

New Year's resolution Sensible drinking



Driving along the motorway the other day Dr PAM St LEGER saw the familiar message spelled out on the overhead signs – ‘Don’t drink and drive’ – and thought it must be the season of Christmas and New Year parties..

Seeing this sign made me think again about the problem in our society and culture where alcohol is an accepted recreational drug – yet many people either don’t realise or choose to ignore possible implications for the workplace after drinking.

Alcohol is a positive part of life for many people and most of the time drinking alcohol doesn’t cause any problems – but drinking too much or at the wrong time can be harmful and there is a huge amount of research and data showing the impact alcohol use and abuse can have on the workplace with costs to both employees and employers. There are two main problem areas:

- **Alcohol-related absenteeism.** Alcohol is estimated to cause 3-5 per cent of all absences from work; about eight to 14 million lost working days in the UK each year.
- **The effects of drinking on productivity and safety.** Alcohol consumption may result in reduced work performance, damaged customer relations, and resentment among employees who have to ‘carry’ colleagues whose work declines because of their drinking.

There is a common misconception that these problems only arise if the individual has

consumed well over recommended safe levels of alcohol or well above the legal limit for driving, but The Department of Transport stated in 1998 that drinking by drivers with blood alcohol levels below the legal limit (currently 80mg% – 80mg of alcohol per 100 ml of blood) was a significant but largely hidden cause of accidents with 200-300 road deaths per year. The Government’s own guidance on sensible drinking lists the following as examples of specific situations when the best advice is not to drink at all:

- Before or during driving
- Before using machinery, electrical equipment or ladders
- Before working or in the workplace when appropriate functioning would be adversely affected by alcohol.

We all know and enjoy the more relaxed feeling we experience after a glass of wine or a pint of beer – and I bet we don’t really stop to think through the implications of this bonhomie. The reality is – alcohol depresses our brain so it works inefficiently, taking longer to receive messages from the eye; processing information becomes more difficult and instructions to the muscles are delayed. Alcohol can slow down reaction time by ten to 30 per cent. Judging speed and distance

become more difficult and it also reduces ability to perform two or more tasks at the same time – and I am not making any differentiation on male versus female multitasking! Alcohol also reduces the ability to see distant objects and night vision can be reduced by 25 per cent. Blurred and double vision can occur, as can loss of peripheral vision. Alcohol may also create a sense of overconfidence, with the result that people are prepared to take greater risks. These effects can occur even after small amounts of alcohol – particularly so in those people who are not frequent drinkers – so in effect those joining in a party celebration when they are not regular drinkers are particularly at risk.

All of the above effects that can affect driving also affect a person's ability to operate machinery or perform other skilled tasks. With tasks a person is familiar with, the repetitive nature of these tasks may mask the fact that reactions are slower, but if something unfamiliar were to happen – that person's ability to assess the change, process the information and perform the necessary adjustments would still be impaired.

Blood alcohol concentration

The concentration of alcohol in the body, known as the 'blood alcohol concentration' (BAC), depends on many factors, but principally, how much and what type of alcohol you have drunk, how long you have been drinking, whether you have eaten, whether you are male or female and your size and weight. It is difficult to know exactly how much alcohol is in your bloodstream or what effect it may have. Although there are various web-sites offering to do the calculation for you – there is no foolproof way to calculate how much alcohol you can drink to stay below the legal limit.

The legal blood alcohol limit for driving in the UK is 80 milligrammes of alcohol in 100 millilitres of blood (80mg%) equivalent to 35 microgrammes of alcohol in 100 millilitres of breath, or 107 milligrammes of alcohol in 100 millilitres of urine. Along with Ireland & Malta, we have the highest limit in Europe.

