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# Role of Body Fat and Body Shape on Judgment of Female Health and Attractiveness: An Evolutionary Perspective

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**Abstract**

The main aim of this paper is to present an evolutionary perspective for why women's attractiveness is assigned a great importance in practically all human societies. We present the data that the woman's body shape, or hourglass figure as defined by the size of waist-to-hip-ratio (WHR), reliably conveys information about a woman's age, fertility, and health and that systematic variation in women's WHR invokes systematic changes in attractiveness judgment by participants both in Western and non-Western societies. We also present evidence that attractiveness judgments based on the size of WHR are not artifact of body weight reduction. Then we present cross-cultural and historical data which attest to the universal appeal of WHR. We conclude that the current trend of describing attractiveness solely on the basis of body weight presents an incomplete, and perhaps inaccurate, picture of women's attractiveness.

*"... the buttocks are full but her waist is narrow ... the one for who[m] the sun shines ..." (From the tomb of Nefertari, the favorite wife of Ramses II, second millennium B.C.E.)*

*"... By her magic powers she assumed the form of a beautiful woman ... her hips and breast were full, the waist slender." (Bhagavata Purana, second or third century C.E.)*

The iconic representation of a beautiful and sensuous woman as an hourglass figure defies prevalent belief among laypersons and scholars that beauty is arbitrary,

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ever changing in the eye of the beholder. If so, why does the label of "hourglass", hand gestures to depict the shape of women, and even the numbers (36-24-36) often used in vernacular speech to describe a woman effortlessly invoke the image of a youthful, attractive and enticing woman? Furthermore, such impact is not evident of what is in vogue that thin is beautiful; simply describing a woman's height and weight does not necessarily conjure up the image that she is also young and beautiful. While slenderness is often prized, it is practically impossible to imagine that most people would judge a woman with 32-32-32 measurements as attractive regardless of how skinny she is. The hourglass figure remains critical for judgments of youthfulness and beauty even in skinny models.

So what explains the universal and enduring appeal of the hourglass figure? One explanation based on evolutionary psychological theory is that female beauty as represented by the hourglass figure taps into important biological information about various factors regulating women's reproductive potential and fertility. In this paper we will describe basic tenets of evolutionary psychology pertaining to the nature and significance of female attractiveness. Then we will summarize experimental and clinical evidence demonstrating a link between the hourglass figure and hormonal and endocrinological mechanisms regulating reproductive potential, fertility and risk for major diseases. Such evidence is crucial to support the claim that attractiveness is a reliable cue to a female's reproductive capability and good health. Next, we will present evidence that changes in the hourglass figure alone systematically affect female attractiveness judgments of lay and professional men and women not only in our society but in various and diverse societies. Finally, we will present evidence showing that equating beauty with the hourglass figure is not a novel or recent phenomenon shaped by the mass media; the allure of an hourglass figure is evident across generations and in diverse ancient cultures.

## Importance of Female Attractiveness in Mate Selection

The fundamental assumption of Evolutionary Psychology is that natural selection not only shaped specialized bodily organs to solve the problems of efficient survival, it also shaped specialized mechanisms to solve problems encountered by humans in ancestral environments. Thus, Evolutionary Psychology argues that the human mind is a collection of special-purpose mechanisms designed by natural selection to solve the problems of survival and reproduction that were recurrently faced by our ancestors.

