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**SCIENCE BEHIND “MAN FLU”**

**Man flu: less inflammation but more consequences in men than women**

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Sue presents extensive evidence from animal and human studies to show that men might suffer more than women in response to the same microbial challenge, that this may be related to sex hormones, and that it might have an evolutionary benefit.¹

We challenged 30 healthy volunteers (15 men, 15 women) with an intravenous dose of 2 ng/kg of purified endotoxin from *Escherichia coli* to induce experimental endotoxaemia, a model of system inflammation typically resulting in flu-like symptoms. We measured their inflammatory response (circulating cytokine levels), perceived symptoms (grading of headache, backache, shivering, nausea and vomiting on a 0-5 Likert scale), and vascular reactivity (changes in forearm blood flow in response to the intra-arterial administration of vasoactive medication).

We found that women mount a more pronounced pro-inflammatory immune response than men, whereas the anti-inflammatory response was not significantly different. By contrast, the vascular reactivity to norepinephrine was attenuated during endotoxaemia in men, whereas it was not significantly influenced in females. So the innate immune response may be less pronounced in men, but the clinical consequences may be more severe. Surprisingly, the severity of perceived symptoms was similar.²

So yes, men complain when feeling sick, just like women do. But in our controlled human in vivo setting, men did not complain more, even though end organ dysfunction was more pronounced. Clearly, we do not moan about it, we just take it like a man.

Competing interests: None declared.

Full response at: http://www.bmj.com/content/359/bmj.j5560/rr-3.

¹ Sue K. The science behind “man flu”. BMJ 2017;359:j5560. doi:10.1136/bmj.j5560

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