

LE Magazine March 2001

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1. Testosterone reduces chest pain

Full source: Journal of the American Heart Association, October 17

Chest pain, known as angina, occurs when the heart does not receive adequate blood flow. A study showed that men (avg. age 62) having low levels of testosterone, who wore a testosterone delivery patch, increased the time they could spend on a treadmill by 37%, (control group 15%) due to greater dilation of blood vessels. Those with the patch also experienced an increase in quality of life, including emotional health. The treatment did not adversely affect other biochemical parameters. This suggests that there may be significant numbers of men with coronary artery disease who may benefit from this a testosterone boost. However, the use of testosterone therapy has been regarded as controversial.

## 2. Deprenyl does not increase Parkinson's death rate

Full source: American Academy of Neurology, 25 December 2000

Scientists have debated whether the drug, L-Deprenyl either slows the progression of Parkinson's disease or increases the risk of death. However, a new study shows that there is no increased death rate for patients who use deprenyl in combination with levodopa (the most common drug for Parkinson's). In the mid-1980s, Deprenyl was the first drug that showed even the possibility of slowing the course of this disease through its neuroprotective effects, not just treating its symptoms! However, a study came out several years ago reporting that it raised the death rate. There were criticisms of that study and other studies failed to confirm the original results. This new study should dispel any remaining doubts. In this study, those with Parkinson's were twice as likely to die during the study period than the healthy control group. However, those patients who were taking deprenyl in combination with levodopa were no more likely to die during the study than the people without Parkinson's were. People taking levodopa alone had the highest death rate among the three treatment groups. Deprenyl has been used as a treatment for Parkinson's for nearly 25 years. The debate has been whether deprenyl actually affects the progression of the disease or whether it just affects the symptoms. Clinical proof that deprenyl, or any anti-parkinsonian drug, is neuroprotective remains unknown. However according to the researcher, the study shows that at the very least treating patients with deprenyl and levodopa is useful therapy for Parkinson's disease.

## 3. Multivitamins increase key nutrients in elderly

Full source: Journal of the American College of Nutrition 2000;19:613-621

New study findings suggest that simply taking a multivitamin each day can improve levels of many key nutrients, thereby lowering their risk of chronic disease. Poor diet and illnesses can leave many older adults with less-than-optimal stores of nutrients in their blood. Supplementation with a multivitamin supplement can improve micronutrient status in healthy, older Americans to levels above those obtained with a fortified diet. Adults who took the multivitamin had higher levels of vitamins B6, B12, C, D, E and riboflavin. There was no difference in immune system function or antioxidant capacity. The results suggest that the 40% to 60% of older Americans who take multivitamins are probably helping to promote their health, not wasting money as some people have proposed.

## 4. Importance of grape seed extract in disease prevention

Full source: Toxicology 2000 Aug 7;148(2-3):187-97

Antioxidants are potent scavengers of free radicals and offer beneficial effects on human health and disease prevention including the inhibition of cancer development. Free radicals have been implicated in over a hundred disease conditions in humans. Proanthocyanidins, naturally occurring antioxidants, are widely available in fruits, vegetables, nuts, seeds, flowers and bark. A study showed that grape seed extract (GSE, proanthocyanidin) is highly bioavailable and provides significantly greater protection against free radicals and free radical-induced lipid peroxidation and DNA damage than vitamins C, E and beta-carotene. It was also toxic towards human breast, lung, and gastric cancer cells, while enhancing the growth and viability of normal human gastric cells. GSE provided significantly better protection from peroxidation and DNA fragmentation as compared to vitamins C and E, combined. GSE also demonstrated excellent protection against acetaminophen overdose-induced liver and kidney damage, ischemia-reperfusion injury of the heart and heart attack in rats. It was also shown to deactivate a cancer gene. Topical application of GSE enhanced sun protection factor in human volunteers, and supplementation of GSE improves chronic pancreatitis in humans. These results demonstrate that GSE provides excellent protection against oxidative stress and free radical-mediated tissue injury.

