

The impact of alcohol on diet and obesity and wider health

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Executive Summary

Alcohol consumption - along with tobacco use, physical inactivity and unhealthy diet - is one of the major causes of disability and disease in Scotland. In 2016, 1,265 Scots died due to alcohol-related causes; an increase of 10% on the previous year.ⁱ

Public awareness of alcohol harm is limited with almost 90% of people unaware that alcohol causes cancer.ⁱⁱ Similarly, awareness of the Chief Medical Officers' low risk drinking guidelinesⁱⁱⁱ is low with 80% of people unaware that both men and women should consume no more than 14 units per week.^{iv}

Alcohol - like soft drinks, sweets and crisps - is an entirely discretionary product which cannot be recommended as part of a healthy diet. It provides 'empty' calories that can contribute to obesity.

Health professionals rightly argue that 'alcohol is no ordinary commodity'. Ironically, this special status can result in unhelpful anomalies, for example, labelling requirements for alcohol are less stringent than for other food and drink products and alcoholic drinks are not covered by proposals for a sugar levy.

Lead responsibility for alcohol policy and for public information campaigns sits with Scottish Government. However, Food Standards Scotland (FSS) is a unique, trusted and independent provider of consumer information and advice on food and drink, as well as an important influencer of decision makers and professionals. FSS is therefore a key partner in helping improve awareness of the impact of alcohol consumption on health and in supporting people to make healthier choices, both individually and through population measures.

FSS's decision to include alcohol in future Situation Reports is warmly welcomed. Other ways in which FSS might strengthen its contribution to reducing harm from alcohol consumption could include:

- extending advice on what constitutes a healthy diet - in particular the Eatwell Guide - to include the UK CMOs' low-risk drinking guidelines;
- ensuring advice on diet during pregnancy reflects the CMOs' advice;
- proposing the inclusion of alcohol in the Scottish Dietary Goals;
- pressing for labelling of alcoholic drinks to include ingredients, calories and other nutritional information, the CMOs' low risk guidelines and health warnings;
- improving data collection on, and research into, the contribution of alcohol to diet;
- pressing for the inclusion of alcoholic drinks in any sugar levy;
- supporting the Scottish Government to develop evidence-based policy on alcohol and diet/obesity, and encouraging alignment between the two forthcoming national strategies;

- supporting effective public health policies to prevent and reduce alcohol harm i.e. controls on the price, availability and marketing of alcohol.

Full paper

About Alcohol Focus Scotland

1. Alcohol Focus Scotland (AFS) is an independent charity working to prevent and reduce the significant harm that alcohol causes to health, families and communities in Scotland. Our work involves:
 - gathering and sharing evidence of the harm caused by alcohol
 - promoting effective policies to prevent and reduce this harm
 - developing learning opportunities and resources to support best practice

Effective alcohol policy

2. Effective alcohol policy encompasses a range of interventions aimed at reducing consumption across the whole population, alongside measures which target high risk groups.
3. The international evidence,^v endorsed by the World Health Organization (WHO),^{vi} is clear about those interventions that have significant public health impact, and are highly cost-effective, inexpensive and feasible to implement. The "best buys" to reduce the harmful use of alcohol are:
 - Raise the price of alcohol
 - Reduce the availability of alcohol
 - Restrict or ban alcohol advertising
4. The Scottish Government (SG) will shortly publish a 'refresh' of its existing alcohol strategy, *Changing Scotland's relationship with alcohol: A framework for action*. Alcohol Focus Scotland with our partners BMA Scotland, Scottish Health Action on Alcohol Problems and Scottish Families Affected by Alcohol and Drugs, has made a number of recommendations which it considers should be included in the strategy^{vii}, including to:
 - Increase the price of alcohol by implementing a 50p minimum unit price.
 - Develop a strategic approach to reducing the availability of alcohol, and improve existing licensing regulation.
 - Restrict alcohol marketing to protect children and young people, by prohibiting outdoor and public space alcohol advertising, and ending alcohol sponsorship of sports, music and cultural events.
 - Provide clear information for consumers about the health risks associated with drinking.
 - Invest in alcohol prevention, treatment and support services.

