

The biology of beauty. Newsweek, June 3, 1996 v127 n23 p60(7)

The Biology of Beauty, by Geoffrey Cowley.

<http://hss.fullerton.edu/sociology/orleans/symmetry.txt>

Abstract: Recent research correlates physical attraction between human females and males to certain physical features regardless of culture. Men and women are naturally drawn to symmetry in face and body. Men innately prefer women with a small waist-to-hip ratio, a physical indicator of child-bearing ability.

WHEN IT COMES TO CHOOSING A MATE, A FEMALE PENGUIN knows better than to fall for the first creep who pulls up and honks. She holds out for the fittest suitor available--which in Antarctica means one chubby enough to spend several weeks sitting on newly hatched eggs without starving to death. The Asian jungle bird Gallus gallus is just as choosy. Males in that species sport gaily colored head combs and feathers, which lose their luster if the bird is invaded by parasites. By favoring males with bright ornaments, a hen improves her odds of securing a mate (and bearing offspring) with strong resistance to disease. For female scorpion flies, beauty is less about size or color than about symmetry. Females favor suitors who have well-matched wings--and with good reason. Studies show they're the most adept at killing prey and at defending their catch from competitors. There's no reason to think that any of these creatures understands its motivations, but there's a clear pattern to their preferences. **"Throughout the animal world," says University of New Mexico ecologist Randy Thornhill, "attractiveness certifies biological quality."**

Is our corner of the animal world different? That looks count in human affairs is beyond dispute. Studies have shown that people considered attractive fare better with parents and teachers, make more friends and more money, and have better sex with more (and more beautiful) partners. **Every year, 400,000 Americans, including 48,000 men, flock to cosmetic surgeons. In other lands, people bedeck themselves with scars, lip plugs or bright feathers. "Every culture is a 'beauty culture'," says Nancy Etcoff, a neuroscientist who is studying human attraction at the MIT Media Lab and writing a book on the subject. "I defy anyone to point to a society, any time in history or any place in the world, that wasn't preoccupied with beauty."** The high-minded may dismiss our preening and ogling as distractions from things that matter, but the stakes can be enormous. "Judging beauty involves looking at another person," says University of Texas psychologist Devendra Singh, "and figuring out whether you want your children to carry that person's genes."

It's widely assumed that **ideals of beauty vary from era to era and from culture to culture.** But a harvest of new research is confounding that idea. **Studies have established that people everywhere--regardless of race, class or age--share a sense of what's attractive.** And though no one knows just how our minds translate the sight of a face or a body into rapture, **new studies suggest that we judge each other by rules we're not even aware of.** We may consciously admire Kate Moss's legs or Arnold's biceps, but we're also viscerally attuned to small variations in the size and symmetry of facial bones and the placement of weight on the body.

This isn't to say that our preferences are purely innate--or that beauty is all that matters in life. Most of us manage to find jobs, attract mates and bear offspring despite our physical imperfections. Nor should anyone assume that the new beauty research justifies the biases it

illuminates. Our beautylust is often better suited to the Stone Age than to the Information Age; the qualities we find alluring may be powerful emblems of health, fertility and resistance to disease, but they say nothing about people's moral worth. The human weakness for what Thornhill calls "biological quality" causes no end of pain and injustice. Unfortunately, that doesn't make it any less real.

BALANCING ACT

One key to physical attractiveness is symmetry; humans, like other species, show a strong preference for individuals whose right and left sides are well matched. Denzel Washington's face, below, is almost completely symmetrical. Lyle Lovett's, on the right, is not.



Denzel Washington

Lyle Lovitt

NO ONE SUGGESTS THAT points of attraction never vary. Rolls of fat can signal high status in a poor society or low status in a rich one, and lip plugs go over better in the Kalahari than they do in Kansas. But local fashions seem to rest on a bedrock of shared preferences. You don't have to be Italian to find Michelangelo's David better looking than, say, Alfonse D'Amato. When British researchers asked women from England, China and India to rate pictures of Greek men, the women responded as if working from the same crib sheet. And when researchers at the University of Louisville showed a diverse collection of faces to whites, Asians and Latinos from 13 countries, the subjects' ethnic background scarcely affected their preferences.

To a skeptic, those findings suggest only that Western movies and magazines have overrun the world. But scientists have found at least one group that hasn't been exposed to this bias. In a series of groundbreaking experiments, **psychologist Judith Langlois of the University of Texas, Austin, has shown that even infants share a sense of what's attractive. In the late '80s, Langlois started placing 3- and 6-month-old babies in front of a screen and showing them pairs of facial photographs.** Each pair included one considered attractive by adult judges and one considered unattractive. In the first study, **she found that the infants gazed significantly longer at "attractive" white female faces than at "unattractive" ones.** Since then, she has repeated the drill using white male faces, black female faces, even the faces of other babies, and the same pattern always emerges. "These kids don't read Vogue or watch TV," Langlois says. "They haven't been touched by the media. Yet they make the same judgments as adults."

