# PHYSICAL ANTHROPOLOGY AND GENDER ISSUES

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**Keywords:** Female genital mutilation, gender, girl child, growth, infanticide, malnutrition, Mother Goddess, physical anthropology, poverty, trafficking, violence

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#### **Summary**

Physical anthropology describes and analyses human variation; the greatest differences exist between females and males. Next to genetics, environment is one of the factors explaining the complex biological diversity. In humans, environment clearly includes human behavior. Consequently, the impact of gender - the attitude of society towards both sexes - belongs to the field of physical anthropology. An essential topic involves the interactions of environment with growth and development. Yet, relatively rarely, is reported on unprivileged children elsewhere. Their situation mainly is a subject for WHO, UN, health services and social scientists. It is outlined here to call attention among physical anthropologists to the specific environmental stressors inhibiting the girl child, confronted with the double social disadvantage of being born poor and being female.

Worldwide, the low status of females effects negatively their biologically functioning to such extremes that the natural biological female superiority may be changed in the opposite direction. They are at high risk due to sex-selective abortion and infanticide, the burden of poverty, nutritional sex inequality and overall neglect, severe domestic duties and child labor, sexual abuse, sex and labor trafficking, adolescent maternity and violence as well as sex bias in health care and illiteracy, and in some areas genital mutilation. These large scale constraints affect population statistics on sex ratio, morbidity and mortality. Growth and maturation is delayed in unprivileged girls, because an adverse environment interacts negatively with the complex multi-factorial growth process.

Education programs for girls are the most relevant step to lessen gender discrepancies in (health) status and to better their conditions, creating a better future for all. Physical anthropologists are called on to implement more clearly the impact of gender in their teaching programs and in their explanation models. And to monitor specifically growth of the (girl) child in non-affluent societies, to emphasize also outside their field the relevance of basic health conditions, and to convince policy makers with quantitative figures how a good environment benefits girls as well as the next generation they may produce.

# 1. Introduction

# **1.1. Physical Anthropology**

Physical anthropology studies the nature, origins, development and causes of human biological variation in time and space. Variation In time involves evolution and secular (over the century) changes; variation in space involves among others urban versus rural, tropics versus moderate climates, lowlands versus high altitudes. Studied are physical differences and similarities between individuals and (sub) populations, between males and females, between young and the older. By definition the field is inter- and multidisciplinary, with various sub-sections. Its research is quantitative, and often

empiric. Attention has focused on the standardized description and measurement of physical diversity as well as coherent theories to explain its backgrounds. The explanation models comprise genetics and environment. Behavior, culture and lifestyles - such cardinal, specific features of genus *Homo* - are an essential part of environment in the models explaining the complex processes of selection. As a consequence, the field is a natural science with a mix of social sciences.

#### 1.2. Sex Differences and Sex Ratio

The biggest somatic and health differences among humans are those between the sexes, albeit with clear overlaps. Not only morphology and physiology obviously differ, but as well morbidity and mortality, and processes like growth and development. From a biological perspective, in normal, non disadvantageous circumstances, girls are the stronger sex since conception onwards. On the average, the skeleton in healthy newborn girls is more advanced than in neonate boys, while healthy girls start their puberty two years earlier.

Moreover, in contrast to girls, boys are weaker because they have only one X-chromosome, so they may suffer from X-linked recessive diseases that are rarely if ever seen in females. Before birth, significantly more boys are likely to be lost, as well as during childhood. Nature compensates by more conceptions of boys; about 105 males are born for every 100 females. In adulthood the ratio of men to women equalizes. From then on, the sex ratio reverses, because at every stage of life males stay more prone to diverse diseases and less viable than females.

# **1.3. Growth and Development**

An essential topic within the field of physical anthropology involves the interactions of environment with growth and development. For one, because comparison of growth data between populations as well as within a population, indicates how socio-economic factors may curb the effect of genes. A revealing example of the interaction between nurture and nature, is to be explained by the fact that the complicated growth process is controlled by a complex of genes. And contrary to monogenetic inheritances - polygenetic regulation is sensitive to environmental influences in the way that an adverse environment constrains the achievement of the genetic potential. With other words, the environment is co-important in determination of the phenotype, which thus may deviate from the genotype as coded in the child's DNA.

