

Alcohol and men's health

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Excessive alcohol consumption has serious implications for physical, psychological and social wellbeing, although there is inconclusive evidence of the role of alcohol in the aetiology of male-specific disorders.

In the UK, alcohol consumption is widespread – statistics from the most recent government report reveal that 88 per cent of men and 82 per cent of women drink alcohol.

GENDER DIFFERENCES IN DRINKING PATTERNS

Men, on average, consume more alcohol per week than women (16.3 units compared to 8 units, where one unit is equivalent to 8g of ethanol). Men are also more likely (26 per cent compared to 18 per cent) to exceed recommended

weekly limits (21 and 14 units or more for men and women) set by the Royal College of Physicians and endorsed by the British Medical Association in the mid-1990s.

More recently, there has been a transition from weekly to daily guidelines, after the Department of Health reviewed the evidence on alcohol consumption patterns and alcohol-related harm. The report concluded by making a recommendation of not exceeding 3–4 units for men or 2–3 units for women daily on a regular basis.

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Single drinking episode behaviours are noticeably different by gender, with 20 per cent of men and 13 per cent of women reporting to engage in heavy episodic or 'binge' drinking (consuming 8 and 6 or more units in a single drinking session for men and women, respectively).

In terms of gender differences in alcohol consumption by age, men and women are equally likely to binge drink between the ages of 16 and 24 years (24 per cent). With increasing age, men engage in much more heavy episodic drinking than women; in fact, from the ages of 45–64 (21 per cent compared to 11 per cent) and 65 and above (5 per cent compared to 2 per cent), men are twice as likely to do so. Similar patterns are observed for exceeding weekly limits by age and gender also.

Differences in alcohol metabolism

These daily limits reflect important physiological differences in alcohol metabolism by gender; namely women, on average, have more body fat, less body water and arguably lower gastric enzyme activity ('first-pass' metabolism), resulting in smaller doses of alcohol exerting greater effects.²

WHAT ARE THE HARMS OF ALCOHOL CONSUMPTION?

Almost every organ in the body is affected by alcohol.³ While some of the medical outcomes are associated with prolonged exposure to high levels of alcohol, typical of that seen in alcohol dependency, even day-to-day drinking patterns of non-dependent consumers can have detrimental health effects (Box 1).

Hepatic and gastrointestinal effects

As most alcohol is metabolised in the liver, it is unsurprising that there are several hepatic consequences of heavy alcohol consumption. As pointed out in a previous article in this journal,⁴ figures of alcohol-attributable liver disease in UK males are astoundingly high

BOX 1. Risks associated with excessive alcohol consumption

HEPATIC AND GASTROINTESTINAL

- Liver disease
- Gastritis
- Peptic ulcer disease
- Malabsorption of nutrients, associated with anaemia, osteoporosis/osteopenia, certain cancers and Wernicke–Korsakoff syndrome

CARDIOVASCULAR

Alcohol is believed to be associated in a U- or J-shaped manner with:

- Coronary heart disease
- Hypertension
- Hyperlipidaemia
- Diabetes
- Myocardial infarction
- Dementia
- Congestive heart failure

CANCER

Alcohol is one of the most important dietary risk factors for cancers of the:

- Liver
- Colon
- Rectum
- Oral cavity
- Pharynx
- Larynx
- Oesophagus
- Female breast

ACCIDENTS AND SOCIAL IMPLICATIONS

- Impaired motor co-ordination
- Absence from work
- Breakdown of marriage and other important social relationships
- Violence

and the increasing trend in incidence comparative to the reduction/stability of other chronic diseases is certainly a cause for concern.

Gastrointestinal complications such as gastritis and peptic ulcer disease, as well as malabsorption of nutrients from food, are common side-effects of heavy alcohol consumption (milder forms of these complications can also exist, even in moderate drinkers). Malabsorption is postulated to be one of the mediating pathways for the relationship observed

between alcohol use and anaemia, osteoporosis/osteopenia, certain cancers and Wernicke–Korsakoff syndrome.

Cardiovascular effects

Alcohol is believed to be associated in a U- or J-shaped manner with coronary heart disease, hypertension, hyperlipidaemia, diabetes, myocardial infarction, dementia and congestive heart failure, among other cardiac-related disorders. Low-to-moderate doses of alcohol are believed to yield cardioprotective effects through favourable changes in cholesterol

(particularly elevations in high-density lipoprotein) and improvements in insulin sensitivity (through restraining the release of fatty acid from adipose tissue) and inflammation (reductions in circulating plasma inflammatory markers such as C-reactive protein, interleukin-6 and fibrinogen).⁵

Such advantageous changes do not occur in binge drinkers; in fact, even occasional heavy episodic drinking by usually moderate drinkers has been associated with an augmented risk of cardiovascular events.⁶ This finding is of particular concern for male health because, as outlined above, men are more likely to binge drink than women.

Cancer

There is consistent evidence to suggest that alcohol is one of the most important dietary risk factors for cancers of the liver, colon, rectum, oral cavity, pharynx, larynx, oesophagus and female breast.⁷ The carcinogenic mechanism of alcohol is not entirely clear, but some explanations put forward include acetaldehyde (the primary metabolite of ethanol) exerting a genotoxic effect, and alcohol increasing levels of oestrogen (particularly relevant for breast cancer), inducing oxidative stress, altering folate metabolism and acting as a solvent for other carcinogens (especially those associated with tobacco intake).