What, then, is beauty made of? What are the innate rules we follow in sizing each other up? We're obviously wired to find robust health a prettier sight than infirmity, **"All animals are attracted to other animals that are healthy, that are clean by their standards and that show signs of competence,"** says Rutgers University anthropologist Helen Fisher. **As far as anyone knows, there isn't a village on earth where skin lesions, head lice and rotting teeth count as beauty aids.**

But the rules get subtler than that. Like scorpion flies, **we love symmetry**. And though we generally favor average features over unusual ones, the people we find extremely beautiful share certain exceptional qualities.

WHEN RANDY THORNHILL started measuring the wings of Japanese scorpion flies six years ago, he wasn't much concerned with the orgasms and infidelities of college students. **But sometimes one thing leads to another. Biologists have long used bilateral symmetry--the extent to which a creature's right and left sides match--to gauge what's known as developmental stability. Given ideal growing conditions, paired features such as wings, ears, eyes and feet would come out matching perfectly. But pollution, disease and other hazards can disrupt development. As a result, the least resilient individuals tend to be the most lopsided.**

In chronicling the **scorpion flies' daily struggles**, Thornhill found that the bugs with the **most symmetrical wings fared best in the competition for food and mates. To his amazement, females preferred symmetrical males** even when they were hidden from view; evidently, their smells are more attractive. And when researchers started noting similar trends in other species, Thornhill turned his attention to our own.

Working with psychologist Steven Gangestad, he set about measuring the body symmetry of hundreds of college-age men and women. **By adding up right-left disparities in seven measurements--the breadth of the feet, ankles, hands, wrists and elbows, as well as the breadth and length of the ears--the researchers scored each subject's overall body asymmetry. Then they had the person fill out a confidential questionnaire covering everything from temperament to sexual behavior, and set about looking for connections. They weren't disappointed. In a 1994 study, they found that the most symmetrical males had started having sex three to four years earlier than their most lopsided brethren. For both men and women, greater symmetry predicted a larger number of past sex partners.**

That was just the beginning. From what they knew about other species, **Thornhill and Gangestad** predicted that women would be more sexually responsive to symmetrical men, and that men would exploit that advantage. To date, their findings support both suspicions. **Last year they surveyed 86 couples and found that women with highly symmetrical partners were more than twice as likely to climax during intercourse (an event that may foster conception by ushering sperm into the uterus) than those with low-symmetry partners.** And in separate surveys, Gangestad and Thornhill have found that, compared with regular Joes, extremely symmetrical men are less attentive to their partners and more likely to cheat on them. Women showed no such tendency.

It's hard to imagine that we even notice the differences between people's elbows, let alone stake our love lives on them. No one carries calipers into a singles bar. So why do these measurements predict so much? Because, says Thornhill, people with symmetrical elbows tend to have "a whole suite of attractive features." His findings suggest that besides having attractive (and symmetrical) faces, men with symmetrical bodies are typically larger, more muscular and

more athletic than their peers, and more dominant in personality. In a forthcoming study, **researchers at the University of Michigan find evidence that facial symmetry is also associated with health. In analyzing diaries kept by 100 students over a two-month period, they found that the least symmetrical had the most physical complaints, from insomnia to nasal congestion, and reported more anger, jealousy and withdrawal.** In light of all Thornhill and Gangestad's findings, you can hardly blame them.

IF WE DID GO COURTING WITH calipers, symmetry isn't all we would measure. As we study each other in the street, the office or the gym, our beauty radars pick up a range of signals. Oddly enough, one of the qualities shared by attractive people is their averageness. Researchers discovered more than a century ago that if they superimposed photographs of several faces, the resulting composite was usually better looking than any of the images that went into it. Scientists can now average faces digitally, and it's still one of the surest ways to make them more attractive. From an evolutionary perspective, a preference for extreme normality makes sense. As Langlois has written, "Individuals with average population characteristics should be less likely to carry harmful genetic mutations."

So far, so good. But here's the catch: while we may find average faces attractive, the faces we find most beautiful are not average. As New Mexico State University psychologist Victor Johnston has shown, they're extreme. To track people's preferences, Johnston uses a computer program called FacePrints. Turn it on, and it generates 30 facial images, all male or all female, which you rate on a 1-9 beauty scale. The program then "breeds" the top-rated face with one of the others to create two digital offspring, which replace the lowest-rated faces in the pool. By rating round after round of new faces, you create an ever more beautiful population. The game ends when you award some visage a perfect 10. (If you have access to the World Wide Web, you can take part in a collective face-breeding experiment by visiting <http://www-psych.nmsu.edu/~vic/faceprints/>.)

