhancement. Other questions related to consumer behavior, including brand preference and knowledge, and satisfaction with available styles. The complete set of interview questions is included in Appendix A. The interview schedule was designed to encourage free response in-depth answers. Analyses of questions related to problems with fit of cycling clothing, goals for future cycling, where the cyclist shopped and got ideas for what to buy, and comments regarding improvements that could be made in cycling apparel are not reported in this thesis.

The three questionnaires measured commitment to bicycling, clothing interests, and personal information (see Appendix A for all

questionnaires). The sport commitment questionnaire, entitled "Feelings About Bicycling", consisted of 27 statements scored on a 7-point Likert type scale ranging from *strongly disagree* (1) to *strongly agree* (7). Questions addressed the affective feelings, cognitive beliefs, and behaviors of the cyclists. Some of the items were adapted for bicyclists from Carmack and Martens (1979) and Ragheb and Beard's (1982) instruments. Other items were developed by the researcher. The commitment questionnaire was pretested on a sample of 16 female and 15 male bicyclists. Principal components analysis was run on the 27 items. Factors were orthogonally rotated and examined for conceptual clarity and relationship of items. As a result of the pretest, two items were dropped from the original instrument due to lack of fit with other items.

The Clothing Interest Inventory included 57 items that were scored on a Likert type scale from *strongly disagree* (1) to *strongly agree* (7). Questions addressed attention to, behavior toward, and preferences for clothing with regard to conformity, individuality, modesty, appropriateness, expression of competence, performance enhancement, fashion awareness, and buying behaviors. Most items were adapted from an instrument developed by Littrell, Damhorst, and Littrell (in press), with additional items related to bicycle shops designed by the researcher.

The third questionnaire consisted of ten items concerning number of years bicycled, number of miles and hours bicycled per week,

racing participation, expenditures on cycling clothing, marital status, occupation, education, hometown, and age.

#### Procedure

Data collection took place over a 14 week period in the summer of 1989 in Iowa, Wisconsin, and Illinois. Potential subjects were approached by the interviewer either in person or by phone. If a cyclist fit the requirements after screening for level of involvement, she was asked to participate in the study. Interviews were then conducted immediately or appointments were made with individuals who had been contacted by phone.

In all cases, the first part of data collection was the interview. Interviews averaged 35 minutes in length and were tape recorded. Immediately following the interview, the subject completed the three questionnaires. Half of the respondents completed the commitment questionnaire before the Clothing Interest Inventory and half completed questionnaires in the opposite order. The personal information questionnaire was always completed last. Upon completion of the interview and questionnaires, the subject was allowed to select two pairs of complimentary cycling socks.

#### Data Analysis

##### Interviews

Grounded Theory Development of Content Categories. A random sample of 20 interviews--ten from each level of involvement--were reviewed by two researchers to establish units of meaning for data



analysis. Units of meaning were phrases or sentences encompassing one idea or belief in an answer to an interview question.

Units of meaning throughout the 20 transcripts were identified by the researchers who worked together to negotiate differences in opinions. The researchers then sorted the units of meaning into groups of units with common themes. Coding guides were established from these groups (see Appendix B).

Content Analysis. Coding of the interview data was performed by two trained judges. Interviews from pretest respondents were used for coding practice during training.

Coding of the actual data was done in four groups of ten transcripts and one group of 16. Slight revisions of the coding guides were undertaken during coding of the first two sets of transcripts. Inter-coder reliability for the fourth set of transcripts, computed across all questions according to Scott's formula for  $p_i$  (see Holsti, 1969), was 82.8%. Scott's formula incorporates an adjustment for chance agreement on the part of the two coders. Differences in opinions were negotiated by the two judges upon completion of each set during the coding process.

Based on distribution of category frequencies for each question, categories were pooled to create broader themes for each item. Coding categories infrequently used were dropped from further data analysis. *Chi*-square analyses were performed on the frequently used categories in order to look at differences due to level of

involvement in bicycling. If a respondent mentioned several phrases that were assigned to the same category, the phrases were counted as only one response in that category to avoid skew of the data by multiple responses from a few individual subjects.

#### Questionnaire

Principal Components. Principal components analysis with orthogonal rotation was conducted separately on the commitment instrument and the Clothing Interest Inventory. Only factors with eigenvalues above 1.0 were retained in each analysis. Items loading .40 or higher on a factor were considered in interpretation of the factors. Pearson correlation coefficients and Cronbach's *alpha* for inter-item reliability were also considered to determine highly correlated items for summing in multi-item factor scores used as dependent measures in hypothesis testing. Items were summed together for factor sums rather than weighted factor scores since weightings could not be considered reliable when derived from responses of the small sample.

Analyses of variance were conducted on each factor sum and several single item measures to compare higher and lower involvement groups. In all tests, involvement, based on the number of miles or hours bicycled per week, was the independent variable that distinguished experimental groups. Due to the potential for Type I errors when computing multiple tests of difference, a Bonferroni adjusted *alpha* of .0018 was adopted as a conservative confidence

level of significance (Morrison, 1976). However, because the study was exploratory, *alpha* levels up to .05 were considered to indicate nonsignificant but noteworthy trends.

## Results and Discussion

Sample

Interviews and questionnaires from 68 subjects resulted in useable data from 56 persons. Subjects were placed in a higher involved group ( $n=30$ ) or a lower involved group ( $n=26$ ) depending on average miles and hours bicycled per week.

Table 1

Personal information about subjects

Variables	Higher Involved	Lower Involved
Average miles bicycled weekly	162.7 miles	33.7 miles
Age	28.0 years	33.0 years
Education		
Completed high school	96.7%	100.0%
Completed 2 or more years of college	86.7%	88.5%
Married	33.3%	38.5%
Midwest residence	83.3%	84.6%

The two groups were quite varied in the number of miles they rode per week, but quite similar in age, education, marital status, and state of residence (see Table 1 and 2). Higher involved

participants lived in nine states and lower involved participants were from ten states (see Table 2). Over half of the respondents lived in Iowa.

Table 2

Home State of Sample

Level	States														Total
	CA	CT	GA	IA	IL	MI	MO	MN	NE	NV	NY	PA	TX	WI	
Higher		1	1	14	3		1	2			1	2	5	30	
Lower	1		1	15	1	1	1	3		1	1		1	26	

A variety of occupations was represented by both the higher and lower involved groups (see Table 3). The two involvement groups were strikingly similar in distribution of occupations. Examples of high-level professional jobs held by respondents were doctor or vice president of a company. Mid-level professionals included jobs such as teacher or engineer. Health and fitness included nursing professions and therapists.

Table 3

Occupations of Sample

Occupation	Higher Involved	Lower Involved
High-level professional	2	0
Mid-level professional	8	7
Managerial	1	2
Sales	1	1
Health and fitness	4	4
Clerical	2	0
Factory	1	1
Student	8	7
Homemaker	2	4
Undisclosed	1	0

Principal Components AnalysisSport Commitment

Factor analysis of the 25-item sport commitment questionnaire yielded a two factor solution (see Table C.1) that explained 38.4% of the variance. Nine items were retained for the first factor *Addiction*. The items related to importance placed on bicycling regularly and in a committed manner and in the misery related to not

being able to bicycle (Eigenvalue=7.12, Percent Variance Explained=28.47, Cronbach's *alpha* =.88). Three items were retained for the second factor *Health and Happiness*. The three items related to affective feelings and cognitive beliefs about the benefits of bicycling (Eigenvalue=2.49, Percent Variance Explained=9.96, Cronbach's *alpha* =.94).

#### Clothing Interest

Five factors emerged through principal components analysis of the Clothing Interest Inventory. The five factors explained 42.3% of the variance (see Table C.2).

The first factor *Right Dress* included ten items related to wearing appropriate brands and styles for bicycling (Eigenvalue=9.93, Percent Variance Explained=17.42, Cronbach's *alpha* =.80). In the second *Attention Getting* factor six items related to expressing individuality with cycling clothing by use of new or different cycling clothing (Eigenvalue=4.46, Percent Variance Explained=7.83, Cronbach's *alpha* =.80). Three items comprising the third factor *Attractive*, related to concerns about looking attractive (Eigenvalue=3.95, Percent Variance Explained=6.92, Cronbach's *alpha* =.75).

*Modesty* was the fourth factor that included three items related to embarrassment felt by wearing body revealing styles for cycling (Eigenvalue=2.98, Percent Variance Explained=5.22, Cronbach's *alpha* =.84). Also within the Modesty factor were three items with high

loadings that were related to conformity through dress. These items were not strongly correlated with the items retained for the Modesty factor and they decreased the internal reliability of the factor when included in the Modesty factor sum. The three items were grouped into a separate multi-item score called *Conformity*, due to their moderate internal reliability (Cronbach's  $\alpha = .70$ ), moderate intercorrelations, and conceptual clarity.

The fifth factor *Performance Enhancement* included two items related to use of clothing to increase physical performance (Eigenvalue=2.79, Percent Variance Explained=4.90, Cronbach's  $\alpha = .78$ ). Two other items related to psychological performance enhancement that were originally included in the factor were dropped due to their lower correlation with the retained items and the drop in reliability of the factor when including the items within *Performance Enhancement*. These items may become more salient in a study that includes a larger number of subjects; it is recommended that the items are incorporated in future research of sport dress.

The Attention Getting, Attractive, and Modesty factors were similar to factors found in previous studies of interest in appearance (Gurel & Gurel, 1979; Littrell, Damhorst, & Littrell, in press). The Right Dress and Performance Enhancement factors were not related to factors seen in previous studies.



