

Alcohol and ageing – can we continue to drink?

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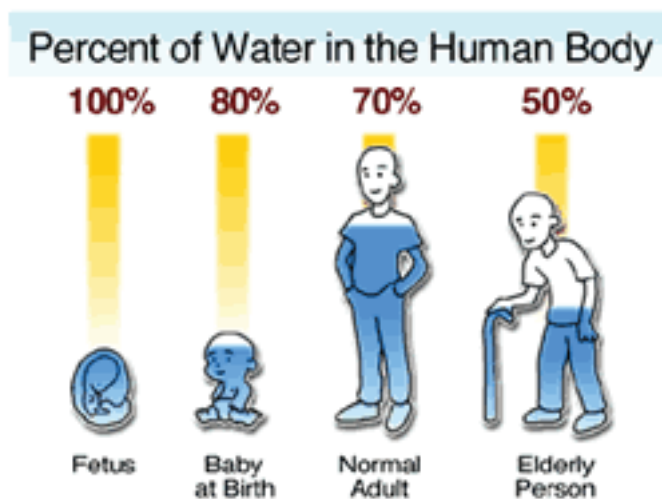
The latest version of the National Health and Medical Research Council's Australian guidelines to reduce health risks from drinking alcohol was published in 2009. It superseded the 2001 version entitled Australian alcohol guidelines: health benefits and health risks.

One of the guidelines that completely changed related to recommendations for older people, aged over 60 years. In the accompanying text to the latest version of the guidelines headed 'Further issues to consider', it states that there are a number of additional factors which influence the risk of alcohol-related harm. The text included groups that can be at increased risk if they drink alcohol; for example, older people (60+ years). Prior to this, the recommendation was a separate and specific guideline (#8) advising older people that, if they drink, to consider drinking less than the levels set in the basic guideline (#1). The basic guideline (#1) set out how to minimise risks in the short- and longer-term, and gain any longer-term benefits, which was a maximum of four standard drinks per day for men and two for women. The new basic guideline (#1) is a maximum of two standard drinks per day for both men and women. A standard drink is 10 g alcohol, which is approximately equivalent to 100 mL wine.

The rationale for the guideline was that a given amount of alcohol generally produces a higher blood alcohol concentration (BAC) in an older person because, with age, the body's total water content into which the alcohol distributes decreases (Figure 1). The alcohol is more concentrated, therefore, in the lesser amount of body water in an older person than in the greater amount of body water in a younger person. Generally, the affects of alcohol on the body's organs and tissues, including the brain and central nervous system, are proportional to the amount of alcohol consumed or predicted by the BAC. Consequently, the organs and tissues of an older person, including the brain and central nervous system, will be more affected or influenced with a given amount of alcohol.

Surely this advice and rationale is relevant for 2010?

Figure 1. Body water differences during ageing



Yes, this rationale is still relevant for 2010. Indeed, as discussed above, as people age their body's ability to 'tolerate' alcohol decreases, which partly reflects the decreased body water. Also, blood flow to the liver is decreased with age, and the liver enzymes that break-down alcohol are slower. The toxic alcohol and its toxic primary break-down product, acetaldehyde, therefore, stay in the liver longer before they are moved into the general blood stream or broken down, which increases the risk of damage to the liver.

Furthermore, as people age, their mental and physical functions controlled by the brain decrease; such as coordination, vision, hearing and reaction time, which increase the risk of accidents, for example, falls and car crashes. As one of the first physical functions affected by an increasing BAC is hand/eye coordination, this impairment is amplified in an ageing alcohol consumer. While impairment to mental and physical functions initially occurs at a BAC of 0.3 mg/mL (after drinking approximately one standard drink), it accelerates as the BAC approaches 0.8 mg/mL (after drinking two to three standard drinks), so that information processing and visual tracking ability as well as hand/eye coordination and reaction time are impaired.