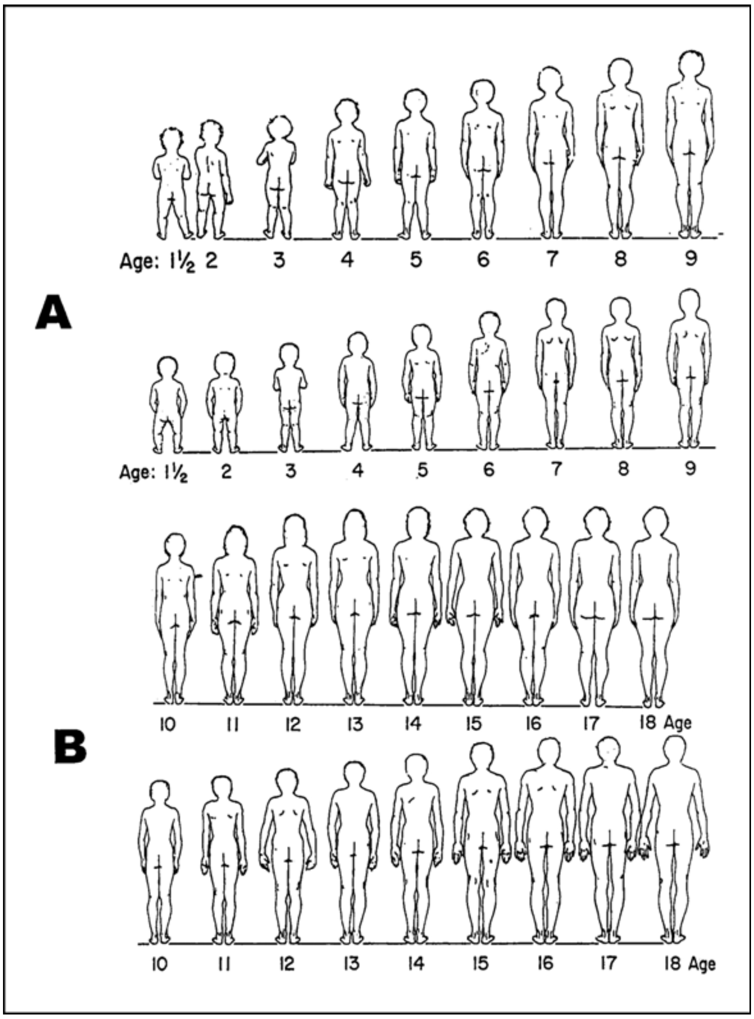
One of the adaptive problems that our male ancestors regularly faced was to assess a female's mate value, or the degree to which she would enhance his reproductive success. Potential mates necessarily varied in mate value, just like potential foods vary in their nutritional value and shelter and housing vary in their potential utility value. Female mate value was determined by numerous variables such as hormonal profile, reproductive age, fecundity, parity and resistance to diseases, none of which could be directly observed. It has been proposed that information about some of these variables is reliably conveyed by specific characteristics of female bodies and that natural selection therefore produced psychological mechanisms in men to attend to bodily features in assessing a female's mate value (Symons 1979). It has been further proposed that as females vary in their mate value, the intensity of male sexual attraction was designed to vary directly with perceived cues of female mate value (Symons 1995). Although people are not consciously aware to such a link, therein lies the power of physical attractiveness.

To demonstrate that the female hourglass figure is a reliable cue to her mate value, it is essential to establish that this figure has a plausible link to physiological mechanisms regulating reproductive capability and good health. Furthermore, variation in the hourglass figure should not only be correlated with variation in reproductive potential, but such variations should systematically affect the judged degree of female attractiveness. The nature of body fat distribution, which largely determines the hourglass shape, meets most of the above stated criteria.

## Waist-to-Hip Ratio (WHR): An Indicator of Women's Age, Fecundity and Health Status

Fat distribution in humans depends both on age and their sex; the sexes are similar in infancy, early childhood, and old age, but differences in fat distribution are greater from the early teens until late middle age (Vague 1956). The fat distribution in humans is regulated by sex hormones, and fat can be used from a region of the body at the same time as it is being accumulated at another (Pond 1981). Extensive evidence by Bjorntorp (1987, 1991) and by Rubuffe-Scrive (1987, 1988) have demonstrated the ways sex hormones affect specific regional adiposity and regulate utilization and accumulation of fat. Simply stated, estrogen inhibits fat deposition in the abdominal region and stimulates fat deposition in the gluteofemoral region more than in other body regions. Testosterone, in contrast, stimulates fat deposition in the abdominal region and inhibits deposition in the gluteofemoral region. It is this sexually dimorphic body fat distribution that primarily sculpts the typical hourglass figure in women after pubertal onset; women have greater amounts of body fat in the lower part of the body (gynoid - aka "pear-shaped" - body fat), whereas men have greater amounts of fat in the upper body (android - aka "apple-shaped"- body fat). Figure 1 shows the sex difference in body shape in men and women as a function of age but independent of body weight. It should be obvious that in spite of the lack of typical sex differences associated with the two sexes (i.e., breasts, long hair, etc.) one can readily identify the sex of the schematic body figure after puberty (Figure 1).

*Figure 1.* Schematic Drawings of Sexually Dimorphic Body Shape From Age 1-9 Years (Panel A) and from Age 10-18 (Panel B)




A widely-used anthropometric technique to ascertain the degree of gynoid and android fat distribution is to measure circumference of the waist (narrowest portion between the ribs and iliac crest) and hips (at the level of the greatest protrusion of the buttocks), and using these measurements to compute a waist-to-hip ratio (WHR). WHR is a stable and highly reliable measure and is significantly correlated with fat distribution measures using computed tomography scanning (Despres, Prudhomme, Pouliot, Temblay & Buchard 1991). Before puberty, both sexes have similar WHRs. After puberty, females deposit more fat in the hips and buttocks; WHR therefore becomes significantly lower in females than in males. WHR has a bimodal distribution with relatively little overlap between the sexes. The typical range of

WHR for healthy pre-menopausal women has been shown to be .67-.80, whereas healthy men have WHRs in the range of .85-.95 (National Academy of Sciences, 1991). Women typically maintain a lower WHR than men throughout adulthood, although after menopause their WHR approaches the masculine range (Kirschner & Samojlik 1991). Thus, the size of WHR, unlike overall body weight, can be used as a reliable proxy of women's general reproductive status (pre- or post-pubertal and menopause) and youthfulness. There is no other observable body feature that tracks women's age.