Relationship Between Commitment and Involvement

Analysis of variance indicated a significant difference between higher involved ( $M=5.86$ ) and lower involved ( $M=4.43$ ) cyclists in the Addiction factor ( $F(1,55)=52.57, p < .0001$ ). Difference in Health and Happiness between the higher involved ( $M=4.78$ ) and lower involved ( $M=4.80$ ) groups was not significant ( $F(1,55)=0.01, p < .91$ ). Affective feelings and cognitive beliefs may not be as accurate as scores of addiction for measuring commitment in cycling.

The relationship between cycling involvement and commitment was further examined via Pearson correlation coefficients. The Addiction score and number of miles bicycled per week were significantly and positively correlated (see Table 4). The moderately strong but not perfect degree of correlation, however, indicates that there is another dimension to the concept of commitment that is not explained by miles bicycled per week. Length of time a person had been involved in bicycling was negatively correlated with Addiction at .11. This was expected since the range of years that the subjects had cycled overlapped; some of the higher involved riders had cycled for only a year or so and some of the lower involved riders had ridden for several years. Because some of the higher involved riders rode rather fast and in relatively few hours and some of the lower involved riders rode slower than others cyclists in their group, hours spent riding was only moderately correlated ( $r = .47$ ) with average miles bicycled.

Since past research had shown that addiction to sport was a useful variable for measuring commitment (Carmack & Martens, 1979; Sachs & Pargman, 1979) and since miles and addiction were highly correlated in this study, the higher involved and lower involved groups of cyclists can be considered to represent higher and lower

Table 4

Pearson correlation coefficients examining relationship of addiction and involvement

Variable	Addiction	Length	Miles	Hours
1. Addiction				
2. Length of time	-.11			
3. Miles per week	.70**	.11		
4. Hours per week	.47*	-.11	.65**	

\*  $p < .025$ .

\*\*  $p < .0001$ .

levels of commitment. In further tests of hypotheses number of miles bicycled was used to distinguish between higher involved and committed and lower involved and committed groups. Correlations with the Addiction factor were computed when statistically possible.

Addiction was not used as an an analysis of variance variable. Splitting respondents into higher and lower Addiction groups would have required elimination of persons scoring in the middle range of the scale.

#### Results of Hypotheses Tests

H1 Cyclists high in involvement make less use of clothing to communicate level of competence in the role than those low in involvement

Several variables were utilized in testing Hypothesis 1, including the factor Right Dress and results from the interview data. Interview data pertained to articles of clothing that would effect perceived skill of the cyclist and cycling clothing for race or tour situations.

Analysis of variance of Right Dress resulted in a nonsignificant difference,  $F(1,55)=4.40$ ,  $p < .05$ , between higher involved ( $M=4.10$ ) and lower involved ( $M=3.54$ ) groups. The trend is noteworthy but not strong enough to be a significant difference. The difference was also opposite to the hypothesized direction. Higher involved cyclists were more concerned than lower involved cyclists with using cycling clothing that would communicate their competence in the sport.

Additional qualitative results did not support the hypothesis. Fifty percent of the higher involved riders indicated (Question 18, Codes 9, 12, & 13) that they would not wear cycling clothing that did

not truthfully represent their skill in cycling, compared to only 11.5% of the lower involved groups ( $\chi^2=9.47$ ,  $p < .005$ ). This difference was not significant but indicates a strong trend. Statements made by the higher involved riders showed a concern with appearing less competent if they were to wear professional jerseys from teams to which they did not belong.

"No, I don't buy pro jerseys. I think that's a little neophyte."

"No, it just seems that, oh I don't know, it just seems like something a tourist would wear."

Lower involved riders felt that they would not have the necessary level of competence to wear professional jerseys. They did not indicate a tendency to wear clothing signs of advanced cyclists or to adopt clothing signs indicative of level of skill to which they desired to advance. As stated by one lower involved cyclist:

"Those are for racers and I'm not a racer."

In comparing whether or not the cyclists dressed differently for racing or touring than they did for riding alone (Question 8, Codes 5-11 & 13-15), higher involved cyclists (73.53%) were more likely than lower involved cyclists (34.62%,  $\chi^2=13.86$ ,  $p < .005$ ) to dress in different clothing, usually a team jersey or traditionally styled cycling clothing for racing or touring. A race or tour situation would provide an arena for many people to evaluate the

cyclists' competence. Again, a strong but nonsignificant trend was found for higher involved riders to make use of skill level symbols.

The hypothesis as stated, was not supported by the data. In contrast to the Solomon and Douglas (1985) proposals for role dress of business women, conclusions can be drawn that cyclists at different levels of involvement do not use clothing differently to communicate competence in the role. Further, cyclists who are more involved and display more mastery in their role may have a tendency to be more concerned with dressing to display their achieved level of competence. Care is taken by the higher involved cyclists to dress in a manner that will prevent mistakes to be made concerning their skill. In addition, the results from this study do not correspond to findings from the study of male business students and their use of symbolic clothing to compensate for lack of ability (Wicklund & Gollwitzer, 1982). Female cyclists with more role skill are more concerned with emphasizing their competence through dress.

For this sport subculture, tradition in dress and symbols of competence are important for high-level achievers. Traditions in some sports may encourage ritualistic adherence to role dress, particularly among persons more committed and involved in the sport.

Previous research involving use of dress as indication of competence in individuals less likely to succeed were completed using men as subjects (Donnelly & Young, 1988; Wicklund & Gollwitzer, 1982). Female cyclists may be less misrepresentative in

their use of clothing, perhaps as a result of less socialization toward competitive involvement in sport roles.

One variable not measured in this study that may affect cyclists' use of dress to communicate competence is achievement motivation. Cyclists with more motivation to advance and make achievements in the sport may make more use of clothing to communicate competence. A measure for the variable of achievement motivation should be developed and utilized in future research.

H2 Cyclists higher in involvement make greater use of clothing to enhance their physical performance than do cyclists lower in involvement

This hypothesis was not fully supported. Analysis of variance of the Performance Enhancement factor scores showed that higher involved cyclists ( $M=5.13$ ) did not use special clothing to enhance their performance significantly more than did lower involved cyclists ( $M=4.96$ ,  $F(1,55)=0.20$ ,  $p < .65$ ). In addition, 80% of the higher involved cyclists and 70% of the lower involved riders indicated in qualitative responses (Question 15, Codes 1-9, 11, & 12) that they wear special cycling clothing to enhance their performance ( $\chi^2=0.861$ ,  $p < .75$ ). Clothing that was designed to be comfortable or aerodynamically efficient were popular choices. Both higher and lower involved groups of cyclists stated (Question 18, Codes 4, 5, 11, 16, 25, & 26) they would not wear certain articles of cycling clothing that were perceived as nonfunctional (Higher=53.3%,

Lower=50.0%,  $\chi^2= 0.062$ ,  $p < 1.0$ ). Cycling clothing that could lead to overheating or that would not sufficiently pad the seat area were examples of items considered nonfunctional.

Attention by the media and retailers may help to increase the high awareness and use of performance enhancing clothing by cyclists at both levels of involvement. Though lower involved cyclists may not have the competitive needs of many of the higher involved cyclists, the lower involved group recognized that cycling can be made more enjoyable by wearing shorts and gloves that cushion the body's contact points with the bicycle. The physical nature of the role activity probably leads cyclists, even at lower levels of involvement, to quickly gain understanding of performance properties of clothing. Many cyclists can identify with this cyclist's experience,

"... like I've gone out with baggy shirts and it's windy and I've really been pissed off that I had this big baggy sweatshirt on. It was blowing all over in the wind and I thought, 'geez, I wish I had my skinny little jersey on'."

However, the role knowledge of higher involved cyclists appeared higher than that of low involved cyclists. While both groups of cyclists were likely to dress to enhance their physical performance (Question 15), the higher involved cyclists had broader understanding of how enhanced performance could be achieved. While

comfortable and aerodynamic clothing was used by both higher and lower involved cyclists, the higher involved were more likely to recognize the physical benefits of finer details of fit and protective design features. More time in the saddle in a variety of situations may have increased the role knowledge of the higher involved group. Hypothesis 2 may be partially supported when degree of knowledge is considered. One higher involved cyclist in talking about her skinsuit said,

"...it fits everywhere. There's no baggy shoulders, just the right length. I don't feel like I'm getting scrunched up."

H3 Cyclists lower in involvement are more concerned with conforming to their peers by means of dress than cyclists higher in involvement

Analysis of variance of the Conformity score showed no significant difference between higher involved cyclists ( $M=3.02$ ) and lower involved cyclists ( $M=3.41$ ,  $F(1,55)=1.43$ ,  $p < 0.30$ ). The relatively low mean conformity scores of cyclists at both higher and lower levels of involvement indicates that the cyclists generally disagreed with the idea that they conformed to others with cycling clothing. Although cyclists at both levels of involvement in the study described that they wore special cycling clothing, the women may not realize that this is conforming behavior that puts them within the acceptable dress code of other cyclists.



During the interviews (Question 8, Codes 5-11, & 13-15) the higher involved cyclists stated more often (83.3%) that they were more likely to dress in traditional cycling clothes for a race or tour than when they ride alone. Only 34.6% of the lower involved cyclists reported variation of dress according to situation ( $\chi^2=13.86, p < .005$ ). A race or tour situation would put the cyclist in a position to have their clothing choices evaluated by many people; hence the higher involved cyclists expressed more concern about shaping appearance in social settings. It is not surprising that the higher involved cyclists' trend toward conformity only appeared in the qualitative results. People may not be very aware of their tendencies to use dress for conformity.