For Johnston, the real fun starts after the judging is finished. By collecting people's ideal faces and comparing them to average faces, he can measure the distance between fantasy and reality. As a rule, he finds that an ideal female has a higher forehead than an average one, as well as fuller lips, a shorter jaw and a smaller chin and nose. Indeed, the ideal 25-year-old woman, as configured by participants in a 1993 study, had a 14-year-old's abundant lips and an 11-year-old's delicate jaw. Because her lower face was so small, she also had relatively prominent eyes and cheekbones.

The participants in that study were all college kids from New Mexico, but researchers have since shown that British and Japanese students express the same bias. And if there are lingering doubts about the depth of that bias, Johnston's latest findings should dispel them. In a forthcoming study, he reports that male volunteers not only consciously prefer women with small lower faces but show marked rises in brain activity when looking at pictures of them. And though Johnston has yet to publish specs on the ideal male, his unpublished findings suggest that a big jaw, a strong chin and an imposing brow are as prized in a man's face as their opposites are in a woman's.

Few of us ever develop the heart-melting proportions of a FacePrints fantasy. And if it's any consolation, beauty is not an all-or-nothing proposition. Madonna became a sex symbol despite her strong nose, and Melanie Griffith's strong jaw hasn't kept her out of the movies. Still, special things have a way of happening to people who approximate the ideal. We pay them huge fees to stand on windblown bluffs and stare into the distance. And past studies have found that

square-jawed males not only start having sex earlier than their peers but attain higher rank in the military.

None of this surprises evolutionary psychologists. They note that the facial features we obsess over are precisely the ones that diverge in males and females during puberty, as floods of sex hormones wash us into adulthood. And they reason that hormonal abundance would have been a good clue to mate value in the hunter-gatherer world where our preferences evolved. The tiny jaw that men favor in women is essentially a monument to estrogen--and, obliquely, to fertility. No one claims that jaws reveal a woman's odds of getting pregnant. But like breasts, they imply that she could.

Likewise, the heavy lower face that women favor in men is a visible record of the surge in androgens (testosterone and other male sex hormones) that turns small boys into 200-pound spear-throwers. An oversized jaw is biologically expensive, for the androgens required to produce it tend to compromise the immune system. But from a female's perspective, that should make jaw size all the more revealing. Evolutionists think of androgen-based features as "honest advertisements" of disease resistance. If a male can afford them without falling sick, the thinking goes, he must have a superior immune system in the first place.

No one has tracked the immune responses of men with different jawlines to see if these predictions bear out (Thornhill has proposed a study that would involve comparing volunteers' responses to a vaccine). **Nor is it clear whether penis size figures into these equations.** Despite what everyone thinks he knows on the subject, scientists haven't determined that women have consistent preferences one way or the other.

BODY LANGUAGE

When men are asked to rank figures with various weights and waist-hip ratios (0.7 to 1.0), they favor a pronounced hourglass shape. The highest-ranked figures are N7, N8 and U7 (in that order). The lowest ranked is O10.

OUR FACES ARE OUR SIGNATURES, but when it comes to raw sex appeal, a nice chin is no match for a perfectly sculpted torso--especially from a man's perspective. Studies from around the world have found that while both sexes value appearance, men place more stock in it than women. And if there are social reasons for that imbalance, there are also biological ones. **Just about any male over 14 can produce sperm, but a woman's ability to bear children depends on her age and hormone levels. Female fertility declines by two thirds between the ages of 20 and 44, and it's spent by 54.** So while both sexes may eyeball potential partners, says Donald Symons, an anthropologist at the University of California in Santa Barbara, "a larger proportion of a woman's mate value can be detected from visual cues." Mounting evidence suggests there is no better cue than the relative contours of her waist and hips.

Before puberty and after menopause, females have essentially the same waistlines as males (8 – 1.0). But during puberty, while boys are amassing the bone and muscle of paleolithic hunters, a typical girl gains nearly 35 pounds of so-called reproductive fat around the hips and thighs. Those pounds contain roughly the 80,000 calories (22% body fat) needed to sustain a pregnancy, and the curves they create provide a gauge of reproductive potential. "You have to get very close to see the details of a woman's face,"

says Devendra Singh, the University of Texas psychologist. "But you can see the shape of her body from 500 feet, and it says more about mate value."