WHR is also a reliable indicator of reproductive capability of pre-menopausal women. Compared to women with high WHR, women with a low WHR have fewer irregular menstrual cycles (Van Hooff, *et al.*, 2000), optimal sex hormone profiles (Jasienska, *et al.*, 2004), ovulate more frequently (Moran, *et al.*, 1999), and have lower endocervical pH, which favors sperm penetration (Jenkins, Brooke, Sargeant & Cooke 1995). Low WHR is also an independent predictor of pregnancy in women attending an artificial insemination clinic (Zaadstra, *et al.*, 1993) and in women attempting in-vitro embryo fertilization transfer (Waas, Waldenstrom, Rossner & Hellberg, 1997). WHR size can be used to roughly estimate whether a woman is in the early stages of pregnancy induced by another male; investing resources in a child fathered by another male does not enhance a male's reproductive success. The size of WHR increases even in the early stages of pregnancy.

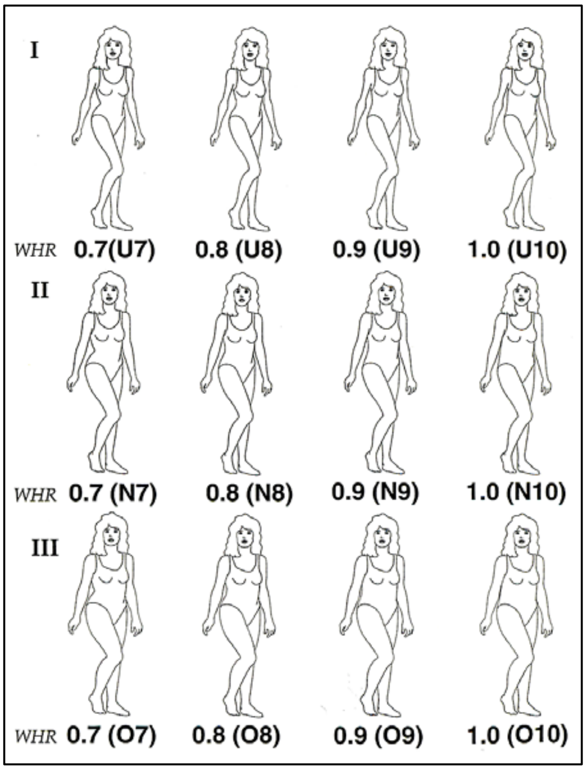
Finally, women with low WHR have lower risk of heart diseases, stroke, type II diabetes, gallbladder disease, kidney diseases, various cancers (breast, endometrial, ovarian), and premature death. (for a review see Singh, 1993a, 2006; Kissebah & Karkower, 1995). Women with low WHR also cope with stress (as measured by cortisol release) more efficiently (Epel, *et al.*, 2000) and report fewer episodes of depression than women with higher WHR (Nelson, Palmer, Pedersen & Miles, 1999). Women less susceptible to health problems would likely have more energy to attend to their family and children, and because many health problems are heritable, their offspring will receive the genetic gift of good health.

In summary, WHR size provides reliable information about the reproductive age, fertility and health status of a woman at a glance. Given that WHR is a signal of health and reproductive capability, do changes in the size of WHR cause changes in the judgment of female attractiveness?

## WHR and Attractiveness Judgments

To investigate this issue Singh (1993a) developed 12 line drawings of female figures representing three body weight categories (under-, normal and overweight) and two levels of feminine (0.7 and 0.8) and two levels of masculine (0.9 and 1.0) WHR within each weight category (Figure 2). In the initial series of research (Singh 1993a, 1993b), judgments of attractiveness, healthiness and youthfulness were obtained for these figures from men and women of diverse ages (18-85 years old), professions (white collar workers, lawyers, physicians), educations (undergraduates and post-graduate degree) and ethnicities (African-American, Mexican American, Euro-American) backgrounds. The findings indicated that variations in the WHR in female figures produces systematic changes in the judgment of attractiveness. Participants rated figures with a lower, more feminine, WHR as more attractive than figures with a higher, more masculine, WHR in each of the weight categories. These findings, using line drawings developed by Singh (1993a), now have been replicated (for exception see Yu & Shepard, 1998; Marlow & Wetsman, 2001) with African-Americans (Markey, *et al.*, 2002), in Great Britain (Furnham, Tan & McManas, 1997), Germany (Henss, 1995), Australia (Connolly, Slaughter & Mealey, 2004), Indonesia (Singh & Luis, 1995), the Azore Island, the African country of Guinea Bissau (Singh, 2004), and in the Shiwiar Tribes of East Ecuador (Sugiyama, 2004).

