AIM Alcohol in Moderation DIGEST ONLINE

INTERNATIONAL DIGEST PROMOTING THE RESPONSIBLE CONSUMPTION OF ALCOHOL

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Antioxidants - never out of the news

Who could have failed to see the myriad of front page leaders around the world dedicated to the virtues of resveratrol and procyanidins in red wine (and dark chocolate) following two research articles published in Nature (Corder R, Crozier A et al 'Red wine procyanidins and vascular health' and Baur JA et al 'Resveratrol improved health and survival of mice on a high calorie diet'). Indeed, the research was the most widespread story reported in the world that day - with journalists apparently elated, in the run up to Christmas, that a little of those 'naughty' things in life are not only enjoyable, but positively not bad for you. The publicity has led to a surge of red wine sales in the US to twice their expected growth rate in November.

It is important to keep such publicity in proportion as an industry or indeed as consumers. No one should be choosing to drink for 'medical benefits' rather than enjoyment and pleasure. Secondly, it is not deemed acceptable for producers to promote or market their products as antioxidant-rich (which can by applied to traditional beers and ciders, even whisky as well as red wine) or as a health drink. In this era when many are seeking a universal panacea, there is no better alternative to the five 'ingredients' to a longer and healthier life - namely staying slim, eating a Mediterranean-style diet, exercising for 20 minutes daily, not smoking and drinking in moderation.

Such head lines are important in the sense that they do reinforce the 'rights' of moderate drinkers in that alcohol can be included as part of a healthy diet and lifestyle.

Some critics have stated that the continuing good news for red wine drinkers will encourage those at risk of a heart attack or a second heart attack to drink more or above daily sensible drinking guidelines and it is worth revisiting Professor Klatsy's work in this field. In 'Do people drink more if they develop Coronary Heart Disease (CHD) or know about medical benefits of alcohol' (AIM Vol 13 No.1 Jan 2004), Klatsky's subjects were drawn from 63,000 subjects in 1999, drawing on their drinking information supplied between 1978 and 1985. The analysis in 2000, found that 92% of the participants remained abstainers 20 years after first analysis, although 82% of the participants had heard of the medical benefits of alcohol. Of those who had contracted CHD, 18% had become abstainers, the same proportion as in the control, and more had given up smoking. Klatsky's findings concluded that knowledge of alcohol's potential beneficial effect did not alter patients drinking habits.

Antioxidants revisited:

Antioxidants include naturally occurring vitamins, phenolic compounds or other complex molecules generated by heat (i.e. cooking) such as elanoidins.

Resveratrol, along with quercetin and epicatechin, is one of the main antioxidants found in wine. These phenolic bioflavonoid compounds, a group of chemicals called phytoalexins, are produced by plants in response to fungal infection, ultraviolet light, and various chemical and physical stressors, especially during ripening. Dr Edwin Frankel, of the Davis University of California, has shown that these antioxidants in wine are five times more potent as antioxidants than the benchmark antioxidant, vitamin E.

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EU

On the 28th November, The European Union Council of Ministers delayed a decision on setting new raised minimum excise duties on alcohol for up to seven months and maybe longer, asking the European Commission to investigate the issue.

EU court rules for domestic duty on shipped alcohol

Following much speculation, The European Union's top court ruled on 23rd November that individuals must pay domestic customs duties when buying alcohol from another member state and having it delivered to their home.

In a landmark decision, the European Court of Justice upheld a 1992 EU rule that duty is charged only in the member state where goods are bought for personal use - but only if transported by the purchaser.

The ruling comes as a relief to retailers and finance ministries in the nine EU states where duty is high, who would have experienced the greatest impact from lost revenues.

SWEDEN

The Systembolaget has won the first round in its fight to maintain its right to ban individuals from having alcohol brought into Sweden from other EU nations.

The European Court of Justice adviser agreed with the state-run alcohol retail monopoly that it could confiscate alcohol imports into Sweden if the products were not transported into the country by the individual purchaser.

The case came about after a Swedish resident bought Spanish wine, using a Danish website. The Systembolaget confiscated the wine. The Swede took his case to Sweden's Supreme Court, which asked the EU's Court of Justice to rule on whether the ban was justified. In his conclusions, Court Advocate General Paolo Mengozzi said national courts had to decide on a case-by-case basis whether individuals can import alcohol from other countries if national alcohol monopolies are in place.

THAILAND

The impending total ban on alcohol advertising in Thailand in all forms of media has been delayed. The ruling by the Food and Drug Administration (FDA), was initially scheduled to begin on 3 December. The country's Council of State has postponed the move by 30 days, however, while it reviews the FDA's mandate to bring in the ban.

Dr Kittisak Klabdee, the acting Public Health permanent secretary was cited as saying that the council will accept the review results, whatever they are.

Meanwhile, Thailand's cabinet approved the Public Health Ministry's proposed Alcohol Control Bill. The bill bans all forms of alcohol advertising, with limited exceptions like live broadcasts from abroad. Breaches of the ban in print, television, radio, digital and outdoor media will carry a penalty of up to one year in jail, a maximum fine of THB100,000 (US$2,785) or both.

The bill also bans alcohol sales to youths below the age of 20 and people who already appear heavily intoxicated. Alcohol sales via vending machines are also prohibited, as are promotional activities for alcohol sales.

(continued from front page)

Potential actions of antioxidants

Reducing LDL oxidation

Enhancing vasodilation (endothelial function)

Anti-atherogenic effects

Shielding DNA from oxidative damage (oxidation may be promoted by acetaldehyde)

Modulating carcinogenic infllatory reactions

Promoting normal cell differentiation and maturation

Inhibiting growth of cancer cells and stimulating 'programmed cancer cell death'

Enhancing the effects of chemotherapy

Stimulating gene SIRT 1 which reduces development of new fat cells and increases the metabolism of fat in existing fat cells

Anti fibrotic properties which inhibit cardiac fibroblast proliferation

Antibiotic properties against heliobacter pylori

Increase levels of the enzyme heme oxygenase in the brain that shields nerve cells from damage

Antioxidants are not exclusive to grapes, and are also found in, for example, allium vegetables (onion, leek, garlic, shallot), broccoli, spinach, blueberries, strawberries, tea and chocolate. It should be noted that antioxidants cannot be stored by the body like vitamins, so the protective antioxidant effect only lasts a few hours, hence we need to eat fruit and vegetables daily for their antioxidant content.

Antioxidants act in addition to the alcohol itself. Alcohol in moderation contributes at least half of wine's cardiovascular benefits. It also may enhance the desired actions of the antioxidants, and aid their absorption and bioavailability.

Role of antioxidants:

One of the main actions of antioxidants is to inhibit low density lipoprotein(LDL) or bad cholesterol from entering blood vessel walls and forming antheromatous plaques which eventually block off arteries causing vascular diseases such as heart attack and stroke. As we absorb polyphenols they change the properties of blood lipids making 'bad' LDL more resistant to oxidation and help 'relax' blood vessel walls, making blood flow easier.

Antioxidants can be many different compounds but they all share one property in that they are able to quench, or neutralise oxidative free radicals. In theory, the more antioxidants in your cells, the less free radicals. This is important because it is free radicals which are suspected to be involved in cancer development and in speeding up the progression of cardiovascular disease.

Free radicals are negatively charged rogue molecules (with one unpaired electron in their orbit). The body is continuously producing waste products from its many complex bio chemical pathways. These waste products include free radicals which become free agents causing biochemical havoc leading to cardiovascular and cerebrovascular disease such as clogging of the arteries, heart attack, stroke and dementia caused by insufficient blood supply to the brain (ischemic dementia). Free radicals are also known to cause inflammatory conditions and tissue damage, so antioxidants will act as protection against these.

It is thought that the unexpected effect of resveratrol in at least delaying the onset of Alzheimers disease is due to its reduction of the inflammation associated with the build up of amyloid plaques which cause the disease in the brain. Researchers have found that resveratrol makes human neural cells grow extensions enabling them to connect to neighbouring nerve cells. This may help to explain why wine drinkers have less of the neuro-degenerative diseases such as Alzheimer's disease (commonest form of dementia) and Parkinson's disease, as the resveratrol in the wine may help the nerve cells in the brain continue to grow and connect. In neurodegenerative diseases, these connections break down. It should be remembered that heavy alcohol consumption severely damages nerve cells leading to Wernicke's encephalopathy, Korsakoff's syndrome, peripheral neuropathy and other forms of nerve degeneration.

Resveratrol is processed by the enzyme CYP1B1, which is found in a variety of different tumours. This converts resveratrol into piceatannol, a closely related phytoestrogen with known anti-cancer activity. Previous research has shown that this process is restricted to the tumour itself, limiting the toxicity to the cancer cells and serving to selectively destroy

them.

Scientists previously believed that CYPIBI was a cause of cancer because it is only found in tumours and not in healthy tissue. Researchers now think the enzyme is there to fight cancer and research continues as to how the enzyme and resveratrol work.

Corder and Crozier's research sheds doubt on the validity of resveratrol as the most important antioxidant, believing its quantities in red wine too insignificant to be valid. They believe procyanidins are more beneficial.

