

Why an Hourglass Figure isn't Always Perfect for Women

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(PhysOrg.com) -- Having an imperfect body may come with some substantial benefits, according to a new article in the December issue of *Current Anthropology*.

The hormones that make women physically stronger, more competitive and better able to deal with stress also tend to redistribute fat from the hips to the waist, according to Elizabeth Cashdan, an anthropologist at the University of Utah. So in societies and situations where women are under pressure to procure resources, they may be less likely to have the classic hourglass figure.

Cashdan's hypothesis aims to explain a peculiar observation. Women around the world tend to have larger waist-to-hip ratios—more cylindrical rather than hourglass-shaped bodies—than is considered optimal.

Medical studies have shown that a curvy waist-to-hip ratio of 0.7 or lower is associated with higher fertility and lower rates of chronic disease. Studies have also shown that men prefer a ratio of 0.7 or lower when looking for a mate. The preference makes perfect sense, according to evolutionary psychologists, because the low ratio is a reliable signal of a healthy, fertile woman.

But in data that Cashdan compiled from 33 non-Western populations and four European populations, the average waist-to-hip ratio for women is above 0.8. If 0.7 is the magic number both in terms of health and male mate choice, why are most women significantly higher?

That's where the hormones come in.

Androgens, a class of hormones that includes testosterone, increase waist-to-hip ratios in women by increasing visceral fat, which is carried around the waist. But on the upside, increased androgen levels are also associated with increased strength, stamina, and competitiveness. Cortisol, a hormone that helps the body deal with stressful situations, also increases fat carried around the waist.

"The hormonal profile associated with high WHR (waist-to-hip ratio) ... may favor success in resource competition, particularly under stressful circumstances," writes Cashdan. "The androgenic effects-stamina, initiative, risk-proneness, assertiveness, dominance-should be particularly useful where a woman must depend on her own resources to support herself and her family."

In other words, trading the benefits of a thin waist for better ability to collect resources may be a good deal in certain societies and situations. And there is evidence that male mate preferences may reflect this trade-off, according to Cashdan.

In Japan, Greece and Portugal, where women tend to be less economically independent, men place a higher value on a thin waist than men in Britain or Denmark, where there tends to be more sexual equality. And in some non-Western societies where food is scarce and women bear the responsibility for finding it, men actually prefer larger waist-to-hip ratios.

"Waist-to-hip ratio may indeed be a useful signal to men, then, but whether men prefer a WHR associated with lower or higher androgen/estrogen ratios (or value them equally) should depend on the degree to which they want their mates to be strong, tough, economically successful and politically competitive," Cashdan writes.

"And from a woman's perspective, men's preferences are not the only thing that matters."

More information: Cashdan, Elizabeth, "Waist-to-hip Ratios Across Cultures: Trade-offs Between Androgen- and Estrogen-Dependent Traits," *Current Anthropology* 49:6, December 2008

Provided by University of Utah

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