Almost anything that interferes with fertility--obesity, malnutrition, pregnancy, menopause--changes a woman's shape. Healthy, fertile women typically have waist-hip ratios of .6 to .8, meaning their waists are 60 to 80 percent the size of their hips, whatever their actual weight. To take one familiar example, a 36-25-36 figure would have a WHR of .7. Many women outside this range are healthy and capable of having children, of course. But as researchers in the Netherlands discovered in a 1993 study, even a slight increase in waist size relative to hip size can signal reproductive problems. Among 500 women who were attempting in vitro fertilization, the odds of conceiving during any given cycle declined by 30 percent with every 10 percent increase in WHR. In other words, a woman with a WHR of .9 was nearly a third less likely to get pregnant than one with a WHR of .8, regardless of her age or weight. From an evolutionary perspective, it's hard to imagine men not responding to such a revealing signal. And as Singh has shown repeatedly, they do.

Defining a universal standard of body beauty once seemed a fool's dream; common sense said that if spindly Twiggy and Rubens's girthy Three Graces could all excite admiration, then nearly anyone could. But if our ideals of size change from one time and place to the next, our taste in shapes is amazingly stable. A low waist-hip ratio is one of the few features that a long, lean Barbie doll shares with a plump, primitive fertility icon. And Singh's findings suggest the fashion won't change any time soon. In one study, he compiled the measurements of Playboy centerfolds and Miss America winners from 1923 to 1990. Their bodies got measurably leaner over the decades, yet their waist-hip ratios stayed within the narrow range of .68 to .72. (Even Twiggy was no tube; at the peak of her fame in the 1960s, the British model had a WHR of .73.)

The same pattern holds when Singh generates line drawings of different female figures and asks male volunteers to rank them for attractiveness, sexiness, health and fertility. He has surveyed men of various backgrounds, nationalities and ages. And whether the judges are 8-year-olds or 85-year-olds, their runaway favorite is a figure of average weight with a .7 WHR. Small wonder that when women were liberated from corsets and bustles, they took up girdles, wide belts and other waist-reducing contraptions. Last year alone, American women's outlays for shape-enhancing garments topped a half-billion dollars.

FACIAL FANTASIES

As a rule, average faces are more attractive than unusual ones. But when people are asked to develop ideal faces on a computer, they tend to exaggerate certain qualities.

TO SOME CRITICS, THE search for a biology of beauty looks like a thinly veiled political program. "It's the fantasy life of American men being translated into genetics," says poet and social critic Katha Pollitt. "You can look at any feature of modern life and make up a story about why it's genetic." In truth, says Northwestern University anthropologist Micaela di Leonardo, attraction is a complicated social phenomenon, not just a hard-wired response. If attraction were governed by the dictates of baby-making, she says, the men of ancient Greece wouldn't have found young boys so alluring, and gay couples wouldn't crowd modern sidewalks. "People make decisions about sexual and marital partners inside complex networks of friends and relatives," she says. "Human beings cannot be reduced to DNA packets."

Homosexuality is hard to explain as a biological adaptation. So is stamp collecting. But no one claims that human beings are mindless automatons, blindly striving to replicate our genes. We pursue countless passions that have no direct bearing on survival. If we're sometimes attracted to people who can't help us reproduce, that doesn't mean human preferences lack any coherent design. A radio used as a doorstop is still a radio. The beauty mavens' mission--and that of evolutionary psychology in general--is not to explain everything people do but to unmask our biases and make sense of them. "Our minds have evolved to generate pleasurable experiences in response to some things while ignoring other things," says Johnston. "That's why sugar tastes sweet, and that's why we find some people more attractive than others."

The new beauty research does have troubling implications. First, it suggests that we're designed to care about looks, even though looks aren't earned and reveal nothing about character. As writer Ken Siman observes in his new book, "The Beauty Trip," "the kind [of beauty] that inspires awe, lust, and increased jeans sales cannot be evenly distributed. In a society where everything is supposed to be within reach, this is painful to face." From acne to birth defects, we wear our imperfections as thorns, for we know the world sees them and takes note.

A second implication is that sexual stereotypes are not strictly artificial. At some level, it seems, women are designed to favor dominant males over meek ones, and men are designed to value women for youthful qualities that time quickly steals. Given the slow pace of evolutionary change, our innate preferences aren't likely to fade in the foreseeable future. And if they exist for what were once good biological reasons, that doesn't make them any less nettlesome. "Men often forgo their health, their safety, their spare time and their family life in order to get rank," says Helen Fisher, the Rutgers anthropologist, "because unconsciously, they know that rank wins women." And all too often, those who can trade cynically on their rank do.

But do we have to indulge every appetite that natural selection has preserved in us? Of course not. "I don't know any scientist who seriously thinks you can look to nature for moral guidance," says Thornhill. Even the fashion magazines would provide a better compass.

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