Alcohol is absorbed into your bloodstream within a few minutes of being drunk and carried to all parts of your body including the brain. The rate and extent of this absorption depends on whether you have eaten – a high fat meal will delay absorption. This is also true for fat levels within the body. If two people of different fat levels, but of equal weight, drink the exact same amount of alcohol, the one with less fat

will absorb the alcohol faster, causing them to feel it quicker. Absorption is also quicker from carbonated alcoholic drinks compared with non-carbonated and, sadly for us ladies who enjoy a glass of Shiraz, women will tend to have a higher BAC than men for the same consumption. It may take a man five 'standard' drinks or more in an hour to reach a BAC of 0.08 (the legal limit), while it may take a small woman only two or three drinks.

How much are we drinking?

So how do we work out what we are drinking? To give some examples the following all contain **one unit** of alcohol:

- A half pint of ordinary strength beer, lager and cider (3.5% ABV)
- A single 25 ml measure of spirits (40% ABV)
- A small glass of wine (9% ABV)

Confused? Well I have never seen a wine bottle with a label showing ABV (alcohol by volume) of 9 per cent; more likely 12 per cent upwards. So how do we work out our units? Well here comes the maths: The number of UK units of alcohol in a drink can be determined by multiplying the volume of the drink (in millilitres) by its percentage ABV, and dividing by 1000. Thus, one pint (568 ml) of beer at four per cent ABV contains $(568 \times 4) / 1000 = 2.3$ units

However, this calculation gives the number of units – there is no easy way to convert this to actual BAC and therefore relate this to the UK legal limit!

Metabolic rate

When it comes to metabolism, the liver can only metabolise a certain amount regardless of how much has been consumed. The body burns off alcohol at the rate of 0.016 BAC per hour, or about one unit (equal to one standard drink) each hour. This rate is true regardless of the size of your body. A 5' 2" female burns off alcohol at the same rate as a 6' 1" obese male, the only difference your sex & weight makes in practical terms is in determining what BAC you reach for a given amount of alcohol drunk. Despite what you may hear there is no 'miracle cure' or any way of speeding this up – only time can remove alcohol from the bloodstream

Therefore, if someone drinks two pints of ordinary strength beer at lunchtime or half a bottle of wine (i.e. four units), they will still have alcohol in their bloodstream three hours later. Similarly, if someone drinks heavily in the

evening they may still be over the legal drink drive limit the following morning. In fact, every year in Britain over 25,000 people lose their driving licences the morning after a night's drinking.

At this point I should also make a mention of shift workers – where irregular eating and working times can impact upon the effects of alcohol and cause them particular problems. Studies have shown that although shift work might be expected to disrupt social life, possibly leading to increased alcohol consumption this is not the case and indeed shift workers may consume less alcohol. This may be due to the fact that in most countries alcohol consumption is greatest in late afternoon & evening, often associated with food, and more so on Fridays and weekends. However, whereas nine-to-five workers can reasonably expect the effects of their alcohol consumption – within limits – to wear off overnight, how does a shift worker calculate this? A formula that might help would be:

Number of units drunk - number of hours since last drink = alcohol content

For example: A person drinks six pints of an ordinary strength beer (12 units) finishing drinking at 8pm. They start work at 5am the following day – nine hours later.

So, we get: $12 \text{ units} - 9 \text{ hours} = 3 \text{ units left}$.

In this scenario, the person could still have a minimum of three units of alcohol left in their body whilst driving to work the following day. This could put them at or just over the UK legal driving limit. Given there is no truly accurate way of correlating BAC with alcohol units it would be advisable to err on the side of caution and it is advised that you allow a minimum of one hour per one unit of alcohol consumed before driving or operating heavy machinery or electrical equipment in order to ensure that you are not under the influence of alcohol.

Some professions such as airline pilots have a zero tolerance approach to alcohol – and cases where pilots miscalculate the time since they last drank alcohol and/or how much they drank make headlines when they are caught as part of drug testing. Whatever your company's policy is or even if they don't have one – take responsibility for your own drinking this season – play safe not sorry. ■

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Dr Pam St Ledger B.Pharm., Ph.D., MRPharmS advises Express Medicals on medication advice services.

Web: www.expressmedicals.co.uk