

## EARL'S PEARLS

Elixir vitae found in the Applegate:

## Libations, calories, chocolate and exercise

BY EARL SHOWERMAN, M.D.

Recent articles in the *Mail Tribune*, *New York* and *Los Angeles Times* and *Newsweek* have all drawn attention to the scientific discovery of the likely cellular mechanism by which imbibing red wine can prevent heart disease and contribute to longevity. A group of researchers at Harvard Medical School have just published their findings in the journal *Cell*, detailing how resveratrol, a minor ingredient in red wine, miraculously works to restore age-damaged chromosomes. The theory suggests resveratrol works by activating a protein known as sirtuin, which repairs damaged DNA. Damaged DNA causes aging by losing its ability to regulate genes. As we age, the ability of sirtuins to keep up with the chromosome breakdown diminishes, so resveratrol, and by implication red wine, helps us live longer by promoting sirtuin levels to repair our worn out genes, like nanoprobes.

Consider sirtuins to be like salvage operators that pack chromatin around genes that need to be suppressed. Eventually this suppression fails, and cellular chaos ensues.

Dr. David Sinclair and his team have demonstrated how these sirtuins worked to extend life in experiments on mice with a lymphoma gene. The team administered extra copies of the gene that makes sirtuin or fed the mice resveratrol, and found that these mice outlived the control group by 24 to 46 percent. Sirtuins are involved in maintaining proper cellular metabolism, including handling fats. In another report, one of the sirtuins also has been shown to protect mice on fatty diets from getting obese in addition to enhancing their endurance during exercise.

The commercial possibilities for these scientific developments has not escaped the attention of Dr. Sinclair, who helped found Sirtis, a company that has developed a variety of chemicals that activate sirtuin like resveratrol. The *New York Times* article noted that Dr. Sinclair has been taking resveratrol daily for the past five years, but even he had to admit that it's too early to say he's young for his age.

At a regional medical symposium last fall, Medford cardiologist Bruce Patterson suggested a number of mechanisms by which the wine we drink and the food we eat may directly affect our health. Scientific observational studies have proven that consumption of one to two alcoholic drinks per day is associated with a reduction in cardiovascular events, including a whopping 30% improvement in

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coronary artery disease in one study. One drink as infrequently as three times weekly had a measurable benefit. Dr. Patterson suggested the mechanisms for this could be manifold including an increase in nitric oxide production, antioxidant effects, increased HDL (the 'good' cholesterol), and inhibition of clotting. The evidence, Dr. Patterson cautioned, is not strong enough to make nondrinkers take up the cup, and only very modest drinking is recommended.

The other natural substances Patterson found to be provably heart-healthy were dark chocolate and red grapefruit and he dispelled any myths around coffee being a cause of cardiac problems.

Dark chocolate cocoa reduces blood pressure and improves the function of the cells that line our blood vessels. Red grapefruit appears to lower cholesterol and triglyceride levels up to 15%, but it may cause adverse interactions with prescription medication, including some cholesterol lowering drugs and blood pressure medicines.

One additional way of raising sirtuin levels and extending life, which should be mentioned here, but which flies in the face of holiday dietary excesses, is restricting calorie consumption. Mice that eat 30% less than controls live 30% longer. A recent study of rhesus monkeys confirms the same type of results in primates. The December 15 issue of *Newsweek* reports on a human study on calorie restriction by University of Washington researcher Dr. Luigi Fontana who found subjects on restricted calorie diets had markedly improved age-related cardiac function and lowered C-reactive protein levels, which, when elevated, are closely associated with heart disease.

Finally, one cannot talk about nutrition, health, and disease prevention without mentioning exercise. The minimum aerobic exercise program usually recommended for otherwise healthy adults is 30 minutes of moderately intense effort most every day. For individuals interested in losing weight, a

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program that involves exercise for an hour a day is usually required to gain the measurable kind of benefit most individuals expect. You do not have to go all out, of course, but among my Applegate friends many have found ways to integrate fitness activities into their daily routines or make them serve a particular strategic goal: Asher commutes by bike to Medford from Buncom, Doug swims during his lunch hour at the YMCA, Leah rises early in the morning to row with her crew, Donna celebrated her 60th birthday by hiking 60 miles and then throwing a party, Janeen leads groups on wilderness hikes most weekends during the summer, and I collect firewood and do woodlands management as cross training for my next triathlon. Biking in the Applegate off-season is a dream. Aside from Highway 238, there is very little traffic on the roads and the trail system around Applegate Lake is a year-round favorite with mountain bikers. The bottom line is clear, use it or lose.

Harvard's Dr. Sinclair has started trials of sirtuin activators that are 1,000 times more potent than the resveratrol in red wine, and a number of major drug companies are working on sirtuins on the belief that they may be highly beneficial with diseases of aging and the potential market for sirtuin drugs is likely to be huge. Dr. Fontana noted, however, that, "According to the World Health Organization, 80 percent of heart disease and 40 percent of cancers could be prevented with a healthy diet and lifestyle." Therefore, I would not advise you to wait for the first generation of sirtuin drugs to save your genes. Drink and eat modestly, exercise happily, and get outdoors to experience with gratitude the gift of life and our closeness to nature. Now that's an all-Applegate prescription!

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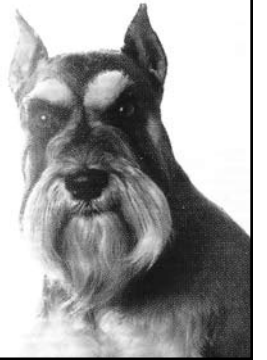
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**Fun and Games answer:**

Hint: If you let X= the number of birds and

Y=the number of lizards then:

X+Y= the number of heads ( 30 )

and, since each bird has 2 legs

and each lizard has 4 legs: then 2X

+ 4Y = the number of legs ( 70 )

We know then that: X+Y= 30 and

2X+4Y=70 substituting

X=30-Y we get 2( 30-Y ) + 4Y =70

or

60-2Y + 4Y = 70

2Y = 10

the # of lizards = 5

and the # of birds = 25

Try this puzzle on your classmates, and your math teacher.