


We use cookies to improve our service and to tailor our content and advertising to you. [More info](#)  Close  
You can manage your cookie settings via your browser at any time. To learn more about how we use cookies, please see our [cookies policy](#) [Close](#)  
Intended for healthcare professionals



**Letters** Science behind “man flu”

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

BMJ 2018; 360 doi: <https://doi-org.laneproxy.stanford.edu/10.1136/bmj.k439> (Published 07 February 2018)  
Cite this as: BMJ 2018;360:k439

**Lucas T van Eijk, resident anaesthesiologist<sup>1</sup>, Peter Pickkers, professor of experimental intensive care medicine<sup>2</sup>**

<sup>1</sup>*Department of Anesthesiology, Pain and Palliative Medicine, Radboud University Medical Center, Geert Grooteplein Zuid 10, 6525 GA, Nijmegen, The Netherlands*

<sup>2</sup>*Department of Intensive Care Medicine, Radboud University Medical Center, Geert Grooteplein Zuid 10, 6525 GA, Nijmegen, The Netherlands*

[lucas.vaneijk@radboudumc.nl](mailto:lucas.vaneijk@radboudumc.nl)

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.<sup>1</sup>

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.<sup>2</sup>

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.

## Footnotes

- Competing interests: None declared.
- Full response at: <http://www.bmj.com.laneproxy.stanford.edu/content/359/bmj.j5560/rr-3>.

## References

1. Sue K. The science behind “man flu”. *BMJ* 2017;**359**:j5560. doi:doi:10.1136/bmj.j5560pmid:29229663
2. van Eijk LT, Dorresteijn MJ, Smits P, van der Hoeven JG, Netea MG, Pickkers P. Gender differences in the innate immune response and vascular reactivity following the administration of endotoxin to human volunteers. *Crit Care Med* 2007;**35**:1464-9. doi:doi:10.1097/01.CCM.0000266534.14262.E8pmid:17452928