## 5. Diet lowers homocysteine and heart disease risk

Full source: Circulation 2000; 102

A diet that is low in fat and rich in fruits and vegetables may reduce the risk of heart disease by 7% to 9% by reducing blood levels of homocysteine. High blood levels of homocysteine, an amino acid that is synthesized when the body

metabolizes protein, have been linked to an increased risk of heart disease and stroke. Some studies have indicated that the B vitamins, such as folic acid found in meat, seafood and green leafy vegetables, lowers blood levels of homocysteine. In addition to diet having an impact on traditional risk factors for heart disease such as blood pressure and cholesterol, the study shows diet can be beneficial because of a reduction in homocysteine. Changes in blood levels of folic acid might provide an additional independent benefit. Results show that those who remained on the 'typical' diet had higher homocysteine levels at the end of the study than at the beginning. Those on the diet rich in fruits, vegetables, and low-fat dairy products; low in saturated fat and total fat; and containing about 400 micrograms of folate, lowered their homocysteine levels. This explains the beneficial effects of vegetarian diets, which is associated with a reduced risk of ischemic heart disease and stroke.

#### 6. Prostate screening better earlier, every two years

Full source: Sept. 20 issue of the Journal of the American Medical Association

A new study suggests prostate screening should be done earlier, every two years at ages 40 and 45 and every two years after age 50 instead of annually, to save money without increasing risks. Compared with no screening, the standard strategy (after age 50) prevents 3.2 deaths per 1,000 men with an additional 10,500 PSA tests and 600 prostate biopsies. The earlier but less frequent strategy prevents 3.3 deaths per 1,000 men with an additional 7,500 PSA tests and 450 prostate biopsies. With this strategy, for every one million men, 3,300 lives would be saved while requiring about 25 percent fewer PSA tests and biopsies. Although the prevalence of prostate cancer is lower in 40- through 50-year-old men compared with older men, younger men with PSA-detected prostate cancers are more likely to have curable disease compared with older men whose cancers are detected by the tests.

#### 7. Synergistic effects of polyphenols on human prostate tumors

Full source: Cancer Lett 2000 Apr 3; 151 (1) 103-9

Habitual consumption of green tea by Japanese men is associated with a reduction in cancers, including prostate. Soybean isoflavones are also associated with increased protection. A study compared the anti-proliferative effect of the black tea polyphenol, thearubigin, alone or combined with the isoflavone genistein, on human prostate cancer cells. Thearubigin administered alone did not result in any alteration of cell growth. However, when combined with genistein, thearubigin significantly inhibited cell growth and induced a G2 phase cell cycle arrest in a dose dependent manner. This indicates the potential use of combined phytochemicals to provide protection against prostate cancer.

#### 8. Size of prostate tumor predicts risk of recurrence

Full source: Cancer 2000; 89:1308-1314

The size of a prostate tumor is a good indicator of whether cancer will return after surgery. In a new study of 600 men, those who had tumors that made up about 11% of prostate tissue, had no recurrence of their cancer, while those whose cancer returned had tumors that made up about 24% of their prostate tissue. Cancer recurred in 8% of the men in the 6 months to 3 years after undergoing surgical removal of the prostate. For each 5% increase in tumor size, the risk of recurrence increased by 11%. Tumor size is already used to predict the recurrence odds of several other types of cancer, including breast cancer.

#### 9. Success in reprogramming brain cells

Full source: Science Vol 289, p 1754

Scientists have been able to coax brain cells into reversing their life history and becoming nerve stem cells again. Stem cells are the "mother" cells that give birth to all other types of brain and nerve tissue. The reprogramming of brain cells is an important step towards developing medical treatments that involve implants of a person's own tissue after it has been altered and multiplied in the laboratory. For example, rejuvenated nerve stem cells could help repair the damage caused by Parkinson's disease. The assumption has been that a cell's fate is sealed once it begins to develop into a particular type of tissue. The reprogramming of cells challenges this, and shows that dormant genetic programs can be reawakened. In a recent study, scientists were able to reprogram particular types of brain cells from rats by exposing them to mixtures of

natural growth factors. By exposing the cells to various natural growth stimulants, their destiny was changed. They were rejuvenated as multipotent nerve stem cells. This might also work for blood cells and other types of cells. It is an alternative to the extraction of stem cells from cloned or natural human embryos. The "embryonic" stem cells are much more versatile than adult cells, and can grow to any type of body tissue.