Alcohol consumption in Scotland

5. The majority of adults in Scotland drink alcohol (84%) and around one in four (36% of men and 17% of women) self-report drinking at hazardous or harmful levels;^{viii} defined as exceeding the recommended weekly guideline of 14 units per

week. WHO estimates that self-report surveys only capture between 30-60% of alcohol sold,^{ix} due to individuals under-estimating their consumption and/or under-representation of heavier drinking groups. More than one million adults in Scotland are therefore putting themselves at increased risk of health damage due to their drinking. Alcohol sales in Scotland are 17% higher than in England and Wales^x, and Scotland's alcohol consumption is higher than many other European countries.

6. Despite an increasing prevalence of non-drinkers, in 2016 enough alcohol was sold in Scotland for every adult to substantially exceed the weekly guideline, every week of the year (equivalent to 20.2 units of alcohol per adult per week). A total of 10.5 litres of pure alcohol were sold per adult; equivalent to 105 bottles of wine, 40 bottles of vodka or 456 pints of beer.^{xi} Alcohol sales per drinker, rather than per adult, equate to 12.5 litres of pure alcohol, or 48 bottles of vodka, a year.
7. Regular underage drinking has been falling in the past fifteen years. Two-thirds (66%) of 15 year olds and a third (28%) of 13 year olds have ever had an alcoholic drink. Of those that had ever had alcohol, less than half of 13 year olds (45%) and around two-thirds of 15 year olds (68%), had been drunk at least once.^{xii}

Alcohol harm in Scotland

8. Alcohol consumption - along with tobacco use, physical inactivity and unhealthy diet - is one of the major causes of disability and disease in Scotland. In Scotland, there were 1,265 alcohol-related deaths in 2016 (where alcohol was the underlying cause of death).ⁱ Alcohol-related deaths increased by 10% compared with the previous year and represented the highest number of deaths since 2010. Male deaths were approximately double female deaths, and they were highest in the 45-59 age group.
9. In 2015-16, there were nearly 35,000 alcohol-related hospital stays in Scotland; the vast majority (92%) of which resulted from emergency admissions.^{xiii}
10. There are significant inequalities in alcohol-related harm. Those in the most deprived communities are six times more likely to die and nearly nine times more likely to be hospitalised than those in the least deprived communities.^{xiv}
11. Alcohol harm costs individuals, families and communities dear, is a drain on our hard-pressed public services and a brake on economic growth. The estimated costs of alcohol are £3.6 billion each year.^{xv} Harm from alcohol not only affects the drinker but also those around them, including children and other family members, friends, co-workers and the wider community.

Alcohol and health

12. Alcohol is a psychoactive, carcinogenic substance with dependence-producing properties. It is a causal factor in more than 200 disease and injury conditions including alcohol dependence, liver cirrhosis, cancers and injuries.
13. The impact of alcohol is determined by: the volume of alcohol consumed, the pattern of drinking, and on rare occasions, the quality of alcohol consumed.

Mechanisms of harm in an individual

14. There are three main direct mechanisms of harm caused by alcohol consumption in an individual:^{xvi}
- toxic effects on organs and tissues;
 - intoxication, leading to impairment of physical coordination, consciousness, cognition, perception, affect or behaviour;
 - dependence, whereby the drinker's self-control over his or her drinking behaviour is impaired.
15. Alcohol affects health in a variety of ways; virtually every system of the human body can potentially be damaged. Drinking any amount of alcohol increases the risk of damage to health and for all types of harm the risk increases in line with how much is consumed.
16. Alcohol not only impacts on the incidence of disease and injury, but can also affect the course of diseases such as liver cirrhosis, stroke or ischaemic heart disease. The most recent causal relationships to have been identified are those between harmful drinking and incidence of infectious diseases such as tuberculosis as well as the course of HIV/AIDS.^{xvii}
17. The impact of alcohol is principally determined by the volume of alcohol consumed and the pattern of drinking over time. For example, a pattern of drinking while eating seems to be associated with less harm from chronic diseases than the same pattern of drinking at other times.
18. As the body cannot store alcohol, it is treated as a potential poison and eliminated via the liver. This means the liver is particularly vulnerable to the harmful effects of alcohol, with alcoholic liver disease the most common physiological condition to result from persistent or chronic heavy drinking.

Overweight and obesity

19. In 2015, 65% of Scottish adults aged 16 and over were overweight, including 29% who were obese.^{xviii}
20. Alcohol has no nutritional value, but has 7 kcalories per gram; second only to fat (9 kcal/g) in energy density. Wine, beer, cider and spirits are made from natural

starch and sugar. Fermentation, and distillation for certain drinks, is used to produce the alcohol content.