*Figure 2.* Female Body Figures Differing in Body Weight (U = Underweight, N = Normal Weight and O = Overweight) and Four Levels of WHR (0.7, 0.8, 0.9, and 1.0)




In the original studies, the relationship between attractiveness and WHR depended on body weight category; the normal weight figure with 0.7 WHR was judged most attractive, followed by the underweight figure, whereas the overweight figure was judged not to be attractive (Singh, 1993a, b). The impact of WHR on attractiveness judgments is obscured by body weight deviation from the average weight, regardless of whether the weight is extremely low (underweight) or high (overweight). Therefore, Singh (1993b) concluded that, "…neither body weight, nor WHR alone can explain attractiveness. To be attractive, women must have a low WHR and deviate little from normal weight" (pp. 310-311).

## Bodyweight, WHR and Attractiveness

Some researchers have ignored this complex relationship between body mass index (weight/height squares = BMI) and have opted to treat as if WHR and BMI are independent variables and have reported that body weight accounts for more variance than WHR (Tassinary & Hansen, 1998; Tovee, Reinhardt, Emery & Cornelissen, 1998). Tovee and Cornelissen (1999) have even suggested that an attractiveness judgment based on WHR is an artifact of BMI. They argue that reduction of the size of WHR, for example, form 0.8 to 0.7, reduces BMI regardless of body weight category and that this reduction in BMI is responsible for attractiveness ratings for figures with low WHR.

These arguments are, however, based on misunderstandings about the nature of WHR. WHR describes the nature of body fat distribution and therefore the effect of WHR, on attractiveness judgments, independent of body weight, is meaningless. The statement that women suffering from anorexia have low WHR but are not fertile is based on failure to take into account the effect of body weight (Tovee, *et al.*, 1997). An extreme example of this kind of reasoning would be to ask why human skeletons are not fertile even though they have low WHR. The degree of overall obesity, as measured by BMI, does affect the size of WHR especially in instances of very low and high BMI. Frequently, the effect of WHR size, for example, on risk of diseases is found to be significant for normal weight range; BMI representing overweight and obesity overshadows the impact of WHR (Han, Morrison & Lean 1999).

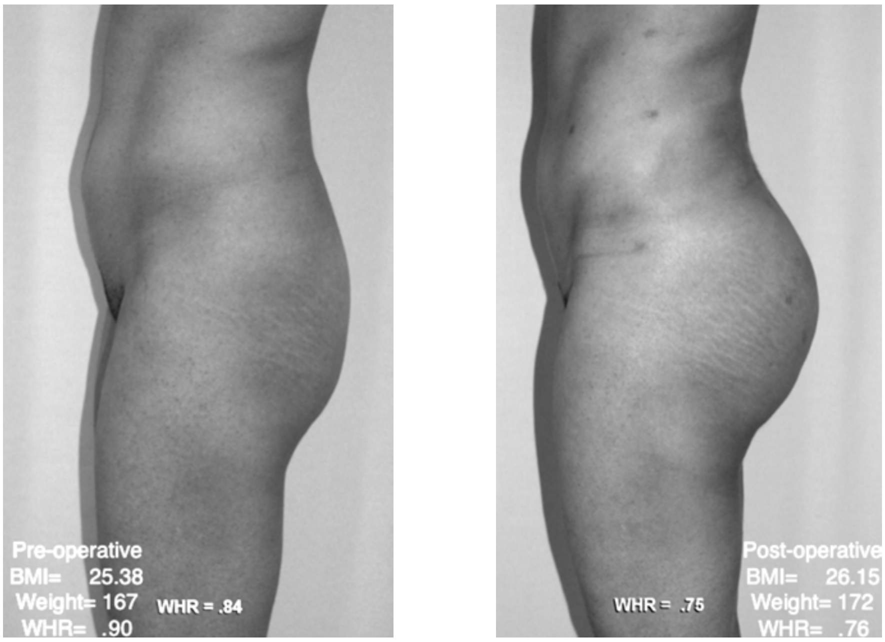
It is, therefore, critical to take into account total body fat, or BMI, a feature which people in ancestral environments would have encountered when examining the effects of WHR (the nature of body fat distribution) on attractiveness. Given the cycles of famine, feast, and workload, obesity would have been rare. There would have been some emaciated people suffering from disease or malnutrition and they would not likely have been desirable mates. The selection process would have stabilized the preference for population-typical average body weight.

Finally, normal body weight alone, without taking into account the nature of the distribution of body fat (WHR), can neither distinguish male from female nor convey any reliable information about the age of a woman. Additionally, due to seasonal availability of food supply, body weight would have frequently fluctuated in ancestral environments. WHR, unlike total body weight, does not significantly change if weight loss or gain is not greater than eight kg (Kissebah, Evans, Peiris &

Wilson, 1985). WHR is, therefore, reliable signal of women's health and fertility, in spite of short-term body weight fluctuation.

