Factors Maximizing The Longevity

The expected lifetime is gradually increasing worldwide. For healthy ageing there are variety of options which will be used including healthy dietary and exercise habits. to reduce or prevent obesity certain sorts of diet could also be used which will also reduce the risk of, e.g., cardiovascular disease (CVD). Exercise reduces the risk of diseases like CVD, osteoporosis, some cancers and a few mental disturbances. Decreasing a sedentary life style seems at least as important as regular exercise. Exercise can probably be tailored to reduce the risk of CVD and extent of bone loss. To insure adherence, it's important to slowly increase the frequency, duration and intensity of exercise and to find activities that suit the individual. More research has got to be wiped out order to find the perfect modes and doses of exercise and to extend long-term adherence. Both dietary and exercise modification seem to be strong promoters of healthy ageing.

Introduction

The oldest old are among the fastest growing segment of the population. it's been estimated that the amount of centenarians will approach 3.2 million world-wide by 2050, a greater than 18-fold increase from the turn of the 21st century.

Additionally, the World Health Organization estimates that by 2025, 120 countries will have reached total fertility rates below the replacement level—compared to 22 countries within the 1970s. With the increasing emphasis on health and the progressive lengthening of the average lifetime , there's a need for examining new ways to enhance well-being and to stop disease at every stage of life. Globally, cardiovascular disease (CVD) and cancer are the leading causes of mortality and loss of disability-adjusted life years. as the population ages it's important to know not only the impact of modifiable lifestyle factors like diet, nutrition and fitness on the achievement of longevity but also the role of those factors in maintaining optimal cognitive, mental, and physical health into advanced age. This review summarizes current knowledge of age-adjusted nutrition and fitness within the elderly.

Nutrition

Dietary recommendations

It might be speculated that dietary habits reported by the oldest old could function a recommendation for the ageing population to stay in good health for several years. Studies from round the world, however, suggest that there's considerable heterogeneity in dietary patterns and nutritional status of centenarians. The studies indicate that BMI and nutritional status as indicated by circulating levels of antioxidant vitamins, vitamin B12 , folate, homocysteine and 25(OH) vitamin D of centenarians are quite heterogeneous and influenced by region of residency and lots of of the demographic, dietary and lifestyle factors that influence nutritional status in other older adults. Thus, at this point it seems unlikely that there's one particular dietary pattern that promotes exceptional longevity.

However, low rates of CVD, observed during the 1950s and 1960s, within the Mediterranean

basin launched the hypothesis of beneficial health effects from the Mediterranean sort of diet. The Lyon Diet Heart Study has received much attention. during this trial, 605 patients who survived a first myocardial infarction were randomized to either a control or a Mediterranean diet. The control group was advised to follow a “prudent diet”.

The trial was discontinued early thanks to the many superiority of the Mediterranean diet shown by an interim analysis. Following publication of the initial results, the 2 groups were followed up for a mean of 4 years. The composite outcome, which factored in myocardial infarction, cardiovascular death, episodes of unstable angina, overt heart failure, stroke and pulmonary or peripheral embolism, was reduced by 70% within the group on the Mediterranean diet relative to the control group. A recent systematic review concluded that an outsized number of observational studies throughout the planet have shown that a high adherence to a Mediterranean sort of diet is related to reduced risk of CVD and a few sorts of cancer within the elderly.

The beneficial effects on human health are attributed to many surrogate markers including blood pressure, lipids, inflammation and oxidative stress levels and body fat. It seems that the high consumption of vegetables, fruits, legumes, nuts, cereals, olive oil, fish, along side moderate consumption of alcohol, predominantly wine, leads to a high ratio of monounsaturated-to-saturated fatty acids, a low intake of trans fatty acids and a high ingestion of dietary fiber, antioxidants, polyphenols and magnesium, all beneficial for human health.

The recently launched term “Nutrigenomics” refers to the new nutritional science during which researchers use high throughput tools to research interactions between nutrition and the genome and their consequences for gene expression, cell function and human health. Nutrigenomics aims to personalize or stratify dietary advice based upon modification of risk related to genetic susceptibility to chronic diseases.