A delayed growth may be the case in an individual child with long lasting illnesses. An overarching bad environment, as in the case of poverty and malnutrition, imposes itself on ever child in a community. As a result the children of the whole (sub) population stay smaller and reach puberty later. In former centuries this was the case all over Europe, for children of all socio-economic levels. Because - though children differ in their time schedule in going through the processes of growing up - the proportion of variance explained by the social/nutritional environment is much greater than the proportion explained by ethnicity or population.

Accordingly, the WHO has proclaimed growth of the youth as a health indicator of the

population. Some leading historians and economists detected that in present affluent societies their statistics on height in former centuries offers a quantitative indicator of the general health status related to economic development in former days. Then, the situation in Europe could be compared with current underdeveloped countries. In the Netherlands, for instance, large groups of the population were in a poor physical condition, due to severe malnutrition, in combination with endemic tuberculosis, syphilis and alcohol abuse. In 1861 the physician Zeeman stated 'rather there was question of the state of disease than of the state of health of the Dutch nation' (Roede 2002a).

Nowadays, half of the world's population is under the age of 25 and more than 85 per cent of the world's youth live in developing countries. As a consequence, the world is filled with non-prosperous children, living under bad circumstances which may even be worsening. Though countless boys suffer also from malnutrition, sexual abuse, child labor or armed conflicts, in most countries today, girls are confronted with the double social disadvantage of being born poor and female. Globally, due to the negative attitudes towards their value, girls and women are far from equal to boys and men. Though in the developing world also, on the average women live slightly longer than males, in every other way their chances in life are worse. Both at the individual as at group level, an asymmetric gender effect operates in basic needs like nutrition and in the various aspects of reproduction.

### **1.4. Gender Issues**

Because behavior and culture are essential in their explaining models, physical anthropologist should be concerned about gender effects on growth and development.

Soon after birth, the so essential somatic difference between the legs is covered and hardly ever exposed in public anymore. From then on, the child's sex is made obvious by cultural habits like given name, by clothes and hairstyle. In at least Western countries, also the approach to the infant is proven to be sex-specific, such as the greeting noises adults make, or the time the mother holds her baby after breastfeeding. Thus, the first socialization towards male or female starts in the cradle and life-long, one stays confronted with the specific views, attitudes and expectations prevailing within the family and society towards males versus females. In 1955, the American psychologist Money proposed to use the term 'gender' for the cultural non-genital male/female roles, to distinguish these linguistically from the biological dimension of being male or female, <u>i.e.</u> the morphology and physiology of the genitalia and their functions.

Gender soon proved to be a useful concept, in both scientific and public arenas, to refer to the sociocultural dimension of being female or male, to the cultural construction of male and female roles and the expectations prescribing how females and males should think, feel and act.

Note, that Heraclitus' 'Everything flows and nothing stays' certainly holds true for gender roles. Last decades, in developed nations like in the United States, roles assumed by males and females have changed and are becoming increasingly similar (Santrock, 1998), though certainly not at all levels of this society. In many countries, however, gender roles have remained strictly different and complete equality is far from reached; gender specific

differences remain and females are not given access to high-status positions.

# 1.5. Set-up

Countless papers have been published on growth in the own affluent societies, where the earlier maturing youth is getting taller and taller. Yet, relatively rarely, is reported on unprivileged children elsewhere. Their situation and its underlying causes mainly are a subject for WHO, UN, health services and social scientists. This contribution calls attention among physical anthropologists to a greater awareness of the specific environmental stressors inhibiting the growth of the girl child.

After a short survey of the high status of females in remote times, including the risks of motherhood, will be described how prevailing views on the low status of females interact negatively with their health, growth and well-being. Infanticide and female circumcision are dealt with in detail; more shortly, other constraints for girls will be mentioned. At the end policies for improvement are given.

The rough generalizations of this survey have to be stressed. When below the impact of gender is described, it should be realized that the roles of men and women vary widely across and even within cultures. Hunter-gatherers, for instance, have less gender stratification than food producers (Kottak 1997). The small Dogon (Mali) settlements vary clearly in whether men or women are weaving, spinning and making clothes.