Given that men are more likely both to get and to die from the most common cancers, and the relationship between alcohol use and risk of cancer increases with the number of drinks consumed, targeting heavy drinking should be a primary focus of public health campaigns. Doing so may reduce gender inequalities in both cancer incidence and mortality.

Accidents and social implications

The harms of alcohol consumption are by no means constrained to the development of disease. Alcohol can impair motor co-ordination, which can lead to accidents

and injuries. Additionally, alcohol use can have huge social implications, including absence from work and the breakdown of marriage and other important social relationships. Another social consequence reported to be associated with excessive alcohol consumption, particularly in males, is violence.⁸

WHAT IS THE EVIDENCE FOR MALE-SPECIFIC DISORDERS?

There is inconclusive evidence of the role of alcohol in the aetiology of erectile dysfunction, prostate cancer, reduced semen quality and Peyronie's disease.

Erectile dysfunction

Alcohol has long been thought to be implicated in erectile dysfunction (with popular-culture expressions such as 'brewer's droop'), but at the same time contrasting evidence suggests that it may also act as a sexual facilitator⁹ – that is, people may be more likely to engage in sexual intercourse after the consumption of alcohol because of lowered inhibitions.

A recent meta-analysis¹⁰ concluded that regular consumption of alcohol (eight or more drinks per week) actually lowered one's risk of erectile dysfunction compared to non-drinkers. Another review⁹ of the cross-sectional literature concluded that the relationship is J-shaped, similar to that observed between alcohol use and cardiovascular disorders. It is therefore possible that the observed relationship between alcohol use and erectile dysfunction may be mediated through cardiac pathways.

Prostate cancer

While there is a body of research exploring alcohol use as a risk factor for this common male cancer, the evidence is largely conflicting. The latest review on the topic¹¹ found that there was a significantly inflated risk of prostate cancer, which increased with the number of drinks a person reported consuming on any given day. This is further evidence to suggest that

overall weekly alcohol consumption is not necessarily the best indicator of alcohol consumption to assess associated harms – instead, the number of drinks consumed in a single session should be given attention.

Semen quality

There is an ongoing debate about a recent degradation in the quality of human semen worldwide, and health behaviours, such as alcohol consumption, have been studied as potential risk factors. Existing cross-sectional knowledge on the topic has been gathered¹² and it was concluded that alcohol use is a modifiable risk factor for semen quality, particularly overall semen volume. This same review, however, acknowledged that there is conflicting evidence, with several studies reporting harmful effects, null effects and even protective effects.

Peyronie's disease

While the cause of Peyronie's disease is still largely unknown, emerging evidence suggests that alcohol may play a role in its development.¹³ It has been hypothesised that, like erectile dysfunction, the relationship observed between Peyronie's disease and alcohol use is largely through cardiac pathways (particularly hypertension and hyperlipidaemia).

POINTS TO CONSIDER

It is important to acknowledge the potentially dynamic process operating between biological and psychosocial harms of alcohol use. For example, if alcohol use is implicated with erectile dysfunction or reduced sperm quality, this can induce stress in sexual relationships, which in turn can lead to further drinking ('self-medication' hypothesis), which may exacerbate the pre-existing physiological symptoms.

One must also be careful in interpreting U- or J-shaped relationships between alcohol use and cardiovascular disorders, as it could be that those not consuming alcohol when surveyed had quit as a result of

KEY POINTS

- Alcohol consumption in the UK is widespread: 88 per cent of men drink alcohol
- Single drinking episode behaviours differ by gender: 20 per cent of men report binge drinking compared to 13 per cent of women
- Binge drinking is not associated with favourable physiological changes – as seen with moderate alcohol consumption
- The evidence of alcohol use as a risk factor for male-specific disorders is largely conflicting. Further work is needed in the area, particularly using longitudinal designs
- Efforts should be made to reduce heavy/binge drinking to improve public health in several domains

ill health ('sick-quitters'), having previously been heavy or moderate consumers.

Even if the protective effects observed in epidemiological research are true, the same effects can often be accomplished through changes in lifestyle. Given that there is a linear dose-response relationship between alcohol use and other health outcomes, increasing in risk with the number of drinks consumed, we should of course not encourage those currently abstinent to begin drinking for the so-called cardioprotective effects, but instead turn our attention towards discouraging those engaging in heavy drinking.

A limitation of the current evidence of alcohol use as a risk factor for male-specific disorders is that most research is cross-sectional. In order to investigate alcohol use (or any other risk factor) as a cause of disease, regular long-term

follow-up is required, utilising a prospective longitudinal design to take into account temporality.

In spite of inconclusive evidence of the role of alcohol in the aetiology of male-specific disorders, there is considerable evidence to imply that alcohol use (specifically binge-drinking patterns) has serious implications for overall physical, psychological and social wellbeing and should therefore be viewed as a major public health concern.

Declaration of interests: none declared.

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