21. A large glass of wine contains around 200 kcal, while a pint of cider contains 210 kcal and 5 teaspoons of sugar. Many alcoholic drinks will be 'mixed' with soft drinks e.g. rum and coke. Over time, regular drinking can (particularly in those who drink heavily or binge drink)^{xix} contribute to weight gain which brings with it more health risks including high blood pressure, diabetes and fatty liver disease.
22. The average wine drinker in the UK takes in around 2,000kcal from alcohol every month. Drinking six pints of lager a week (the low risk guideline) equates to around 4,300 kcal per month, equivalent to eating 23 doughnuts.
23. The UK National Diet and Nutrition Survey found that on average, adults aged 19 to 64 years who consumed alcohol during the four-day recording period obtained 8.4% of their total energy intake from alcohol. Adults aged 65 years and over obtained 7.1%.^{xx} In addition, 'alcoholic beverages' provided 7-9% of non-milk extrinsic sugars (NMES) in adults aged 19 years and over. If non-drinkers are excluded (21% of the UK population), the proportion of total NMES which drinkers obtain from alcohol is likely to be higher. It may be helpful to undertake further data collection and analysis of the contribution of alcohol to calorie intake amongst drinkers.
24. According to the NHS National Obesity Observatory:^{xxi}
 - Many people are unaware of the calories contained in alcoholic drinks
 - The effects of alcohol on body weight may be more pronounced in overweight and obese people
 - Alcohol consumption can lead to an increase in food intake
 - Heavy, but less frequent, drinkers seem to be at higher risk of obesity than moderate, frequent drinkers
25. Obesity is a multi-factorial condition and it is difficult to truly assess the independent influence of alcohol intake on obesity risk. However, the preponderance of the evidence taken as a whole suggests that alcohol may be a risk factor for obesity in some individuals, especially when consumed in large quantities.^{xix}
26. There are several hypotheses about why. Some studies have shown that in the short term alcohol consumption stimulates food intake and can also increase feelings of hunger.^{xxii} Research has shown a 20% increase in calories consumed at a meal when alcohol was consumed before the meal; 33% in total when the calories from the alcohol were included.^{xxiii}
27. In addition, there is some evidence that people are less likely to practice dietary compensation to take account of liquid calories than calories consumed from food. The evidence for failing to compensate for the energy in alcoholic drinks is at least as clear as the equivalent evidence for non-alcoholic sweetened beverages. It clearly suggests that alcohol promotes short-term over-

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consumption of energy.^{xxii} This may be because people find liquid calories less satisfying as they consumed more quickly and there is less chance to savour.

28. Heavy drinking and moderate drinking appear most likely to contribute to weight gain. Light to moderate drinking does not appear to be related.^{xxii} The association between alcohol intake and body weight is generally stronger in men than women,^{xix} especially because of the amount and type of alcohol consumed by men (beer is carbohydrate rich).
29. Along with the increase in weight, there may be an increased risk to health because of where the weight is gained.^{xxiv} A study of over 3,000 people showed that consuming elevated amounts of alcohol is associated with abdominal obesity in men.^{xxv}
30. As well as drinking excessive amounts of alcohol, other factors can increase the chances of developing alcohol-related liver disease, including being overweight or obese.
31. The Scottish Government's upcoming diet and obesity strategy should encourage action to reduce the consumption of alcohol as well as products high in fat, salt, and sugars, as part of promoting a healthier diet.

Alcohol and cancer

32. Like obesity and diet, alcohol can cause cancer. The International Agency for Research into Cancer (IARC) - part of the World Health Organization - has classified alcohol as a Group 1 carcinogen since 1988. IARC's rulings are the gold standard in terms of determining if something causes cancer, and Group 1 is their highest risk category. It means that there is convincing evidence that alcohol causes cancer in humans.
33. A survey conducted by Cancer Research UKⁱⁱ found only 13% of adults mentioned cancer as a health condition which could result from drinking too much alcohol. When prompted by asking about seven different cancer types, 80% said they thought alcohol caused liver cancer but only 18% were aware of the link with breast cancer. Alcohol causes 3,200 breast cancer cases each year compared to 400 cases of liver cancer.
34. The Committee on Carcinogenicity recently concluded that '*drinking alcohol increases the risk of getting cancers of the mouth and throat, voice box, gullet, large bowel, liver, of breast cancer in women, and probably also of cancer of the pancreas*'.^{xxvi} These risks start from any level of regular drinking and then rise with the amounts of alcohol being drunk.
35. A study published in 2011^{xxvii} found that alcohol is responsible for around 4% of UK cancers, about 12,800 cases per year. The proportion of cases due to alcohol was highest for mouth and upper throat cancers (around 30%), but bowel cancers accounted for the greatest overall number of cases linked to alcohol (around 4,800 cases a year).