#### 10. Breast cancer may be prevented with NSAIDS

Full source: Cancer Research 2000; 60:2101-2103

Recent studies have linked the regular use of nonsteroidal anti-inflammatory drugs (NSAIDs) with a lower rate of breast cancer. When rats were treated with chemicals to induce the breast cancer, two anti-inflammatory drugs, ibuprofen and celecoxib, prevented the cancer. These drugs may also be used one day to prevent and treat breast cancer in humans. In breast tumors, two genes-COX-1 and COX-2-are somehow turned on in the cell's process of becoming cancerous. Ibuprofen blocks both gene products, and celecoxib specifically blocks COX-2. The results showed that untreated rats developed 127 tumors, compared with only 61 tumors in ibuprofen-treated rats and 18 tumors in celecoxib-treated rats. In addition, less than 1/3 of the rats in the celecoxib-treated group developed cancerous tumors, all of which were relatively small. However, all untreated animals developed breast cancers that were 3 times as large as those in celecoxib-treated rats. Breast cancers formed in 40% of the ibuprofen-treated rats and the average tumor size was half that in untreated rats. In addition, tumors developed much later in the rats treated with NSAIDs (after 86 days in half the rats) than in the untreated rats (58 days). The results suggest that celecoxib, as well as ibuprofen may be an effective chemoprevention agent against human breast cancer. Celecoxib has also shown antitumor effects against other cancers, most notably colon cancer. It may also have significant value in the prevention and therapy of lung and prostate cancer. Ten to 20 percent of women aged 50 and older use NSAIDs on a regular basis.

#### 11. Autoimmune disorders among top 10 killers of women

Full source: American Journal of Public Health 2000; 90:1463-1466

Autoimmune disorders such as multiple sclerosis, rheumatoid arthritis, and type 1 diabetes are among the leading causes of death among American women under age 65. Autoimmune diseases, where the immune system mistakenly attacks the body's own tissues, are more common in women. The role that autoimmune diseases play in mortality rates has gone unrecognized. This is due to the way the list of the leading causes of death is compiled. These disorders are not classified the same way as other conditions such as heart disease or cancer. Many autoimmune disorders are not in the list that physicians use when recording cause of death. Many physicians also do not list chronic conditions as the direct cause of death when completing death certificates. Researchers examined national mortality data for 1995 from the Centers for Disease Control and Prevention, looking for mention of 24 different autoimmune disorders. When the statistics were broken down to identify these conditions, autoimmune disorders were among the 10 leading causes of death among women in all age groups under 65. About 5% of American women have an autoimmune disorder.

#### 12. Bacteria in the intestines may help prevent diseases

Full source: Science 2000; 289; 1560-1563

The "good" bacteria that line the intestinal tract may block the body's immune system from causing inflammation in the gut. Until now, the function of good bacteria in the stomach has not been completely understood, despite the increasing popularity of probiotic foods like yogurt, which contain 'good' bacteria. A study examined the effects of different bacteria that normally reside in the gut and found that a subset of non-illness causing bacteria actually blocked the inflammatory response. These bacteria were able to control the host's immune system. They appeared to turn down the immune response for their own benefit-to stay in the intestinal tract without being attacked by the body's immune system. This discovery raises hopes for a treatment for the millions of people who suffer from the chronic inflammation associated with diseases like irritable bowel syndrome.

#### 13. Carrots have more antioxidants when cooked

Full source: Journal of Agricultural and Food Chemistry 2000; 48:1315-1321.

Recent findings suggest that cooking and mashing them up may increase their nutritional value. A new study showed that the level of antioxidants in carrots that were cooked and pureed was more than 3-times higher than in raw carrots. Fresh

vegetables are thought to be superior in nutritional quality than processed vegetables, but this does not appear to be true for carrots. Additional studies are needed to determine if antioxidants in processed carrots are well absorbed in the human body. The findings show that antioxidant levels increased by more than 34% immediately after carrots were cooked. Heating softened the carrot tissue and allowed phenolics attached to the cell wall to be released. Phenolics, a type of antioxidant found in red wine, prevents oxidation of beta-carotene. When ingested, beta-carotene becomes the antioxidant vitamin A. During the first week of storing the carrots, levels of antioxidants continued to rise and then began to fall after 2 weeks. However, antioxidant levels of stored carrots (cooked) remained higher than that of fresh raw carrots. The reactions that occurred during storage resulted in the formation of new phenolic compounds with excellent antioxidant activity. Keeping the outer skin on carrots also boosted antioxidant activity slightly. Numerous phenolic compounds are located in the (skin) of fruits and vegetables, many of which are removed by peeling steps prior to processing.