Common Antioxidants in beverages

Cider:	Quercetin
	Hydroxycinnamic acids
Beer:	Ferulic acid
	Catechin
	Epicatechin
	Xanthohumol
Wine:	Gallic acid
	Tannic acid
	Morin
	Quercetin
	Resveratrol
	Rutin
	Saponons
	Pterostilbene

Important facts:

Antioxidant activity in unfermented grape juice is lower than in the finished wine - antioxidant activity increases during fermentation and maturation. Antioxidant levels will depend on the processing, filtering for example, as well as on the variety, vintage, altitude and soil. Original research in Australia by Professor Geoff Skurray at The University of Western Sydney has shown that different wine filtration techniques during wine making may influence the amount of resveratrol left in the wine after filtration. Various fining agents commonly used by oenologists were tested. Polycar removed 92% of resveratrol. Casein, egg white and alginate also removed some resveratrol whilst gelatin had a variable but relatively little effect. So winemaking techniques, as well as grape variety (red wines contain more resveratrol than white) and growing season (summer rain years produce more resveratrol) play a role as to how much resveratrol there is in a wine. Similar research from Caroline Walker from Brewing Research international on Ciders and beers, has shown that the antioxidant activity in cider can vary from 2,500 to 10, depending on the producer.

Antioxidant activities of selected foods and beverages from Paganga et al (1999) *BRI/IFR project data source

	Portion size	Antioxidant activity
Apple (peeled)	100g	640
Tomato	100g	160
Aubergine	100g	490
Onion	100g	580
Red wine (Rioja-Bordeaux)	150ml	2100-3400
White wine	150ml	220
Black Tea (0.25%)	150ml	1400
Green Tea (0.25%)	150ml	1350
Cider*	250ml	100-2595
Apple juice (long life)	150ml	140
Orange juice	150ml	400
Blackcurrant juice	150ml	800

Bioavailablity - does size matter?

The ease with which we can absorb any compound is called the bioavailability and this needs to be measured for each food and beverage individually to get an accurate picture of how good a source of antioxidants it is. It has been established that the consumption of two 100ml glasses of red wine a day may increase the phenolic content of the average diet by 40%, but only a weak correlation exists between polyphenolic content and antioxidant activity.

Ferulic acid, in contrast is highly absorbable. Although it has not been completely established, it would be expected that the larger bulky antioxidants are likely to stay in the gut rather than to get absorbed.

How and where are these molecules absorbed into the bloodstream?

A group in Italy has shown that antioxidants are transported directly through the stomach wall, which has cells in it containing a transport protein called Bilitranslocase. This molecule is also used by the body to get the waste product bilirubin out of the bloodstream into the liver, where it is metabolised for excretion: it is the product of the decay (natural) of red bloodcells. Bilirubin causes neonatal jaundice, and is responsible for the yellowish colour around bruises.

Bilitranslocase also interacts with anthocyanins, and transport them first into the bloodstream directly from the stomach, and then even into the liver and into brain tissue. While the amount absorbed is small, it gets to the named organs very rapidly.

Furthermore, research suggests that once absorbed, antioxidants are often metabolised into other forms — forms which may have different biological activity. For example, much of the resveratrol is modified in the liver by coupling to glucuronic acid. Therefore establishing the absorption and further metabolism of antioxidants is a key factor in establishing their biological effects. We have also learnt that ethanol has a pro-oxidative effect on plasma lipids.

Hence the usefulness or bioavailability of the antioxidants available in alcoholic beverages is not yet fully established. However the importance of antioxidants themselves in vascodilation, fighting cancer and dementia are established and further research as to absorption by the human body is needed.

References:

Full references are available from Helena.conibear@aim-digest.com, and will be published on the AIM Gateway website next month.

AIM Council comments on antioxidants

Harvey Finkel MD of the Boston University School of Medicine:

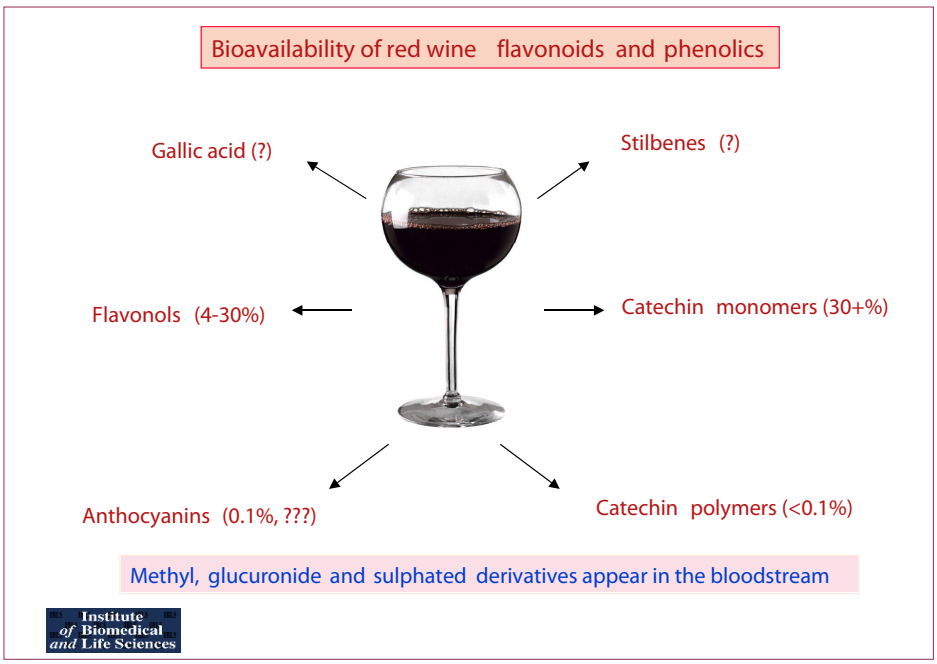
"At or near the top of causes of death and disability are diseases of the heart and blood vessels, cancer, and degenerative disorders. Free radicals and oxidation figure heavily in the causation and aggravation of these ills. Free radicals, are highly reactive compounds produced normally as the body uses oxygen. Smoking, radiation, and certain chemicals enhance their production, thus straining, sometimes overwhelming, the body's natural enzyme-mediated antioxidant defense system. This is why there is so much interest in importing additional antioxidants, those derived from food and drink. Look at a partial list of diseases suspected of being able to be relieved by antioxidants: heart attack, stroke, other complications of blood-vessel disease, cancer, Alzheimer's disease and other dementias and degenerative disorders, immune dysfunction, cataract, macular degeneration. Aging itself may be retarded by antioxidants. Precise formulas for each of us are not yet possible - we have much to learn. Antioxidants may not always be entirely benign".

Dr Erik Skovenborg of the Scandinavian Medical Alcohol Board:

"The question of bioavailability is a crucial question: if you drink a bottle of full-bodied red wine you consume about 2 grams of red wine polyphenols (RWP); what part of these healthy compounds is absorbed during the process of digestion to become available to target tissues like the endothelial cells of blood vessels or the nerve tissue of the brain? Professor Castanas has good news to wine drinkers: alcohol protects the RWP, so a glass of Cabernet Sauvignon is a good vehicle for polyphenols. For those who want a steak on the plate to go with their Cabernet here is more good news: proteins have a dual action protecting the RWP from oxidation and increasing the bioavailability of the healthy compounds. That added bonus leads directly to Elias Castanas' favourite advice concerning a sufficient daily intake of polyphenols: eat a normal meal with a variety of foods like fruit, vegetables, legumes, olive oil, bread and fish accompanied by moderate consumption of wine".

Alan Crozier professor of plant biochemistry and human nutrition, University of Glasgow:

'I think that resveratrol is not an important component in the protective effects of red wine. The levels in red wine are low and to get the effects that have been observed in animals, humans would have to consume more that 1000 litres of red wine daily ! The paper co- authored by Roger Corder and myself in Nature in November, strongly implicates procyanidins in wines' protective effect'.



Children's campaigner appointed to chair DrinkAware Board

The DrinkAware Trust has announced that Debra Shipley has been selected as its new Chair. Debra was formerly Member of Parliament for Stourbridge having stood down at the 2005 election. She has extensive experience as a writer, broadcaster and lecturer. A key achievement during her time as MP was in gaining wide support for child protection issues, culminating in the Protection of Children Act 1999. She has also campaigned on children's issues including TV advertising and food.

DrinkAware is a unique initiative born from the Government's Alcohol Harm Reduction Strategy and its 'Choosing Health' White Paper. Funded on a voluntary basis by the alcohol industry it will be fully up and running from 1st January 2007.

DrinkAware will bring together - for the first time - industry, charities, lobby groups, medical professionals and experts in the field to address alcohol misuse and promote sensible drinking across the UK.

Debra Shipley said, "I am delighted to have been chosen to chair The DrinkAware Trust and am very excited by the opportunity we have in this unique partnership. I believe that the challenge of reducing harm caused by alcohol misuse is one of the key issues facing today's society. It impacts on individuals, families and communities. DrinkAware will campaign to increase awareness of harm caused by misuse of alcohol, to challenge attitudes and to improve behaviour."

Professor Ian Gilmore, President of the Royal College of Physicians and a member of the steering group set up to oversee the setting up of Drinkaware said, "I really welcome the appointment of Debra Shipley as Chairman of this new independent trust. She brings just the right set of skills, coupled with commitment and experience, to help tackle the escalating burden of health damage from alcohol misuse. The Royal College of Physicians looks forward to working closely with her."

