

Benefit Your Heart with Adequate Fiber Intake

We are all aware of the fact that fiber is very beneficial for healthy gut but recently a new systematic review highlights fiber's far-reaching benefits including how it benefits the heart. The review revealed the amount of fiber that is needed to be consumed in order to reap the most significant benefits. The findings include data from 185 studies and 58 clinical trials for a total of 4635 adult participants. The participants were asked about their diets and was followed for a period of time to observe if any health issues occurred. Along with this, some of them were provided with particular diet plan.

The study found that those who consumed the most fiber had a 15 to 30 percent lower chance of coronary artery disease, cardiovascular-related mortality, incidence of stroke and type two diabetes. Additionally, in clinical trials, participants with the lowest body weight, systolic blood pressure, and total cholesterol had the most fiber intake. It appears that the benefits of fiber consumption were greatest with intake levels between 25 and 29 grams. Andrew Reynolds, the lead author on the study, adds "Currently, most people consume less than 20g of fiber per day, so being more conscious about using high fiber options will help reach that target." Reaching that goal is important because data suggested that higher intakes could protect against cardiovascular diseases, type two diabetes and even some types of cancer.

The researchers observed similar type of results regarding whole grain consumption but mentioned that fiber from fruits and vegetables such as carrots, beets, broccoli, artichokes, unpeeled apples, bananas, oranges, strawberries etc. have more health benefits in comparison. It has been observed that fiber intake influence everything from heart disease to some types of cancer. Fiber-rich foods tend to quickly satisfy hunger and then suppress that hunger for a longer period after consumption than their low-fiber counterparts. A person's tendency to overeat can be reduced and fiber also increases the production of good bacteria in the gut which protect against colon cancer.



Source: [American Heart Association](#)

Researchers Discover a New Kind of Neural Communication



Usually neurons communicate with each other and with other cells by sending molecular signals across a synapse or gap junction. Electricity is an integral part of neuronal signaling. Scientists have known that when lots of neurons fire at once, a weak electric field is generated. This can be measured with an electroencephalogram (EEG). These fields were thought to be too weak to act on neurons.

However, this work shows that not only can these weak electrical fields excite cells, they can also propagate a wave of activity by generating electrical fields of their own. The researchers found that without a synapse, and without gap junctions, slow periodic activity can move through the hippocampus, and is able to create an electric field that can stimulate nearby cells.

"We don't know yet the 'So what?' part of this discovery entirely," admitted lead researcher Dominique Durand, the Elmer Lincoln Lindseth Professor in Biomedical Engineering and director of the Neural Engineering Center at the Case School of Engineering. "But we do know that this seems to be an entirely new form of communication in the brain, so we are very excited about this."

While there may not be immediate applications for this progressive work, it will help us learn more about the brain, an organ that still holds many mysteries.

Source: [ScienceDaily, PAIN](#)

Can Old Cells Have Positive Impacts on MS Patients?



It has been seen in a recent study that there is a very limited regeneration of cells in the brain of patients diagnosed with multiple sclerosis (MS). This revealed the importance of treating MS at an early stage of the disease progression when the affected cells can repair the damage as new ones do not replace them.

Nerve cells in the brain communicate with one another through nerve fibers that form complex networks. A casing of myelin insulates many nerve fibers which contributes to the high-speed transmission of nerve impulses. Myelin is produced by a type of cells called oligodendrocytes. In MS, the the body's immune system attacks the myelin and

oligodendrocytes. This can result in deteriorated transmission of signals in the nerve fibers and can entail nerve cell death, a combination that causes severe neurological impairments and in severe cases, death.

The periods of deterioration and periods of remission causes the variations in the disease progression in MS. It was found in the studies that damaged myelin can be reformed and that this requires the generation of new oligodendrocytes that make the myelin. Unlike the previous studies, present study discovered that there is no regeneration of oligodendrocytes in MS patients in those areas where the myelin seems to have been reformed. Instead, it appears as if old oligodendrocytes that have survived the attack from the immune defense can form new myelin.

These new findings indicate that treating MS aggressively at an early stage of disease progression is very important to prevent the loss of oligodendrocytes. The age of the oligodendrocytes in the MS patients was determined by measuring the amount of the isotope carbon-14 from nuclear detonations of stored cell's genome during the cold war. As the detonations ceased, there was a gradual decrease of carbon-14, which acted as a time-stamp for when the cells were formed.

Source: [Case Western Reserve University, Journal of Physiology](#)

First Non-Opioid Drug?

PAIN, a non-opioid drug composite revealed by investigators from the National Institute of Health (NIH) may pursue to treat long-lasting aches without addictive significances. The drug, referred to as ML351, will work to inhibit the naturally produced enzyme 15-Lipoxygenase-1, which contributes directly to chronic pain. These particular drugs simply treated pain by reducing inflammation which is not enough for diminishing chronic pain. Research scientist Ann Gregus explained that "Our goal is to demonstrate the preclinical efficacy of ML351 for chronic pain that does not respond to nonsteroidal anti-inflammatory drugs and might otherwise be treated with opioids,"

Acute pain occurs as a form of protection from severe self-injury i.e., touching a hot stove. For chronic pain, these signaling pathways have been chronically activated, and therefore, the pain can be debilitating.

While opioids are highly effective medications, concerns regarding danger of their misuse have reached a fever

pitch. Thus, there is a critical need of novel nonopioid treatments for the effective management of chronic pain. ML351 shows promise as a non-opioid therapeutic to treat pain states not relieved by over-the-counter medications. Future studies will determine how we can translate these findings into novel therapeutics for clinical use.



Source: [Case Western Reserve University, Journal of Physiology](#)