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*TEA IS GOOD FOR WHAT AILS YOU

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More than 2000 years ago, the Chinese acknowledged in their writings several good reasons why they drank a lot of tea. Tea, they said, cures lethargy, calms the stomach, livens the spirits, dissipates mucus and phlegm, relieves head ache and reduces fever. If these claims are reminiscent of a label from Dr. Quackenbuch's Miraculous Elixir, we must bear in mind that the simplest patent medicine of today was unknown to those earlier civilizations, and they could do no more than observe the effects of generations of tea drinkers.

To this day, tea is considered an effective, but mild, pick-me-up, and it is the beverage most people think of when someone has a cold.

The Chinese observation that tea alleviated fatigue was an early recognition of man's apparent need for an occasional 'lift' to handle the rigors of the day. We know today that the tea leaf, like the coffee bean, contains the stimulant caffeine (although the average cup of tea contains nearly 50 percent less of it than a like amount of coffee). Extensive research has shown that caffeine causes a perceptible enlargement of the capillaries in the body, including those in the brain. The latter effect precipitates a number of physiological processes that add up to a hyperawakened condition: a state in which the perceptions are especially acute, the ability to think is stimulated, and tiredness diminishes.

Similar effects have been observed after tea consumption, by volunteers tested for their ability to handle complex mental processes such as mathematical manipulations, for response to oral questioning and routine sensory perception. The volunteers experienced a surprising increase in discriminatory ability, the accuracy of tactile (touch) sensations improving as well the keenness of taste and smell.

In addition, tea helped to alleviate mental fatigue in every age group tested, from adolescents to the elderly. These observations support the conclusion that tea provides stimulation to the general nervous system.

Some of the most important research on the effects of tea has been done in the area of gastrointestinal physiology (having to do with the secretion of the acidic digestive fluids). For years, tea drinkers all over the world have claimed that the beverage has a mild, pleasant effect on the stomach, never causing acidity, gas or any other discomfort associated with indigestion. This is not surprising to the modern physiologist, who knows that tea does not promote gastric secretions. In fact, investigations have shown that a cup of hot tea will have no more effect on gastric output than a cup of hot water. This quality of tea is not as clearly understood as its stimulant properties, but two theories have been advanced as possible explanations. Solutions of pure caffeine have been shown to stimulate gastric secretions. This raises an interesting question about tea, then, which contains caffeine. If caffeine is to blame, what is there about tea that modifies its effect? The mitigating

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elements in tea are compounds called thearubigins. They combine with caffeine to form a complex which renders the caffeine inert while it is in the stomach. In biochemical terms, a 'complex' is an association between two substances which makes at least one of them unable to exert its normal influence.

As long as the caffeine in tea is in the acidic environment of the stomach, it remains part of a complex with thearubigin and does nothing. But as soon as the complex enters the alkaline (non-acidic) environment of the small intestine, the caffeine is released, to be absorbed by the blood stream and exert its stimulating effects.

The connection between caffeine and gastric secretion received something of a setback as a result of tests suggesting that other factors are at work. Compared to certain acids present in some beverages, caffeine may only be a minor contributor. In any event, tea either lacks or manages to counteract those components that cause hyperacidity, because it clearly does not have that effect.

I might point out that there is more to this than mere concern about the temporary discomfort of, say, heart-burn. You may wonder just why it is that the stomach, which is made of organic tissue like the foods it digests with gastric acids, doesn't also digest itself. The answer lies largely in the food we eat, components of which provide a buffering action which helps neutralize the acid. At all times, though, the stomach is protected from digestive secretions by the neutralizing action of a mucus gel that coats the stomach's tough epithelial lining.

Tests have shown that tea has no adverse effect on this natural protection. In fact, some studies suggest that tea has a protective effect, probably attributable to its astringency--tightening the mucus membranes and inhibiting gastric secretion.

When people are asked to describe tea, they often supply the adjective 'brisk.' They may have chosen that particular word because of Liptons' advertising and familiar packaging, but it nonetheless defines a discernible quality of the product.

The thearubigins I mentioned earlier resemble the tannins of tea, which are mild but effective astringents. An astringent on the mucus membranes of the mouth and stomach would be expected to cause a tightening or constricting of the peripheral capillaries—microscopic blood vessels near the outer surfaces. This constriction would elicit a sensation not unlike a cool breeze on the cheeks--weather which we would describe as 'brisk.'

If you add milk to your tea, however, this is one quality you'll miss. When casein (milk protein) combines with the thearubigins, it renders them ineffective. You'll still enjoy tea's stimulant and gastrointestinal benefits, but that tangy 'briskness' is replaced by an extra-mild smoothness.

Having mentioned tannins. I would like to clear up a widespread misconception about tea. Tea contains a group of compounds which we have, mainly for the sake of convenience, come to refer to as tannins, which they resemble. These, in turn, bear some resemblance to tannic acid, but they are not the same thing. Tea has a demonstrably low acidity quotient and contains absolutely no tannic acid which, as a matter of fact, is usualy obtained from tree bark.

One noted effect of tea consumption is that it induces a more rapid emptying of the stomach; *ie,* it helps 'keep things moving.' As a result, excess mucus and phlegm which make their way into the digestive tract will be moved out quicker, too, thereby eliminating a major discomfort of colds and flu.

With the added astringency of the thearubigins, the sufferer of an upset stomach would not only be relieved by removal of its contents, but the tightening of the membranes would retard gastric secretion and bring the relief associated with inactivity.

The Chinese also described tea's ability to reduce fever and alieviate headache. We can attribute this to the effect of the caffeine in tea which dilates the capillaries in the skin and the brain.

Capillary enlargement near the surface of the skin helps the body dissipate heat, thereby lowering the body temperature. This may also account for the summertime popularity of iced tea. Moreover, dilation of cerebral capillaries will reduce blood pressure in that area and help relieve headache.

Obviously, with modern drugstores offering faster and more effective remedies for our assorted aches, upsets and congestions, we no longer need to depend on tea as the Chinese did. But modern science has given us some interesting insights into why tea became so popular and why, to this day, this time-tested beverage made from a leaf is used by more people than any other drink except water.

Given the wisdom of history and the evidence of recent research, it's no wonder that more and more Americans are turning to tea as their favorite hot or cold beverage.