Andrew Morgan, President of Diageo Europe and a member of the steering group said, "I am delighted that we have been able to appoint such an energetic and accomplished Chair of the new Trust. Debra will have Diageo's full support in her quest to reduce the misuse of alcohol."

Sainsbury's unveils good-for-heart wine

UK supermarket chain Sainsbury's has launched a red wine that it claims is good for your heart.

Red Heart, as the wine is called, was avilable from 12 December. The wine has an antioxidant level of 32%, higher than the average level of other leading red wines.

Red Heart is an Australian wine, made in the Riverland region and is available exclusively in Sainsbury's at GBP4.99 (US$9.81) per bottle. It is made from Cabernet Sauvignon and Petit Verdot grapes.

A spokesperson for Sainsbury's said: "People have been flocking to our stores since its launch, looking to buy crates of the wine without having even tasted it".

New UK drink drive campaign

drink OR drive
you decide

The Drinkaware Trust has developed a new anti drink-drive campaign featuring the slogan, Drink OR Drive…you decide. The overarching message is unequivocal; drivers have a choice – it's one or the other but not both.

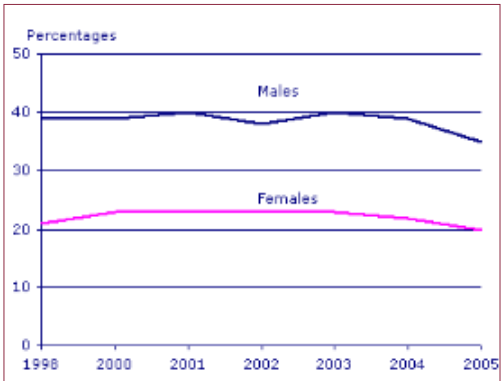
Aimed at pub and club goers, the campaign message is simple – if you're planning to drink, don't drive. There are lots of ways to avoid drink driving – e.g. get a lift with a non drinking designated driver or use public transport or call a taxi. The alternative could well be a ride that ends up in a hospital A&E or police station.

Kate Winstanley, Director of Campaigns and Information at The Drinkaware Trust, says "The vast majority of motorists know the dangers and obey the law - but a minority of irresponsible and reckless drivers are ignoring it. If you are planning on drinking when you go out, leave the car at home, and if you can't use public transport, designate a nondrinking driver. Drink OR drive …it's that simple."

The campaign materials, which include eye catching posters, window stickers, and beer mats, carry stark reminders of the risks that drink drivers face. An advertising campaign – to include perimeter advertising at Premiership Football and Six Nations Rugby matches – and media targeting new drivers and club goers will help get the message across to millions of young men in the UK.

A new microsite - www.drinkordrive.co.uk is targeted at young male drivers, who are particularly at risk of drink driving.

Encouraging trends in drinking patterns in UK



Adults exceeding recommended daily benchmarks of alcohol on at least one day during the last week: by sex, Great Britain (Office of National Statistics).

The proportion of men in Great Britain exceeding the government's daily sensible drinking benchmarks fell from 39 per cent in 2004 to 35% in 2005. Women are less likely than men to exceed the benchmarks, with 20 per cent of women exceeding the sensible drinking benchmark on at least one day in the previous week in 2005.

In 2005, 72 per cent of men and 57 per cent of women had had an alcoholic drink on at least one day during the previous week.

Government guidelines on sensible drinking are based on daily benchmarks of between three and four units per day for men and two to three units per day for women. In 2006, knowledge of daily benchmarks and measuring alcohol in units had increased among both men and women. The proportion of adults who had heard of daily benchmarks increased from 54% in 1997 to 69 per cent.

Younger people were more likely than older people to exceed the daily benchmarks. Over two fifths (42%) of young men aged 16 to 24 had exceeded four units on at least one day during the previous week. This compares with 16% of men aged 65 and over. Among women, 36% of those in the youngest age group had exceeded three units on at least one day compared with only 4% of those aged 65 and over.

Heavy drinking - defined as over eight units a day for men and six units a day for women on at least one day during the previous week - was more common among men (19%) than women (8%).

Heavy drinking was also more common among young people: 31% of men and 22% of women aged 16 to 24 had drunk heavily on at least one day during the previous week. Among those aged 65 and over, these proportions were just 4% and 1% respectively.

The recent upward trend in heavy drinking among young women may have peaked. The proportion of 16 to 24 year old women who had drunk more than six units on at least one day in the previous week increased from 24% to 28% between 1998 and 2002 but has since fallen to 22% in 2005.

Source: General Household Survey, 2005; National Statistics Omnibus Survey 2006, published on 28 November 2006

Britons are in denial about the effect of drinking excess alcohol on their health,

Only 12% of adults questioned worried about the effect of drinking too much alcohol on their health, according to insurer Legal & General. Respondents were more worried about stress and lack of sleep and exercise.

YouGov interviewed a total of 4,640 Britons about their health and welfare concerns over the last three months in the survey for the insurer. The research suggested that 16 to 24-year-olds were the biggest binge drinkers, with 32% of men and 24% of women in that age group admitting to excess drinking. A total of 26% of full-time students were concerned about the effects of drinking too much on their health, compared with 12% nationally, the survey indicated.

Lesley King-Lewis, Chief Executive of Action on Addiction, said: "These findings are very worrying. As a nation, we need to be far more aware of the harmful effects that excess drinking can have on our health...Our concern is that many people don't realise that drinking too much alcohol simply exacerbates problems like stress and disturbed sleeping patterns - issues that survey participants said they were very worried about".

Swedish Trade Institute Report on study of tax cuts

The Swedish Trade Institute (HUI) reported its study on the consequences of the Danish and Finnish tax cuts on alcohol.

In Denmark consumption went down from 2003 to 2005 after the tax cut on spirits while it was up in Finland. But Finland reduced its taxes before the imports allowances were abolished and Estonia entered the EU.

Source: Alcohol Update

South Africa in the spotlight

The Third International Conference on Alcohol and Harm Reduction was held in Cape Town, South Africa, from October 22 to 25, 2006. One hundred and eighty five experts from 30 different countries, representing policy makers, government officials, NGO's, researchers and the alcohol beverage industry gathered for 3 days to discuss how alcohol related harm can be reduced in a realistic and concrete manner.

The publication of the Conference Report is planned by January 1st, 2007. For more information please visit http://www.q4q.nl/alcohol4/home.htm

In a separate effort to support self-regulation in the alcohol beverage industry on the African continent, the International Centre for Alcohol Policies (ICAP) organized a regional workshop on self-regulation in Cape Town in October 2006. Participants from 13 African countries attended representing government, industry and the public health/scientific sectors. At the closing session of the workshop, the Cape Town Declaration (http://63.134.214.153/Portals/0/download/all_pdfs/Africa%20Region/Cape%20Town%20Declaration.pdf) was drafted and endorsed by the participants as an expression of their commitment to addressing alcohol policy issues in Africa.

American Society of Pediatrics analyse advertising to children

Advertising aimed at children contributes to a broad range of social problems, according to the American Academy of Pediatrics (AAP).

Lead author, Victor Strasburger of the University of New Mexico cites a growing body of marketing aimed at children, including sugary cereals, fast foods and some alcohol advertising.

"Young people view more than 40,000 ads per year on television alone and increasingly are being exposed to advertising on the Internet, in magazines, and in schools," the AAP said. The group predicted that the problem would worsen with the emergence of interactive TV, which could allow youths to click through to Internet-based promotions tied to televised advertising.

The pediatricians' group called on Congress to ban alcohol ads with cartoon characters and attractive women, limiting ads to showing product images only. Jeff Becker of the Beer Institute said that the "American Academy of Pediatrics is wrong to blame alcohol advertising for the actions of underage teens who willingly break the law to drink illegally."

The AAP policy statement and supporting documents appears in the December 2006 issue of the journal Pediatrics.

Reference: Committee on Communications. (2006) Children, Adolescents, and Advertising: Policy Statement. Pediatrics, 118(6): 2563-2569 (doi:10.1542/peds.20 Kids' Smoking, Drinking Linked to R-Rated TV By Serena Gordon

Distilled Spirits Council hosts best practices media "buying" summit for responsible advertising

The Distilled Spirits Council (DISCUS) hosted a media "buying" summit bringing together industry leaders to share best practices for responsible placement under the rigorous demographic provision of the voluntary DISCUS advertising and marketing Code.

"This conference was designed to bring together the very best minds in the industry to share best practices to ensure responsible placement of distilled spirits advertisements," said Distilled Spirits Council President Peter Cressy in a keynote address to the group.

The objectives of the conference were: to enhance industry-wide compliance with the Code's 70% 21 years and older demographic placement provisions; and to exchange experiences, share ideas and discuss best practices in complying with the 70% standard.

The conference featured speakers from major media research firms that analyze media audiences such as Arbitron, Nielsen, Mediamark Research Inc. (MRI) and ComScore as well as separate panels on buying for radio, television, print and digital media.

Carolyn Panzer, a Diageo executive and Chair of the Distilled Spirits Council Code Review Board, which reviews complaints against specific ads said, "The summit was a real nuts and bolts compliance meeting that demonstrates our commitment to be best-in-class in self-regulation."

US Congress passes underage-drinking prevention bill

The Sober Truth on Preventing (STOP) Underage Drinking Act, which was initially approved on a 373-23 vote in the House of Representatives on Nov. 14, passed the Senate by unanimous consent on Dec. 6 and won final approval in a slightly amended form in the House on Dec. 7. Bush is expected to sign the bill into law.

