

Recent studies confirm: active ingredient of Aspirin® may protect against colorectal cancer

High-potential multitalent

The analgesic and antipyretic substance acetylsalicylic acid (ASA) – better known as the active ingredient of Aspirin® – not only reduces the likelihood of a second myocardial infarction and stroke but apparently also reduces the risk of colorectal cancer, according to the findings of a long-term U.S. study involving more than 80,000 nurses.

According to the International Agency for Research on Cancer based in Lyon, France, intestinal cancer is one of the most common forms of cancer in the Western industrialized countries, with 670,000 new cases and 310,000 deaths every year. The vast majority of cases of intestinal cancer are made up of malignant tumors affecting the colon and the rectum; cancer of the small intestine is extremely rare. Factors that appear to promote the development of colorectal cancer, as this

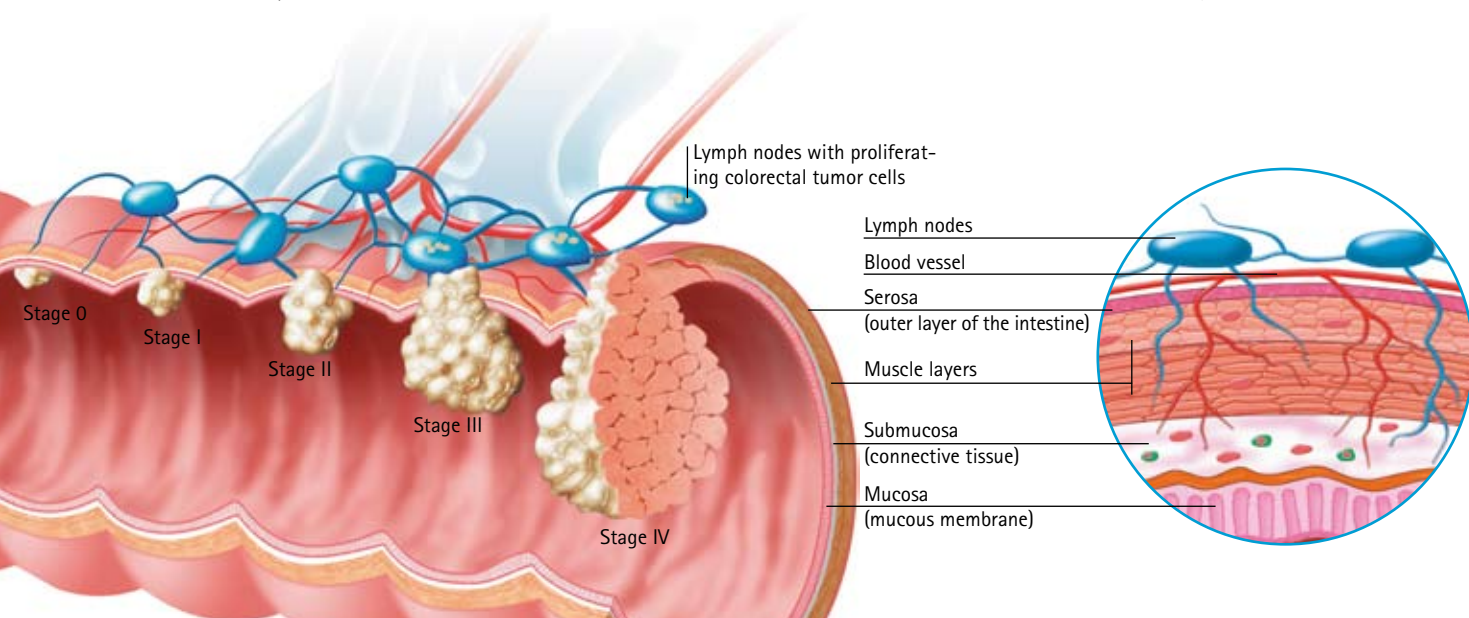
form of carcinoma is known, include a high dietary intake of fat and red meat and low dietary intake of fiber, smoking, excessive alcohol consumption and lack of exercise. A familial predisposition, inflammatory bowel disease and protruding intestinal growths called polyps would also appear to be risk factors: almost every colorectal tumor, for example, develops from a polyp.

Early recognition is particularly important in the case of colorectal cancer, as the cancerous tissue can be

well treated by surgery in the initial stages. Precursor stages of proliferation can be discovered by testing feces for internal bleeding and using colonoscopy to detect polyps.

ASA use may reduce the risk of colorectal cancer

In recent years, numerous short-term clinical trials have been conducted in patients with polyps or patients who had undergone treatment for colorec-



Uncontrolled growths in the digestive tract

Colorectal carcinomas frequently develop from protruding growths in the intestine known as polyps. Colorectal cancer can usually be well treated by surgery in the early stages, i.e. before the cancerous cells have spread to other organs. As the tumor develops, the carcinoma initially penetrates the tissue layers of the intestine (stage I and II). As the disease progresses (stages III and IV), tumor cells spread into the surrounding tissue such as the lymph nodes, allowing them to form metastases in distant organs such as the lungs or liver via the blood and lymphatic system.



Versatile: ASA, the active ingredient of Aspirin®, not only inhibits pain, inflammation and fever, but may also protect against colorectal cancer. Aspirin® tablets (above) are manufactured in modern production facilities in Bitterfeld, Germany (left).

tal cancer to analyze another possible means of prevention: prophylactic treatment with nonsteroidal anti-inflammatory drugs such as acetylsalicylic acid. These studies revealed another side of the active ingredient of Aspirin®, the uses of which are apparently not limited to the treatment of pain and inflammation and secondary prevention of myocardial infarction and stroke (see *research* 17). The large-scale U.S. Nurses' Health Study (NHS) involving 82,911 nurses evaluated the effects of various dosages of acetylsalicylic acid on the development of colorectal cancer over a period of 20 years. "Our study did find a protective effect of long-term aspirin use on risk of invasive colorectal cancer, but only at dosage levels considerably higher than those used to prevent cardiovascular disease," reported the lead author

of the study, Dr. Andrew Chan from Massachusetts General Hospital in Boston, Massachusetts, which belongs to the renowned Harvard Medical School.

ASA blocks an enzyme in the intestinal mucosa

The risk of all types of colorectal cancer dropped by 23 percent on average. The reduction in risk was however only statistically significant in patients who had regularly been taking at least 325 milligrams acetylsalicylic acid twice weekly for ten years or more. Women who took more ASA also experienced a further drop in the risk of colorectal cancer, to less than 50 percent in those taking 325 milligrams more than 14 times per week. This was accompanied, however, by an increase in the risk of

colorectal bleeding, from 0.77 cases yearly per 1,000 participants who did not take ASA to 1.57 cases.

The protective action of acetylsalicylic acid is probably based on its inhibition of an enzyme in the mucous membrane cells of the intestine which is hyperactive in 50 percent of polyps and 85 percent of colorectal tumors: cyclooxygenase-2 (COX-2). COX-2 is involved in the formation of an extremely versatile tissue hormone known as prostaglandin, which promotes both pain transmission and normal growth processes. Prostaglandins may therefore also be involved in cancerous growths. The role that COX-2 plays in tumor formation has not yet been explained in detail, however.



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More information on the topic of Aspirin® is provided by Bayer HealthCare on this website.