

**Healing the Dysfunctional Gut:
A Common Hidden Key Perpetuating Factor
by Devin Starlanyl
August 2008**

This information may be freely copied and distributed, only if unaltered, with complete original content including © Devin Starlanyl, 2008.

There is a temptation to treat chronic pain using pills and therapies for symptom relief only. Symptom relief *is* important. For example, you can't deal with life style changes such as diet, sleep and exercise modification if the chronic pain dragon is gnawing on you. But you also need to deal with the *causes* of pain and dysfunction, to enable return to as much function as possible. Often, chronic illness has a myofascial pain component that can be successfully treated. There is often an insulin resistance component present that can be treated by diet. Another common factor associated with chronic pain seems to be permeable bowel. (Jones)

The gastrointestinal system is the largest interacting surface between the individual and his or her environment. It has over 200 times the surface area of the skin. It's been said that you are what you eat, but in reality you are what you *absorb*. Your stomach is lined with mucus to help protect it from acids needed to digest foods. The gastric mucosa, the protective layer, is made up of cells that secrete this mucus gel plus endocrine cells that secrete regulatory hormones, cells that secrete the hydrochloric acid, and cells that secrete an enzyme needed to break up proteins. (This is a very simple picture of a very complex process. For example, the cells that secrete the enzyme that breaks up protein also secrete a factor that allows vitamin B₁₂ to enter through the small intestinal walls.)

Most of the absorptive processes of the body occur in the small intestine. The small intestinal wall also has a mucosa, but there are many convolutions along that wall, greatly increasing the surface area and allowing more rapid flow of substances through the intestine into the body, and also from the body into the intestine. There are two ways that molecules pass through the gastrointestinal skin barrier into the body. One is through the cell. This pathway is controlled by the integrity of cell membrane and a variety of channels that are controlled by molecular gates. The other way is *in between* the cells at cellular junctions. In a healthy gut, this barrier is so tight it forces nutrients to be converted into a form that allows them to be transported across the cell through the channels. When this barrier is damaged, a condition called leaky gut syndrome, or hyperpermeable gut, occurs. Unprocessed or partially digested nutrients, foreign substances and large amino acids can leak through these areas. This may trigger a defense against these intruders, resulting in the development of food allergies, intolerances or sensitivities.

Pain often causes many of us to consume over-the-counter pain relievers, sometimes on an empty stomach. It's easy to get them, they're over-the-counter, relatively cheap, and there are no drug police ready to prosecute a doctor who recommends them or patients who need relief. Many over-the counter anti-inflammatory medications, steroids, and other medications can damage the gastric lining. So can excess alcohol consumption, bacterial, viral, yeast or other toxins. Many things can also affect the mucosal cells' ability to heal when damage occurs. "Disruptions in the gut barrier follow injury from various causes including nonsteroidal anti-inflammatory drugs and oxidant stress, and involve mechanisms such as adenosine triphosphate depletion and damage to epithelial cell cytoskeletons (yes, even our cells have skeletons! DJS) that regulate tight junctions. Ample evidence links gut barrier dysfunction to multi-organ system failure in sepsis and immune dysregulation." (De Meo)

Adenosine triphosphate is the main cellular energy supplier. When it is depleted, it takes more energy to get our inefficient systems to work, and we can become fatigued more quickly. As the leaks in the barrier are used more frequently, they may become wider and more permeable with time. As the gut becomes more dysfunctional, nutrients that need to pass the gut lining may not be allowed through, and more molecules that shouldn't pass the lining may slip through.

More information is coming out concerning the relationship between permeable bowel and chronic illness. Each of us is unique and responds in a different way to the environment and medications. Our individual requirements of specific biochemicals for efficient running of our metabolism can vary greatly. The difference is beginning to be explored through the study of epigenomics. In chronic illness, cookbook medicine does not apply, and one size does not fit all. This concept is especially true in chronic pain. (Khalsa) Tailoring medications, therapies and exercise to the individual is vital to successful management of chronic pain. "The core scientific concepts of disease pathogenesis are antecedents, triggers, and mediators. Antecedents are factors, genetic or acquired, that predispose to illness; triggers are factors that provoke the symptoms and signs of illness; and mediators are factors, biochemical or psychosocial, that contribute to pathological changes and dysfunctional responses. Understanding the antecedents, triggers, and mediators that underlie illness or dysfunction in each patient permits therapy to be targeted to the needs of the individual." (Galland)

Dealing with the basic causes of chronic illness is vital to management of chronic pain. This concept is not yet part of most medical training, although this is changing. Fortunately, there is a medical textbook that can provide doctors with the strategies needed to manage chronic illness — the *Textbook of Functional Medicine* (www.functionalmedicine.org). Functional medicine is based on a patient- and function-centered approach to health care, rather than the present disease-centered focus. For example, this textbook explains how to heal the permeable bowel by removing irritants, replacing lost enzymes, re-inoculating

healthy organisms with probiotics, and repairing the mucosa. It is my hope that more physicians who deal with patients with FM and CMP will turn to the Institute of Functional Medicine and their textbook for guidance to discover and treat some of the causes of chronic illness.

References

- DeMeo MT, Mutlu EA, Keshavarzian A et al. 2002. Intestinal permeation and gastrointestinal disease. *J Clin Castroenterol.* 34(4):385-396.
- Galland L. 2006. Patient-centered care: antecedents, triggers and mediators. *Altern Ther Health Med.* 12(4):62-70.
- Khalsa PS. 2004. Biomechanics of musculoskeletal pain: dynamics of the neuromatrix. *J Electromyogr Kinesiol.* 14(1):109-120. "Mammals"
- Jones DS, Quinn S. (Ed.) *Textbook of Functional Medicine.* 2005, 2006. Gig Harbor WA: Institute of Functional Medicine.