14. Prostate cancer detection by percent free PSA

Full source: *Urology* 2000; 56(3): 255-260

For older men with levels of prostate-specific antigen (PSA) in the intermediate range of concern between 4 and 10 ng/mL, percent free PSA is more sensitive than PSA cutoffs based on age, in detecting cancer. PSA density, percent free PSA, and age-specific PSA cutoff values in 773 men (age 50-75) with confirmed prostate cancer or benign prostate disease were evaluated. PSA density and percent free PSA were equally accurate measurements. However, the percent free PSA has an advantage over the density in that it does not require performing an ultrasound exam. In addition, the percent free PSA test was significantly more sensitive. The researchers also report that cutoff values of 25% for percent free PSA and 0.078 PSA density are necessary for accuracy, since the commonly used PSA density cutoff of 0.15 only detected 59% of cancers. Also, the results showed that percent free PSA values greater than 15% and PSA density values less than 0.15 predicted less aggressive disease. PSA cutoff values based on age missed 20% to 60% of cancers in men older than 60 years. Thus, the concept of reference ranges based on age is probably false. The basis for the concept has been that older men are entitled to have a higher PSA because they are older. However, an older man who has a perfectly healthy prostate should have a normal PSA. This is not understood by many physicians.

15. Calcium intake important for healthy gums

Full source: *J Periodontal* 2000; 71:1057-1066

A study of 13,000 people found that those who consume at least three servings of calcium each day have significantly lower rates of periodontal disease. Periodontal disease is an infection caused by bacteria that accumulate in pockets between the teeth and gums. Eventually, the infection can break down and destroy the tissues and bone that support the teeth. If the jawbone is kept strong with enough calcium, it may be better able to withstand bacterial invasion. About 3 out of 4 people do not meet their daily need, according to the American Dietetic Association. In the study, men and women who had calcium intakes of less than 500 mg, or about half the recommended dietary allowance (RDA), were almost 2 times as likely to have periodontal disease, as measured by the loss of attachment of the gums from the teeth. Other recent research has linked osteoporosis with tooth loss. Therefore, a relationship between calcium intake and periodontal disease is plausible. Several other risk factors also exist for periodontal disease, including tobacco use, oral hygiene habits, genetics, diabetes, certain medications, and stress.

16. Aluminum in water may increase Alzheimer's risk

Full source: *American Journal of Epidemiology* 2000; 152:59-66

Alzheimer's Disease (AD) has been linked to a number of risk factors including exposure to aluminum. A recent study from France (2,700 individuals for 8-years) suggests that a concentration of aluminum in drinking water above 0.1 milligrams/liter may be a risk factor of dementia and, especially, AD. The researchers found that high concentrations of aluminum in the water could be correlated to 17 of 253 study participants who had been diagnosed with dementia. More specifically, 182 of that group were believed to have AD. Among these, 13 had been exposed to high levels of aluminum. While the risk of dementia was increased in areas with high aluminum concentrations in the water, higher silica concentrations (at least 11.25 milligrams/liter) were associated with a reduced risk of dementia. The findings support those of several other studies linking aluminum to AD. This is another reason to drink water only from properly maintained reverse osmosis treatment units.

17. Vitamin D shows promise as cancer prevention drug

Full source: 220th National meeting of the American Chemical Society

Cancer is the second leading cause of death in the US, behind heart disease. Within a decade, a chemically modified version (analog) of the vitamin D could be used to prevent it. Vitamin D is produced naturally by skin exposed to sunlight, and is often added to milk. However, taken in the amounts and time needed to prevent cancer, vitamin D can lead to osteoporosis or even death. A research team with funding from the National Institutes of Health says that it may have found a way around the problem. After a 20-week treatment period with a vitamin D analog, the incidence of tumors was reduced by 28% and the number of tumors by 63%. The results shows vitamin D's potential effectiveness in preventing cancer. Studies in mice have shown that the drug is safe when ingested. If successful, it will most likely be given to those at high risk for cancer. It has not yet been tested in humans and is still in the early stages of development. It could take 10 years to be available.

18. Vitamins C, E may lower blood pressure

Full source: Hypertension 2000; 36:1-5

Vitamins C and E are antioxidants, compounds that neutralize cell-damaging free radicals. Recent studies have shown that antioxidants may help to reduce high blood pressure (hypertension), possibly by protecting the body's supply of nitric oxide, 50 million Americans have high blood pressure. In a recent study, rats that consumed foods with free radicals had lower levels of nitric oxide (a molecule that relaxes blood vessels) and higher blood pressure. However, adding vitamins C and E to the rats' diet partially reverses this degenerative process, resulting in lower blood pressure levels. Antioxidants appear to be powerful regulators of blood pressure and they are found in a diet heavy in fruit and vegetables. The investigators also artificially lowered levels of a natural antioxidant chemical, glutathione, to produce oxidative stress in rats. As a result, levels of nitric oxide decreased and blood pressure went up. However, the addition of vitamins C and E to the rats' diet alleviated the degenerative process and led to higher levels of nitric oxide and a partial reduction in blood pressure once again. The findings support the idea that oxidative stress can lead to hypertension and that nitric oxide and oxidative stress play a major role in regulating blood pressure. Thus, a diet rich in the antioxidant vitamins C and E may help to lower high blood pressure.

