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**1. Antioxidants, brain function and inflammation**

Antioxidants and diets supplemented with foods high in oxygen radical absorbance capacity (ORAC) reverse decreases in brain function caused by aging. A study examined whether this effect was related to the antioxidant capacity of the food supplement and whether an antioxidant-rich diet reduced the levels of proinflammatory cytokines in the cerebellum. Aged rats in the control group, showed a significant decrease in beta-adrenergic receptor function. The male rats were given apple, spirulina or cucumber along with rat chow daily for two weeks. It was found that spirulina reversed the negative effect on brain function. Apple (a food with intermediate ORAC) had an intermediate effect on brain physiology, and cucumber (low ORAC) had no effect, indicating that the reversal of beta-adrenergic receptor function decreases might be related to the ORAC dose. In the control group, there were increased levels of proinflammatory cytokines in the aged cerebellum. However, spirulina and apple significantly down-regulated this age-related increase, whereas cucumber had no effect. This suggested that one mechanism by which these diets work is by affecting the age-related increase in inflammatory responses. In addition, apple and spirulina, but not cucumber, decreased malondialdehyde (MDA, marker of free radical damage) levels. Thus, brain function in aged rats eating diets rich in antioxidants is related to the ORAC dose, and these diets may reduce levels of inflammation.

JOURNAL OF NEUROSCIENCE, 2002, Vol 22, Iss 14, pp 6114-6120

## 2. Dairy products may reduce the risk of ovarian cancer

A study interviewed 558 ovarian cancer patients and a matched control group regarding their diet. They found an inverse relationship between consumption of all dairy products, including low-fat milk but not consumption of whole milk, and the odds of ovarian cancer. The odds for ovarian cancer was 54% less among women in the highest 25% vs. the lowest of women consuming dietary calcium. In this study, the significant dietary association was mostly limited to dairy sources of calcium, and a small risk reduction was found in relation to taking calcium supplements. Thus, the study results suggest that consumption of low-fat milk, calcium or lactose may reduce the risk of ovarian cancer.

AMERICAN JOURNAL OF EPIDEMIOLOGY, 2002, Vol 156, Iss 2, pp 148-157

### 3. Green tea extract and aromatase activity

Green tea extract has been found to inhibit aromatase activity in male rats. (Aromatase is an enzyme that converts androgens to estrogens.) A recent study administered green tea extract catechins to male rats for two, four and eight weeks, starting at age five weeks. It was found that a 5% dose to male rats for two to eight weeks induced goiters and decreased weights of the body, testis and prostate gland. The treatment elevated circulating thyroid stimulating hormone (TSH), luteinizing hormone (LH) and testosterone levels, and decreased tri-iodothyronine and thyroxine levels (hormones secreted by the thymus gland). Green tea exhibited inhibitory effects on human placental aromatase activity. The endocrinological changes in the body were anti-thyroid effects and aromatase inhibition due to the effects of green tea extract and its components.

FOOD AND CHEMICAL TOXICOLOGY, 2002, Vol 40, Iss 7, pp 925-933

#### 4. Vitamin E, phosphatidyl choline, pyruvate and nerve degeneration

A study examined whether or not a mixture of vitamin E, sodium pyruvate and phosphatidyl choline—a mixture that promotes wound healing, would provide neuroprotection beyond that with vitamin E alone. The combination treatment improved survival and growth of nerve cells in culture, and created neuroprotection against free radical damage following treatment with hydrogen peroxide. When the mixture was given in addition to the diet, it compensated for the reduced buffering capacity of the brains of genetically vitamin E deficient mice, while vitamin E did not provide the same results. The study demonstrates the possibility that critical nutritional deficiencies may affect and improve the impact of genetics on nerve cell degeneration.

FREE RADICAL BIOLOGY AND MEDICINE, 2002, Vol 33, Iss 2, pp 276-282

#### 5. Red wine component may inhibit colorectal tumors

Resveratrol is a natural polyphenolic compound produced by a number of plants and found in high quantities in peanuts, seeds, grapes or berries. The mechanism by which it inhibits cell proliferation was studied in human colorectal tumor cells. Resveratrol strongly inhibited cell proliferation in a time- and dose-dependent manner. It appears to block the cell cycle at the transition from S to >G2/M phase. Resveratrol may be of critical importance in inhibiting human colorectal tumor cell proliferation.

INTERNATIONAL JOURNAL OF MOLECULAR MEDICINE, 2002, Vol 10, Iss 2, pp 193-199

## 6. Nutrition and aging

The modulation of free radicals by energy restriction in animals has been shown to be one of the mechanisms for retarding the aging process. Dietary antioxidants are regarded as being important in modulating oxidative stress of aging and age-associated diseases. Supplementation of the elderly with vitamin E has been shown to enhance immune response, delay onset of Alzheimer's disease, and increase resistance to oxidative injury associated with exercise. Vitamin E, in comparison with other antioxidants, is also effective in reducing virus levels, but not the longevity of middle-aged mice. Studies have indicated that polyphenols or vitamin E may assist in preventing cardiovascular disease (CVD), in part by decreasing expression by endothelial cells of proinflammatory proteins, and adhesion of molecules and of immune cells. Recently, it has been found that some of these antioxidants may prevent tumor growth by a) inhibiting angiogenesis via suppression of interleukin 8 (IL-8, protein which activates immune cells that can cause inflammation), and b) modulation of the cell membrane proteins involved in cell adhesion. These findings provide further support for the consumption of fruit and vegetables in order to reduce the risk of CVD and cancer, the leading causes of morbidity and mortality among the elderly.