"Passage of the STOP Act represents a long-overdue acknowledgment of the need to do more as a nation to address the harm caused by underage drinking," said George Hacker, director of the alcohol policies project at the Center for Science in the Public Interest (CSPI) "Unlike illicit drugs, there has been no credible national plan to combat alcohol problems, by far the greater health and safety drag on our nation. That is a huge gap that must be filled, and the STOP Act is a step in the right direction."

Major provisions of the STOP Act include a $1-million annual national media campaign on underage drinking; $5 million in grants to help community coalitions address underage drinking; $5 million in grant funding to prevent alcohol abuse at institutions of higher education; requiring the Department of Health and Human Services (HHS) to produce an annual report on state underage-drinking prevention and enforcement activities; establishing a federal interagency coordinating committee on underage drinking; and authorizing $6 million for research on underage drinking.

"Congress has never passed a bill on underage-drinking before," David Jernigan, executive director of the Center on Alcohol Marketing and Youth (CAMY) at Georgetown University said. "HHS has never been required to keep an eye on the issue to this extent. The annual report will be a great tool and will keep [underage drinking] from falling off the agenda."

Many facets of the bill were based on the recommendations found in the "Reducing Underage Drinking: A Collective Responsibility" report, released in 2003 by the Institute of Medicine and the National Academy of Sciences.

"Through the hard-hitting public-service ads funded under the measure, parents will get a strong message about the dangers of underage drinking," said Rep. Lucille Roybal-Allard (D-Calif.), the lead sponsor of the measure along with Rep. Tom Osborne (R-Neb.).

The passage of the STOP Act was notable not only for the bipartisan backing it received in Congress but also for its broad range of outside supporters, including familiar addiction groups like the National Council on Alcoholism and Drug Dependence, Leadership to Keep Children Alcohol Free, Mothers Against Drunk Driving, Community Anti-Drug Coalitions of America; public-health organizations and alcohol-industry critics like the American Medical Association, CSPI, and CAMY; faith-based organizations such as the United Methodist General Board on Church and Society and the Southern Baptist Convention; and alcohol-industry leaders like the National Beer Wholesalers Association (NBWA) and the Century Council.

Kim Miller, CSPI's manager of federal relations, said that the alcohol industry, which opposed the STOP Act for years, finally came to the table after being approached by Osborne. The current bill represents a compromise crafted in negotiations that saw the industry succeed in removing language it found objectionable -- including a call for a ban on alcohol ads at NCAA sports events -- while retaining enough of the core legislation to satisfy public-health leaders, said Miller.

For a PDF version of the STOP Act, visit http://www.cspinet.org/booze/2005/pdf/STOP_109th_HR864.pdf

Diageo make Hakkinen anti-drink drive ambassador

Diageo, has secured Mika Hakkinen, former McLaren Mercedes racing driver, as its responsible drinking ambassador.

Johnnie Walker has sponsored the McLaren team since 2005, and Mr Hakkinen, will be involved with their sponsor in raising awareness about responsible drinking.

Diageo, owner of the Guinness and Smirnoff brands, has also recently signed a partnership with the European Transport Safety Council to help with the reduction of driving fatalities caused by alcohol.

Mr Hakkinen's role will focus on promoting the use of designated drivers and will be engaged in activities that send an anti-drink drive message to Formula One audiences.

Mr Hakkinen commented: "My years on the racetrack have shown the vital role responsibility and control play in motor sport, these principles are just as important for drivers on the road around the world. This is a role that I truly believe in."

Wine and Spirits Council of New Zealand to close

The Managing Director of Lion Nathan Breweries and DB Breweries, announced on the 29th November that the Beer, Wine and Spirits Council which represents the non-commercial interests of both companies, is to close.

The move follows Lion Nathan's decision to withdraw from the Council and pursue a more direct engagement with the government on industry matters.

"The liquor industry is undergoing substantial change in New Zealand" said Peter Keane, Managing Director of Lion Nathan "and the governments approach to alcohol policy is not category specific".

"We believe it is time for Lion to take direct accountability for its actions and work collaboratively with the whole industry - especially to improve the industry's performance on responsible marketing and supporting efforts to change New Zealand's drinking culture".

Brian Blake, Managing Director of DB Breweries said that he was disappointed to see the Council close.

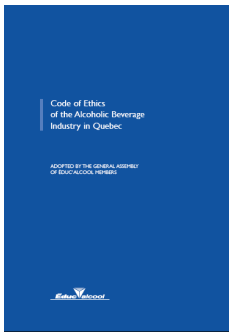
"DB has always seen value in an independent industry voice, which is why we have supported the Beer, Wine and Spirits Council and in recent times, looked at options to extend the Council to include wider industry participation", said Mr Blake.

"Moving forward, we will now engage directly with a wide range of key stakeholders to progress the issues facing the industry, and that creates opportunities as well. DB is a responsible brewer that listens to the community and stakeholders and in that respect nothing will change".

"DB Breweries and Lion Nathan would like to acknowledge the excellent work undertaken by the BWSC in recent years, and in particular the contribution made by its Chief Executive Nicki Stewart, to informing discussion on the social issues facing the industry".

The Council will close on 31 December.

Éduc' Alcool adopts Code of Ethics



Éduc'alcool has adopted a Code of Ethics for the Alcoholic Beverage Industry in Quebec. The rules of conduct go above and beyond current laws and regulations. The Code of Ethics governs packaging, commercial and promotional practices.

With regard to packaging and commercial communications, the following are forbidden:

- Using alcohol content as a sales argument;
- Association alcohol with violent or ascocial behaviour or with illicit drugs;
- Sexism or the association of the product with sexual performance. sexual attraction, or popularity;
- Implication that the product improves physical or intellectual capcities or has health benefits.

Also forbidden under the code:

- Encouraging drinking games or excessive drinking;
- Making the product particularly attractive to people under 18;
- Showing images of people who look younger than 25;
- Showing disrespect for those who choose not to drink.

The industry also agrees to ban the targeting of the following groups:

- consumers under the age of 18
- individuals in a state of intoxication
- individuals and groups at risk for dependency
- vunerable people
- those with limited financial or psychological resources.

It further agrees not to illustrate or focus on locations or situations where it is dangerous or imprudent to drink.

Finally, the code bans all discounts, promotional offers and commercial practices that encourage the rapid or excessive consumption of alcohol. Excessive promotions and discounts are also banned.

For more information, please visit http://www.educalcool.qc.ca/en/code-of-ethics/code-of-ethics/index.html

AIM

AIM – Alcohol in Moderation was founded in 1991 as an independent organisation whose role is to communicate 'The Sensible Drinking Message' and to act as a conduit for information from the industry, its associations and relevant medical and scientific researchers, legislation, policy and campaigns.

AIM Mission Statement

- **To promote the sensible and responsible consumption of alcohol**
- **To encourage informed debate on alcohol issues**
- **To communicate and publicise relevant medical and scientific research in a clear and concise format via AIM Digest and the AIM Research Highlights**
- **To publish information via the 'AIM Gateway to ResponsibleDrinking and Health' on moderate drinking and health – comprehensively indexed and fully searchable without charge**
- **To communicate with consumers on responsible drinking and health via www.drinkingandyou.com and via publications based on national government guidelines**
- **To distribute AIM Digest without charge to the media, legislators and researchers involved in alcohol affairs**
- **To direct enquiries from the media and others towards full and accurate sources of information.**

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Red wine procyanidins and vascular health

Authors of a recent study published in the journal, Nature, found that procyanidins are the most biologically active polyphenols in red wine. Further the authors claim that the high level of procyanidins in the wines of certain areas (in Sardinia and southwest France) is the reason that the people there live longer.

The authors state that red wine polyphenols induce endothelium-dependent dilatation of blood vessels and suppress the synthesis of endothelin-1 (ET-1), a peptide that has a vasoconstricting effect, and this may account for the anti-atherosclerotic activity of red wine. They used cultured endothelial cells to identify the most potent vasoactive polyphenols in red wine. These were shown by high-performance liquid chromatography with mass spectrometry to be straight-chain B-type oligomeric procyanidins (OPCs). To investigate how the OPC content of red wines from a particular region might relate to mortality in that region, the authors compared wines produced in areas where people have increased longevity of life (as an index of overall good health) with a broad selection of wines from different countries.

People living in Nuoro province, Sardinia, have great longevity, particularly men. In France, there are marked regional variations in mortality from coronary heart disease; the authors report that there are relatively more men aged 75 or over in the département of Gers in the Midi-Pyrenees in southwest France. Wines from Nuoro and the Gers areas were found to have two to four–fold more biological activity and OPC content than wines from other parts of the world. The authors state that the higher OPC concentration in wines from southwest France is due to traditional wine-making, which ensures that high amounts of OPCs are extracted, and to the flavonoid-rich grape Tannat, which makes up a large proportion of grapes used to produce local wines in the Gers area but is rarely grown elsewhere.

The authors conclude that procyanidins are the polyphenols in red wine that are the most biologically active, and (unlike resveratrol and some other polyphenols) are present in high enough concentrations in certain red wines to be a major factor in the prevention of coronary heart disease. Corder and Crozier further conclude that wines from certain areas (the Nuoro province of Sardinia and the Gers area of France) are very high in these active procyanidins and may lead to the increased longevity reported for people in these regions.