And note, that various times Frank Johnston (e.g. 1990) remarked that the potential of development of children of the well-to-do families in developing nations is not markedly different from the one in the developed world.

# 2. The Status of Females

# 2.1. From Goddesses to Incubators.

Before discussing the present implications of gender roles, it is intriguing to return to distant ages. Because females were not always of low status; during our remote prehistory, the image of women was strikingly different. There are indications that already among Neanderthal people - living from 30,000 to 150,000 years ago - there was a division of tasks: the males made weapons and skin scrapers and regularly left to go hunting in groups. The females stayed near the fireplace and took care of the children and of gathering edible and curative plants. A male-female dichotomy does not automatically imply a power hierarchy in the sense that the women are the subordinates. On the contrary; male dominance developed late, in Mesopotamia between 3,500 and 2,500 B.C. Before, during the days of early modern Homo sapiens, the female was the honored potential that could create life. As in primates in general - single mothers may have been the norm during Pleistocene life. They were fully sufficient to nurture their offspring with minimal assistance from males, surrounding the females more as courtship effort than paternal investment (Blaffer Hrdy 1999; Miller 2000). Females showed mysterious menses and a magic ability to become pregnant and give birth. This mystic generative power of women seems to be reflected in a religious pattern with a feminine almighty creator. Mythology is said to pass down views and beliefs from the old days and according to Gustav Jung the strongest of the archetypes from our collective unconscious is the omnipotent Mother Goddess. Though prudence is called for interpretations of cultures so long ago, a fact is that in Paleolithic caves numerous mostly centrally placed depictions of vulvas and wombs are found as well as engravings and paintings of women, the earliest ones dating from about 27,000 BC. In the various 'Venus' statuettes like those from Laussel or from Willendorf - both about 30,000 years old - the female shape is emphasized by pregnant bellies, exaggerated buttocks and pronounced breasts. Were they real depictions or idealizing fertility, the so critical factor to survive? Of the thousands years old Neolithic figurines found in prehistoric caverns scattered over Europe and Asia Minor, at least four times as many are female. Various old statutes picture a goddess sitting enthroned, or in the process of giving birth. Generally it is accepted that these younger figures also represent priestesses to the goddess or the goddess herself. The similarity of some to those of the earlier period suggests that religious concepts remained and may indicate the continuing high respect towards women.

Among various African tribes an envy that men experience of the birth-giving power of women still remains. Dogon (Mali) mythology tells how one of the twin sons of the creator Amma and his wife Earth covered his mother's bare body with a fiber skirt, but his brother cast it aside and committed incest. This impurity of Earth was marked by the first appearance of menstrual blood. The women found the blood-soaked fibers and thus obtained power. Then men appropriated the red skirt and hid it in a cave. The myth is reflected in most sacred mask-dances, in which the males - wearing red fiber skirts - memorize how they managed to steal women's magic power of fertility (Grimal 1989).

The primacy of Mother Goddess in prehistory has been seriously challenged. Yet, the theory of a female dominance becomes feasible, when considering the fact that the phenomenon of domestication of animals started only recently, about 9,000 B.C. and later on. The earlier Paleolithic humans probably were not fully aware about the relation between their sex life and making children. This is less strange than it may seem to be at first hand. Young girls show a relative low fertility, attributed to the two facts that first menstruations often are *an-ovulatoir* and that longer-time relationships are more likely to produce offspring, given that it takes an average of three months of regular copulation before conception. While in prehistoric communities adolescent sexual intercourse during very short-term partnerships most probably was customary, as among contemporary hunter-gatherers. Young mothers could also have sex without getting pregnant again, because their frequent and over a long period breastfeeding suppressed ovulation strongly.

Domestication introduced growing knowledge about the facts-of-life and revolutionized the understanding of propagation. The status of men improved when they started to fathom the power of their sexual possibilities. And after a Golden Age of at least seven millennia the Great Goddess became repelled. From the fourth millennium BC onwards, the goddess worshipping tradition and the position of mortal women gradually eroded.

From 2000 BC onwards, Judaism developed monotheism; God became the Holy Father. In the first Bible book of Genesis, Eve brought evil over the human species for eating the apple of the tree of knowledge of good and evil. God condemned her to a grievous pregnancy and labor pains. 'And your man will rule over you'. Suffering and submission has become Eve's fate and the fate of all women after her.