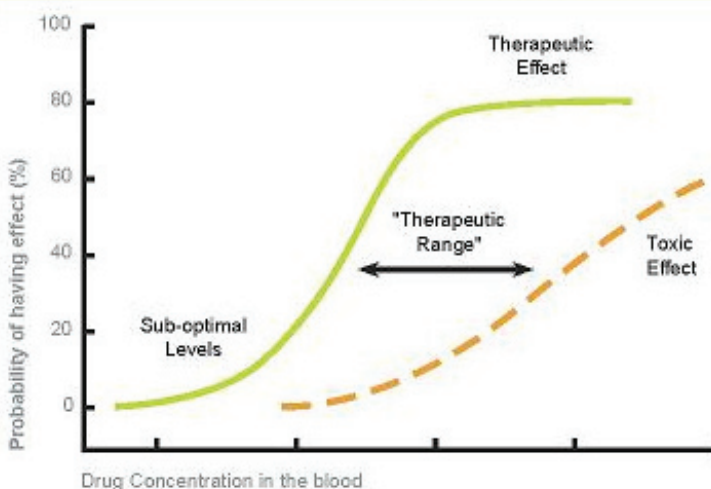
Simply put, alcohol interferes with the neuronal messages from the brain to muscles resulting in impaired physical or motor function and, hence, skills. Motor function is the muscular activity and movement directly resulting from mental processes.

Motor skills are actions that involve the movement of muscles in the body. They are divided into two groups: gross motor skills, which include the larger movements of arms, legs, feet, or the entire body; and fine motor skills, which are small movements of the hands, wrists, fingers, feet, toes, lips and tongue.

In addition, older people often take regular prescription or over-the-counter medications for common conditions, disorders and diseases that occur with ageing; such as those of the circulation, heart and diabetes. Medicines such as antibiotics, anti-blood clotting, anti-high blood pressure, and anti-diabetic drugs may compete with alcohol to be broken down by the same enzymes in the liver. Consequently, the medicine may be either broken down too fast or too slow, or its breakdown may be completely prevented. This means that a blood medicine concentration may be too low to be effective at treating a disorder, disease or infection, or may be too high so that unwanted mental and physical side effects occur (see Figure 2). Such side effects include headache, nausea, vomiting, dizziness, drowsiness or fainting. Internal bleeding and breathing or heart problems may even occur. Alternatively, if the medicine is broken down preferentially by the liver, the blood alcohol concentration may be higher.

Figure 2 Therapeutic index of medicines.

Figure No. 1: THERAPEUTIC RANGE



The effects of alcohol on brain functions are also increased by medicines that also depress or slow down the brain such as sleeping pills, anti-histamines, anti-depressants, anti-anxiety drugs, and some painkillers. Indeed, alcohol, like some medicines, acts

on the brain and can induce dizziness, drowsiness or lightheadedness, where drinking alcohol while taking these medicines can magnify these effects.

Approximately 50% of Australians have reportedly consumed alcohol and taken prescription or over-the-counter medicines at the same time.

The news is not all bad for ageing.

With ageing, the relationship between the amount of alcohol consumed and the risk of developing certain diseases and disorders is J-shaped. For example, compared to abstinence or drinking a heavy amount, drinking a light to moderate amount of alcohol decreases the risk for:

- cardiovascular disease, which is the grouping of diseases and disorders that involve the heart and the blood vessels (arteries and veins), such as atherosclerosis (hardening and rigidity of the artery wall), high blood pressure, heart attacks and heart failure as well as strokes, either from blockages or ruptures of brain blood vessels;
- type 2 diabetes mellitus, and if already diabetic, the risk of developing cardiovascular disease is decreased;
- dementias, and the ability to perceive, reason, remember and think is improved;
- depression; and
- bone loss.

Therefore, overall mortality from all causes is consequently decreased.

The risk of developing these certain diseases and disorders is increased, however, when heavy or excessive amounts of alcohol are continuously consumed.

Interestingly, older Australians generally drink less alcohol at any one drinking session than younger Australians, but they tend to drink alcohol every day. They generally reduce or stop their drinking only when they have health problems.

A list of full references and other readings are available from the AIM Full members area, or from alison.rees@aim-digest.com

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