Comments by professor R. Curtis Ellison:

This interesting short report in Nature makes two major points. The first is that, of all of the polyphenols in red wine, the ones showing the greatest activity affecting the endothelial lining of arteries are procyanidins. This is important information and, if confirmed, helps demonstrate which of the many substances in wine may be the most important for prevention of atherosclerosis. In this study, the higher the levels of procyanidins, the greater the beneficial effects on the endothelium, and wines from certain areas of Sardinia and Southwest France had the highest levels.

(continued page 13 col. 3)

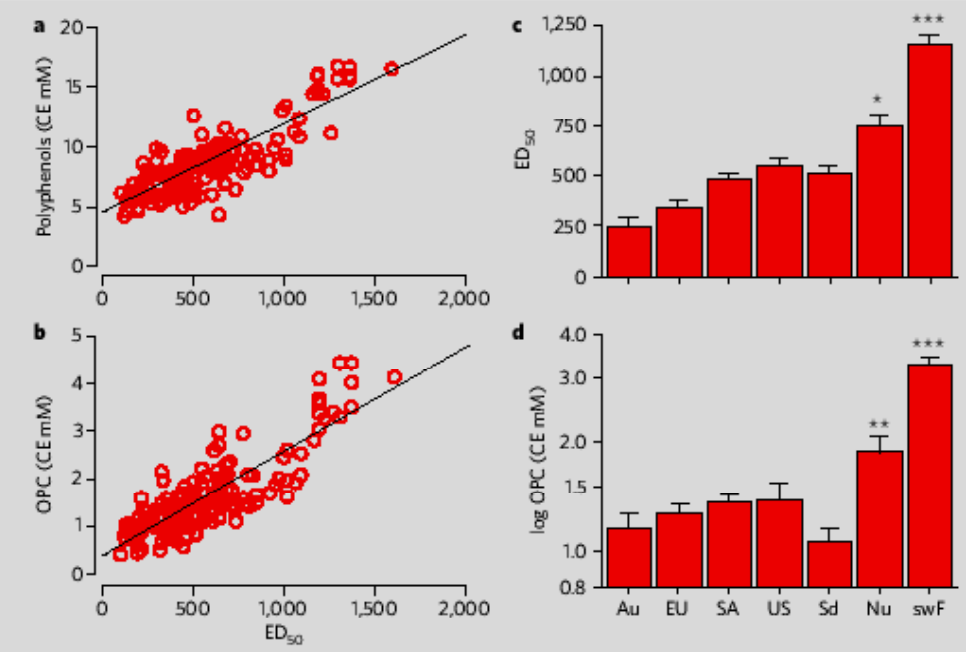


Figure 1 | Relationship between procyanidin content and vasoactive properties of red wine. **a**, **b**, Total polyphenol (**a**) and oligomeric procyanidin (OPC) (**b**) content correlate with the inhibition of synthesis of endothelin-1, expressed as ED_{50} (dilution inhibiting by 50%; see supplementary information); $R = 0.84$ for both, $n = 165$. **c**, **d**, Comparison of inhibition of endothelin-1 synthesis (**c**) with OPC concentration (**d**) of wines from different geographical regions. Au, Australia; EU, France, Greece, Italy or Spain; SA, South America; US, United States; Sd, Sardinia; Nu, Nuoro province, Sardinia; swF, southwest France. CE, catechin equivalents (see supplementary information). $^{***}P < 0.001$ compared with all the other wines; $^{*}P < 0.01$ compared with the United States, and $P < 0.001$ compared with the other wines; $^{**}P < 0.02$ compared with the United States and South America, and $P < 0.001$ compared with the other wines.

Red wine induces a prolonged reduction in plasma viscosity

A randomized trial in which a glass (5 ounces) of cabernet sauvignon or no alcohol were prescribed for 3 weeks each (with the order of administration assigned randomly) showed that plasma viscosity (a known determinant of atherosclerosis) was improved when the participants were assigned to consume red wine.

The authors state that moderate red wine consumption has been associated with decreased risk of coronary heart disease. Reduced plasma viscosity and fibrinogen levels have been launched as possible contributors to this risk reduction. The effect of moderate red wine consumption on plasma viscosity, however, has not been investigated in a prospective, randomized trial. The investigators evaluated the effect of moderate red wine consumption on plasma viscosity, fibrinogen concentration and fibrinogen subfractions.

Healthy, nonsmoking volunteers were assigned to consume one glass of red wine daily for 3 weeks in a prospective, randomized cross-over study. In a second 3-week period the volunteers abstained from alcohol use. The plasma viscosity, fibrinogen concentration and the distribution of the main fibrinogen subfractions were determined at inclusion, after wine drinking, and after abstention.

Plasma viscosity was reduced by 0.026 and 0.024 mPa.s in the two groups (those given wine initially and those abstaining initially) following wine intake. The 95% confidence intervals were 0.009–0.043, P = 0.004, and 0.0083– 0.039, P = 0.003. The decrease in plasma viscosity following wine administration was maintained following 3 weeks of abstention. The fibrinogen concentration was reduced by 0.17 g/l following wine drinking in the group starting with abstention (95% confidence interval, 0.04–0.29, P = 0.01). The distribution of the fibrinogen subfractions remained unaltered.

The authors conclude that a daily glass of red wine for 3 weeks significantly reduces plasma viscosity. Fibrinogen concentrations are also significantly reduced when consumption was preceded by an abstention period. The decreased viscosity levels were maintained after 3 weeks of abstention, suggesting a sustained viscosity lowering effect of red wine.

Comments by professor R. Curtis Ellison:

Blood that is more viscous moves more sluggishly through the arteries and tends to clot more easily, and higher viscosity has been associated with greater risk of developing atherosclerosis. This is the first randomized trial (among 80 subjects averaging 50 years of age) to test the effects of a daily glass of red wine (150 ml, or about 5 ounces of cabernet sauvignon) on blood viscosity, and showed significant reductions from red wine. Fibrinogen results were less clear, but many previous studies have shown that fibrinogen is decreased among consumers of alcohol.

Unfortunately, the investigators did not have a wash-out period, so previous alcohol intake of the participants (reported to be low) could have led to some of the differences seen according to whether wine or no alcohol was prescribed for the first 3 weeks. And there were no specific measures of compliance with the prescribed intervention, only self report. Nevertheless, the finding of improved viscosity of blood from a single glass of red wine per day is interesting, and suggests still another mechanism by which moderate drinking may result in less atherosclerosis and coronary disease.

Source: Jensen T, Retterstøl LJ, Sandset PM, Godal HC, Skjønsberg OH. A daily glass of red wine induces a prolonged reduction in plasma viscosity: a randomized controlled trial. Blood Coagul Fibrinolysis 2006;17:471–476

Red wine procyanidins and vascular health (cont'd)

The second point is that the procyanidins in wine from these selected areas are the cause of what the authors report as greater longevity of life of people in these regions. Here, there is certainly room for debate, as there are many reasons why there may be more old people living within homes in an area. Further, there are many lifestyle differences (e.g., diet, exercise levels) among people in different regions that are important in determining rates of cardiovascular disease and risk of mortality. Also, consumption of any type of alcoholic beverage has been shown to markedly reduce the risk of coronary disease and mortality in every part of the world, including Asia, where the consumption of grape wine is extremely low. Thus, while we agree that the finding of marked vasoactive properties of procyanidins is important, we believe that it is certainly too early to think that they are the only active and important substances within red wine.

Source: Corder R et al. Oenology: Red wine procyanidins and vascular health. Nature 2006;444:566-7.

A drink to healthy aging: The association between older women's use of alcohol and their health-related quality of life

A relatively large cohort study conducted among elderly women has demonstrated that frequent light-to-moderate alcohol consumption not only reduced the risk of total mortality, but that such practice was associated with better health-related quality of life for survivors. The biological mechanisms of such psychological and social benefits from frequent light-to-moderate alcohol drinking are not clear; the authors suggest that besides the beneficial effect of ethanol itself, other factors may include the social and pleasurable benefits of drinking, as well as the improved appetite and nutrition that may accompany modest alcohol intake.