19. New screening technique for arterial plaque

Full source: Circulation 2000; 102:506-510

As many as 70% of heart attacks occur in blood vessels that appear normal on an angiogram, an x-ray study that uses a special dye to show blood flow through vessels. Even though the fatty build-up on the walls of these arteries may not be large enough to block blood flow, a heart attack can occur when part of this build-up breaks free, ultimately resulting in a clot. A special type of magnetic resonance imaging (MRI) that takes a close look at heart arteries can identify heart disease in its earliest stages. Researchers developed a screening technique to identify people who might be at risk even though their heart arteries appear normal. The challenge in examining heart arteries is that they are very small and that the heart is constantly beating, which makes it hard to make a clear image of artery walls. The technique, black blood imaging, "blacks out" the flowing blood and produces an image of just the artery itself. A key advantage of the test over the angiogram is that the MRI is noninvasive. The imaging technique detected a clear difference between people with and without heart disease. In the healthy patients, the average thickness of the artery wall was less than 1 millimeter, while it was about 4 millimeters in those with heart disease. The new MRI test may identify people with heart disease long before they develop any symptoms. The test could eventually be used to screen people for heart disease, perhaps becoming a part of a regular check-up like cholesterol tests and blood pressure readings.

20. Tomato seeds prevent blood clots

Full source: Rowett Research Institute in Aberdeen, Scotland

A study found that tomatoes could be the key to preventing blood clots that cause heart disease and strokes, two of the biggest killers in the developed world. The yellow jelly around tomato seeds keeps platelets in the blood from clumping together and so eliminates dangerous clots that block blood vessels. Jelly could be an alternative anti-platelet therapy to aspirin, which is widely used to prevent blood clots but can cause upset stomachs and bleeding. The jelly from as few as four tomatoes reduced platelet activity by up to 72%, and did not cause bleeding. The jelly around the seeds sets it apart from other antioxidants such as vitamin C. Tomatoes are the best source of the anti-platelet chemical. Strawberries,

melons, and grapefruit also contain it.

21. Molecular mechanism of aging studied

Full source: *Genes & Development* 2000; 14:907-912

Is aging inevitable? At the National Institute on Aging in Baltimore, Maryland, and the University of North Carolina at Chapel Hill, scientists are working on unraveling the secrets of aging on the molecular level. As people age, the normal ongoing repair of DNA seems to become less efficient, allowing mistakes to occur. These errors are DNA breaks or other damage to the sensitive material. Ultimately, such damage can lead to some types of cancer and other debilitating conditions. Using a protein implicated in Werner syndrome (a disorder causing premature aging), researchers discovered a new interaction between proteins. It suggests that this Werner protein is involved in a molecular pathway that has something to do with the process of repairing damage in our genetic material. The research team suggests a mechanism that explains how the Werner syndrome protein (WRNp) appears to work together with two proteins called Ku proteins. The Ku proteins interact with WRNp and allow the WRNp to repair the DNA errors. However, cells deficient in WRNp, or the two Ku proteins display an aging-associated impaired ability to replicate, or copy themselves, as well as repair the damage that would be expected if normal DNA repair fails to take place. They thus undergo premature replicative senescence having elevated levels of chromosomal abnormalities. As one approach to the study of aging, researchers believe that this pathway tells us something about where problems and lack of normal function take place in the aging process.

22. Effect of antioxidants on metabolism of the eye and brain

Full source: *Free Radical Biology and Medicine*, 1999, Vol 26, Iss 3-4, pp 371-378

Metabolic abnormalities observed in retina of the eye and in cerebral cortex of the brain were compared in diabetic rats. Diabetes of 2 months duration significantly increased oxidative stress in retina, as shown by elevation of retinal thiobarbituric acid reactive substances (TEARS) and lower than normal activities of antioxidant defense enzymes, but had no such effect in the cerebral cortex. Other enzyme activities were below normal in retina as well as in cerebral cortex. In contrast, protein kinase C (PKC) activity was elevated in retina but not in cerebral cortex in the same hyperglycemic rats. Supplementation with an antioxidant mixture (containing vitamin C, Trolox, vitamin E acetate, N-acetyl cysteine, beta-carotene, and selenium) prevented the diabetes-induced elevation of free radical stress to the retina. In cerebral cortex, administration of the antioxidant diet also prevented the diabetes-induced decreases in various enzymes, but had no effect on TEARS and activities of antioxidant-defense enzymes. The results indicate that the cerebral cortex is more resistant than retina to diabetes-induced oxidative stress and that supplementation with these antioxidants offers a means to inhibit multiple hyperglycemia-induced retinal metabolic abnormalities.