36. A World Cancer Research Fund (WCRF)^{xxviii} review considered the evidence to be strong that drinking the equivalent of a small glass of wine or half a pint of beer a day (about 10g alcohol content), could increase pre-menopausal breast cancer risk by 5% and post-menopausal breast cancer risk by 9%.

Alcohol and cardiovascular disease

37. Like obesity, regularly drinking too much can raise blood pressure over time. This in turn increases the risk of heart disease and stroke. Heavy consumption either during a single occasion or over a long period can cause and aggravate heart conditions such as cardiomyopathy (stretching and drooping of heart muscle) and arrhythmias (irregular heart beat), and may also lead to strokes and high blood pressure.

38. The latest SIGN guideline 149^{xxix} “Risk estimation and the prevention of cardiovascular disease states”:
“Patients with or without evidence of cardiovascular disease should be advised to reduce alcohol consumption and that even light to moderate alcohol consumption may increase cardiovascular risk.”

Alcohol and malnutrition

39. Alcohol dependency can contribute to malnutrition. Alcohol causes nutritional complications from both its primary effects on the intake and metabolism of nutrients and secondary effects of end organ damage (e.g. alcohol induced liver disease, pancreatitis). Frequent or problem alcohol use has serious nutritional implications.

Alcohol and blood sugar

40. Blood glucose is regulated by the foods that we eat, the breakdown of glycogen stores and gluconeogenesis. Alcohol can interfere with all three. The greatest impact is seen in those who drink heavily on a frequent basis. Heavy drinkers deplete their glycogen stores within a few hours when their diet does not provide sufficient carbohydrate. Over time, excessive alcohol consumption can decrease insulin's effectiveness, resulting in high blood glucose levels.

Acute toxic effects

41. Alcohol poisoning occurs when a toxic amount of alcohol is consumed, usually over a short period of time. Excessive alcohol consumption can slow or even shut down automatic functions such as breathing, heartbeat and gag reflex (prevents choking). Without emergency medical treatment, alcohol poisoning can be fatal.

Alcohol and pregnancy

42. When a pregnant woman drinks alcohol, it passes from her blood through the placenta to the developing baby. Heavy drinking during pregnancy can cause

Foetal Alcohol Syndrome (FAS). Children with FAS have restricted growth, distinctive facial features, and lifelong learning and behaviour problems. Regularly drinking in pregnancy and binge drinking can still lead to less severe forms of FAS, known as Foetal Alcohol Spectrum Disorders (FASD).

43. The Chief Medical Officers advise that for women who are pregnant or think they could become pregnant, the safest approach is not to drink alcohol at all, to keep risks to the baby to a minimum.ⁱⁱⁱ Given that 16% of pregnancies are unplanned and a further 30% are ambiguous^{xxx} there is a need to ensure that this advice is communicated effectively to all women of fertile age.

Low-risk drinking guidelines

44. In January 2016, the UK Chief Medical Officers (CMOs) published revised alcohol consumption guidelines to reflect new evidence about the health risks associated with drinking, and cancer in particular.ⁱⁱⁱ
45. To keep health risks from drinking alcohol to a low level, men and women should not regularly drink more than 14 units per week; the equivalent of:
- 6 pints of beer or
 - a bottle and a half of wine or
 - 14 single shots of spirits
46. It is best to spread this evenly across the week rather than drinking all at once. Having several alcohol-free days each week is a good way to cut down.
47. The expert group advising the CMOs was clear that there are a number of serious diseases, including certain cancers, which can occur even when drinking within the weekly guideline. Whilst they judge the risks to be low, this means there is no level of regular drinking that can be considered as completely safe in relation to some cancers. People can reduce these risks by drinking less than the guidelines or by not drinking at all.
48. The newest evidence (available since the previous guidelines were published in 1995) suggests that the net benefits from small amounts of alcohol are less than previously thought (with substantial uncertainties around the level of protection) and are significant in only a limited part of the population.
49. This advice on regular drinking is based on the evidence that if people drink at or above the low risk level advised, overall any protective effect from alcohol on deaths is cancelled out and the risk of dying from an alcohol-related condition would then be expected to be at least 1% over a lifetime. This level of risk is comparable to those posed by other everyday activities that people understand are not completely safe yet still undertake.