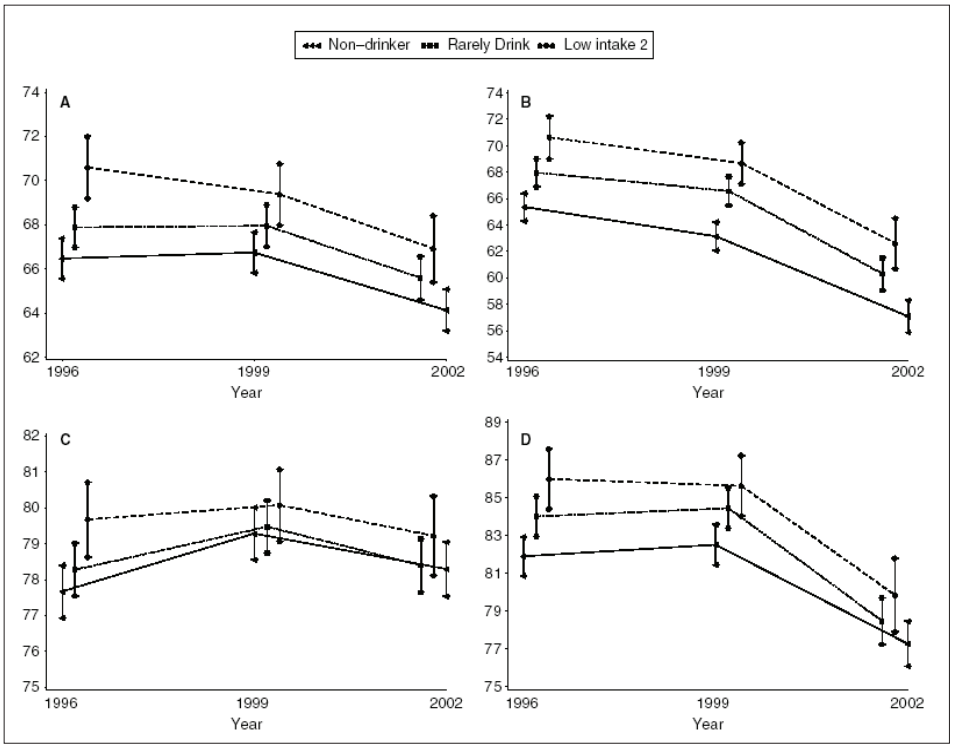
To assess the relationship between alcohol intake and mortality in a cohort of 12,000 women aged 70 and older and to explore the relationship between level of alcohol use and changes in physical and mental health-related quality of life, the authors evaluated data from national longitudinal surveys from 1996 to 2002.

Women who did not consume alcohol or who drank rarely were more likely to die than women in the low-intake reference category (1–2 drinks per day). Non-drinkers/rare drinkers who survived had lower health related quality-of-life scores on the General Health and Physical Functioning subscales of the Medical Outcomes Study 36-item Short Form Survey after adjustment for smoking, comorbidity, education, body mass index, and area of residence. Nondrinkers also scored lower on the Mental Health and Social Functioning subscales. The authors conclude that being a nondrinker of alcohol is associated with greater risk of death and poorer health-related quality of life, and that regular, moderate alcohol intake has health benefits for older women.

Comments by R. Curtis Ellison: Few studies have attempted to assess alcohol's effect on quality of life, indicated by physical and mental well-being, especially among elderly women. Consistent with previous findings, the authors reported that nondrinkers and women who rarely drink had a significantly higher risk of dying [HR = 1.94 (95% CI: 1.4-2.6)] during the survey period than women who consumed alcoholic beverages at a level of 1-2 drinks per day. Most importantly, the current study demonstrated that women who consumed 1-2 drinks per day on 3-6 days per week enjoyed the best general health status and higher physical functioning. The difference in general health, physical functioning, mental health and social functioning, was consistent over three survey periods among three groups, suggesting a beneficial effect of light-to-moderate alcohol consumption (see Figure 1 from the article, copied below).

The highest level of functioning in (A) general health, (B) physical, (C) mental, and (D) social functioning are for the "low intake2" subjects (top dotted lines), who reported 1–2 drinks/day on 3–6 days/wk. Although there was a decrease in function over time, these subjects remained at higher levels throughout follow up than subjects who rarely drank or were non-drinkers. This study supports especially the health effects in elderly women of small amounts of alcohol on a frequent basis: the best preservation of all types of function was among women consuming 1 to 2 drinks/day on 3 to 6 days per week.

Article: Byles J, Young A, Furuya H, Parkinson L. A drink to healthy aging: The association between older women's use of alcohol and their health-related quality of life. J Am Geriatr Soc 2006;54:1341–1347.



Moderate alcohol consumption is more cardioprotective in men with the metabolic syndrome

A recent study aimed to evaluate the relation among alcohol consumption, the metabolic syndrome, and the risk of ischemic heart disease (IHD, another name for coronary heart disease). The study was conducted in a cohort of 1,966 men from the Quebec Cardiovascular Study. All men were initially free of IHD and, during the follow-up period of 13 years, 219 first cases of IHD were diagnosed. Alcohol consumption was determined by calculating the g/d intake based on standard portions of beer, wine, and spirits. Metabolic syndrome was diagnosed according to a modification of the National Cholesterol Education Program Adult Treatment Panel III definition.

Men who consumed ≥15.2 g of alcohol/d (4th quartile of the distribution) were younger ($P < 0.001$), had elevated plasma HDL-C concentrations ($P < 0.001$), and lower plasma concentrations of insulin ($P = 0.01$), CRP ($P = 0.01$), and fibrinogen ($P < 0.001$) than men in the 1st quartile (<1.3 g of alcohol/d). After adjustment for a series of coronary risk factors, alcohol consumption ≥ 15.2 g/d was associated with a 39% reduction in the 13-y risk of IHD [relative risk (RR) of IHD = 0.61, $P = 0.02$]. Finally, an alcohol consumption < 15.2 g/d was associated with an increase of the risk of IHD in men with the metabolic syndrome (RR = 2.24, $P < 0.001$) but not in men without the metabolic syndrome (RR = 1.31, $P = 0.22$). The authors state that these results confirm that moderate daily alcohol consumption has cardioprotective properties and suggest that the effects may be more important in subjects with a deteriorated risk profile, such as those with the metabolic syndrome.

Comments by R.Curtis Ellison: This relatively small observational study from Canada did not have data available on waist circumference or fasting blood glucose, two components of the metabolic syndrome (MS), but used substitute measurements: BMI for waist circumference and fasting insulin levels or reported diabetes for fasting blood glucose.

As expected, most cardiovascular risk factors showed an inverse association with alcohol consumption, with drinkers having higher levels of HDL-cholesterol and lower levels of insulin, fibrinogen, and CRP. The exception was systolic blood pressure, which was lower than in the referent group (reporting < 1.3 g/day, or less than one drink per week) for consumers of 5.5-15.1 g/day, but higher with greater alcohol consumption. Both diabetes and the MS showed a linear decrease with increasing amounts of alcohol consumed.

In terms of the risk of IHD, men in the highest quartile of alcohol consumption (versus those in the lowest quintile) had about 40% lower risk of developing IHD during the 13 years of follow up. There was essentially the same effects when a very large number of risk factors (including HDL, diabetes, systolic blood pressure, and insulin, which are thought to be intermediary factors in the effects of alcohol) were adjusted for, suggesting that most of the protection against IHD of alcohol is not due to these factors..

In somewhat unusual manipulations, the authors also judged whether the metabolic syndrome increased the risk of IHD differently in men consuming < 15.2 g/day and those consuming ≥ 15.2 g of alcohol per day. In both groups, risk of IHD was higher with the MS. The effects of alcohol were slightly more striking among subjects with the MS, but we do not agree with the authors' interpretation that the reduction in IHD risk is "much greater among subjects with the MS." They are basing this conclusion on comparisons of groups where there were small numbers in some of the cells, and seem to be basing their conclusions primarily on statistical significance; the relative risks were not that different. Indeed, they report that "the statistical interaction between alcohol consumption and metabolic syndrome in modulating the risk of IHD was not significant."

While the present study does not add greatly to our understanding of the relation of alcohol to the metabolic syndrome and heart disease, it provides additional support for the closing remarks of the authors that "there is now compelling evidence to support the concept that light-to-moderate alcohol intake may be part of a healthy lifestyle."

Article: Gigleux I et al. Moderate alcohol consumption is more cardioprotective in men with the metabolic syndrome. J Nutr 2006;136:3027–3032.

Alcohol - boon or bane for the elderly? - Part I

The first of two articles by Dr Erik Skovenberg of the Scandinavian Medical Alcohol Board

The Cardiovascular Health Study is a prospective, longitudinal study of 5,888 men and women aged 65 and older who were randomly selected from Medicare eligibility lists in four communities in the United States (1). In this population, consumption of 14 or more drinks per week was associated with the lowest risk of coronary heart disease: Hazard Ratio's of 0.55 (95% CI, 0.34–0.91) for consumers of 14 to 20 drinks per week and 0.61 (95% CI, 0.34–1.11) for consumers of 21 or more drinks per week were found. When all participants who consumed seven or more drinks per week were grouped together (combining the 7–13 and ≥14 categories), the Hazard Ratio for updated consumption was 0.67 (95% CI=0.50–0.89).

The encouraging results not withstanding Mukamal et al warned clinicians not to recommend moderate drinking to prevent coronary heart disease based on this evidence alone, because the American Geriatrics Society (2) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (3) recommend that older adults who have no contraindications to alcohol use limit their intake to no more than one drink per day. In the Cardiovascular Health Study average intake of fewer than two drinks per day was not associated with a significantly lower risk of coronary heart disease.

Balancing the risks and benefits

These results highlight the considerable difficulty in balancing the apparent risks and benefits of alcohol use, for coronary heart disease is the leading cause of death in this age group, even for at-risk older drinkers. We know little of a scientific nature about the potential for social movement backlash if a guideline is perceived as overly restrictive.

Moreover, other studies have found that moderate alcohol intake is indeed associated with lower mortality in older adults. Grønbæk et al found light-moderate alcohol consumption (1-27 drinks per week) associated with lower mortality in middle-aged and elderly men and women from Copenhagen. (4). In elderly men and women from Dubbo, Australia, moderate alcohol intake (1-28 drinks per week) appeared to be independently associated with a significant increase in life expectancy (5). In the middle-aged and elderly participants of the American "Cancer Prevention Study II" light to moderate drinking (1-2 drinks per day) slightly reduced overall mortality (6). The obvious benefits of a moderate alcohol consumption call for a realistic evaluation of the risks of alcohol consumption beyond one drink per day in the elderly population.

