Rethinking Women's Biology

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Ruth Hubbard is a professor emerita of biology at Harvard University. She has been an important researcher in the fields of biochemistry and photochemistry, though in recent years her work has focused on challenging the biological theory of women's inequality. Her books include *The Politics of Women's Biology* (1990) and *Profitable Promises: Essays on Women, Science, and Health* (1995).

Women's biology is a social construct, and a political concept, not a scientific one, and I mean that in at least three ways. The first can be summed up in Simone de Beauvoir's (1953) dictum "One isn't born a woman, one becomes a woman." This does not mean that the environment shapes us, but that the concept, woman (or man), is a socially constructed one that little girls (or boys) try to fit as we grow up. Some of us are better at it than others, but we all try, and our efforts have biological as well as social consequences (a false dichotomy because our biological and social attributes are related dialectically). How active we are, what clothes we wear, what games we play, what we eat and how much, what kinds of schools we go to, what work we do, all affect our biology as well as our social being in ways we cannot sort out. So, one isn't born a woman (or man), one becomes one.

The concept of women's biology is socially constructed, and political, in a second way because it is not simply women's description of our experience of our biology. We have seen that women's biology has been described by physicians and scientists who, for historical reasons, have been mostly economically privileged, university-educated men with strong personal and political interests in describing women in ways that make it appear "natural" for us to fulfill roles that are important for their well-being, personally and as a group. Self-serving descriptions of women's biology date back at least to Aristotle. But if we dismiss the early descriptions as ideological, so are the descriptions scientists have offered that characterize women as weak, overemotional, and at the mercy of our raging hormones, and that construct our entire being around the functions of our reproductive organs. No one has suggested that men are just walking testicles, but again and again women have been looked on as though they were walking ovaries and wombs.

In the nineteenth century, when women tried to get access to higher education, scientists initially claimed we could not be educated because our brains are too small. When that claim became untenable, they

granted that we could be educated the same as men but questioned whether we should be, whether it was good for us. They based their concerns on the claim that girls need to devote much energy to establishing the proper functioning of their ovaries and womb and that if they divert this energy to their brains by studying, their reproductive organs will shrivel, they will become sterile, and the race will die out.

This logic was steeped in race and class prejudice. The notion that women's reproductive organs need careful nurturing was used to justify excluding upper-class girls and young women from higher education but not to spare the working-class, poor, or black women who were laboring in the factories and homes of the upper class. If anything, these women were said to breed too much. In fact, their ability to have many children despite the fact that they worked so hard was taken as evidence that they were less highly evolved than upper-class women; for them breeding was "natural," as for animals.

Finally, and perhaps most importantly, our concept of ourselves is 5
socially constructed and political because our society's interpretation of what is and is not normal and natural affects what we do. It therefore affects our biological structure and functioning because . . . what we do and how our bodies and minds function are connected dialectically. Thus norms are self-fulfilling prophecies that do not merely describe how we are but prescribe how we should be.

Body Build and Strength

Let us consider a few examples. We can begin with a few obvious ones, such as height, weight, and strength. Women and men are physically not very different. There are enormous overlaps between women and men for all traits that are not directly involved with procreation.

For example, there is about a two-foot spread in height among people in the United States, but a difference of only three to five inches between the average heights of women and men. When we say men are taller than women, what we really mean is that the abstraction *average (or mean) height* is a few inches greater for men than women. Overall, women and men are about the same height, with many women as tall as, or taller than, lots of men. The impression that women are shorter than men is enhanced by our social convention that when women and men pair off, it is considered preferable for the man to be taller than the woman. In some countries, such as Bali, differences in height and, indeed, overall body build are much smaller than in the United States (Lowe, 1982).

Clearly, height is affected by social factors, such as diet. In the early part of this century, English working-class men were significantly

shorter, on average, than men from the upper class, and this difference in height was due to differences not just in the adequacy but in the composition of their diets — proportions of carbohydrates, proteins, fats, vitamins. In the United States we are familiar with a similar phenomenon when comparing the heights of immigrants and their U.S.-born children. We have tended to think that the U.S.-born children are taller than their immigrant parents because they get a better diet. But now that we are learning more about the health hazards of the typical U.S. diet, with its excessive fat and protein content, we should probably defer value judgments and just acknowledge that the diets are different.