This latter finding is opposite to what would be expected according to Solomon (1983; Solomon & Douglas, 1985). Persons with higher involvement, achievement, and consequent role knowledge should have more confidence to dress uniquely and less need to express skill level through dress symbols. Perhaps the team orientation of competitive cycling and relative minority of women involved at advanced levels enhanced interest in showing level of involvement, skill, and team affiliation. In addition, the fairly narrow range of appropriate styles of cycling clothing may limit individuality in dress since not wearing the basic styles would not be functional. Women in cycling are more concerned with dressing

comfortably, and the high degree of conformity exhibited by their behavior may be concomitant to their choice of functional dress.

H4 Cyclists lower in involvement are more uncertain about what cycling clothing is appropriate for the role than cyclists higher in involvement

One item from the Clothing Interest Inventory addressed this hypothesis. "I am not sure what cycling clothing is appropriate for riding." Both higher ( $M=1.80$ ) and lower ( $M=2.19$ ) involved cyclists disagreed with this statement and the difference between the groups was not significant ( $F(1,55)=1.90, p < .18$ ). Again, even lower levels of involvement may encourage at least minimal knowledge of cycling dress. The standard cycling outfit is simple in detail and easy to learn. Increased efforts by retailers to sell a pair of shorts with every new bike may have increased the knowledge of the lower involved cyclists.

Both groups described in the interviews (Question 6) that they wear special cycling shorts (Higher=86.7%, Lower=88.5%), special cycling shoes (Higher=73.3%, Lower=57.7%), and helmets (higher=53.3%, Lower=69.2%). Higher involved cyclists described wearing jerseys (56.7%) or t-shirts (60.0%), whereas lower involved cyclists were more likely to wear t-shirts (88.5%) than jerseys (19.2%). While some difference is apparent between the groups, the differences seem to be less in knowing what is appropriate and instead in reflecting the difference in what is deemed appropriate

for the different levels of involvement and type of riding. Higher involved cyclists wear clothing appropriate to their needs and lower involved cyclists wear clothing appropriate for needs found at their lower mileage levels.

The cycling clothing that women felt was appropriate for the sport was an almost direct copy of what men wear for cycling. Women are relatively new participants in the sport, thus they have not had the opportunity to develop their own uniform for cycling. Just as business women in the 1970s modeled their dress after the standard businessman's suit, women cyclists have adopted cycling clothing styled after men's cycling clothing. If more women begin to participate in cycling, a more elaborate and varied code for cycling dress may evolve.

H5 Cyclists high in involvement are more likely to express individuality with their cycling appearance than cyclists low in involvement

Analysis of variance of the Attention Getting factor scores resulted in no significant difference between the higher involved ( $M=3.34$ ) and the lower involved ( $M=3.26$ ) group ( $F(1, 55)=0.09$ ,  $p < .77$ ). Neither group strongly agreed that they expressed individuality with cycling clothing. A majority of higher involved riders (66.7%) but only 38.5% of lower involved riders stated (Question 18, Codes 6-8, & 17) they would not wear an article of cycling clothing that appeared too showy ( $\chi^2= 4.45$ ,  $p < .05$ ). There

may be a slight tendency on the part of riders at lower levels of involvement toward willingness to wear unusual or eye-catching cycling dress. This contrasts with higher involved riders' greater concern for conforming dress, described under Hypothesis 4. When asked if they would wear the fluorescent colored, attention getting styles available in cycling clothing at the time, typical responses of higher level cyclists included,

"No, I'm just not that flashy. I like to be a little more subdued."

"The lime green things are a little tacky, they're pretty bright."

Further hampering many higher involved cyclists' expression of individuality through dress may be the strong sense of tradition in cycling clothing. Styling of cycling clothing has, until recently, been largely influenced by the traditional European styles. Cycling clothing manufacturers and many cyclists have been restricted to traditional styles by rules pertaining to what colors of shorts and socks are allowed for racing. Rule changes for the 1989 racing season finally allowed colored shorts (Staff, 1989) and color restrictions for socks have been dropped for the 1990 racing season ("U.S.C.F. house", 1989). These rulings may eventually lead to adoption of more individually styled appearances for cycling.

Although both higher involved (56.7%) and lower involved (65.4%) cyclists stated qualitatively (Question 16, Codes 3 & 4)

that their cycling clothing was a form of self-expression, the difference between the groups was not significant ( $\chi^2=.44$ ,  $p < .75$ ). Concern with aesthetics, through preference for tasteful and attractive designs of the clothing rather than individual designs (Question 16, Codes 14, 16-18, 20, & 25), was more prevalent (Higher=56.7%, Lower=61.5%,  $\chi^2=.14$ ,  $p < .75$ ).

"I just try to look neat. It doesn't always work."

"...you know, it's a dress up sport. I think even on RAGBRAI there's a lot of emphasis on outfits, the pants that go with the shirt. You can tell when something does and when it doesn't."

Overall, the data do not support Hypothesis 5. It seems that women cyclists at higher or lower levels of involvement are not interested in expression of individuality through their cycling clothing, but are instead simply interested in appearing neat and aesthetically attractive. Womens' participation in bicycling could be considered an expression of individuality itself. Just by being on a bike in many areas of the country brings attention to the female rider, since women are a minority among cyclists. A lower involved cyclist could feel that by bicycling and wearing traditionally styled cycling clothing, she attracts more than enough attention. Particularly for higher involved female cyclists, conforming clothing may be required of women as a prop to gain acceptance to the "in group" of male cyclists. Wearing cycling

clothing that blends in with the other riders may allow the very capable female to seem like "one of the guys". A few cyclists expressed concern about appearing too feminine and representing women negatively. For example, one rider deplored the gender stereotypic dress available for female cyclists:

"They put too much pink in women's clothing."

H6 Cyclists higher in involvement spend more on clothing for cycling than cyclists lower in involvement

As part of the personal information questionnaire, the cyclists were asked to indicate on a scale the approximate amount spent on cycling clothing in the previous year. The scale was *less than \$100* (1), *\$100-\$250* (2), *\$251-\$500* (3), *\$501-\$750* (4), and *\$751 or more* (5). Analysis of variance of the item (scale was treated as a continuous variable for simplicity in analysis) did not show a significant difference at the .0018 level. Higher involved cyclists indicated a slight trend toward higher amount spent ( $M=2.16$ ) than lower involved cyclists ( $M=1.76$ ,  $F(1,55)=3.62$ ,  $p < .07$ ). Higher involved cyclists' scores ranged from 1 to 4, while lower involved cyclists' scores ranged from 1 to 3. Mention of price as an indication of better clothing (Question 13, Codes 19, 19A, & 19B) proved to be more of a trend for the higher involved cyclists (36.7%) than the lower involved (7.7%,  $\chi^2=9.95$ ,  $p < .005$ ), though the use of this theme was limited.

Higher involved cyclists described a much more extensive cycling wardrobe than did lower involved cyclists, indicating greater levels of acquisition of cycling apparel on the part of the former group. Included in the wardrobe of both levels of cyclists are special cycling tops (Higher=83.3%, Lower=38.5%), skinsuits (Higher=16.7%, Lower=3.9%), cycling jackets (Higher=36.7%, Lower=11.5%), gloves (Higher=63.3%, Lower=65.4%), cycling shorts (Higher=96.7%, Lower=92.3%), shoes (Higher=80.0%, Lower=69.2%), shoe covers (Higher=13.3%, Lower=3.9%), tights (Higher=43.3%, Lower=23.1%), and helmets (Higher=80.0%, Lower=73.1%). Gloves, shorts, and helmets are items purchased by riders at all levels of involvement. Higher involved riders purchased more cycling tops, skinsuits, cycling jackets, shoe covers, and tights.

Although there is only minimal and nonsignificant support for the hypothesis, higher involved cyclists may spend more than those with lower involvement. Whether the extensive purchase of cycling clothing could be considered a "side bet" that leads to higher commitment and involvement, or is merely a result of higher commitment and involvement, remains to be seen. It seems plausible that the additional money spent on winter clothing by higher involved cyclists may be necessary as a result of their commitment which has already been established.

Correlations of Factors with Addiction and Miles Cycled

All hypothesis tests were made using level of involvement based on miles cycled for the independent variable. Pearson correlation coefficients were computed between miles cycled (involvement indicator), addiction to cycling, and all factors and single items used in analyses of variance for the hypothesis tests (see Table 5). Correlations of Addiction and Miles to the various factors and items were in the same direction in all cases, thus giving further support to the use of miles cycled per week as indicator of commitment and

Table 5

Pearson correlation coefficients for Addiction, miles, and factors

Factor/Item	Addiction	Miles
Health and Happiness	-.00	-.05
Right Dress	.23	.36*
Attention Getting	.14	.07
Conformity	-.20	-.15
Appropriate	-.35*	-.27*
Performance Enhancement	.12	.03
Spend	.40*	.28*

\* $p < .05$ .



involvement to cycling. Addiction had a stronger correlation with most factors, thus it is likely that hypothesis tests with cyclists divided on the basis of Addiction scores rather than miles would result in more significant differences between the higher committed and lower committed cyclists.

