ISSUE 10-MAY 2022

THE ROAD TO HEALTH & WELLNESS

News and advice courtesy of

ELITE

PERSONAL TRAINING AND FITNESS SOLUTIONS

In this issue

Inflammation Series

David Trumbore
PT, DPT, CSCI, CWT, CPI

Fighting Inflammation

Last month we began an extensive series on inflammation. This is such a significant topic that we'll explore it for the rest of 2022.

Let's start at the beginning - with the biology of the immune response. I can already hear the groans. Readers may find this aspect dry and uninteresting. However, background information fosters understanding and appreciation.

Perhaps you have a scientific background. If so, you know that the immune system is comprised of a sophisticated network of cells and molecules. Perhaps you have no interest in inflammatory mechanisms. If so, you may choose to skip this section and resume next month. However, I hope you'll keep reading.

The Immune Response in Three Acts

Inflammation originates with the immune system. The immune response is actually a sequence of events that occur after an invader breaches the body's outer defense or when tissues are damaged. Each of these events has players with assigned roles. Think of the body's immune response as a three-act drama.

Act One features the arrival of the bad guys (pathogens). **Act Two** features the players of the innate immune system and their efforts to engulf the invaders and send for reinforcements. **Act Three** features the components of the adaptive immune system, which builds a defense against repeat attacks. Here's a summary of this very intricate process:

Act One: Defending the Barricades

Your skin is the largest organ in the body. As such, it poses a formidable barrier to infection. The skin's surface is slightly acidic and typically dry. Fortunately, these are unsuitable conditions for many a bad microbe.

The body is on a constant alert for bad germs (pathogens) and seeks to eliminate them before they become established. Sometimes the body can't rise to the challenge. Then it's time kick it up a notch and add reinforcements.

Act Two: Innate Immunity

Innate means something you are born with. We all have innate immunity. Innate immunity is nonspecialized, meaning it does not target a particular virus or bacterium. Thus it can mount a quick response. The role of the body's innate immunity is to attack invading pathogens after the barrier of the skin is breached.

The breach triggers an immediate inflammatory response, which fires up the third line of defense - the adaptive immune system. More in Act 3 coming up. In the meantime, there's more to be said about the innate immune system.

The innate immune system is best known for its white blood cells (phagocytes). Phagocytes engulf pathogens and chemically chew them up. Afterwards, the phagocytes display a piece of the protein from the pathogen. This alerts the adaptive system to the invader and activates other immune cells so that they can recognize an infected cell and prepare for future battle.

The innate immune system involves virus-detecting proteins. The detection of viruses causes cells to release antiviral proteins (interferons), which attach themselves to neighboring uninfected cells and make them resistant to the virus. The name describes the function: interferons interfere with the viral advance.

Our newsletters present overviews of highly complex topics. For more in-depth discussion of vitamins, minerals, supplements, weight loss or ANY health-related topic, please contact our office.

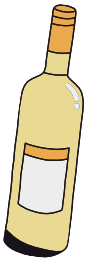
Act Three: Adaptive Immunity

Unlike innate immunity, adaptive immunity is a more gradual process in which white blood cells (lymphocytes) are primed to distinguish foes. T cells are lymphocytes produced in the bone marrow. While still immature, they travel to a small organ behind your breastbone known as the thymus (hence the name T cell). Here they are "trained" to distinguish foreign antigens from the body's own antigens. T cells can recognize infected cells. When they do so, they develop into any of four specialized variations: helper T cells, killer T cells, regulatory T cells and memory T cells.

The differentiation into these four types of cells and their functions is incredibly complex. It's what allows the body to recognize a future invader and respond quickly and efficiently.

Okay, I tried to keep it simple. Thanks for hanging in there. Next month's topic is **When Good Inflammation Turns Bad.**

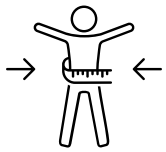
Health Tip of the Month



Mostly everyone has heard of the benefits of drinking red wine in moderation. But did you know that Chardonnay wine is made from grapes that have more antioxidants and nutritional value than red wine? It also has less sugar!

So, if you would like to enjoy the benefits of wine but do not like the taste of red wine you now have a healthy white wine option.

Research Shows



High-intensity resistive exercise can cause local lipolysis. This is a fancy way of saying that the concept of "spot reduction," which previously was considered a myth, is possible in limited ways. Contact us for further discussion regarding this emerging research.

Did You Know...

Individuals with low levels of omega-3 have a 9–10-year shorter life expectancy than those with normal levels.

Smokers typically have a 12-year lower life expectancy than non-smokers. Therefore, individuals with low omega-3 levels have almost the same shortened life span as smokers.

Medication & Food

St. John's wort is an herbal supplement that has been used for over one hundred years to treat mental health issues. It has potential interactions with several drugs that treat cardiovascular diseases such as high blood pressure and high cholesterol. If you take digoxin, verapamil or any statin, check with your prescribing physician first before taking St. John's wort.

St. John's wort may cause excessive drowsiness when combined with SSRIs, which are commonly prescribed for depression. It can also interfere with the absorption of benzodiazepines, which are often prescribed for anxiety.

Elite Personal Training and Fitness Solutions | 215-947-2099 |1800 Byberry Rd # 703 Huntingdon Valley, PA 19006