However, as WHR and BMI are correlated, one needs to assess their relative contributions to attractiveness ratings. Some researchers have used post-hoc "variance accounted" for methods to assess the relative contribution of WHR and BMI (Tovee, Reinhardt, Emery & Cornelissen, 1998). However, these methods are overly sensitive to the range of the independent variable in the stimulus set. The optimal solution is to use stimulus for which BMI and WHR are independent. A recent surgical technique provides a means to examine the role of different sizes of WHR on attractiveness, independent of BMI. The surgical procedure includes liposuction of the circumference of the waist and then using purified fat cells to graft to the buttocks (Roberts, Weinfeld & Nguyen, 2005). This procedure both narrows the waist and enhances the buttocks, having a synergetic effect on WHR without altering BMI. In his practice, aesthetic plastic surgeon Roberts measures pre- and post-operative waist and buttocks circumferences and records pre- and post-operative BMI. Post-operative measurements and photographs are taken about two to three months after surgery to allow for healing and scar disappearance. Although all patients have a lower post-operative WHR, some patients gain weight and the other patients lose weight post-operatively. These patients provide a unique opportunity to examine the independent effects of WHR and body weight, or BMI on attractiveness. Roberts, working with more than 200 patients, notes that, "It has been my experience...that body weight has a negligible effect on how attractive the body looks post-surgically or the judgment of attractiveness of their own by the patient. Rather, the critical variable in attractiveness is the proportionality of the shape and the size of the waist and buttocks… A review of our data shows the best results have a waist-to-hip ratio of approximately 0.7 (their pre-operative WHR averaged 0.85)" (personal communication, April, 28, 2005). The lack of impact on BMI in normal weight women is strikingly obvious when pre- and post-operative photographs of a patient are observed (Figure 3). In spite of an increase in post-operative BMI, the post-operative photograph is judged to be more attractive than low BMI pre-operative photograph (Figure 3).

*Figure 3.* Sample of a Representative Pre- and Post-operative Photographs

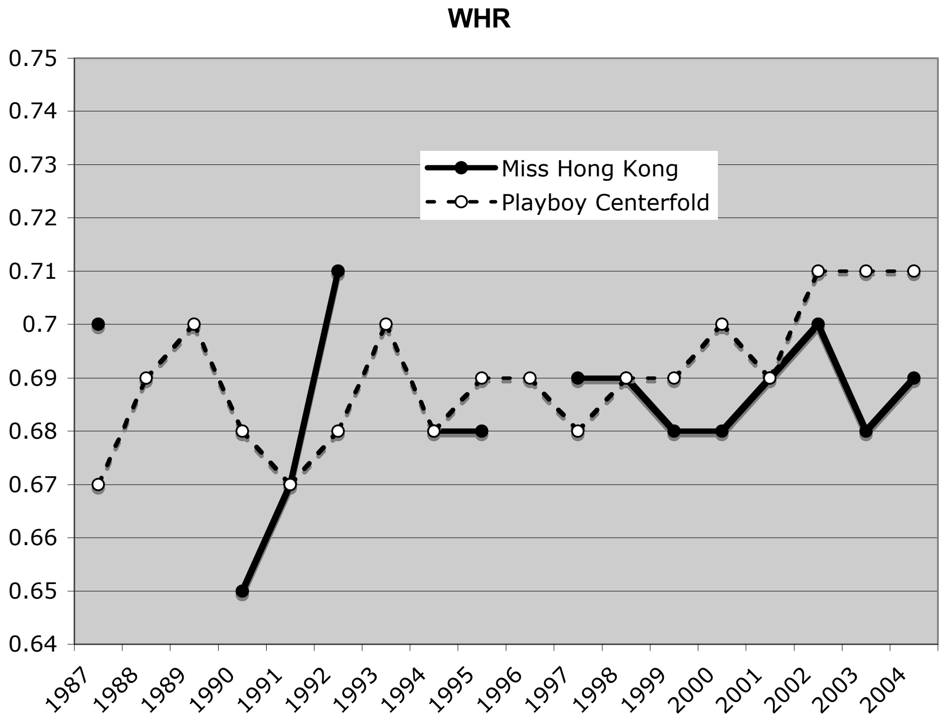



The pre-operative photograph (left) has lower BMI than post-operative photograph (right) and has a higher BMI and low WHR. Post-operative photograph is rated more attractive than pre-operative photograph, in spite of higher BMI.