#### Other Relationships Not Hypothesized

##### Modesty

Modesty emerged as a factor from the Clothing Interest Inventory. Neither higher involved ( $M=2.24$ ) nor lower involved cyclists ( $M=2.85$ ) expressed strong concerns about modesty; analysis of variance indicated no significant difference between the two groups ( $F(1,55)=2.55, p < .12$ ). In addition, there was not a significant difference between higher involved cyclists (40.0%) and lower involved cyclists (38.5%,  $\chi^2=0.02, p < 1.0$ ) in their refusal to wear body revealing articles of cycling clothing, such as midriff tops or bright colored shorts (Question 18, Codes 1-3).

##### Interest in Attractiveness

Concern with attractiveness also emerged as a factor from the Clothing Interest Inventory. Analysis of variance indicated a weak trend for lower involved cyclists ( $M=4.08$ ) to be more concerned with presenting an attractive appearance than were the higher involved cyclists ( $M=3.42, F(1,55)=4.35, p < .05$ ). Lower involved cyclists may participate in cycling primarily for weight control, making it logical that their group would be more interested in

attractiveness. Many higher involved cyclists have competitive goals that may take priority over appearance goals.

Interview data did not produce any significant differences in the perceived self attractiveness of the higher (56.7%) and lower (53.8%,  $\chi^2=0.04$ ,  $p < 1.0$ ) involved groups (Question 21, Codes 4-6), or in the small number of both higher involved (16.7%) and lower involved cyclists (23.1%,  $\chi^2=0.36$ ,  $p < .75$ ) who stated that they were not concerned with how they looked (Question 21, Codes 16-18). A number of higher involved (30.8%) and lower involved (20.0%) cyclists expressed body dissatisfaction. For example,

"I would say, if I were in better shape, I would say yes. They always say Lycra doesn't lie, you know, so if you're in really good shape, you're going to look real good in Lycra."

"No, that's definitely the drawback to the shorts. But then it's my figure too. But yeah, the idea that they're just so tight and I do have saddlebags, and boy they really show in shorts like that."

An explanation of why both the higher and lower involved cyclists were likely to express feelings of unattractiveness may be related to the high degree of body exposure required in cycling dress and consequent awareness of body shape.

### Psychological Performance Enhancement

One item from the Clothing Interest Inventory, "Certain articles of cycling clothing make me more sure of myself." was examined to determine if a difference existed between the higher involved and lower involved cyclists in their use of cycling clothing for psychological performance enhancement. Analysis of variance indicated no difference between higher involved ( $M=4.57$ ) and lower involved ( $M=4.35$ ) in level of confidence resulting from use of cycling clothing ( $F(1,55)=0.26, p < .62$ ).

### Commitment, Involvement, and Role Knowledge

Although role knowledge was not directly measured in this study, the data revealed several possible correlations of role knowledge with commitment and involvement. When asked which article of cycling clothing was their favorite (Question 4, Codes 2, 4, 5, 8, 9, & 11-16), both higher involved (93.3%) and lower involved cyclists (76.9%) described the garments in regard to their functional characteristics ( $\chi^2=3.06, p < .10$ ). However, 60.0% of the higher involved group described, in detail, the fabrics used in construction of their cycling clothing (Question 4, Codes 6 & 7), whereas only 19.2% of the lower involved groups expressed a detailed knowledge of fabrics and more complex performance features. A strong trend, though not significant, was indicated ( $\chi^2=9.57, p < .005$ ).

Similarly, 60.0% of the higher involved cyclists stated that they owned articles of cycling clothing that they would not wear because of certain design features (Question 5, Codes 2, 4, 5, 8, 9, & 11-16). Only 30.8% of the lower involved group owned articles of cycling clothing they would not wear because of design features ( $\chi^2=7.13$ ,  $p < .01$ ). Fabric characteristics were an important reason (Question 5, Codes 6 & 7) not to wear certain clothing for the higher involved cyclists (Higher=43.3%, Lower=15.4%,  $\chi^2=5.15$ ,  $p < .025$ ). As role knowledge increases, recognition of limits of clothing bought during the presocialization stage increases. As discussed previously, while no significant difference was found between higher and lower involved cyclists in their use of special cycling clothing to enhance physical performance, higher involved cyclists showed a strong trend toward deeper knowledge of the types of features that would enhance performance.

Nonsignificant but strong trend support to the correlation of role knowledge with commitment and involvement was found in analysis of qualitative responses about communication through cycling apparel. Lower involved cyclists (73.1%) were more likely to say they could tell how skillful and how serious a rider was by the way she or he dressed (Question 20, Codes 9A, 11A, & 11B). For example,

"If I see a person in a racing jersey and matching shorts and shoes and everything, I tend to think of them as a better cyclist."

"If someone were to see me in just shorts and a regular t-shirt, they would think, 'Oh she does it, but she's not real serious'."

Only 50.0% of the higher involved riders were confident in skill level symbolism through apparel ( $\chi^2=6.19, p < .025$ ). Higher involved and more knowledgeable cyclists are more aware of mistakes in clothing made during the presocialization stage, while the lower involved and less knowledgeable cyclists are less aware that these mistakes are made. The more knowledgeable cyclists felt that what you see is not always what you get. For example, one rider discussed a large tour in which she was participating:

"Nowadays it seems like probably out of the 7,000 people on this ride, 6,500 of them are wearing bike clothes. I don't think there are probably 6,500 serious bikers on this ride."

#### Importance of Functional Clothing

One advantage of interpretive research is the potential for core categories, issues central to the beliefs of the subjects, to emerge from the data. Many of the responses in this study related to the importance of functional design. Throughout the interviews, cyclists at both higher and lower levels of involvement expressed concern with fit, styling, construction, and fabric selection that would enhance the comfort and efficient performance of the rider. By first paying careful attention to functional features of the

cycling clothing offered, manufacturers of cycling apparel may find that the cyclists' needs for functional features can be easily satisfied, thus clearing the path for more creative needs that could be made available through aesthetic components of apparel design.

### Conclusions

The purpose of the study was to determine how female cyclists at different levels of involvement in the sport differ in their attitudes, interests, expenditures, and use of apparel for bicycling. Triangulation, through multiple methods of data collection was incorporated to explore bicyclists' role dress from a variety of perspectives and to add support to the validity of the measures.

Solomon's (1983) role theory model incorporating the use of products as a component of role enactment provided a theoretical base for the study. Theories of sport commitment and involvement were also integrated in the study.

The relationship between commitment and involvement was explored and was determined to be of sufficient correlation to infer the results of the hypotheses tests to differences due to both commitment and involvement.

### Summary of Results

Two factors, (1) Addiction and (2) Health and Happiness, emerged from the principal components analysis of the sport commitment questionnaire. Five factors emerged from analysis of the Clothing Interest Inventory: (1) Right Dress, (2), Attention Getting, (3) Attractive, (4) Modesty, and (5) Performance Enhancement. A sixth multi-item measure, Conformity, was created from conceptually similar items loosely correlated with the Modesty factor. Qualitative

responses from the interview data were coded in groups of items with similar meaning in order to quantify frequency of responses.

Factor sums based on principal components findings, single item measures, and qualitative responses were entered into analyses to determine differences between higher and lower involved cyclists. None of the six hypotheses were supported through analyses of variance of the questionnaire data and *chi*-square analyses of the interview data. No differences were found between higher and lower involved groups in their use of performance enhancing cycling clothing, knowledge of what clothing is appropriate for bicycling, and use of clothing for individuality. A limited amount of support was found through interpretation of the interview data for the hypothesis dealing with expenditures. Higher involved cyclists displayed more of a likelihood to purchase more expensive clothing and clothing for more situations than lower involved cyclists.

Trends opposite from the predicted direction were reported for the conformity and display of competence with dress hypotheses. Higher involved cyclists were more concerned with expressing their competence in cycling than were the lower involved cyclists. Interpretation of the interview data revealed a stronger use of clothing for conformity by higher involved cyclists in a race or tour situation. Recommendations were made that future research develop and utilize a measure for achievement motivation as a variable affecting use of dress for communication of competence.



In addition to hypotheses tests, a trend was found between involvement groups concern with attractiveness. Lower involved cyclists were more concerned with appearing attractive than were higher involved cyclists. There was no significant difference in feelings of modesty held by the two groups or in the two groups' use of cycling clothing for psychological performance enhancement.

Data linked higher role knowledge with higher levels of commitment and involvement. Higher involved cyclists expressed a more detailed knowledge of benefits afforded by functional design details in cycling clothing. Lower involved cyclists made more use of clothing as an indication of skill and seriousness in other cyclists. This latter tendency may reflect a lack of extensive knowledge of meanings of cycling dress on the part of the lower involved group.

Function and comfort in cycling clothing emerged as a core category throughout the interview data. Fit, styling, fabric, and construction details had much to do with whether a garment was believed functional.

#### Implications to Cycling Apparel Manufacturers and Marketers

The cycling apparel industry can benefit from an increased knowledge of female cyclists resulting from this study. Careful attention to fit, fabric selection, and construction should be of utmost concern for all manufacturers of cycling apparel. Once perfected, a manufacturer's garments can be marketed on the basis of

functional features. Female cyclists' general tendency to avoid showy styles, but expression of interest in aesthetics, will be useful to designers and merchandise managers of cycling apparel.

Higher involved cyclists could be targeted with advertising in a manner designed to recognize the groups' higher skill in the sport. Clothing marketed to set the higher involved rider apart from other riders could be well received by this group of cyclists.