Sex differences in height probably also arise from the differences in growth patterns between girls and boys. Until early adolescence, girls, on average, are taller than boys, but girls' growth rates tend to decrease after they begin to menstruate, whereas, boys continue to grow throughout their teens. It is generally assumed that this difference is due to the fact that the increase in estrogen levels after the onset of menstruation tends to slow the growth of girls' long bones. But the age of onset of menstruation, hence of increased estrogen secretion, depends on a number of social factors, such as diet, exercise and stress (Frisch, 1988). For example, female swimming champions, who, because of their intense, early training, tend to begin to menstruate later than most girls, tend also to be taller than average. We might therefore expect factors that delay the onset of menstruation to decrease the difference in average height between women and men, those that hasten the onset of menstruation to increase it.

It is probably not that simple because the factors that affect the onset of menstruation may also affect height in other ways. All I want to suggest is that height, in part, is a social variable and that differences in the average height of women and men vary with the social environment.

Weight clearly has considerable social components. Different societies have different standards of beauty for women, and many of these involve differences in desirable weight. Today we call the women in Rubens's paintings fat and consider Twiggy anorexic. In our society changes in style not just of clothing but of body shape are generated, at least in part, because entire industries depend on our not liking the way we look so that we will buy the products that promise to change it. To some extent this is true also for men: Padded shoulders are not that different from padded bras. But there is more pressure on women to look "right," and what is "right" changes frequently and sometimes quite drastically. At present, U.S. women are obsessed by concerns about their weight to the point where girls and young

women deliberately eat less than they need for healthy growth and development.

Although we may inherit a tendency toward a particular body shape, most women's weight can change considerably in response to our diets, levels of physical activity, and other patterns of living. These also affect physical fitness and strength. When women begin to exercise or engage in weight training and body building, we often notice surprisingly great changes in strength in response to even quite moderate training. Here again, what is striking is the variation among women (and among men).

People ask whether there are "natural" limits to women's strength and therefore "natural" differences in strength between women and men. In Europe and the United States women and men are far more similar in lower body strength than in the strength of our upper bodies. This fact is not surprising when we consider the different ways girls and boys are encouraged to move and play from early childhood on. We tend to use our legs much more similarly than our arms. Both girls and boys tend to run a lot, and hopscotch and skipping rope are considered girls' games. But when it comes to carrying loads, playing baseball, and wrestling and other contact sports, all of which strengthen the arms and upper body, girls are expected to participate much less than boys are. In general, male/female comparisons are made between physically more highly trained men and less trained women so that so-called sex differences at least in part reflect this difference in activity levels. More and less active men also differ in strength, and so do more and less active women. . . .

Women's Biology in Context

Clearly we need to think about women's biology in its social context and consider how it interacts with culture. We need to get information directly from women and not rely on so-called experts, who are often male and whose knowledge tends to be based on the experience of "patients" — that is, of women with problems. Only when women have the opportunity to share experiences and when scientists collect the experiences of women of different ages and from different classes, races, and cultural groups can we get a sense of the texture and variety of women's biology (Martin, 1987).

We need to pay attention to the obvious contradictions between stereotypic descriptions of women's biology and the realities of women's lives. For example, women's reputed "maternal instinct" needs to be looked at in light of some women's desperate efforts to avoid having children, while society persuades or forces them to have children

against their wills. Similarly, descriptions of women's frailty, passivity, and weakness need to be juxtaposed with the reality of women as providers and workers who in most societies, including our own, tend to work harder and for longer hours than most men.

Women's work histories are often obscured by the fact that work has been defined so that it excludes much of their daily work load. Indeed, whereas most of what men do is called work, much of what women do has been interpreted as the natural manifestation of our biology. How often do we hear people say, "My mother didn't work when I was growing up"? If she didn't work, how did we manage to grow up? Even women usually refer to what we do as work only when we get paid for it, implying that what we do at home and in our neighborhoods and communities is not work. This misrepresentation of work sets up the vicious circle whereby women are thought to be less good workers in the workplace when we have family and community obligations and less good housewives and mothers when we work outside the home.

No question, we are biological organisms like other animals, and women and men have different procreative structures and functions. But to try to find the biological basis of our social roles or to sort people by sex when it comes to strength, ability to do math, or other intellectual or social attributes is a political exercise, not a scientific one.