## Temporal Stability of WHR Appeal

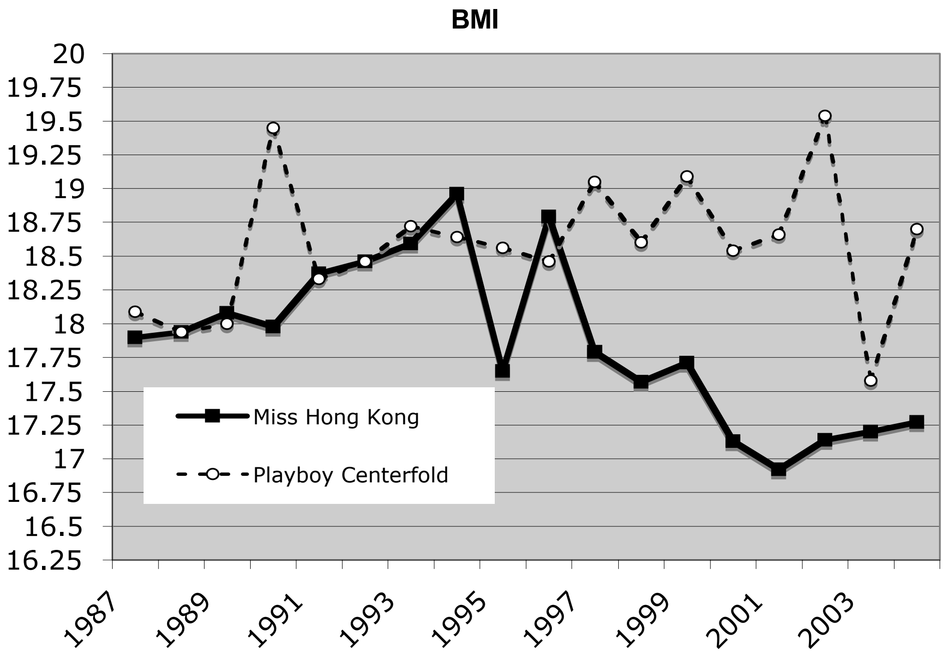
It is a commonly held belief that what makes a woman beautiful changes over time in a given society. The most commonly cited example is body weight; people point out that 50 years or so ago, plump women were judged to be beautiful whereas as at present being thin is a prerequisite for female attractiveness. Indeed, current popular fashion models and Miss America winners are significantly more slender than famous sex symbols of yesteryear, such as Marilyn Monroe and Jayne Mansfield. While the body has shrunk, what about body shape? In an oft-quoted study of Playboy centerfolds and Miss America winners, Garner, Garfinkel, Schwartz, and Thompson (1980) concluded there is a significant trend for thinness and that the ideal female body form is evolving away from the hourglass shape and becoming tubular. Morris, Cooper and Cooper (1989) also found that British fashion models over the period of 1967-1987 exhibited “a trend toward a more tubular or androgynous body shape.” If true, fashion models should also show a gradual increase towards a WHR size of 0.80 or in the masculine range. In a previous study, Singh (1993a) examined the body weights and WHRs of Miss America winners from 1923 to 1987 and of Playboy centerfolds from 1955 to 1990. Indeed, there was a significant trend in reduction of body weight, but WHRs of both Miss America winners and Playboy centerfolds remained in the 0.68-0.72 range. A similar trend is evident in BMI and WHR of Playboy centerfolds and Miss Hong Kong winners from 1987 to 2004 (Singh, 2006). As evident in Figure 4, the BMIs of Playboy centerfolds have fluctuated between 18 and 19.25, and Miss Hong Kong winners have lower BMIs (17.25-17.75) than Playboy centerfolds while maintaining their WHRs in the range of 0.65-0.71.

*Figure 4.* Body Mass Index (BMI) and WHR of Playboy Centerfold and Miss Hong Kong from 1987-2004




WHRs were not available for Miss Hong Kong for 1988, 1987, 1992 and 1997.

*Figure 4.* Continued




A recent study has reported a significant upward trend in WHR size of Playboy centerfolds from 1955-2002 and has suggested that the female beauty ideal is becoming more androgynous (Voracek & Fisher, 2002). Inspection of WHRs of Miss Hong Kong's and Playboy centerfolds does not support the conclusion that beautiful women are becoming more "androgynous;" none of the women from these two samples have WHRs anywhere close to the male range (Figure 4).

The problem with trend analysis is that minor fluctuations in a variable, if consistent over time, can be statistically significant, although such fluctuations themselves do not imply such trends would be evident in the future, or whether such changes have any biological significance. For example, there is a significant trend for increased height in female fashion models over the past half century; this trend does not, however, imply that in the future female fashion models will be as tall or taller than male ones.