Lower involved cyclists showed an untapped potential for purchasing more specialized cycling clothing. Advertising geared toward educating this group on the benefits of more carefully designed clothing and seasonal cycling apparel could prove successful. Lower price points may be required for these initial purchases however, since lower involved cyclists are not yet making great expenditures on side bets.

#### Implications for Further Research

The exploratory nature of this study provides a base for a national survey of a much larger scope. Through the wide variety of hypotheses and the multiple methods of data collection used in this study, several areas of emphasis for further research have emerged.

1. The relationship of role knowledge, commitment, involvement, and length of participation should be explored further. Development of an operational definition for role knowledge would enhance further research using Solomon's (1983) model of products as stimulus to behavior.

Differences in product use between career roles and sport roles should be investigated in attempts to advance theory in this area. Solomon's (1983) hypotheses may be useful for explaining symbolic use of products only among business subcultures.

2. Comparison of male and female cyclists and other athletes should examine differences between the sexes in the use of symbols as expression of competence. Findings of ego involvement (Donnelly & Young, 1988) and misrepresentation through role dress (Wicklund & Gollwitzer, 1982) have been reported in studies of males. Male athletes tend to be more ego involved than female athletes (Duda, 1988) and may feel the need to compensate for lower abilities through use of symbols. Since female cyclists rarely compete with men, they may not need to adopt competitive, and misrepresentative, use of dress that may be more common practice in the "man's world" of competitive cycling. Future research should also include examination of the use of dress as compensation by athletes differing in achievement motivation.
3. Attention should be given to the psychological effects of clothing on physical performance. Further research in this area could maximize any psychological benefits that might be attained through clothing. Research could focus on

inter-group dynamics of athletes and their use of clothing as a method of psychological performance enhancement within the group.

4. The details of what female and male cyclists consider functional could be empirically determined through a large scale survey. Information like this could be used to shape product development.
5. Research in functional design could seek to develop new construction techniques and design that would maximize a garment's comfort and efficiency for cycling. Cyclists are extremely concerned about performance clothing in cycling dress.

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## Appendix A-Instruments

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## Interview Schedule

1. How has your involvement in cycling changed since you started riding?
2. What goals have you set for yourself in cycling? (i.e., What would you like to achieve?)
3. Describe the cycling clothing you own. (Probe-fabrics, fibers helmet)
4. Describe your favorite article of cycling clothing. What is it and why do you like it?
5. Do you own any articles of cycling clothing that you do not wear? If so, describe. Why don't you wear them?
6. Describe the articles of clothing you wear when you ride by yourself.
7. Describe the articles of clothing you wear when you ride with a few friends or a group.
8. When you ride in a race or other event you must pay to enter, do you dress differently than when you are just training? If so, describe the differences.
9. Do you wear any of your cycling clothes for other non-biking situations? If so, what?
10. Has the clothing you wear for cycling changed since you first started riding? If so, describe.
11. Have you ever had any difficulty finding cycling clothing that fits you well? If so, what are your fit problems? (Probe-men's or women's sizes)
12. Do you purchase a particular brand of cycling clothing? If so, which?
13. Are there some brands of cycling clothing that you feel are better? If so, which ones and why?
14. Are some brands of cycling clothing more prestigious? If so, which brands? Why?
15. Do you use any particular articles of clothing to enhance your cycling performance? If so, what are these items and how do they help?

16. Do you try to express anything about yourself with what you wear for cycling?
17. Where do you get ideas of what to wear for cycling?
18. Have you seen articles of cycling clothing in stores or magazines, or on another rider, that you would not wear? If so, why? (Probe-Bright colored socks or shorts, pro jerseys)
19. Where do you shop for cycling clothing? Why? (Probe-catalogs?)
20. Do you think that the bicycling clothing someone wears tells you anything about him or her as a rider? If yes, can you give me some examples?
21. Do you feel that you look attractive in your cycling clothing? Why?
22. Are there any particular items of cycling clothing that you would like to see on the market that are not already being produced?
23. Do you have any comments about styling of cycling clothing now available on the market?

### Feelings About Bicycling

The following statements may or may not describe your feelings about bicycling. Read each statement and then circle the appropriate number to indicate how well the statement describes **your feelings most of the time**. Do not spend too much time on any one item, but give the responses which seem to describe how you **generally feel** about bicycling. Use this scale:

- Circle
- 1 if you strongly disagree that the statement describes you.
  - 2 if you disagree that the statement describes you.
  - 3 if you slightly disagree that the statement describes you.
  - 4 if you are neutral or uncertain that the statement describes you.
  - 5 if you slightly agree that the statement describes you.
  - 6 if you agree that the statement describes you.
  - 7 if you strongly agree that the statement describes you.

Here is an example:

1 2 3 4 5 **6** 7    1. I ride frequently.

(This person circled 6 because she agreed the statement describes her)

Feel free to circle any numbers between 1 and 7. There are no right or wrong answers; rather we are interested in your feelings about cycling. We hope you will respond to each statement.

- 
- |   |   |   |   |   |   |   |     |  |
|---|---|---|---|---|---|---|-----|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1.  | I buy goods and equipment to use for bicycling as my income allows.    |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 2.  | I would change or arrange my schedule to meet the need to ride.        |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 3.  | I feel I must ride even in inclement weather.                          |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 4.  | Bicycling increases work productivity. *                               |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 5.  | I spend considerable time and effort to be a more competent bicyclist. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 6.  | I have to force myself to ride.  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 7.  | Missing a ride upsets me greatly.                                      |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8.  | I ride even when I am very busy.                                       |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9.  | To miss a day's riding is sheer relief.                                |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 10. | Bicycling can be a means of self-improvement.                          |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 11. | Bicycling contributes to good health.                                  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 12. | I ride frequently.   |



- 1 2 3 4 5 6 7 13. I try to ride a certain number of miles each week.
- 1 2 3 4 5 6 7 14. Bicycling helps to renew energy.
- 1 2 3 4 5 6 7 15. If I am sick or injured I take time off from bicycling.
- 1 2 3 4 5 6 7 16. Riding is vitally important to me.
- 1 2 3 4 5 6 7 17. Money is not an issue when I need equipment for bicycling.
- 1 2 3 4 5 6 7 18. I would buy more equipment if I had the money.
- 1 2 3 4 5 6 7 19. Bicycling helps people relax.
- 1 2 3 4 5 6 7 20. I would bicycle more if I could afford the time away from other obligations.
- 1 2 3 4 5 6 7 21. I give bicycling higher priority than other activities.
- 1 2 3 4 5 6 7 22. I wish there was a more enjoyable way to stay fit.
- 1 2 3 4 5 6 7 23. Bicycling increases happiness.
- 1 2 3 4 5 6 7 24. Life is much richer as a result of bicycling.
- 1 2 3 4 5 6 7 25. Riding is the high point of my day.

### Clothing Interest Questionnaire

**Directions:** Below are statements concerning attitudes people may have about their cycling clothing and appearance. You will probably agree that some of the statements describe you whereas others may not be like you at all. In the space to the left of each statement circle the number that **best** describes your feelings about the statement. Use this scale:

- Circle
- 1 if you strongly disagree that the statement describes you.
  - 2 if you disagree that the statement describes you.
  - 3 if you slightly disagree that the statement describes you.
  - 4 if you are neutral or uncertain that the statement describes you.
  - 5 if you slightly agree that the statement describes you.
  - 6 if you agree that the statement describes you.
  - 7 if you strongly agree that the statement describes you.

Here is an example.

- 1 2 3 4 5 (6) 7    1. The brand of cycling clothing I buy is important to me.

(This person circled 6 because she agreed the statement describes her)

Feel free to circle any numbers between 1 and 7. There are no right or wrong answers; rather we are interested in your attitudes about cycling clothing and appearance. We hope you will respond to each statement.

- 
- 1 2 3 4 5 6 7    1. I find out what other cyclists are wearing for a ride before I make up my mind what to wear.
- 1 2 3 4 5 6 7    2. I am one of the first to buy new styles of cycling clothing.
- 1 2 3 4 5 6 7    3. Comfort in cycling clothing is more important to me than fashion.
- 1 2 3 4 5 6 7    4. I would feel embarrassed in skin tight cycling clothing.
- 1 2 3 4 5 6 7    5. I wear cycling clothing that pleases me and not what others feel I should wear.
- 1 2 3 4 5 6 7    6. I carefully match the socks, gloves, helmet cover, and jewelry that I wear with my cycling clothing.

