

WAIST-TO-HIP RATIO: AN INDICATOR OF HEALTH

GUPTA, P.D.* AND PUSHKALA, K.¹

*Former, Director Grade Scientist, (retired from Centre for Cellular and Molecular Biology, Hyderabad, India). ¹S.D.N. B. Vaishnav College for Women, Chromepet, Chennai (Rtd)
E. mail: pdg2000@hotmail.com

To keep a healthy body, it is important to keep the relative size of different organs nearly constant during growth. This property, called proportionate growth, has received increased attention in recent years. In other words if this proportion is going beyond the limits one gets sick. While modelling human body, nature used laws of physics for the growth of all essential and major organs in the body finally so that proper human shape comes out of a healthy human being. Nobel prize winner in physics in 2004 for asymptotic freed David Gross explained the fundamental interaction, in physics, any of the four basic forces—gravitational, electromagnetic, strong, and weak—that govern how objects or particles interact and how certain particles decay. The basis of the growth and shaping the object. After the discovery of the ‘God particle, the known rules of particle physics that scientists believed to govern the basic building blocks of matter,”Physics becomes: King of All Sciences” (David Gross)

All humans are not created equally; humans evolved through evolution. Seeing the differences, the human population was classified in to “five races:” African, Asian, European, Native American, and Oceanian. However, due to genetic variation among human individuals and populations ‘Race’ cannot be biologically defined. Race is a social construct, not a biological attribute. Today, scientists prefer to use the term “ancestry” to describe human diversity which focuses on understanding how a person’s history unfolded, not how they fit into one category and not another. In a clinical setting, for instance, scientists would say that diseases such as sickle-cell anemia and cystic fibrosis are common in those of “sub-Saharan African” or “Northern European” descent, respectively, rather than in those who are “black” or “white”

Sexual dimorphism: Sexual dimorphism refers to the morphological differences (in form or appearance) between males and females of the same species aside from the differences in sexual organs, implying that males are recognizable from the females of the same species. Hence, sex can be readily identified based on morphological features. One of the bodily features, waist-to-hip ratio (WHR), is a reliable indicator of a female’s reproductive age, sex hormone profile, parity and risk

for various diseases. Systematic variation in the size of WHR also systematically affects the judgment of female attractiveness, healthiness, and youthfulness. A combination of things happens as we age. We tend to lose muscle mass, so our abdominal muscles aren’t as tight as they once were, and the loss of elastin and collagen in our skin allows gravity to have its way so skin starts to sag. Both can cause the waistline to expand The distinction can be based on the differences in size, shape, or color, for example. The WHR has been shown to be an accurate predictor of risk for various diseases, premature mortality, degree of androgenicity/estrogenicity and fecundity of women, independent of overall body weight.

The WHO advise that a healthy W-H Ratio is: 0.85 or less for women and 0.9 or less for men cutoff points for classification of high compared with low waist-to-hip ratios. (Tables 1 and 2 are based on age- and sex-specific norms prepared by Canadian Standardized Test of Fitness (CSTF) operations manual. Ottawa: Canadian Association of Sport Sciences, 1986 from the Canada Fitness Survey)

Health risk vis-à-vis WHR: Age- and sex-specific

Health risk	Men	Women	Waist-to-hip ratio		
			Men	Women	
Low	0.95 or lower	0.80 or lower	18–34	0.89	0.79
			35–49	0.95	0.82
Moderate	0.96-1.0	0.81-0.85	50–64	0.98	0.84
			=65	0.99	0.86
High	1.0 or higher	0.86 or higher			

Impact on health: Those with a high WHR carry weight around their middle, so their body shape may be described as an “apple.” Research shows people who are “apple-shaped” are at a greater risk of certain health conditions than those who are “pear-shaped” (when the hips are wider than the upper body). These health conditions include:

Abdominal obesity: It has been found that apple shaped obesity is unhealthy.

Cardiovascular disease: Apple shaped obesity increased the risk of cardiovascular diseases more effectively than BMI or waist circumference alone.

Cancer: WHR is a better indicator of risk of mortality due to cancer than waist circumference alone.

Type 2 diabetes: It was discovered that an increased waist circumference was linked to an increased risk of type 2 diabetes.

Fertility: Women with a WHR about 1.0 have a lower pregnancy rate than those with a lower WHR,