## Cross-Generational (Historical) Appeal of WHR

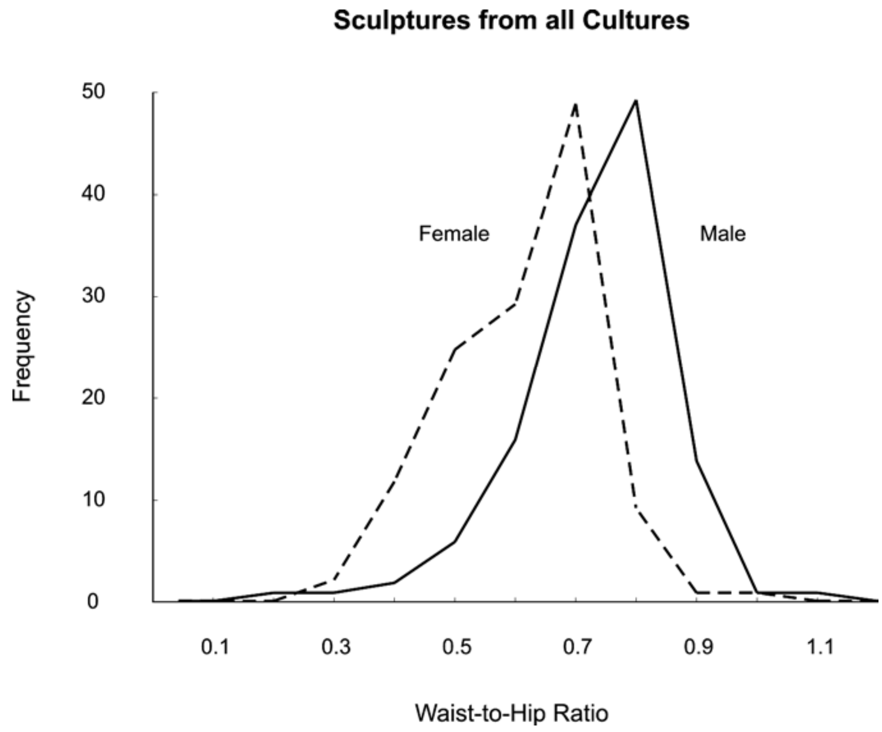
The fact that diverse extant cultural groups have a similar conception of female bodily attractiveness does not, in and of itself, prove that this conception was crafted by natural selection. For example, although McDonald's hamburgers and Coca-Cola are enjoyed by many societies, to invoke evolutionary mechanisms to explain such preferences would be misleading. If a mechanism is designed by the forces of natural selection, its functioning should be evident across human generations. For instance, did people associate female attractiveness with the hourglass figure during the Roman era or in ancient Indian cultures?

Artists attempt to use their creativity to invoke naturally occurring responses to biologically significant stimuli; thus, artistic representations of the female body should invariantly be in accord with or purposefully exaggerate biological facts. This inference is supported by evidence that ancient female statuettes of Venus from Central Europe and Turkey emphasized body fat on the lower rather than the upper torso (Tarui, Tokunaga, Fukioka & Matsuzawa, 1991). Fertility and age-related changes in female WHR would have been observed by artists universally, so the sexual dimorphism in WHR size should be evident in artists' depictions of male and female body shapes in spite of the local canons of aesthetic representation.

Consider the ancient sculptures of Rome and India. The archetypical female body form epitomized by Aphrodite, the goddess of beauty and fertility, in spite of the difference in representational style, is remarkably similar to the ancient erotic female sculptures of India. The continued representation of sexual dimorphisms among sculptures from Greece, India and Egypt suggest an almost obsessive and universal interest in specific body parts that depict an alluring body form. Haywood (personal communication, October 15, 2001), an art historian, points out that the body form epitomized by Aphrodite was the "ideal" body, whereas the body form of Hera, the goddess of home and wifely virtues, was less alluring sexually. A cursory examination of these sculptures reveals that the hourglass figure is highlighted for Aphrodite, whereas clothing hides the waist and lower body parts of Hera.

If it can be demonstrated that ancient Greek (Greco-Roman), Indian and Egyptian sculptures depict a sexually dimorphic WHR, such a consensus cannot be explained by the influence of modern Western culture. To explore this possibility, Singh (2002) measure WHRs in 286 ancient sculptures from India, Egypt, Greece (Greco-Roman) and some African tribes. In all four cultural groups, distributions of WHR vary but the mean female WHR was significantly lower (0.7) than the mean male WHR (0.9), despite cultural variability (Figure 5). It is truly impressive that ancient sculptures of females have 0.7 WHRs which are judged to be attractive in extant diverse cultures.

*Figure 5.* Mean Male and Female WHRs Based on Combined Ratings of Four Ancient Cultures




Note: Mean WHR for females is 0.7 and for males is 0.9.

In a remarkably ambitious study, worldwide WHRs in female depictions dating from the Upper Paleolithic to modern times were analyzed (Chiappa, Palencia & Mondragon-Ceballo, 2000). Measurements of female WHRs were obtained from 330 photographs of artworks dating from 32.000 years (B.P.) to 1999 A.D. from Europe, Asia, America and Africa. Results show that, most frequently, WHR was depicted in the range of 0.6 to 0.7. The most important finding of this investigation is that female WHR depictions have remained relatively unchanged from the Upper Paleolithic to the present day. Taken together, this historical cross-cultural information affirms the claim that the preference for low female WHR is an adaptive design feature rather than an artifact of cultural influence.