The Meaning of Difference

That said, I want to stress that we need have no ideological investment in whether women and men exhibit biological differences, aside from the obvious ones involved with procreation. I have argued that we cannot know whether such biological differences exist because biology and society (or environment) are interdependent and cannot be sorted out. And in any gender-dichotomized society, the fact that we are born biologically female or male means that our environments will be different: We will live different lives. Because our biology and how we live are dialectically related and build on one another, we cannot vary gender and hold the environment constant. Therefore, the scientific methodology of sex-differences research is intrinsically flawed if scientists try to use it to sort effects of biology and society. Scientists can catalog similarities and differences between women and men but cannot establish their causes.

There are other problems with research on differences. One is that it is in the nature of scientific research that if we are interested in differences, we will go on looking until we find them. And if we do not find any, we will assume that our instruments were wrong or that we

looked in the wrong place or at the wrong things. Another problem is that most characteristics vary continuously in the population rather than placing us into neat groups. To compare groups, however defined, we must use such concepts as the "average," "mean," or "median" in order to characterize each group by a single number. Yet these constructed, or reified, numbers obscure the diversity that exists within the groups (say, among women and among men) as well as the overlaps between them. That is why statisticians have invented the concept of the standard deviation from the mean to reflect the spread of the actual numbers around the reified average. This problem is obvious when we think about research into differences between blacks and whites. Just to do it, we have to agree on social definitions of who will count as black and who as white because after several centuries of mixing, the biological characteristic, skin color, varies continuously. Research comparing blacks and whites must first generate the group differences it pretends to catalog or analyze.

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Differences, be they biological or psychological, become scientifically interesting only when they parallel differences in power. We do not frame scientific questions about differences between tall people and short people, although folk wisdom suggests there may be some. Nor do we, in this society, pursue differences between blue-eyed, blond people and dark-haired, dark-eyed ones. Yet the latter were scientifically interesting differences under the Nazis.

Sex differences are interesting in sexist societies that value one group more highly than the other. Because the overlaps are so large for all the characteristics that are not directly involved with procreation, it is easy to find women and men to perform any task we value. The existence of average sex differences is irrelevant to the way we organize society. To achieve an egalitarian division of labor requires political will and action, not changes in our biology. There is enough variability among us to let us construct a society in which people of both sexes contribute to whatever activities are considered socially useful and are rewarded according to their talents and abilities.

References

de Beauvoir, Simone. 1953. *The Second Sex*. Translated and edited by H. M. Parshley. New York: Alfred A. Knopf.

Frisch, Rose. 1988. "Body Fat, Menarche, Fitness and Fertility." *Human Reproduction* 2: 421–533.

Lowe, Marian. 1982. "Social Bodies: The Interaction of Culture and Women's Biology." In *Biological Woman — The Convenient Myth*, edited by Ruth Hubbard, Mary Sue Henifin, and Barbara Fried. Cambridge, MA: Schenkman.

Martin, Emily. 1987. *The Woman in the Body*. Boston: Beacon Press.

Understanding the Text

1. In discussing one common assumption about male and female biological difference — height — Hubbard writes, "Overall, women and men are about the same height, with many women as tall as, or taller than, lots of men" (p. 47). Although men are on average taller than women, what factors contribute to our sense that the differential in men's and women's height is greater than it actually is?
2. What other social and cultural factors, according to Hubbard, may affect height and strength? How are these factors significant in terms of Hubbard's broader argument? What other social and cultural factors seem to emphasize or cultivate differences between male and female bodies?
3. To Hubbard, what are some of the "problems" (p. 50) with research done on sex differences?

Reflection and Response

4. One of Hubbard's central points is that bodies — which we often take to be shaped wholly by genetic forces of nature — are socially constructed (p. 46). What does Hubbard mean by this? In what additional ways are men's and women's bodies conditioned, shaped, and otherwise manipulated to display the contemporary assumptions about masculinity and femininity?

Making Connections

5. In everyday life, we often hear people make casual distinctions between men and women on the basis of the supposedly biological differences between male and female bodies and brains: men are stronger than women, women are more emotional than men, and so on. Think of some other purportedly biological differences between women and men, and reconsider those claims by emphasizing the extent to which social and cultural factors create (or widen) those "biological differences."
6. Hubbard's essay ends by arguing that there are many problems with researchers who look for gendered differences. Examine one of the articles in Chapter 2 about childhood gender roles and write about whether Hubbard's critique would apply. Do any of those articles seem to construct differences even as they analyze them? Or would Hubbard perhaps be comfortable with the kinds of analysis that our Chapter 2 authors conduct?