

The scientific rules of attraction

What makes some people so much more alluring than others? Roger Dobson discovers that good looks and sexiness are determined before we're even born

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Attractive people have it all. As babies they get less chastisement, more cuddles, and better presents.

At school they are more popular, have more friends and are less likely to be bullied. And as adults, they have more sexual partners, and are more likely to be married, have a good job, and earn a higher salary – around 10 per cent more than plain Joes and Janes. They are also perceived to be healthier, smarter, and more trustworthy, and if they go into politics they are more likely to be elected. But why are some people seen as attractive and others not? And why have we evolved to find some features attractive and others not?



Claudia Schiffer

According to new research, it may all be down to oxidative stress and antioxidants. Psychologists have discovered that men who were rated as the most physically attractive by women have the lowest levels of markers of oxidative stress.

"These findings have several important implications," says psychologist Dr Steven Gangestad who led the study. "They fit in with the idea that women evolved to find particular features attractive because those features are related to low levels of oxidative stress."

Attractiveness has long been a source of fascination for psychologists, anthropologists, behavioural scientists – and singletons. Some have investigated the many life advantages that come with attractiveness, while others have looked at whether or not it is a learned criterion. One school of thought has it that attraction to specific features is not learned, but has evolved over time as a way of distinguishing the virile from the weak. This evolutionary theory is backed up by much research, including studies showing that newborn babies have a preference for attractive faces. It's suggested that physical attractiveness may serve as a biological signal of good health. In ancestral time, being able to spot an attractive, and therefore fit, partner would have carried a huge survival advantage.

Many studies have looked at individual features of attractiveness, from blonde hair and long legs to height, weight, waists and shoulders, but underlying much of the work is what is known as fluctuating asymmetry. Studies have shown that people who have bilateral asymmetry, where features on both sides of the body are the same, are judged to be more attractive.

In people with fluctuating asymmetry some body parts are not symmetrical, and one theory is that this imbalance results from something going wrong at key developmental stages. Fluctuating asymmetry is thought to be visible evidence that the person was exposed to some kind of stressor during early development which he or she was not robust enough to withstand. In evolutionary and survival terms, such a man or woman would be less robust and less attractive as a potential partner.

A possible cause of that fluctuating asymmetry is exposure to oxidative stress in the womb which interferes with proper development. The embryo requires energy to develop properly. As cells use oxygen to make energy, they can create free radicals. These are unstable molecules that can have chemical reactions with other molecules, causing the cell damage known as oxidative stress. Free radicals can be kept in check by antioxidants, but if there is an overabundance of radicals, the resulting oxidative stress can damage DNA and tissue. Oxidative stress is thought to be a major cause of mutations and to play a part in ageing and a host of diseases, including cancer.

Overproduction of free radicals, and the resulting oxidative stress, can be triggered by a number of factors. Maternal smoking has been linked to higher levels, as have infections and other factors during pregnancy, including maternal diabetes and obesity.

In the new research reported in the journal *Animal Behaviour*, psychologists at the University of New Mexico looked for signs of oxidative stress in men aged 18 to 38.

Ten bilateral features of the men – ear width, ear height, wrist width, elbow width, lengths of four fingers, ankle breadth and foot breadth – were measured and compared. The men's urine was measured for markers of oxidative stress and for hormones, and they were quizzed about any birth complications, such as late or premature birth, which can increase levels of oxidative stress. Finally, a group of women were asked to rate images of the men's bodies and faces for physical attractiveness.

Results show that men who were rated as attractive by the women had significantly lower levels of oxidative stress. And men with more symmetrical bodies had lower levels and were rated as more attractive. Men who had experienced birth problems had higher levels of oxidative-stress markers.

Although the results are robust, there are many other theories. Several researchers have been looking at specific body shapes and dimensions as markers of desirable qualities in a mate. Various body ratios, especially that of the waist-to-hip size, have also been examined. Some studies have shown that men are especially attracted to women with a low hip ratio – small waists and large hips. Just why remains elusive, although suggestions have included better child-bearing abilities, improved health, and greater survival. One University of California study showed that women with larger hips perform better in intelligence tests, as do their children.

Body mass index, a measure of both height and weight, is another dimension that has attracted the attention of researchers. A ratio of 20.85 has been found to be most attractive in women, because, say researchers, it is seen by men as sign of good health and good reproductive potential.

Legs have not escaped the gaze of researchers either. Studies have shown that long legs are preferred in women, while men with legs the same length as the torso are preferred by women. One theory is that long legs are a sign of fitness, with some research suggesting that tall women have wider pelvises than shorter women, allowing easier births and higher birth-weight babies. Longer relative leg length is also associated with reduced risks of heart disease, cancer and diabetes, and lower blood pressure.

It has been argued that women are attracted to men with relatively shorter legs because it makes them look more muscular, and, in evolutionary terms, more useful as a mate.

This ancestral attraction to action men may also be why facial scars in men are seen as attractive, as long as they are the right kind of scar. A facial scar, preferably one that looks like it was inflicted in anger, increases the attractiveness of a man for a short-term relationship, according to a Liverpool University study.

"Women may have rated scarring as an attractive quality for short-term relationships because they found it be a symbol of masculinity, a feature that is linked to high testosterone levels and an indicator of good genetic qualities that can be passed on to offspring," says Dr Rob Burriss, one of the authors of the study. "Men without scars, however, could be seen as more caring and therefore more suitable for long-term relationships."

Elements of personality and behaviour can be attractive too. New research has found genetic evidence that selfless or altruistic behaviour may have evolved because it was one of the qualities our ancestors looked for in a mate. Results suggest that, in our evolutionary past, those with a stronger preference towards altruistic behaviour mated more frequently with more altruistic people.

"The expansion of the human brain would have greatly increased the cost of raising children, so it would have been important for our ancestors to choose mates both willing and able to be good, long-term parents. Displays of

altruism could well have provided accurate clues to this, and so led to a link between human altruism and sexual selection," says Dr Tim Phillips whose study with colleagues from the University of Nottingham and Institute of Psychiatry involved identical and non-identical female twins.

Many traits have been investigated for their role in attractiveness, but one question has repeatedly captured the attention of researchers down the years – why do many men prefer blondes? Over time, many explanations have been put forward. It has been suggested that men prefer rounder faces and that blonde hair is kinder to the outline of the face, or that natural blondes have softer skin, which men find attractive. Another suggestion is that blondes were a genetic mutation which men evolved to value as a status symbol because of the original scarcity.

But according to research out of the University of California, the answer is that blonde hair, like the peacock's tail or the rooster's bright-red plumage, is a sign of fitness. The evolutionary reason why men are attracted to blondes is that the hair and skin colour make it easier to spot problems. Anaemia, jaundice, skin infections, cyanosis (a sign of heart disease) and some other conditions, are, these researchers say, much easier to detect in fair-skinned individuals than in brunettes.

So, in ancestral times when bugs and infections were thick on the ground, there was an evolutionary need to be able to pick a mate who would be healthy and have healthy offspring – hence the preference for blondes.

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