- 1 2 3 4 5 6 7 7. I have articles of cycling clothing that I don't wear because they are less fashionable.
- 1 2 3 4 5 6 7 8. I have about the right amount of money to spend on cycling clothing.
- 1 2 3 4 5 6 7 9. I try to buy cycling clothing with well known manufacturer labels.
- 1 2 3 4 5 6 7 10. I feel like a better cyclist if I wear cycling clothing similar to what I've seen in stores or magazines.
- 1 2 3 4 5 6 7 11. I enjoy wearing unusual clothing for cycling even though I may attract attention.
- 1 2 3 4 5 6 7 12. I dress to look sexually attractive when cycling.
- 1 2 3 4 5 6 7 13. When I buy cycling clothes I prefer well-known brands that are easily recognized.
- 1 2 3 4 5 6 7 14. I try to have the newest styles of cycling clothing.
- 1 2 3 4 5 6 7 15. I am very aware of what other cyclists around me are wearing.
- 1 2 3 4 5 6 7 16. I would feel embarrassed in a cycling top that shows my midriff.
- 1 2 3 4 5 6 7 17. If too many people are wearing a popular style of cycling clothing I refuse to wear it.
- 1 2 3 4 5 6 7 18. When I buy new cycling clothing I try to buy something like other cyclists would wear.
- 1 2 3 4 5 6 7 19. It is more important to me that men like my cycling clothes than that other women like my cycling clothes.
- 1 2 3 4 5 6 7 20. I like to wear cycling clothing that is different from cycling clothes that other riders wear.
- 1 2 3 4 5 6 7 21. I try to get new cycling clothes for special cycling events.
- 1 2 3 4 5 6 7 22. It is more important that my cycling clothing is fashionable than that it keeps my body a comfortable temperature.
- 1 2 3 4 5 6 7 23. I prefer cycling clothing that makes me look feminine.
- 1 2 3 4 5 6 7 24. I think cycling jerseys and lycra shorts make me look unattractive.
- 1 2 3 4 5 6 7 25. I look at bicycling magazines to find out what is new in cycling clothing.
- 1 2 3 4 5 6 7 26. On a ride, I am uncomfortable if my cycling clothing is a lot different from what other riders are wearing.
- 1 2 3 4 5 6 7 27. I am more self confident when I wear my best cycling clothing.
- 1 2 3 4 5 6 7 28. The way fabrics used in cycling clothing feel on my body is important to me.

- 1 2 3 4 5 6 7 29. I don't like to be with people whose cycling clothing reveals too much of their bodies.
- 1 2 3 4 5 6 7 30. I like it when people admire my cycling clothing.
- 1 2 3 4 5 6 7 31. I try to dress similar to other cyclists for a ride.
- 1 2 3 4 5 6 7 32. I have special clothing for particular cycling events I take part in.
- 1 2 3 4 5 6 7 33. I get bored with wearing the same type of clothing each time I ride.
- 1 2 3 4 5 6 7 34. I would wear what I like for cycling even if other cyclists did not approve.
- 1 2 3 4 5 6 7 35. I would rather miss a ride than wear clothes that are not appropriate for the ride.
- 1 2 3 4 5 6 7 36. I try to dress more nicely for a ride than other cyclists do.
- 1 2 3 4 5 6 7 37. The brand of cycling clothes I buy is important to me.
- 1 2 3 4 5 6 7 38. I like to be considered a well dressed cyclist by others who ride.
- 1 2 3 4 5 6 7 39. I think peoples' opinions of my ability as a cyclist are based on the clothing I wear for cycling.
- 1 2 3 4 5 6 7 40. I would feel embarrassed in lycra skin shorts.
- 1 2 3 4 5 6 7 41. It is easier for me to make a good impression as a cyclist if I am well dressed.
- 1 2 3 4 5 6 7 42. I choose my cycling clothes to make me attractive to men.
- 1 2 3 4 5 6 7 43. I would feel uncomfortable if other cyclists criticized me for wearing a helmet for a ride.
- 1 2 3 4 5 6 7 44. Certain articles of cycling clothes make me more sure of myself.
- 1 2 3 4 5 6 7 45. I only wear cycling clothing that is specifically made for riding.
- 1 2 3 4 5 6 7 46. The kind of clothes a cyclist wears tells a lot about their level of competence as a cyclist.
- 1 2 3 4 5 6 7 47. I wear cycling clothing that enhances my physical performance.
- 1 2 3 4 5 6 7 48. I am not sure what cycling clothing is appropriate for riding.
- 1 2 3 4 5 6 7 49. I prefer to wear cycling clothing that will help me ride faster.
- 1 2 3 4 5 6 7 50. I try to dress as if I am a better rider than I really am.
- 1 2 3 4 5 6 7 51. I like to wear jerseys with professional teams' logos.
- 1 2 3 4 5 6 7 52. I don't care how my cycling clothing looks as long as it is comfortable.

- 1 2 3 4 5 6 7 53. I would be embarrassed if I dressed in touring style shorts and everyone else dressed in lycra shorts for a ride.
- 1 2 3 4 5 6 7 54. I think bicycle shops sell the best cycling clothing.
- 1 2 3 4 5 6 7 55. I wish I could buy cycling clothing in a department store.
- 1 2 3 4 5 6 7 56. I feel comfortable asking a male salesperson for help in picking out cycling clothing.
- 1 2 3 4 5 6 7 57. There are certain brands of cycling clothing that are more prestigious.

1. How long have you been bicycling as a means of exercise?  
 \_\_\_\_\_ years \_\_\_\_\_ months
2. Approximately how many miles and hours per week do you ride?  
 \_\_\_\_\_ miles \_\_\_\_\_ hours
3. Have you ever ridden in an organized race? (Circle One)    Yes    No
4. If answer to 3 is yes - List any awards you have received \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
5. Approximately how many bicycle races did you pay to enter in the last year?  
 \_\_\_\_\_
6. Approximately how many non-race organized rides did you pay to ride in last year?  
 \_\_\_\_\_
7. Approximately how much have you spent on clothing for bicycling over the last year? (shorts, jerseys, socks, shoes, helmets, gloves, tights, warmups, hats, shoe covers, raingear, etc.)  
 Less than \$100 \_\_\_\_\_  
 \$100 to \$250 \_\_\_\_\_  
 \$251 to \$500 \_\_\_\_\_  
 \$501 to \$750 \_\_\_\_\_  
 \$751 or more \_\_\_\_\_
8. Marital Status (Circle One):    Single            Married
9. Occupation: \_\_\_\_\_
10. Please circle the number that indicates the last grade you completed in school.  
 \_\_\_\_\_ Grade School        1 2 3 4 5 6 7 8  
 \_\_\_\_\_ High School            1 2 3 4  
 \_\_\_\_\_ Trade School            1 2 3 4  
 \_\_\_\_\_ College                    1 2 3 4 5  
 \_\_\_\_\_ Graduate School        1 2 3 4 or more
11. Where are you from? City/Town \_\_\_\_\_ State \_\_\_\_\_
12. Age \_\_\_\_\_

## Appendix B-Coding Guides

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Coding Guide  
Questions 4 & 5 (Why an article of clothing is a  
favorite or why it is not worn)

Aesthetics

1. Color & Pattern - Color(s) or pattern(s) are mentioned.
2. Design Features - Descriptions of design details such as sleeves, zippers and openers, hem treatment, or general silhouette.

"They're more like a fitted short."

3. Style/Looks - Specific or general discussion and evaluation of styling or how the style looks on them.

"It's stylish."

Structure

4. Seaming - Seam strength, finishing, amount, and reinforcements.
5. Padding - Description of seat of shorts or palm of gloves. Includes thickness, type of material, or lack of padding.
6. Fibers - Type of fibers used in fabric.
7. Weight - Lightness or heaviness of fabric; affects on breathability of garment.
8. Quality of Construction - Overall quality of construction; how the garment is put together.
  - A. Higher quality.
  - B. Lower quality.

Functional

9. Functional/Dysfunctional - Description of how a design detail is functional or dysfunctional.
10. Versatile/Utilitarian Features - Product can be used for a variety of situations or uses.
11. Function vs. Fashion - Emphasis on functionality versus fashionability.



Interaction with Body

12. Fit - Positive or negative comments on fit in general or fit of specific components.
- A. Fits well.
  - B. Does not fit well.
13. Comfort - Comfort in general or due to specific features.
- A. Comfortable.
  - B. Uncomfortable.
14. Temperature Control - General comments on staying cool/warm or mention of uses in various seasons.

"I wear it all winter long."

Serviceability

15. Care - Ease in caring for the product.
- A. Easy care.
  - B. Difficult to care for.
16. Durability - Durability over time; may or may not last a long time.
- A. Durable.
  - B. Not durable.

- 
17. Price - Positive or negative comments on price.

- A. Higher priced.
- B. Lower priced.

18. Exclusive Brand - Imported clothing, hand made or custom made clothing, or clothing obtained in an exclusive manner. Not readily available for purchase by most people. Hard to find.

"It's like an Italian racing shirt."

"The shorts were free from Connie Carpenter."

19. Others' Responses - Ability to attract attention or comments from others with the garment.
20. No Reason - Does not explain why.

21. No Choice - Does not indicate any favorites or garments that are not worn.
22. Miscellaneous

Coding Guide  
 Questions 6, 7, & 8 (How she dresses differently  
 for group or event situations)

In a group event or race:

Particular Item

1. Socks - Wears socks.
2. Helmet - Wears a helmet.
3. Skinsuit - Wears a skinsuit.
4. Jersey - Wears a jersey.

Affiliation

5. Hometown/Event - Attempts to show affiliation with an event or a location.

"I tried to wear some of my shirts that represented the area that I'm from and the events of those areas."

6. Team - Shows affiliation with a team.

"I try to wear my team shorts, even though I prefer to wear solid black."

7. Conformity - Expresses interest in wanting to look like others, to fit in group, to wear what others wear.

Appearance

8. Dress Up Nicer - Attempts to wear something "nicer" or pieces that coordinate.
9. Proper Cycling Clothes - Wears appropriate or traditional cycling clothing.

"Then I probably wear a jersey."

"I wear all the proper clothing I'm supposed to."

- 
10. Skill Signs - Wears clothing that indicates level of skill.

"For a tour I'll usually wear a skinsuit. Try to look a little racier, like a fast tourist."