Communicating health risks associated with alcohol

50. There is considerable confusion over the definition of a standard unit of alcohol. One unit of alcohol in the UK means a beverage containing 8g or 10ml of ethanol.

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The amount of alcohol in units is calculated as: volume of drink (litres) x percentage alcohol by volume (abv). However, many people wrongly believe that one unit is the same as one drink and fail to take into account the strength of the drink or size of the measure.

51. Around half of Scots do not know the number of units in a pint of beer, measure of spirits or a glass of wine.^{xxxii}
52. While public awareness of the link between alcohol and liver disease is high (90%),^{xxxii} it is worrying low for cancer with only 10-13% of people being aware that alcohol causes cancer.^{ii xxxii}
53. The new CMO guidelines were based on two principles:
- People have a right to accurate information and clear advice about alcohol and its health risks.
 - Government has a responsibility to ensure this information is provided for the public in a clear and open way, so they can make informed choices.
54. The CMO's expert report recommended that health warnings and consistent messaging appear on all alcohol advertising, products and sponsorship.

Improved labelling

55. At present there are few requirements for what should appear on product labels. EU legislation requires more consumer information to be printed on a pint of milk than on a bottle of vodka. Alcohol producers, under a system of self-regulation, decide themselves what information to provide on packaging.
56. AFS considers that manufacturers should be compelled to display prominent health warnings and low-risk drinking guidelines along with information on ingredients, nutrition and calories on all alcohol labels.
57. Labelling products with health and nutritional information is essential to helping consumers make informed decisions about what they choose to eat and drink. Showing the calorie content and nutritional values on all drinks labels would also help people realise just how calorific, and often high in sugar, alcoholic drinks are.
58. Opinion polls show 78% of Scottish people support health information on alcohol labels.^{xxxii}
59. In a review of 315 product labels carried out by the Alcohol Health Alliance (UK) earlier this year only one label contained the low-risk guidelines, some contained the old guidelines, and several showed the Republic of Ireland guidelines.^{xxxiii} There was no mention of any health risks associated with drinking alcohol, nor advice to spread drinking throughout the week with alcohol-free days. Labels did contain a symbol or text advice to avoid alcohol in pregnancy.

60. Consumers have the right to be informed about products which may pose a risk to health and they expect this information to come from an independent, trustworthy source. Guidance from the Department of Health recommends that alcohol labels direct people towards the alcohol industry-funded Drinkaware website when the World Health Organization has stated categorically that the alcohol industry should not be involved in health promotion. It would be more appropriate to direct the public to the NHS Inform website in Scotland rather than to Drinkaware. Recent research has shown how alcohol industry groups underplay the link between alcohol and cancer.^{xxxiv}

Soft drinks levy

61. AFS supports the swift implementation of the soft drinks levy. We also propose that the scope of the levy should be extended to include all alcoholic drinks. Ciders, and spirits (which are usually mixed with soft drinks) are particularly high in sugar. Highly sugared alcoholic drinks are also appealing to young people.

Asks for Food Standards Scotland

62. FSS is a unique, trusted and independent source of information and advice for consumers on food and drink. As such, FSS can have both a direct and influencing role in addressing alcohol consumption and harm in Scotland. A food and drink environment in Scotland that benefits, protects and is trusted by consumers, as per FSS's vision, should acknowledge that alcohol is a significant driver of ill health, and contributes to overweight and obesity in Scotland.

63. Specific ways in which FSS could contribute to improving consumer awareness and to reducing harm from alcohol could include:

- extending advice on what constitutes a healthy diet - in particular the Eatwell Guide - to include the UK CMOs' low-risk drinking guidelines;
- ensuring advice on diet during pregnancy reflects the CMOs' advice;
- proposing the inclusion of alcohol in the Scottish Dietary Goals;
- pressing for labelling of alcoholic drinks to include ingredients, calories and other nutritional information, the CMOs' low risk guidelines and health warnings;
- improving data collection on, and research into, the contribution of alcohol to diet;
- pressing for the inclusion of alcoholic drinks in any sugar levy;
- supporting the Scottish Government to develop evidence-based policy on alcohol and diet/obesity, and encouraging alignment between the two forthcoming national strategies;
- supporting effective public health policies to prevent and reduce alcohol harm i.e. controls on the price, availability and marketing of alcohol.

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