

# Study finds better immune system doesn't make women more attractive to men

May 22 2013, by Bob Yirka

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(Phys.org) —A diverse team of international researchers has found that women with stronger immune systems don't necessarily have prettier faces than women whose immune system is not so strong. In their paper published in the journal *Biology Letters*, the team describes how they used photographs of women that had been vaccinated against hepatitis B to compare facial beauty.

Recent studies have shown that a strong [immune system](#) in men

bolstered their attractiveness to women. To find out if the reverse is true, the researchers enlisted the assistance of 52 young Latvian women. Each was photographed a month before and a month after receiving a hepatitis B vaccination—while also providing a [blood sample](#) for testing hormone and antibody levels. Facial portraits were also taken during different times of each woman's menstrual cycle. After the testing was completed, the photographs of the women were shown to 18 young male volunteers who were asked to judge each woman on how attractive or pretty they found her to be, based on a scale of 0 to 11.

After analyzing the results, the researchers found that higher antibody levels (induced by the [hepatitis B](#) vaccine) did not result in any of the women being judged more attractive. Instead, they found that women with higher [cortisol levels](#) (an indicator of level of stress) were judged to be less attractive. They also found that women that were seen as overweight or underweight were also deemed less attractive.

The researchers suggest their results show an evolutionary process is at play that is different for men and women. High stress and excess or too little body fat are all associated with [fertility problems](#). Thus for men looking to procreate, their best chance lies with tranquil women of average weight. Women on the other hand, appear to have evolved an attraction for males with healthy immune systems, which will hopefully be passed on to their offspring.

The researchers acknowledge that [antibody levels](#) are just one measure of immunity strength. Because of that they suggest it was possible that the women judged prettier in the study may have had other immunity advantages that were not measured. More research will have to be conducted to find out for sure.

**More information:** Facial attractiveness is related to women's cortisol and body fat, but not with immune responsiveness, Published 22 May

2013. [doi: 10.1098/rsbl.2013.0255](https://doi.org/10.1098/rsbl.2013.0255)

## **Abstract**

Recent studies suggest that facial attractiveness indicates immune responsiveness in men and that this relationship is moderated by stress hormones which interact with testosterone levels. However, studies testing whether facial attractiveness in women signals their immune responsiveness are lacking. Here, we photographed young Latvian women, vaccinated them against hepatitis B and measured the amount of specific antibodies produced, cortisol levels and percentage body fat. Latvian men rated the attractiveness of the women's faces. Interestingly, in women, immune responsiveness (amount of antibodies produced) did not predict facial attractiveness. Instead, plasma cortisol level was negatively associated with attractiveness, indicating that stressed women look less attractive. Fat percentage was curvilinearly associated with facial attractiveness, indicating that being too thin or too fat reduces attractiveness. Our study suggests that in contrast to men, facial attractiveness in women does not indicate immune responsiveness against hepatitis B, but is associated with two other aspects of long-term health and fertility: circulating levels of the stress hormone cortisol and percentage body fat.

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