11. Comfort - Emphasis on comfort.
12. No Difference - Does not dress differently.
13. Miscellaneous
14. No reason
15. Protective

Coding Guide  
 Questions 12, 13, & 14 (Brand Questions—why purchased,  
 why better, and why more prestigious)

Interaction with Body

1. Size & Fit - Brand has fit and sizes that work well.

"I think the fit is very good."

2. Comfort - Brand chosen for its comfort.

"They are comfortable."

"Because the chamois doesn't chafe me."

Design/Manufacture

3. Style - Likes the general styling or design details of the brand.

"And had the colors I wanted."

4. Fashion - Brand is fashion oriented, rather than function.

"But now I don't know, they're going off into the fashion world."

5. Functional Features - Specific features described as functioning effectively.

6. Coordinate with Other Garments - Garments coordinate easily with other garments.

"Because it went with the shorts."

7. Quality - Favorable impression of the brand's overall quality.

"I think their quality is good."

8. Well Made - Superior construction or put together well.

"Because they're better made."

9. Durability - Holds up well.

"Their shorts last so much longer."

Reputation

10. Imported - Mention of imported, as if this is significant or impressive, makes garment "nicer".

"I found that some of the imported stuff is a little bit nicer."

11. Personal Familiarity - Knowledge has been gained through past experiences with a brand; discusses a particular incidence.

"I know their quality."

12. Name - Brand has made a positive reputation and recognizable brand name for itself.

"it has a real good name."

13. Experienced Manufacturers - Manufacturer has been in business and making the item for some time.

"They've been doing it for a long period of time. They've had their products out there with people riding them so they've had some opportunity for feedback."

Marketing

14. Visibility - Validation by frequency seen or heard about by other people; notion that brand must be valuable if many people wear it.

"What the riders wear."  
"I see that a lot."

15. Source Credibility - Validation by star athletes who wear it.

"But when you look at what the big time people are wearing you kind of figure that it's good."

16. Promotional Strategies - Noticeable sales and advertising campaigns.

"When you go to the pro bike shops that is what they have displayed most prominently."

17. Accessibility - Brand is easily or not readily available.

- A. Accessible.
- B. Not accessible.

"In some shops that's all they carry."

---

18. Loyalty - Specifies loyalty to brands.

- A. Loyal
- B. Not loyal.

"I'm willing to try any brand."

19. Price - High or low price is important factor in choice of brand.

- A. Higher price.
- B. Lower price.

"They cost a lot more."

"and I will not pay an enormous amount. I just will not do that. So anything that's over a certain amount I won't even look at."

20. No Reason - Does not indicate a reason for brand choice.

21. No Choice - Does not indicate any brand preference or knowledge.

22. Miscellaneous

Coding Guide

Question 15 (How certain articles of clothing enhance performance)

Interaction with Body

1. Comfort - Wears certain items of clothing or chooses design details to increase comfort.

"They have padding in them."

"That would enhance your performance when you're riding long."

2. Fit - Pays attention to fit for performance enhancement.

"it has to fit well."

Protection

3. Eyesight - Wears special eyewear for protection or improved vision.

"I get really nervous about not being able to see properly, so I spend a lot of time trying on glasses."

4. Protection - Wears certain clothing to protect body.

"To protect my hands."

Motor Needs

5. Movement - Wears clothing that is not restrictive or enables easy movement.

"They move with your body instead of resisting."

6. Efficiency - Wears certain clothing to increase riding efficiency.

"Because they've got a stiff sole."

7. Aerodynamics - Wears clothing that improves aerodynamics.

"it helps with the wind, lets it push by you."



Practicality

8. General Performance - Wears clothing that is thought to be a necessity for riding without explanation of why.

"I don't see how people can ride without them."

9. Practical - Wears clothing that is practical for riding without explanation of why.

---

10. None - Does not use clothing to enhance performance.

11. Miscellaneous

12. No Reason

Coding Guide  
Questions 16 & 20

(Does she express anything about herself with her cycling clothing, if so, what? Does cycling clothing tell you anything about the wearer as a rider, if so, what?)

No---Yes (Assign one code of 1-6 for overall answer)

1. No - Cycling clothing does not give cues about the wearer.  
"No."
2. Qualified No - Probably does not give cues about the wearer.  
"Not particularly."  
"Probably not."
3. Yes - Gives cues about the wearer.  
"I think they definitely make a statement."  
"Well sure it does. If it's right it's right."
4. Qualified Yes - Probably gives cues about the wearer.  
"I think I do, but I'm not sure."  
"I suppose to some extent."

Questionable

5. Confusion - Unsure whether clothing gives cues about the wearer.  
"I don't know."
6. Other's Desire - Assume other's wish to say things about themselves with their clothing.  
"They would like it to."

Other Cues

7. Total Context - Considers cues are provided by more than just clothing.  
"In general terms I tend to look at the whole person, their legs, their bike."
8. Facial and Body Cues - Face or body gives more cues than clothing.

"You can kind of tell their attitude through their face."  
 "I guess it's really not more their clothes as their body shape."

### Skill & Situation

9. Skill Level - Clothing indicates level of skill in cycling.

- A. Skill matches clothing and equipment.
- B. Skill may not be at level that clothing and equipment indicates.

"I think in general people who ride a lot probably wear less. Maybe they don't wear gloves."  
 "Good cyclists don't go out wearing flowered shorts."  
 "Like the lady yesterday with the fashion. She looked terrific but it didn't really help her riding."  
 "Sometimes the showiest ones are all money and show and clothes and they're not that great a cyclist."  
 "Like you see some guy on a not good bike but he's got on gloves and all that goofy stuff."

10. Situation & Clothes Mismatched - Clothing is inappropriate for situation.

"Just out on training rides and everyone looks like they're dressed for the Tour de France time trial."

11. Seriousness - Clothing indicates how serious the cyclist is.

- A. More Serious
- B. Less Serious

"Sometimes you see them really decked out in everything and you think that they're pretty serious about cycling."  
 "It's just something that you know is kind of goofy."

### After Certain Look

12. Sporty - Wants to look sporty.

"I mean you want to look sporty of course."

13. Femininity - Concern with displaying femininity.

"Well I always wear earrings, and maybe a top that is more feminine."

14. Whimsy - Clothing used for fun.

"I wear wild colors."

"I think it's fun."

15. Conservative - Generally does not want to bring attention to herself; conservative about design.

"I think it is pretty but I wouldn't want to bring that much attention to myself."

16. Matching - Coordination of clothing articles together or with equipment.

A. Matches

B. Anti Match

"I just like to wear the basic black shorts with the design on the side and maybe a top that matches the colors on the side."

"She likes loud colored things and could care a less whether it matches."

"I would like it to match my bike."

17. Concern for Design - Notices design, color or decorative details of clothing.

"It's getting to be very stylish, you see some darling outfits out there."

"You have to have some sort of design to your jersey."

18. Neatness - Neatness or lack of neatness as integral to self.

"I mean when you're on an expensive bicycle you don't wear sloppy clothing."

"I think its important not to look like a slob."

19. Sexy - Cycling clothing used to express sexuality.

"Some of them are too suggestive for the sport."

"Yeah, doesn't she look hot."

20. Body Exposure - Clothing accentuates or displays body.

"It's kind of hard with the cycling shorts to really hide anything."

Affiliation

21. Similarity - Notices similarity (or lack of) with self and other riders.
22. Team - Desires identification with a team.  
 "I really like to wear my team colors."
23. Home & State - Desires identification with geographic location.  
 "When we went to Florida and did a tour down there then we wore Minnesota stuff."
- 
24. Age Class - Clothing indicates age of wearer.  
 "And they're usually young gals, not the older women."
25. For Self - Clothing choices are made for self satisfaction in general.  
 "I pick fabric that I like and that is an expression of myself."
26. Comfort & Function - More concerned with comfort and function than appearance.  
 "It's utilitarian, what's comfortable and what fits nice. That's more important than what I look like."
27. Appearance Consciousness - Clothing can indicate excessive interest in appearance or lack of interest in appearance.
- A. Excess Interest  
 B. Low Interest
- "I think some people get over conscious of what they're wearing and are more worried about their appearance than what they do."  
 "I suppose men maybe are less self conscious about their appearance."
28. Brand Loyalty - Displays loyalty to a brand.  
 "I try to stick with certain name brands."

29. Limited Resources - Expense of clothing limits appearance.

"I would like to if they were possibly more reasonably priced."

30. Miscellaneous (includes fit)

Coding Guide  
Question 18 (Things she would not wear and why)

She would not wear \_\_\_\_\_ because:

Interaction with Body

1. Body Shape - Clothing would not enhance the body shape.

"Tops that let the stomach hang out when we ride."

2. Modesty - Clothing would show too much of the body.

"mini bras that some women wear. Some of them are skimpy."

3. Personal Attractiveness - Specific details are thought unflattering to self, but not necessarily others.

"I'm not a person that looks good in yellow."

4. Uncomfortable - Item has characteristics that would make it uncomfortable to wear.

"They don't breathe real well."

"I'd rather have it looser around the neck area."

5. Protection - Items that do not offer the protection thought necessary.

"I have very fair skin so I wouldn't want to get sunburned."

Display

6. Attention Getting - Clothes that bring too much attention to the wearer.

"I wouldn't want to draw that much attention to myself."

7. Showy - Item is more for looks than for function.

8. Anti Conformity or Fashion - Is not interested in conforming to fashion.

"I wouldn't wear the new fashionable stuff they're selling in department stores."

