



Your Source For  
News and Education  
In Glycomics  
The Science of  
Sugars

## What You Don't Know About Your Immune System Can Be Deadly Understand your **TWO** immune systems!

Glycoscience Lesson #20

by JC Spencer

You owe your life to your immune system. Your immune system has two parts: the innate and the combinatorial. The innate is your first line of defense. It is immediately activated in response to danger. To overcome infection or cause of infection is the purpose of the combinatorial system.

This is a matter of life and death. The combinatorial immune system is slower and unbelievably complex. It can formulate and manufacture tens of millions of specific antibodies. It responds according to the invader's ability to morph. The combinatorial system continues to manufacture additional tailored antibodies until the invader is conquered or it dies trying.

One way to awaken your immune system is to find a frozen lake, cut a hole in the ice and jump in. You will experience every cell of your body screaming an S.O.S., "*All hands on deck. We have a problem here and we gotta figure out what to do about it.*"

Okay, you have been in the icy water for three seconds and every cell is yelling that its time to get out of this frigid mess. You get the message! No need to tell you twice.

### What just happened?

Your cells quickly awakened. Your defense system went to high-alert. The heightened distress call summoned a constellation of innate responses to seek out what caused the sudden change. Information is automatically sent to the command center (your brain) along with a request for a detailed report of what just happened and how best to take drastic action. Meanwhile, the command is given to "*Kill all enemies within range!*"

While calculations are made to determine exactly what to do, the immune system cells come to attention and begin to look for anything harmful including a bacterium or virus, which they immediately attack. It is amazing how a single

macrophage (big eater) when properly instructed completely surrounds a toxin, bad bacteria or deadly virus and deposits it as waste to be flushed completely out of your body. It's real team work. Cytokines go to work with the immune system army of white blood cells, B and T-Cells, macrophages and dendritic cells. This interaction triggers a cascade of biochemical responses to address the emergency.

Tests show that to exercise in icy water increases the metabolism, improves hormonal production of testosterone in men and estrogen in women and burns calories twice as fast.

Medical researchers documented immune system improvement as their subjects swam in frigid water. One hour in cold water three times a week stimulated the involuntary (parasympathetic) nervous system to release dopamine and serotonin neurotransmitters. Endorphin release was also reported. Blood flow increases as it rushes through capillaries, veins and arteries to flush impurities from your body and exfoliate the skin.

Don't jump in a frozen lake without a trusted friend close by. You might first tip your toe in the water: splash cold water on your face or take a cold shower. A consistent gentle way to improve your immune system is to eat less bad stuff, eat more good stuff and make sure you have a daily intake of Smart Sugars to build more glycans and glycoproteins on the surface of your cells. Glycans are those signaling devices that tell your cells how to defend the body.

[www.GlycoscienceNEWS.com](http://www.GlycoscienceNEWS.com) SMART SUGARS

[www.OneSmartSugar.com/video.html](http://www.OneSmartSugar.com/video.html)

Expand Your Mind - Improve Your Brain

<http://www.endowmentmed.org/ExpandYourMind/MindEbook3.html>

Change Your Sugar, Change Your Life <http://DiabeticHope.com>

Glycoscience Lesson #20

<http://www.GlycoscienceNEWS.com/pdf/Lesson20.pdf>

[http://EzineArticles.com/?expert=JC\\_Spencer](http://EzineArticles.com/?expert=JC_Spencer)

© The Endowment for Medical Research, Inc. [www.endowmentmed.org](http://www.endowmentmed.org)