Northumbria University NEWCASTLE

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EXPERT COMMENT - The 'French paradox' turned out to be an illusion, but it led to some interesting research

Everybody loved the French paradox. It was a term coined in 1980 by French scientists in their paper on heart disease and fat intake. It refers to the fact that, despite consuming a diet high in saturated fat, French people have relatively low levels of coronary heart disease, especially when compared with people in Britain.

A slew of studies followed, all seeming to support this idea. In looking to explain the paradox, some scientists pointed to the fact that French people consume more wine per capita than many other nations. Perhaps, they posited, red wine is some kind of superfood that has protective qualities.

It seemed, for a glorious few years, that we could gorge on cheese and saucisson, and then unclog our arteries with a bottle of claret. But, as the saying goes, if something sounds too good to be true, then it probably is.

Studies like those above are epidemiological and rely on making correlations between factors, such as heart health and red-wine drinking. But correlation is not causation, and one factor that had been ignored was that the French diet was generally healthier than other nations at the time, falling under the definition of a Mediterranean diet. This diet consists largely of fruits, vegetables, whole grains, legumes and olive oil, with limited amounts of lean protein from fish and poultry. Trials have demonstrated that adhering to the Mediterranean diet is good for cardiovascular health.

Not a complete waste of time

So controlled trials support the role of a healthier diet in cardiovascular

health rather than red wine consumption alone. However, disregarding the French paradox completely would be misguided – because researchers also identified a group of plant chemicals present in fruits, vegetables and wine that have health-giving properties, including protecting the heart. These chemicals are called polyphenols. One of the most studied polyphenols is resveratrol, which is found most abundantly in grapes and, therefore, red wine.

In nature, resveratrol is a protective chemical, supporting the plant when it comes under attack from insects, bacteria or too much ultraviolet light. These same protective properties are also seen in animal and human research trials with resveratrol. The problem is that humans would have to consume an inordinate amount of wine to equal the doses given in these studies. The 500mg resveratrol doses used in many human trials would equate to about 40 litres of wine. You'd be dead from alcohol poisoning before you could get this experimental dose. So why, you might wonder, do people still study resveratrol when it clearly cannot explain the French paradox?

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Boosting brain performance

Despite the relatively high doses used in trials, resveratrol has provided some fantastic research findings. This began about a decade ago when it was found to significantly increase lifespan in yeast, flies, worms and fish by essentially slowing their metabolism down. There is no evidence that resveratrol increases human lifespan, but findings suggests that resveratrol could slow the ageing process with its antioxidant and anti-inflammatory properties.

Resveratrol also acts like the female hormone oestrogen, and dietary phytoestrogen (plant-based oestrogen) has been shown to have a positive effect on mood and mental performance in women during the menopause, when oestrogen levels begin to decline. It may also help with osteoarthritis which is often experienced during the drop in oestrogen during the menopause. This research is still ongoing in humans in labs in Australia.

At the Brain Performance and Nutrition Research Centre at Northumbria University, we are investigating the ability of resveratrol to improve blood flow in the human brain and the hypothesis that this can boost mental performance.

How does resveratrol do this? Simply by piggybacking on the body's natural ability to raise blood flow when your brain is active – when you're working out a sum for example – which involves a neurochemical called nitric oxide widening the blood vessels to that area of the brain. This extra blood provides more fuel (the sugar and oxygen in the blood) for greedy brain cells so that they can work out that sum quicker and more accurately. Resveratrol boosts this nitric oxide response further and so it might be expected that more fuel means better mental performance.

However, when we put this theory to the test on young, healthy volunteers, they didn't seem to get a brain boost from resveratrol, and this is probably because they simply don't need it. However, ongoing trials in our lab, which will be published later this year, will hopefully show that older people (50 to 70 years old) do benefit from this increased fuel provision; a finding we recently saw with other polyphenols – such as those found in cocoa. So red wine can't explain the French paradox but the polyphenols, like resveratrol, found in wine have a range of promising health benefits, and one of these might be to boost our brain power as we age.

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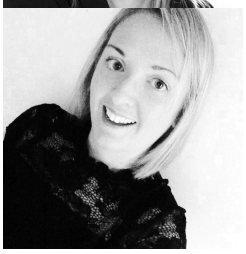

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