Anti-Aging Medical Insights on the Immune System Link to Disease

As we age, our immune systems experience a reduced efficiency, the result of which serves as a major contributor to the pathology of old age. Cofactors such as age-related diseases and nutritional deficiencies worsen the effect of compromises in immune function. Presently, risk assessment and preventive measures to proactively slow the decline of immune functions are the best approaches to improve immune function as we age. To help you achieve an optimal immune system, we review recent studies that reveal the immune system link to disease. We also recap some of the latest discoveries that relate to optimizing the immune system, to improve your odds of living a long, healthy, happy, rewarding, productive life.

Influenza May Raise Risk of Heart Attack

Andrew C. Hayward and colleagues from UCL Centre for Infectious Disease Epidemiology, Royal Free Hospital (London, UK) completed a meta-analysis of data from 39 randomized controlled trials conducted between 1932 and 2008. The researchers found that the number of roommate exposures per day was significantly associated with MRSA and VRE infection or colonization, and a significant association also was found for number of unique roommate exposures per day and VRE as well. Writing, “The significant associations found between daily roommate exposures and the infection outcomes suggest a possible role for limiting patient-to-patient contact in an infection prevention and control program in this facility,” the team urges: “These findings have implications for the deployment and design of acute care hospitals.”

Apples Promote Immune Health

Chronic inflammation, linked to medical conditions including heart disease, diabetes, Alzheimer’s disease, and more, may be accelerated as a result of consuming diets high in fat. Christina L. Sherry and colleagues from the University of Illinois (USA) investigated whether soluble fiber might counteract the negative health effects resulting from a high-fat diet. The team fed lab animals a low-fat diet with either soluble or insoluble fiber, and found that the animals exhibited dramatically distinct responses when their immune systems were challenged: animals fed soluble fiber were found to display less sickness and a faster recovery rate. Explaining, “Peripheral activation of the immune system by infectious agents triggers the brain–cytokine system causing sickness behaviors which profoundly impact well-being,” the researchers write: “These data show that a diet rich in soluble fiber protects against endotoxin-induced sickness behavior by ... promoting alternative activation of macrophages.”

Licorice Extract May Ward Off Deadly Infections

In that the deadly Pseudomonas infections that can result from severe burns, Fujio Suzuki and colleagues from the University of Texas Medical Branch (USA) studied the effect...
of a compound from licorice root (glycyrrhizin from *Glycyrrhiza glabra*), specifically observing its ability to create antimicrobial peptides, a type of protein that serves as the body's first line of defense against infection. The researchers employed a mouse model of burn injuries, in which one group served as the control, a second group was burned and untreated, and a third group was burned and treated with glycyrrhizin. The team found that the skin of the untreated burned mice did not have any detectable antimicrobial peptides that prevent bacteria from growing and spreading, but the normal mice did. Further, the skin of the untreated burned mice also had immature myeloid cells, which indicate an inability of the skin to produce antimicrobial peptides needed to prevent infection. Most notably, the mice treated with glycyrrhizin closely resembled the normal mice in that they also had the antimicrobial peptides and no immature myeloid cells. The team concludes: “These results suggest that through the improved production of antimicrobial peptides in tissues surrounding the burn area, sepsis stemming from *Pseudomonas aeruginosa* wound infection is controllable by glycyrrhizin in severely burned mice.”


### Maintain Healthy Vitamin D Intake Year-Round

As an estimated 70% of Americans have insufficient levels of Vitamin D and nearly 1 billion people worldwide are deficient in the nutrient, Oregon State University (USA) researchers warn of the impending public health problem of vitamin D deficiency in both developed and developing nations. Oregon State University scientists have discovered that vitamin D induces the expression of cathelicidin, an antimicrobial peptide gene. The team posits that this mechanism is partly responsible for vitamin D’s capacity to function as one’s primary immune response, and that future advances in the use of cathelicidin may form the basis for new immune-based therapies. While vitamin D can be obtained from the diet, experts suggest that food sources are rarely adequate. In fact, most people get the bulk of this fat-soluble vitamin from the UV-B radiation in sun exposure, which naturally causes the skin to produce it. However, people living north of about 40° latitude - a geography encompassing a large portion of the US and northern Europe – are often deficient after months of inadequate winter sunshine.


### Green Space Protects Immune Health

In an increasingly urbanized world, people are living in environments with dwindling green spaces. Jolanda Maas and colleagues from the EMGO Institute VU University Medical Centre (Netherlands) studied the medical records of 345,143 Dutch adults, identifying for the prevalence of 24 health conditions, and classified each study subject’s residence in relation to a nearby green space. The researchers found that for 15 of the 24 health conditions, the annual prevalence rate was lower in subjects who lived in locations with more green space in a 1-km radius. This impact was greatest for mental health conditions, with people living in areas with the most green space being one-third less likely to have anxiety disorders and one-fifth less to be clinically depressed (as compared with residents of areas with the least green space). Similarly, physical health was improved in those living near more green space, as doing so was linked to protective effects against respiratory diseases (such as asthma and COPD) and upper respiratory infections.


The foundation of an active, vibrant, vital, and long life relies on an optimal immune system. Learn how to manage your immune health and make prudent decisions that avert the risks of immune-related disease. Visit the A4M’s World Health Network website, at www.worldhealth.net, to learn more about optimizing your immune function, sign up for your free subscription to Longevity Magazine e-journal, and locate an anti-aging physician who will be your partner and coach in living a productive, vital, and vibrant life starting today.