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Body Works Health and Fitness

What ASA and vitamin C can do for you

Let's start the new year with a look at the latest on the health benefits of two old favourites, from the pages of University of California at Berkeley's Wellness Letter.

PLAIN acetylsalicylic acid, the ASA you can buy for less than a penny a tablet, looks more and more like a miracle drug. A body of research, including a study that made headlines recently, does indeed suggest that long-term use can cut the risk of colorectal cancer.

As is known throughout the world, ASA relieves pain, fever and inflammation. In addition, millions now take a tablet daily or every other day as a blood thinner, to ward off heart attacks.

Indeed, the advent of ASA (also known by the famous brand name Aspirin) is one of the great advances of 20th-century medicine: Besides reducing death and disability from heart attacks, it has enabled millions to function productively when they might otherwise have been disabled by headache, toothache, arthritic pain and other ills.

But until recently the way the compound works has been poorly understood. ASA and certain other drugs (ibuprofen, for example) act to quell or interfere with the production of prostaglandins. These substances, produced by our cells, act as chemical messengers. Some take part in the immune response, producing inflammation and fever. Others are involved in causing pain (headache, for example) or in such processes as blood clotting (making the platelets sticky).

Thanks to the work of researchers at the University of Chicago Medical Center, the process by which the body creates prostaglandins is now much clearer, at least to biochemists. Two different types of enzymes set prostaglandins in action, and the molecular structure of these is now understood. ASA "hooks up" with one of these enzymes and stops its work. In this, it is unique – ibuprofen and related painkillers don't work this way.

It's useful to know this, because ASA can also produce some undesirable effects. So useful in other parts of the body, it can temporarily neutralize the prostaglandins whose job it is to protect the stomach lining. Thus long-term use can irritate the stomach, causing pain, nausea, bleeding, and (in some people) ulcers.

The findings at the University of Chicago raise the interesting possibility of developing improved forms – "smart" ASA – that would block one type of prostaglandin but not another, and thus could perform specific, targeted tasks, such as fighting fever and inflammation or thinning the blood, without doing damage to the stomach.

The study of the colorectal cancer connection published in the *New England Journal of Medicine* in September (part of the famous Nurses' Health Study conducted at Harvard University and at Brigham and Women's Hospital in Boston) showed that women who took two or more tablets a week for up to 19 years had about the same cancer risk as non-users.

After 20 years, however, the benefits became significant, even dramatic – a 44-per-cent reduction for those taking two tablets a week and even more for those taking four to six.

Nobody really understands how ASA protects against colorectal cancer, but there are theories. The lead researcher at Harvard emphasized that the study didn't prove that ASA prevents this cancer. And even if future research shows it does, one tantalizing question is why does it take so long? Perhaps some future form of ASA could be designed to work faster.

Because of these doubts, and because regular long-term use has side effects for your stomach, nobody is suggesting that you start taking a daily dose to prevent colorectal cancer. Yet, if you're in a high-risk group – that is, if your family has history of the disease, intestinal polyps, inflammatory bowel disease, or cancer of the breast, ovary, or uterus – do talk to your doctor. He or she may tell you to give it a try.

Vitamin C's hard cold facts

Vitamin C became widely known as a potential weapon against colds in the 1970s, based on claims in a bestselling book by Linus Pauling, the great scientist and social activist who died in 1994. In recent years, most researchers have concluded that megadoses of vitamin C are useless in preventing colds and, at best, only marginally helpful in alleviating cold symptoms.

But a Finnish report, published last year in the *Journal of the American College of Nutrition*, is lending new support to Pauling's work. The research team criticized an influential 1975 analysis that dismissed the vitamin as a cold-fighter. After re-evaluating the early studies done on the subject and adding some of the more recent controlled studies, the Finns concluded that taking one to six grams a day reduces the severity of cold symptoms by an average of 21 per cent and shortens the duration of the typical cold by about one day.

That's still not a big deal. Moreover, less than one gram showed no consistent or significant effect at all.

A gram (or 1,000 milligrams) of vitamin C – let alone six – is a lot, considering that the recommended daily intake is only 60 milligrams. The Berkeley Wellness Letter has recommended 250 to 500 milligrams a day for its potential antioxidant effects. Studies have shown that even in high doses (more than three grams), vitamin C is quite safe, since the body excretes the excess.

Still, several grams a day can cause diarrhea, and there are unresolved questions about the effect on iron metabolism and nutrient balance in the body at these levels, as well as about the possibility of kidney stones. Check with your doctor but, in the long run, it may not be wise to use more than 500 milligrams a day.

So, if you feel a cold coming on, increase your intake for a few days. Divide your dose in two, taking one half in the morning and the other at night. Because the body eliminates vitamin C in about 12 hours, this will keep blood levels high throughout the day and reduce the risk of stomach problems.

Body Works appears each Wednesday. Comments and contributions to Body Works Interactive can be submitted by calling 1-800-461-3298 (toll-free) or 1-416-585-5168 (local), faxing 1-416-585-5085, writing c/o The Globe and Mail, 444 Front St. W., Toronto, Ont., M5V 2S9, or E-mailing to ***MidKing@GlobeAndMail.ca***

The article reprinted above is of interest in the context of STAT 231 because it illustrates how data-based investigating impinges on matters of interest and importance to a wide audience.

(*continued overleaf*)

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