The dwindling body water

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) classifies greater intake than one drink per day as at-risk drinking, in part because of the greater sensitivity of older adults to the physiological effects of alcohol. The Dietary Guidelines for Americans issued by the US Departments of Agriculture and Health and Human Services define moderate drinking for adults as no more than two drinks a day for men and no more than one drink a day for women. "Between the ages of 25 and 60, the proportion of total body weight represented by fat almost doubles in men and increases by 50% in women. As lean body mass diminishes and adipose tissue increases, the volume of total body water decreases. Because of the dramatic changes in body fat and lean body mass among men as they age, for older men no more than one drink a day is a more prudent definition of moderate". (7).

Dufour et al quote a Canadian monograph - Drugs and Aging - for the problem of dwindling body water through the years (8), however, a reference in the chapter Age-Related Changes (p.9) single out an investigation from Rochester with data on lean body mass estimated from repeated assays of 40K isotope counting as the real source of information (9). Longitudinal observations on body weight and estimated lean body mass for six male subjects showed a decline in lean body mass in four, an increase in one subject and the observations for the last one was difficult to interpret. In thirteen additional subjects studied with two assays of 40K over an interval of time the average loss of lean body mass was 0.24 kg per year. In the 42 years following age 25 lean body mass declined from 59 to 47 kg in males and from 40 to 35 kg in females.

Old data and new

Considering that the foundation of NIAAA's admonition that older adults should limit their intake of alcohol to no more than one

drink per day is built on rather old data collected from a rather limited number of subjects a sound scientific response would be to look for newer data on aging, lean body mass and total body water (TBW). Knowledge of a patient's total body water is of particular importance in peritoneal dialysis in which errors in the distribution volume of urea (equivalent to TBW) translate directly into errors in dialysis dosing. For clinical purposes TBW has been estimated using the anthropometric equations (formulae based on age, sex, weight, and height) developed by Watson et al. (19).

∑ TBW (litres) for males: 2.447 – (0.09516 x years of age) + (0.1074 x height in cm) + (0.3362 x weight in kg).

∑ TBW (litres) for females: - 2.097 + (0.1069 x height in cm) + (0.2466 x weight in kg).

The equation for males included age as a variable, however, the study of Watson et al concluded that age is not a significant variable in the prediction equation for females. Supposing no change of height and weight the TBW of a 25-year-old male (height 175 cm, weight 75 kg) would diminish from 44 _ 40 litres en route to his sixty-seventh birthday; an undramatic loss of 4 litres of body water.

Data for the Watson formula were selected from 458 men and 265 women from 30 different studies including data from numerous individuals born before the occurrence of the secular trend towards increasing body size and fatness during most of the 20th century. Chumlea et al has presented total body water reference values and new prediction equations for adults based on four data sets containing a total of 604 white men, 128 black men, 772 white women, and 191 black women who were 18 to 90 years old (11). TBW in these healthy adults is relatively stable through a large portion of adulthood, and according to the new equation for white men our young gentleman is going to loose only 1.3 litres of body water in the 42 years following age 25.

Cross-sectional data versus longitudinal studies

The reported age and sex trends in TBW are from analyses of cross-sectional data. Such analyses cannot demonstrate a valid effect of age because the independence of each subject and potential cohort effects. To demonstrate a real change with age requires the validity that comes from a longitudinal study of individuals followed over time. The sample size of Forbes & Reina is very small, and the findings could be considered possibly anecdotal. (9). Chumlea et al presents data from a study sample of 274 men and 292 women between 18 and 64 years of age observed at regularly scheduled visits as long-term participants in The Fels Longitudinal Study between 1989 and 1996 (12). The findings of the study indicated that TBW volume, on average, maintains a reasonable degree of stability in men and women through a large portion of adulthood.

The mean ratio of TBW to weight of participants in The Fels Longitudinal Study declined with age as a function of a decrease of fat-free mass (FFM) and an increase in body fatness. In men, the mean TBW/weight declined from approximately 58% at age 18 years to approximately 46% at age 64 years. In the women TBW/weight decreased from 48% at age 18 years to 43% at age 64 years. A study of eleven men and 14 women aged 23-46 years and 10 men and 11 women aged 63-81 years confirmed the decrease of fat-free mass in older subjects: FFM in young men: 59.9 ± 8.9 kg; in old men 56.0 ± 6.5 kg; FFM in young women: 44.6 ± 2.5 kg, in old women 38.6 ± 5.8 kg (13). Even so the TBW volume was not significantly different in the young and old subjects (TBW in young men: 41.1 ± 5.9 L; in old men 40.8 ± 5.8 L; TBW in young women: 30.2 ± 2.3 L, in old women 28.1 ± 3.2 L) due to a significantly higher hydration of fat-free mass in older subjects: TBW:FFM (%) in young men: 68.7 ± 4.0, in old men 73.3 ± 11.4; TBW:FFM (%) in young women 67.5 ± 3.1, in old women 72.5 ± 6.9.

Aging and ethanol metabolism

In alcohol drinking experiments (wine and pear-schnapps, 0.65 grams of alcohol per kg bodyweight) carried out in 20 men over 60 years old the peak alcohol concentration and the course of the alcohol curve were compared with the results of drinking experiments with young persons published in the literature. No appreciable differences between the two age groups could be detected (14). Vestal et al studied the effect of aging on the distribution and elimination of ethanol in a group of 50 healthy men ranging in age from 21 to 81 years. Ethanol was administered in a continuous 1-hr infusion at a mean dose of 0.57 gm/kg body weight. At the end of the infusion period peak ethanol concentration in blood water was correlated with age and increased 33% over the adult life span (20 to 90 years of age). The mean peak

ethanol concentration in the 25 older men (177 mg/dl) was around 15% higher than the peak ethanol in the 25 younger men (153 mg/dl). However, rates of ethanol elimination were not affected by age (15).

Lucey et al studied the influence of age and gender on blood ethanol concentrations in 14 men and 14 women 21–40 years old and 14 men and 15 women ≥ 60 years old. All subjects were given ethanol (0.3 g/kg) on three occasions: orally after an overnight fast; orally after a standard meal; and by intravenous infusion after a standard meal. Blood ethanol average areas under the curve were significantly greater for ethanol given orally when fasted and IV ethanol when fed but not after ethanol orally in the fed state (16).

Conclusion: Elderly men will present around 9-15% higher blood ethanol concentrations than younger persons when ethanol is taken without food, however, the effective peak blood ethanol concentration may be significantly higher for elderly women. The age and gender difference can be eliminated when ethanol is ingested with a meal.

A long list of contraindications

According to Dorland's Illustrated Medical Dictionary a contraindication is any condition, especially any condition of disease, which renders some particular line of treatment improper or undesirable. "Old age per se is not a contraindication to moderate alcohol consumption", Mary C. Dufour et al (from the National Institute on Alcohol Abuse and Alcoholism) acknowledge. "In older individuals who have no medical conditions for which alcohol is contraindicated (the list is a long one including hypertension, cardiac arrhythmias, ulcers, a history of alcohol abuse or dependence, liver disease, and cognitive impairment to name a few) and who take no drugs (prescription or over-the-counter) that adversely interact with alcohol, the physician may feel comfortable affirming the acceptability of moderate consumption." (17). Part II of Alcohol - boon or bane for the elderly? will focus attention on the up-to-date scientific evidence that form the basis of the long list of alleged contraindications to enjoyment of alcoholic beverages in the autumnal years.

Part II of 'Alcohol - boon or bane for the elderly?' will be published in the January edition of AIM

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Could the consumption of wine cause an allergic reaction?

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Introduction

The Codex Alimentarius Commission (Codex), which is the international authority for setting food related standards, has determined a list of eight common foods considered responsible for 90% of food-related allergic reactions. These foods are: cereals containing gluten and their products, namely: wheat, rye, barley, oats and spelt and their hybridised strains; crustacea and their products; eggs and egg products; fish and fish products; peanuts and soybeans and their products; milk and milk products; tree nuts and sesame seeds and their products; and added sulfites in concentrations of 10 mg/kg or more. Codex has also recommended that governments should adopt this list and modify their labelling regulations to assure that allergenic foods and their products are declared when present in packaged food. Wine is regulated as a packaged food, which means that the presence of food protein processing aids such as casein, potassium caseinate and milk (milk protein), egg white and isinglass (fish protein), may soon have to be declared on wine labels in the EU and USA; they are already declared on wine labels in Australia, as is the presence of sulfur dioxide.