## GENERAL DISCUSSION

### Attractiveness Equals Health and Fertility

The summarized research provides additional empirical support for an evolutionary mate selection theory, according to which attractiveness is an indictor of phenotypical and genotypical qualities. We have presented data to establish that the allure of the hourglass figure is “programmed” in the human mind because it provides important biological information. First, there is accumulating evidence suggesting that WHR has a large heritable component, that cannot be accounted for by parent-child resemblance in total body weight or environmental condition (Donahue, Prineas, Gomez, & Hong, 1990; Neslon, Vogler, Petersen & Miles, 1999). Segregation analysis has provided evidence for the presence of genes for age and BMI adjusted WHR (Feitosa, *et al.*, 2000). Offspring of women with lower, more feminine, WHR would have inherited good health and would have been physically attractive to potential mates. Second, WHR is the only known body feature that tracks, in lock step, sex hormone and thus fertility in women. Women with low WHR have higher estrogen and progesterone levels during the ovulatory phase of the menstrual cycle than do body weight matched women with a high WHR (Jasienska, *et al.*, 2004). Kirchengast and Gartner (2002) report that during fertile phases of menstrual cycle, there is a reduction in WHR, even in women with low WHR. Finally, as pointed out before, WHR is an independent predictor of pregnancy.

If WHR is an important cue for mate choice, then it is important to show that variation in WHR leads to variation in mating success due to competition among rivals through contest, mate choice, or any other mechanisms of sexual selection. Women with low WHR flirt more often (Singh, 2004), have more sex partners (Mikash & Bailey, 1999), report earlier age of first intercourse, and engage more often in intercourse with men involved in other relationships (Hughes, Dispenza & Gallup, 2004) than do women with a higher WHR. Vocal qualities of women with low WHR are rated as more attractive than women with high WHR (Hughes, 2004). Jamaican men with high genotypical and phenotypical quality (as measured by the degree of bilateral body part symmetry) prefer women with low WHR as a romantic mate (Jacobson, 2005).

Historical and modern manipulation by women to increase or decrease attractiveness are testaments to the importance of WHR. The popularity of corsets during Victorian era (despite internal injuries caused to women) and fashionable clothing that highlights tiny waists and exaggerated hips cannot be explained by arguing that women were trying to decrease their body weight. Clothing and fashion can be made to make a political or personal statement (or may be designed for comfort), rather than for attracting the mating attention of prospective mates. When women attempt to convey that they are not sexually available they often deemphasize the body form (e.g.: nun’s habit, business suit, and the chador to hide the female body in Iran and some Arab countries). When the objective is to make oneself sexually alluring, a persistent method has been to emphasize the narrow waist, as it is historically evident in early Greek paintings and presently evident in Western female fashion using corsets, bustle, and other devices (Shorter, 1982). In addition, when asked what they do to make themselves attractive to potential mates, young women most often report "sucking stomach in" as tactic after make-up application (Tooke & Camire, 1991). Women are aware of and seem to manipulate this evolved preference for low WHR.

## Conclusion

Obviously, females with identical WHRs can vary in total body fat, and a maximally attractive amount of total fat may vary from society to society. Human males may have psychological mechanisms designed to adjust certain determinants of attractiveness to local conditions or ecology (Symons, 1995). Human societies that face frequent food shortage, or must depend on hard labor to acquire and store food, may find strong legs and arms or overall plumpness of body more attractive than narrow waists. Population-specific distribution of BMI and WHR may also influence the size of WHR which is maximally attractive. In some societies where the majority of women have high WHR (e.g. Eskimos of Alaska), men may judge women with high WHR as quite attractive. What is important, however, is the sexually dimorphic size of the WHR rather than the size of women's WHR alone. WHR and attractiveness hypotheses would predict that the maximally attractive size of female WHR should be lower rather than equal to or greater than that of men in a population. Cross-cultural studies examining the role of fatness and WHR in determining female attractiveness must obtain information about society-specific distributions of male and female WHR.

Physical attractiveness depends on both facial and bodily features, but strangely, all the detailed analysis of what constitutes attractiveness and its link to genetic quality is restricted to faces. The attractiveness of the body, in spite of clear age-related change (e.g., prepubertal, postpubertal, and menopausal) is solely defined by body weight; skinny women are more attractive than normal weight women, who in turn are more attractive than overweight women. Fashion models are also defined by this criterion (Wow! How thin!) although most people are aware that two women of identical height and body weight do not look alike in their body shape. We believe that such a unidimensional description of an attractive body is due to the lack of theory about the human body. The only theory which psychologists are exposed to is Sheldon's somatotype classification of endomorphs, mesomorphs, and ectomorphs. This classification gave rise to categories of fat or overweight (endomorphs), normal weight (mesomorphs), and thin (ectomorphs) (Singh, 2002). The trend of defining and assessing women's attractiveness solely according of body weight, or BMI, provides an incomplete and perhaps inaccurate picture of female attractiveness.

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