

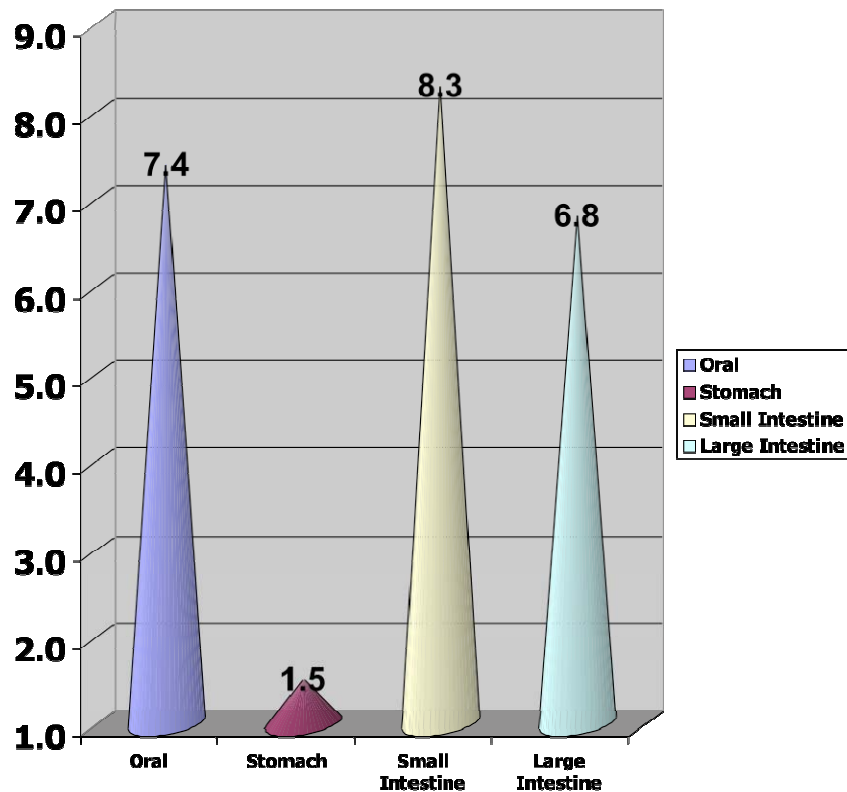
# HALPERIN CHIROPRACTIC

Keith Halperin, DC

## Stomach Acid, pH, and Health

### What's in a number?

When we were in school, we learned that acid and base are represented by a pH scale of 1 to 14. A pH of 7 is considered neutral. Below 7 pH is acidic and above 7 pH is basic. The farther away from a neutral pH of 7, the stronger the acid or base. Our bodies work best at a slightly alkaline pH. Blood pH is generally maintained at about 7.3 pH and relies on a buffer system of minerals for proper control over pH balance. But the stomach requires a very acidic pH of 1.5 to 2.5 to maintain digestive health (see below).



The pH of our stomach is critical to the digestion of many nutrients and acts as the first line of defense against harmful bacteria and viruses. The stomach is a reservoir of strong acid, with a much lower pH than in any other part of our digestive system. This environment is perfect for the activation of enzymes that facilitate the breakdown of proteins into smaller protein fragments, which is the first step in digesting our food. A lack of hydrochloric acid (called hypochlorhydria),

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the acid which determines stomach pH, affects the digestion of iron, folate, B12, calcium and protein.

75% of our immune system is within our gut walls. This is because most bacterial invaders enter through the mouth and nose. The stomach is our first line of defense as it contains acid and enzymes that dissolve the protein coats of bacteria, thereby either killing them or leaving them vulnerable to our immune responses.

Stomach acid cleaves the bonds of mineral complexes attached to proteins and other food components, allowing them to be absorbed in the small intestine. Consider the use of antacids that advertise the addition of calcium carbonate as a valuable source of calcium. As they produce an alkaline pH in the stomach and provide the least absorbable (and cheapest) type of calcium, calcium carbonate, little to none of that calcium becomes available to the body.

**H. pylori** are bacteria associated with stomach ulcers. H. pylori can be detected both in stool tests and in some blood tests. Sometimes the first indicator is gastritis or irritable bowel syndrome. This infection has a strong association with the lack of strong stomach acid found with aging and the use of antacids and proton pump inhibitors (Tagamet). As the reservoir of stomach acid becomes more alkaline (normal being pH 1.5), bacterial overgrowth occurs, which may lead to more serious conditions such as stomach cancer. Luckily, when H. pylori is found in the stomach, it can be eradicated with antibiotics, fermented kefir, allicin, the active ingredient in garlic, mastic gum and an antibiotic honey called manuka. Here are two helpful tips: garlic has to be raw and manuka honey should be of a strong grade from New Zealand.

Since stomach pH is higher when we age or at times of prolonged stress, antacid use and a host of other factors, the ability to absorb nutrients and minerals is greatly diminished. Let's explore the connection to vitamin **B12**. The stomach produces intrinsic factor from specific cells within the stomach wall. These cells are induced to produce intrinsic factor only when the pH is within its normal acidic pH range. Intrinsic factor also bonds to B12, making it available to the gut microflora that absorbs B12 from the intestine. Without intrinsic factor, we are unable to assimilate B12. As we age, these cells produce less intrinsic factor. It is no wonder that vitamin B12 is one of three most deficient nutrients in most Americans, especially the elderly. This crucial nutrient is a cofactor in hundreds of enzyme reactions, including those that prevent heart disease and mental decline associated with age.

Let's look at the big picture. If the acidic environment of the stomach is not maintained at the proper pH, we are unable to absorb minerals, proteins, and vitamins necessary for all the metabolic functions of the body. We can't make enzymes that catalyze (speed up or facilitate) digestion. We can't detoxify chemicals that enter the liver. We can't fight off disease causing bacteria and viruses. Our bodies must work tirelessly to maintain an alkaline blood and cell environment. **Osteoporosis**, for example, evolves partly due to a lack of available minerals to alkalinize the body. The minerals are leached from the bone, weakening the very structure of our bodies. As a result, our digestion and physiology suffer from unrelieved inflammation, the cause of all disease.

When I use kinesiology to muscle-test a patient or discover nutrient depletions and changes in blood and urine tests that indicate inflammation and disease, I always make it a point to replenish both the enzymes of digestion, minerals, vitamins and of course the HCl (hydrochloric acid) needed for digestion until the body regains its balance and the ability to assimilate nutrients.