Food allergies

Food-related allergies affect 3-4% of the adult population and 5-8% of children although allergies to eggs or milk, soya and wheat proteins usually resolve by three or four years of age (Sicherer and Sampson 2006). An allergic reaction to a food usually occurs within minutes of consuming a specific protein (Hourihane et al. 1997a, 1997b), when specific IgE antibodies are produced by white blood cells in response to the presence of the protein. Within the body, the IgE antibodies bind to mast cells which release molecules such as histamine that cause an inflammatory reaction. Mast cells are scattered just below the surface of the skin and below the mucosal surfaces of the eyes, nose, mouth, respiratory tract and intestine (Costa et al. 1997). The most common symptoms are swelling of the face, lips and mouth, an itchy rash on the face, throat and chest, and gastrointestinal symptoms of nausea, vomiting, diarrhoea and severe colicky pains (Sampson 1989, Metcalf et al. 1996). The most life-threatening symptoms, however, are asthma, swelling of the throat and anaphylaxis, which is a decrease in blood pressure, cardiac arrhythmia and multiple organ failure. If these symptoms are not treated immediately, death can occur within 15 minutes. It has been difficult to determine a lower limit for the amount of a protein below which the risk of an allergic reaction is minimal, due to the numerous factors involved, such as age, gender, genetic constitution, dietary habits, the allergenicity of dietary components and as yet largely unidentified environmental factors (Sampson 1996, Dean 1997).

Sensitivity of allergic individuals

There is accumulating evidence to suggest that the majority of food-allergic individuals can tolerate small amounts of allergy-causing protein, although the threshold amount varies among individuals (Hourihane 2001, Hefle and Taylor 2002, Taylor et al. 2002). The threshold amount for sulfur dioxide has been determined to be 10 mg/L in sensitive individuals (Vally and Thompson 2001). In a clinical challenge study to determine an egg and milk protein threshold in sensitive individuals, while some individuals (11 and 25%, respectively) reacted to amounts of 100 mg, the majority of sensitive individuals could tolerate this amount (Sicherer et al. 2000, Hourihane et al. 2001). Another clinical challenge study showed that only 1% of egg and milk allergic individuals reacted to 1 mg (Morisset et al. 2003, Moneret-Vautrin and Kanny 2004).

As the question of an allergic reaction due to food protein processing aids has not been specifically considered in the literature, The Alfred Hospital/Monash University in Melbourne and The Australian Wine Research Institute in Adelaide conducted a double-blind placebo-controlled clinical challenge study to investigate whether individuals with a known allergy to eggs, fish, milk or nuts exhibit an allergic reaction on consumption of wine that was fined with food proteins such as casein and potassium caseinate, egg white, isinglass, milk and non-grape derived tannins that derived from chestnuts and oak galls. Fining is the traditional process to clarify and stabilize wine. A food protein processing aid is mixed with the wine, allowed to settle and the clarified wine is transferred or decanted from the deposit. Egg white is generally used to remove astringent tannins from

red wine, and the other food protein processing aids are used to remove phenolic and tannin compounds from white wine. These complexed processing aids precipitate out of the wine during clarification and are subsequently filtered.

Double-blind placebo-controlled clinical challenge study

Thirty seven subjects were recruited as follows: egg allergic (5) and milk allergic (1) as egg and milk allergy are extremely rare in adult patients; fish allergic (10); peanut and/or tree nut allergic (10); and non-allergic controls (11). The subjects were classified as allergic if they had either specific IgE or positive oral challenges to their characterised food allergen. The non-allergic controls had no history of food or wine reactions and no specific IgE to any of the study allergens. The 21 female and 16 male subjects ranged in age from 19-63 years and were all regular and moderate consumers of wine. There were strict exclusion criteria for the study related to pre-existing unstable allergy-related/relevant conditions, pre-existing illnesses and a requirement for medications, which would confound the results.

A panel of 108 commercially available Australian wines was collected and independently coded to ensure that both the clinical challenge and the laboratory analysis were double blind. The panel included 105 wines fined with one or more food proteins as follows: (i) 24 egg white-fined or whole egg-added red wines; (ii) 21 non-grape tannin-added red wines; (iii) 34 milk-fined white wines; (iv) 23 isinglass-fined white wines; and (v) 25 casein-fined white wines. Also, one white and two red control wines made using other non-food protein processing aids and/or clarified by filtration were also included.

Altogether, the 26 food-allergic and 11 non-food allergic subjects were challenged with 24 of the 105 protein-fined wines and three control unfined wines, such that each subject was challenged with one protein-fined test wine and one unfined control wine, separated by at least seven days. Paired wines were chosen for each subject according to the relevant food protein processing aid or, for peanut allergic subjects, the use of a non-grape-derived tannin, as there is cross-reactivity between treenut and peanut allergens (de Leon et al. 2003). The subjects avoided anti-histamine medications for three days, short-acting bronchodilator therapy for four hours, and long-acting bronchodilator therapy for 12 hours prior to each visit. They also abstained from all alcoholic beverages for at least three days prior to challenge, and fasted for at least eight hours prior to challenge.

After a physical examination on challenge days, the subjects consumed 100 mL of wine (approximately one Australian standard drink) over 15 minutes and completed a symptom questionnaire which included difficulty in swallowing, wheeze, chest tightness, shortness of breath, cough, lump in throat, nausea, itch, body swelling, light headedness, using a visual analogue scale, and repeated at 15 minute intervals for two hours post-challenge. Physical signs of rash, swelling of the throat and wheeze on auscultation were recorded at 15 minute intervals, and lung function at 30 minute intervals, for two hours (Figure 1). Over the next six days, the subjects continued to abstain from all alcoholic beverages and recorded any delayed adverse reactions in a diary.

None of the 37 subjects experienced anaphylaxis or any typical IgE-mediated allergic reaction requiring medical treatment during the two-hour observation period following wine consumption. Also, no adverse clinical reactions were experienced during the follow up six-day diary period. Five subjects, however, experienced mild clinical symptoms such as a 'slight lump in the throat' or 'mild lip numbness' that resolved during the two-hour observation period, and were not correlated with any food protein processing aid.

Conclusion

In conclusion, subjects with a known allergy to eggs, fish or nuts did not exhibit a significant allergic reaction (anaphylaxis) to a double-blind, placebo-controlled challenge of fined wines that could be attributed to residual food protein in wine made according to good manufacturing practice. Moreover, no clinical symptoms requiring treatment were exhibited by any food allergic subject following consumption of wine that was fined with food proteins. The rarity of IgE-mediated milk allergy in adults prevented a statistical analysis for casein and milk-fined white wines, but this rarity makes potential allergic reactions to residual of these food proteins in wine a theoretical rather than an actual problem.

Therefore, for these Australian food-allergic adult consumers the current prescribed winemaking process presents an extremely low risk of a significant allergic reaction from the use of food protein processing aids.

Furthermore, from the winemaker's perspective it is important that little protein remains in the wine after clarification, as the presence of relatively large amounts of residual food protein leads to visible protein precipitates that require remedial practices. It is important, however, to note the difference between wine products containing egg such as egg marsala, and egg white-fined wines. Wines that are intended to contain food proteins should be clearly labelled, avoided by allergic individuals, and were not the focus of this study.

There are, however, individuals who are allergic to grape proteins (Pastorello et al. 2003, Borghesan et al. 2004, Kalogeromitros et al. 2005), and these grape-allergic individuals should not consume wine made from grapes. Although allergies to wine are anecdotally ascribed to sulfur dioxide, which is added as an antioxidant and antimicrobial in winemaking, it will generally only elicit an allergic reaction in sulfite-sensitive asthmatics, which comprise approximately 1.7% of all asthmatics (Vally and Thompson 2001).

Further information on this clinical challenge study is included in:

Potential food allergens in wine: Double-blind, placebo-controlled trial and basophil activation analysis. Rolland, J.M., Apostolou, E., Deckert, K., de Leon, M.P., Douglass, J.A. Glaspole, I.N., Bailey, M., Stockley, C.S., R.E. Nutrition, 22:882–888; 2006.

References:

Full references are available from Helena.conibear@aim-digest.com, and will be published on the gateway next month.

Session title presented at the World Cardiology Conference: Wine and cardiovascular diseases - assessing the evidence

Core syllabus topic : Cardiovascular Disease Prevention - Risk Assessment and Management

Prof. Michael Weis (Munchen, Germany) stated that epidemiological studies have repeatedly demonstrated that moderate alcohol intake (including red wine) has a beneficial effect on cardiovascular disease. In addition to the favourable biological effects of alcohol on the lipid profile (increase in HDL), on hemostasis factors (e.g. increase in eNOS activity, decrease in endothelin-1-bioactivity), inflammatory pathways (NFkB, cytokines, chemokines) and in reducing insulin resistance, the phenolic compounds in red wine appear to interfere with the molecular processes underlying the initiation, progression, and rupture of the atherosclerotic plaque.

Alan Crozier (Glasgow, GB) summarised the protective effects of moderate red wine consumption against cardiovascular diseases and discussed it in the context of the phenolic compounds in red wine that may be responsible for these effects. In particular, the fate and potential bioactivity of anthocyanins, resveratrol, catechin monomers and procyanidins was mentioned.

Protásio da Luz (Sao Paulo, Brazil) showed his results from animal studies demonstrating that moderate wine consumption is associated with reduced cardiovascular events and plaque progression. Moreover, red wine and purple grape juice significantly improved flow mediated dilation without affecting endothelial independent dilation. Finally, flow-mediated dilation improved in hypercholesterolemic (but not hypertensive) patients after red wine ingestion over 15 days.

Conclusion

Whether red wine is more beneficial than other types of alcohol remains unclear. Definitive data from large-scale, randomised clinical end-point trials of red wine intake would be required before physicians can advise patients to use wine as part of preventive or medical therapies.

Thus, despite considerable data from epidemiological studies and strong suggestions from experimental research, patients are not advised to drink for health, but rather to drink – moderately- to their health.

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