Oxidative stress

Oxidative stress increases with ageing because it is involved in virtually all the diseases related to obesity. Obesity causes a rise of interleukin (IL) 1, IL-6, tumor necrosis factor, C-reactive protein , cholesterol and triglycerides, excessive hormone production (the renin–angiotensin system hormones) and insulin resistance. With advancing age, these aforementioned changes, together with the low antioxidant intake and physical activity, contribute to the exacerbation of the oxidative stress. Moderate physical activity may generate mild oxidative stress that activates cellular stress response which signals and potentiates cellular antioxidant defense capacity whereas exhaustive exercise may cause accumulation of reactive oxygen species which will damage DNA, cause mutations or promote carcinogenesis.

Oxidative stress resulting from the overproduction of reactive oxygen species may play a task in aging and within the development of diabetes, some malignant diseases and other chronic diseases. it's a deleterious process that leads to damage to key cellular components like DNA, lipids, and proteins. the consequences of oxidative stress are counteracted by several enzymatic and nonenzymatic antioxidant defense systems, with vitamin A , vitamin C, vitamin E, and therefore the carotenoids serving as important components of the first nonenzymatic antioxidant defence system . Furthermore, during a prospective randomized double-blind placebo-controlled trial among Swedish citizens aged 70 to 88 years, it had been shown that

long-term supplementation of selenium and coenzyme Q10 reduced cardiovascular mortality.

Vitamin B12 Poor vitamin B12 status affects about 10–15% of older adults and is related to both neurologic and hematologic disorders including sensory disturbances to the extremities, gait ataxia, cognitive impairment, mood changes, and anemia. Risk factors for vitamin B12 deficiency include demographic, dietary and age-related health conditions including atrophic gastritis. The latter condition affects up to 30% of older adults, reduces the absorption of vitamin B12 from food and is that the commonest explanation for vitamin B12 deficiency.

Vitamin D status vitamin D is acquired through diet and skin exposure to ultraviolet B light. Skin production is decided by length of exposure, latitude, season, and degree of skin pigmentation. vitamin D deficiency is common among moderately and heavily pigmented immigrants living in Europe and in Pakistani men living in Norway, serious vitamin D deficiency was prevalent, and five times as frequent as in native Norwegian men.Furthermore, vitamin D deficiency may be a risk for dark skinned children immigrated to countries faraway from the equator, like Denmark.

Poor vitamin D status has been related to osteoporosis, falls, fractures, cardiovascular diseases, some cancers, autoimmune diseases and other age-related conditions. Risk factors for poor vitamin D status include low cutaneous vitamin D synthesis thanks to limited sun exposure, living at higher latitude and increased skin pigmentation, and low intake from foods and supplements. Older individuals are at particular risk for vitamin D deficiency due to a reduced capacity to supply vitamin D precursors within the skin from UV light, limited sun exposure thanks to poor mobility or place of residence, and low intakes of vitamin D .

In conclusion, there could also be a requirement for greater attention to lifestyle factors like increased intake of vitamin D rich foods and supplements which can be an efficient strategy for improving vitamin D status and associated function in centenarians.

Caloric restriction

Caloric restriction, decreasing caloric intake by 20-30%, was first shown to increase life in rats nearly 80 years ago. Populations with a strangely high prevalence of centenarians all attended be (or had been) very physically active, non-obese and little in stature, implicational a point of caloric restriction. Thus, considerable interest has been shown within the ability of caloric restriction to enhance multiple parameters of health and to increase lifespan.

Furthermore, many religions incorporate one or more sorts of food restrictions or religious fasting periods because the Islamic Ramadan. In summary, caloric restriction has been demonstrated to increase the maximal lifespan of a various group of species. This extension of life is maximized when: 1) the magnitude of caloric restriction is elevated to the very best possible value before inducing malnutrition and 2) the duration of caloric restriction is maximized. Animals on caloric restriction regimens exhibit a spread of improvements in overall health generally and cardiovascular health especially . Unfortunately, the likelihood of discovering whether or not caloric restriction extends human life is quite remote thanks to the moral and logistic limitations of research design.

The optimal magnitude and duration of caloric restriction for humans also will likely never be known for an equivalent reason. Nevertheless, many human caloric restriction studies have

noted favorable changes in biomarkers associated with cardiovascular and glucose metabolism which will relate to longevity. Although caloric restriction has many positive effects on health and longevity, quality of life on a restricted diet also because the ability to take care of that diet future are concerns that has got to be considered in humans.