23. GH replacement therapy and VLDL cholesterol

Full source: *Journal of Clinical Endocrinology and Metabolism*, 1999, Vol 84, Iss 1, pp 307-316.

Those with adult GH deficiency are often dyslipidemic and may have an increased risk of cardiovascular disease. The secretion and clearance of very low density Lipoprotein (VLDL) are important causes of blood lipid (fat) concentrations. This study examined the effect of GH replacement therapy on VLDL metabolism. VLDL kinetics was determined in 14 adult patients with GH deficiency before and after 3 months GH or placebo treatment. GH replacement therapy increased blood insulin-like growth factor I (IGF-1) concentrations 2.9-fold, fasting insulin concentrations 1.8-fold, and hemoglobin A(1C) from 5.0% to 5.3%. It decreased fat mass by 3.4 kg and increased lean body mass by 3.5 kg. The total cholesterol concentration, the low-density lipoprotein (LDL) cholesterol concentration, and the VLDL cholesterol/VLDL ratio decreased. GH therapy did not significantly change the VLDL pool size, but increased the VLDL secretion rate from 9.2 to 25.9 mg/kg day and the MCR from 11.5 to 20.3 ml/min. No significant changes were observed in the placebo group. This study suggests that GH replacement therapy improves lipid profile by increasing the removal of VLDL. Although GH therapy actually stimulates VLDL secretion, this increase in VLDL is ultimately reduced by the increase in the VLDL clearance rate, which the researchers postulate is due to its effects in increasing low density lipoprotein (LDL) receptors and modifying VLDL composition.

24. DHEAS decreases overactivity of immune system

Full source: *Dementia and Geriatric Cognitive Disorders*, 1999, Vol 10, Iss 1, pp 21-27

Dehydroepiandrosterone sulfate (DHEAS) has been involved in the regulation of cellular immunity. The aim of this study was to evaluate whether the age-dependent reduction of DHEAS was associated with changes of natural killer (NK) immune function in healthy elderly subjects and in patients with senile dementia (SD) of the Alzheimer type (SDAT). DHEAS was significantly reduced in healthy elderly subjects SD = 2.3  $\mu\text{mol/l}$ ) and SDAT (1.6  $\mu\text{mol/l}$ ) patients compared to healthy young subjects (6.7  $\mu\text{mol/l}$ ); significant differences were also found when healthy elderly subjects and SDAT patients were compared. A significant opposite association between age and DHEAS levels was demonstrated in SDAT and healthy elderly subjects. The decrease in 24-hour DHEAS secretion was associated with a higher NK cytotoxic response to DHEAS in the healthy elderly subject group than in healthy subjects of young age. Increased NK cell activity was found in patients with SDAT in comparison with the healthy elderly subject. On the contrary, NK cell cytotoxic response of SDAT patients was less pronounced during DHEAS exposure and when DHEAS was coincubated with IL-2. These data suggest a role of DHEAS in the immune system on NK functional activity in physiological aging and SDAT. Thus, DHEAS has a reducing effect on the overactivity of Natural Killer immune cells during exposure with cytokines. This effect of DHEAS might work stop the pathogenesis and progression of disease by counteracting related neuroimmune components.

25. Prevention or reversal of long-term depression by pregnenolone sulfate

Full source: Pharmacological Research, 1998, Vol 38, Iss 6, pp 441-448

The present study investigated the possible relation between long-term depression and barbiturates/benzodiazepine-induced amnesia and attempted to determine the possible effect of pregnenolone sulfate on long-term depression. Results showed long-term depression was either blocked or reversed by pregnenolone sulfate at concentrations (10  $\mu\text{M}$ ). The results suggest that the response of this type of long-term depression by benzodiazepines and barbiturates can explain the main adverse effect of these drugs, amnesia and cognitive impairment. Thus, the prevention or reversal of this type of long-term depression by pregnenolone sulfate, may suggest a clinical application of this agent in the management of amnesia or dementia.

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