The Greeks and Romans worshipped various goddesses, like Athena (Minerva) goddess of wisdom. The Olympic Games were opened by goddess Artemis, the virgin huntress. Yet, the staggering position of females is reflected in how Hera was reduced from a supreme goddess in her own right in the old, matriarchal religion into simply the wife of Zeus in the later Hellenic myth. An expression of shifting powers can also be seen in the final defeat of the Amazons - the armed warrior-maidens said to live in northern Anatolia - by the Greeks during the siege of Troy.

Among the citizens of Athens women became reduced to mere incubators. Following Aristotle's tendentious reasoning now only the male was considered as endowed with the procreative power to plant new life with his seed. He considered the female as a maimed male, a male without genitals, who only contributed by offering her nutritious blood and a womb to make the male's wonder of creation grow (Keuls 1985).

The revulsion in the attitude towards (young) women had significant sad consequences for their health. Pregnancy and child birth is not without risk; in the case of neglect it becomes really a matter of life and death. In the Classical age - especially in Athens, with a strong dominance of the male - females had to accept death in child birth as a natural event. Mainly mothers who died giving birth to a son were getting a grave stele; those who delivered a daughter did not deserve to be memorized (Keuls, 1985). That casualties were high was partly due to the fact that they were given away in marriage so young, since child brides were easier to handle and to train. This widespread habit was also described in classical Indian texts. It is remarkable that a male from classical times, Euripides, made Medea complain: "They say of us that we live without danger in our homes, while they contend in war. How badly they reason! I should rather stand three times besides the shield than give birth once" (Keuls).

The new misunderstanding about the process of reproduction now resulted in their clearly inferior position. Till the Middle Ages and later females' contribution to progeny was denied. According to Thomas of Aquino "woman's semen is not appropriate to procreate, because of the imperfection of woman's power".

In the seventeenth century William Harvey was the first to say that all life comes from the egg, while the Dutchman Reinier de Graaf realized the relevance of the ovaries (though still labeled 'female testicles').(Both see Roede, 2002a). These revealations of the hidden female contribution to reproduction did not positively change the status of women. Since Vesalius, well through the 19th century, the male body was the norm in anatomical textbooks. The female was considered as kind of an imperfect male, with a uterus just like a penis, but than blown inside (Laqueur 1992). We should not judge too rigidly; it is fair to say that the actual anatomical knowledge was limited in former times.

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#### **Biographical Sketch**

**Machteld J. Roede** got her master's degree in biology and in 1972 her Ph.D at the University of Amsterdam. Her 8-years period of treasurer of the European Anthropological Association was acknowledged by her being awarded the EAA President's signet Ring. She has been honored by the Croatian Anthropological Association with the Gorjanovic-Kramberg plaque and she is Knight Companion of the royal Order of Orange-Nassau. In 1983 she was co-founder of the Netherlands Society for Physical Anthropology and has been almost continuously part of the board. She was staff member of the Institute of Human Biology, University of Utrecht - among others, involved in (starting) teaching

Medical Genetics - and of Health Sciences, University of Maastricht. After her PhD research on growth, sex differences and reversal of sex in Caribbean Labrid fishes, back in Holland she shifted to studying growth and development of children. She co-worked in the multidisciplinary Nymegen Growth Study of 1970-1975 to analyse the anthropological measurements, and also co-authored papers on the statistical treatment of the data. Then, she conducted the Third Nation-wide Biometric Growth Study, resulting in the Dutch growth diagrams 1980. In 1987 she organised the Dutch human evolution symposium 'The Aquatic Ape. Fact or Fiction?' and was end editor on a book on this topic. She was scientific organiser of Croatian 18th International School of Biological Anthropology (1992): 'Women and Anthropology. Implications of gender for health' and invited editor of Zagreb's Collegium Antropologicum, volume 16, 1992. In 1997 she was moderator of symposium 'Implications of the low Status of Women for Growth and Development of Girls during the 8th International Congress of Auxology, Philadelphia, Penn. USA. Next to lecturing and writing on Girl Child topics, she wrote a detailed History of Physical Anthropology in the Netherlands (2002). Numerous times she was guest speaker on local and national radio and television programs.