

## Moderate weekly alcohol intake linked to poorer sperm quality in healthy young men

*Effects apparent after 5+ units, but impact worsens with increasing weekly tally*

**[Habitual alcohol consumption associated with reduced semen quality and changes in reproductive hormones: a cross sectional study among 1221 young Danish men doi 10.1136/bmjopen-2014-005462]**

Moderate alcohol intake of at least five units every week is linked to poorer sperm quality in otherwise healthy young men, suggests research published in the online journal **BMJ Open**.

And the higher the weekly tally of units, the worse the sperm quality seems to be, the findings indicate, prompting the researchers to suggest that young men should be advised to steer clear of habitual drinking.

They base their findings on 1221 Danish men between the ages of 18 and 28, all of whom underwent a medical examination to assess their fitness for military service, which is compulsory in Denmark, between 2008 and 2012.

As part of their assessment, the military recruits were asked how much alcohol they drank in the week before their medical exam (recent drinking); whether this was typical (habitual); and how often they binge drank, defined as more than 5 units in one sitting, and had been drunk in the preceding month.

They were also invited to provide a semen sample to check on the quality of their sperm, and a blood sample to check on their levels of reproductive hormones.

The average number of units drunk in the preceding week was 11. Almost two thirds (64%) had binge drunk, while around six out of 10 (59%) said they had been drunk more than twice, during the preceding month.

The analysis showed that after taking account of various influential factors, there was no strong link between sperm quality and either recent alcohol consumption or binge drinking in the preceding month.

But drinking alcohol in the preceding week was linked to changes in reproductive hormone levels, with the effects increasingly more noticeable the higher the tally of units.

Testosterone levels rose, while sex hormone binding globulin (SHBG) fell; similar associations were also evident for the number of times an individual had been drunk or had binge drunk in the preceding month.

Almost half (45%, 553) of the men said that the quantity of alcohol they drank in the preceding week was typical of their weekly consumption.

And in this group the higher the tally of weekly units, the lower was the sperm quality, in terms of total sperm count and the proportion of sperm that were of normal size and shape, after taking account of influential factors.

The effects were evident from 5+ units a week upwards, but most apparent among those who drank 25 or more units every week.

And total sperm counts were 33% lower, and the proportion of normal-looking sperm 51% lower, among those knocking back 40 units a week compared with those drinking 1-5.

Habitual drinking was associated with changes in reproductive hormone levels, although not as strongly as recent drinking, while abstinence was also linked to poorer sperm quality.

This is an observational study, so no definitive conclusions can be drawn about cause and effect. And the researchers point out that the findings could be the result of reverse causation—whereby men with poor quality sperm have an unhealthier lifestyle and behaviours to start with.

But animal studies suggest that alcohol may have a direct impact on sperm quality, they say.

“This is, to our knowledge, the first study among healthy young men with detailed information on alcohol intake, and given the fact that young men in the western world [drink a lot], this is of public health concern, and could be a contributing factor to the low sperm count reported among [them],” they suggest.

And they conclude: “It remains to be seen whether semen quality is restored if alcohol intake is reduced, but young men should be advised that high habitual alcohol intake may affect not only their general health, but also their reproductive health.”