PROCEEDINGS OF THE NUTRITION SOCIETY, 2002, Vol 61, Iss 2, pp 193-199

## 7. Red wine and homocysteine levels

Red wine may reduce blood homocysteine levels in obese individuals. In the middle aged, moderate alcohol consumption is associated with a lower risk of heart disease and decreased mortality. An elevated homocysteine concentration is an independent risk factor for cardiovascular disease (CVD). A study examined the relationship between alcohol consumption and homocysteine concentrations in 350 severely obese patients (body mass index (BMI) > 35). The results showed a light to moderate alcohol consumption being associated with lower homocysteine concentrations. Those consuming less than 100 g/week of alcohol had homocysteine concentrations of 8.5 compared with 9.5 for non or rare consumers. The lower concentrations of homocysteine in regular consumers were also associated with higher folic acid concentrations of 9.4 ng/ml compared with non-consumers 7.5. Red wine consumers had lower fasting concentrations of homocysteine 7.8 compared with 153 non-consumers 9.4, 82 beer and spirit consumers 9.0 and 73 white wine consumers 8.8. Red wine consumption was an independent predictor for lower homocysteine concentrations. Thus, mild to moderate alcohol consumption, especially red wine consumption, in the obese is associated with lower fasting homocysteine concentrations, which may reduce cardiovascular risk.

EUROPEAN JOURNAL OF CLINICAL NUTRITION, 2002, Vol 56, Iss 7, pp 608-614

## 8. Soy products and stomach cancer

The relationship between intake of soy products and death from stomach cancer was examined among 30,304 Japanese men and women who were at least 35-years-of age. Over seven years of follow-up, there were 121 deaths from stomach cancer. Diet, including the intake of soy products and isoflavones was assessed by a validated food-frequency questionnaire. For those men in the highest 30% of soy consumption total soy product consumption was oppositely associated with death from stomach cancer. Decreased hazard ratios for the highest compared to the lowest third of total soy product was seen in women, although this association was of marginal significance. The data suggest that soy intake may reduce the risk of death from stomach cancer.

BRITISH JOURNAL OF CANCER, 2002, Vol 87, Iss 1, pp 31-36

## 9. S-Adenosyl-L-methionine (SAME) and alcoholic liver disease

S-Adenosyl-L-methionine (SAME) has been shown to reduce liver injury caused by alcohol and other liver toxins in some animals. Alcoholic liver disease (ALD) is a major cause of illness and death in the United States. Free radicals play a key role in the development of liver disease. SAME, a dietary supplement, is the methyl donor for biochemical methylation reactions and a precursor of glutathione, the main antioxidant affecting liver cells. The National Institute on Alcohol Abuse and Alcoholism and the Office of Dietary Supplements, National Institutes of Health, sponsored a symposium on SAME and treatment of Alcoholic Liver Disease in Bethesda, Maryland. The presentations at the symposium support the suggestion that SAME may have potential to treat ALD by (1) acting as a precursor of antioxidant glutathione, (2) repairing mitochondrial glutathione transport system, (3) weakening the toxic effects of proinflammatory proteins and (4) increasing DNA methylation. Further studies are required to evaluate the safety and effectiveness of SAME treatment for ALD.

ALCOHOL, 2002, Vol 27, Iss 3, pp 151-154

## 10. Application of nutraceuticals in late stage cancers

Certain natural products may increase cytotoxic activity of Natural Killer Cells (NK) Tumor Necrosis Factor alpha (TNF-alpha) while decreasing DNA damage in patients with late-stage cancer. A study determined if nutraceuticals can significantly raise NK function and TNF levels in 20 patients with stage IV, end-stage cancer (one bladder, five breast, two prostate, one neuroblastoma, two non-small cell lung, three colon, one mesothelioma, two lymphoma, one ovarian, one gastric, one osteosarcoma). The nutraceuticals used were 1) Transfer Factor Plus (TFP®, three tablets, threetimes/day), 2) IMUPlus® (non denatured milk whey protein, 40 gm/day); 3) Intravenous (50 to 100 gm/day) and oral (1 to 2 gm/day) vitamin C; 4) Agaricus Blazeii Murill teas (10 gm/day); 5) Immune Modulator Mix (a combination of vitamins, minerals, antioxidants and immune-enhancing natural products); 6) nitrogenated soy extract (high levels of genistein and dadzein) and 7) Andrographis Paniculata (500 mg twice daily) were used. As of an average of six months, 16/20 patients were still alive. The 16 survivors had significantly higher NK function and TNF-alpha levels than at the start. Inorganic compounds and TNF-a receptor levels were significantly reduced. It was also observed that hemoglobin, hematocrit and glutathione levels were significantly elevated. The only toxicity was occasional diarrhea and nausea. The quality of life improved for all survivors as determined by a form evaluation. From this study it appears that, an aggressive combination of immunoactive nutraceuticals was effective in significantly increasing NK function, other immune system parameters and hemoglobin in patients with late stage cancers.

IMMUNOLOGICAL INVESTIGATIONS, 2002, Vol 31, Iss 2, pp 137-153

## 11. Green tea may reduce the risk of ovarian cancer

A recent study evaluated tea consumption in a group of 254 patients with ovarian cancer, compared with a healthy control group comprised of 340 hospital visitors, 261 non-neoplasm hospital outpatients and 51 women recruited from the community. Information on the frequency, type and duration of tea consumption was collected by personal interview using a validated questionnaire. The results showed that the ovarian cancer risk declined with increasing frequency and duration of tea consumption. The risk was reduced by 61% for those drinking tea daily and 77% for those drinking tea for over 30 years, compared with nontea drinkers. The dose response relationships were significant, and there was an opposite association between ovarian cancer and green tea consumption. Thus, increasing the frequency and duration of drinking green tea can reduce the risk of ovarian cancer.

CANCER EPIDEMIOLOGY BIOMARKERS & PREVENTION, 2002, Vol 11, Iss 8, pp 713-718

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