Image

9. Truthful Dressers - Does not want to dress in a manner that does not reflect the rider's actual role or skill.

"I'm not that good of rider, I'd look funny wearing them."

10. Feminine - Clothes with traditional feminine characteristics.

"Pink."

11. Inappropriate - Clothes not specifically designed for cycling.

"running shorts, I would never."

12. Triathlon Clothes - Clothes like or similar to those worn by triathletes with mention of triathlete.

"Triathlon type of stuff."

13. Brand or Team Phobic - Avoids clothing with team or brand logos.

"I don't like to wear something that says PDM or a major team on it."

Interaction with Others

14. Respect - Item may foster respect or lack of it from others.

"I think the amount of respect that a female cyclist gets is connected to what she wears when she is out there."

15. Credible Source - Clothing must be from a credible source for cycling apparel.

"I wouldn't wear anything that isn't sold through a cycling shop or a well known cycling catalog or from my sponsor."

Design

16. Length - Garments are not long enough on the body.

"They only come down to mid thigh."

17. Wild/Bold - Stays away from loud, bright, colors, and flamboyant patterns.



"Some are too wild and weird."

"Funky colored shorts or skin shorts in rainbow colors."

18. Aesthetic Appeal - Does not have general aesthetic appeal.

"I think the sleeveless is kind of unattractive."

19. Matching - Items that are coordinated with each other.

"with tops that match."

#### Particular Items

20. One piece - Does not wear one piece styles.

21. Socks - Does not wear socks.

22. Halter/Midriff Tops - Does not wear halter/midriff tops.

23. Jerseys - Does not wear jerseys.

- 
24. Price - Price is basis for refusal to wear some items.

"Things I think that are just way out priced I wouldn't buy them or wear them."

25. Quality - Item is perceived to not be of sufficient quality; cheapness.

"They're really cheap. They're probably the cheapest made stuff."

26. Inefficient - Item has qualities that make it more troublesome or complicates riding situation.

"They look like a lot of work when you stop and use the Kybos."

"Some of the cycling shoes I wouldn't wear because I know they're not stiff."

27. Unconcerned with Performance - Does not care about lesser cycling performance connected with clothing choice.

"I'm not really concerned with shaving time off my ride."

28. Illegal - Items are not allowed for specific events.

"I wore them in a race but found out it was illegal."

29. Miscellaneous

30. None - Nothing that she would not wear.

Coding Guide

Question 21 (Does she feel attractive in cycling clothing?)

No---Yes (Assign one code of 1-7 for overall answer)

1. Not Pleased - She does not feel attractive.

"No. Not at all."  
"I'm not a traffic stopper."  
"Not particularly."

2. Qualified No - May feel attractive sometimes.

"Sometimes, sometimes not."

3. Body Dissatisfaction - Body/figure type detracts from appearance.

"I personally feel very uncomfortable in it because I know that I'm overweight."

4. Yes with Qualifications - Not sure she looks attractive, but seems to think so.

"I think I look OK."  
"I don't look horrible or anything."

5. Yes - Definitely feels she looks attractive.

"I'm pleased with the way I look."

6. Body Satisfaction - Satisfaction with figure allows her to feel attractive.

"I feel that I do because I'm like normal to slender figurewise."

7. Confusion - She is unsure whether she is attractive.

"Boy I don't know."

After Certain Look

8. Desires Sporty Look - Looking the part aids in attractiveness.

"I want to look like a bike racing woman."

9. Matching - Necessary to coordinate clothing to look attractive.

"I try to match things together to where it looks presentable. I don't like to just throw anything on."

10. Sportswoman Representative - Attempts to create a favorable image for other female cyclists.

"I always feel like I'm representing all the other women out there "

### Body

11. Body Hiding Strategies - Dresses to hide bodily flaws.

"With a t shirt on top that's sort of bagged over and hides some of the body fat that we carry."

12. Pro Body Exposure - Feels attractive because the clothing shows off her body.

"I really like wearing skinsuit because it hugs your whole body and shows off what kind of body type you have."

13. Works at Figure or Look - Important to look attractive; mentions efforts to enhance attractiveness.

"I wear it so often I can't afford not to."

14. Sweat Effect - Sweat is unattractive.

"You get hot, you get dirty, you get sweaty."

- 
15. Limitations - Cycling situations make it difficult to keep up on appearance.

"Like this week there's no good facilities to even try to put makeup on or do much."

16. Uninterested in Looks - Is not concerned with how she looks.

"I don't really care either."

17. Comfort/Function - More emphasis is placed on functional features or comfort than concerns of how attractive she appears.

"It's more functional than how you look."

18. Age Difference - A difference in age allows her to be less concerned about her appearance.

"If I were younger and not married I'd maybe have a different attitude about it."

19. Masculinity - May look masculine.

"I've been told that I look "Butch"."

20. Miscellaneous

## Appendix C-Tables

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Table C.1

Factors created through factor analysis of Feelings About Bicycling

Factors	Loading
<u>Addiction</u>	
I feel I must ride even in inclement weather.	.80
I spend considerable time and effort to be a more competent bicyclist.	.77
I ride frequently.	.73
I ride even when I am very busy.	.72
I give bicycling higher priority than other activities.	.69
I would change or arrange my schedule to meet the need to ride.	.68
I try to ride a certain number of miles each week.	.66
Missing a ride upsets me greatly.	.64
Bicycling increases work productivity.	.54
<u>Health and Happiness</u>	
Bicycling increases happiness.	.64
I have to force myself to ride.	-.61
Bicycling helps people relax.	.59

Table C.2

Factors emerging from factor analysis of Clothing Interest Inventory

Factors	Loading
<u>Right Dress</u>	
The brand of cycling clothing that I buy is important to me.	.81
I try to buy cycling clothing with well known manufacturer labels.	.79
When I buy cycling clothing I prefer well known brands that are easily recognizable.	.69
I would be embarrassed if I dressed in touring style shorts and everyone else dressed in lycra shorts for a ride.	.58
I only wear cycling clothing that is specifically made for riding.	.53
The kind of clothes a cyclist wears tells a lot about their level of competence as a rider.	.52
I have special clothing for particular cycling events I take part in.	.48
When I buy new cycling clothing I try to buy something like other cyclists would wear.	.46
I like to wear jerseys with professional teams' logos.	.41
There are certain brands of cycling clothing that are more prestigious.	.40
<u>Attention Getting</u>	
I try to wear cycling clothing that is different from cycling clothing that other riders wear.	.79



Table C.2 (continued)

Factors	Loading
I enjoy wearing unusual clothing for cycling even though I may attract attention.	.71
I am one of the first to buy new styles of cycling clothing.	.67
I try to have the newest styles of cycling clothing.	.56
I try to dress more nicely for a ride than other cyclists do.	.55
I have articles of cycling clothing that I don't wear because they are less fashionable.	.54
I try to get new cycling clothes for special cycling events.	.50
<u>Attractive</u>	
I don't care how my cycling clothing looks as long as it is comfortable.	-.67
I choose my cycling clothing to make me attractive to men.	.59
I look at bicycling magazines to find out what is new in cycling clothing.	.55
<u>Modesty</u>	
I would feel embarrassed in skin tight cycling clothing.	.74
I think cycling jerseys and lycra shorts make me look unattractive.	.71
I would feel embarrassed in lycra skin shorts.	.64

Table C.2 (continued)

Factors	Loading
<u>Conformity</u>	
I find out what other cyclists are wearing for a ride before I make up my mind what to wear.	.52 <sup>a</sup>
On a ride, I am uncomfortable if my cycling clothing is a lot different from what other riders are wearing.	.46 <sup>a</sup>
I try to dress similar to other cyclists for a ride.	.42 <sup>a</sup>
<u>Performance Enhancement</u>	
I wear cycling clothing that enhances my physical performance.	.70
I prefer to wear cycling clothing that will help me ride faster.	.66

<sup>a</sup> Loading of Conformity items on the Modesty factor.

Appendix D-Human Subjects Approval

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Human Subjects Approval	120

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH  
IOWA STATE UNIVERSITY

(Please follow the accompanying instructions for completing this form.)

1. Title of project (please type): Relationship of Sport Commitment, Task Involvement and Role Knowledge to Female Bicyclists' Use and Interests in Sport Apparel

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Marsha Casselman 4/4/89  
Typed Name of Principal Investigator Date Signature of Principal Investigator  
305 MacKay 294-3264  
Campus Address Campus Telephone

3. Signatures of others (if any) Date Relationship to Principal Investigator  
[Signature] 4/10/89 Major Professor

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable. (see p. 2)
- Medical clearance necessary before subjects can participate
  - Samples (blood, tissue, etc.) from subjects
  - Administration of substances (foods, drugs, etc.) to subjects
  - Physical exercise or conditioning for subjects
  - Deception of subjects
  - Subjects under 14 years of age and/or  Subjects 14-17 years of age
  - Subjects in institutions
  - Research must be approved by another institution or agency

5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used. (see p. 12)
- Signed informed consent will be obtained.
  - Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: 4 15 89  
Anticipated date for last contact with subjects: 9 30 89

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and/or identifiers will be removed from completed survey instruments: 9 30 90  
Month Day Year

8. Signature of Head of Department Date Department or Administrative Unit  
[Signature] 4/10/89 Textiles + Clothing

9. Decision of the University Committee on the Use of Human Subjects in Research:  
 Project Approved  Project not approved  Information required  
George G. Karas 4/13/89  
Name of Committee Chairperson Date Signature of Committee Chairperson