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The Pros and Cons of Protein Metabolism, Especially for Women's Health

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Abstract

Women's health, specifically, we discussed here about the ladies who are mid-aged to aged women, who are 50 and onwards, and who are just about to face the menopausal stage or beyond that stage. Since hormonal imbalance is a great factor among women during that stage, their health faces various factors, including physical, mental and mood issues. We discuss here the good and healthy foods that can help women at that age to control the physical and mental problems that may arise. Further, the comparison of plant proteins and animal proteins, their pros and cons, some suggestions and guidelines are stated to deal with the good and bad effects of proteins. Protein sources necessary to count either to intake or avoid are summarised here to understand. Epidemiological analysis showed that the women who ate more plant proteins, for example, pumpkin seeds, beans, nuts, peas and soy, stayed healthy longer than those who consumed more animal proteins.

Keywords: Ageing, Animal Protein, Menopause, Plant Protein, Women's Health

1. Introduction

Epidemiological analysis suggests that eating plant proteins offers a healthy life, even during the ageing period of aging[1]. A diet rich in protein, especially plant protein, may keep women healthier during their ageing period with fewer or no chronic diseases, better physical mobility and little cognitive decline[1]. Here we discuss some of the positive and negative sides of eating protein for women's health.

2. Protein Affects Female Hormones

Proteins are the main constituents of various female hormones. They not only support the function of the liver in detoxifying the toxic catabolic products but also maintain the balance of blood sugar levels and build lean muscle proteins in the body[2]. Lean proteins, fresh vegetables and plenty of fruits, chia seeds, nuts, olive oil, and whole grains containing the diet can control the female hormone imbalance[3-6]. Soy is a unique source of not only protein, but it also contains a high concentration of plant estrogen, isoflavones. Soy isoflavones, a plant product binding to the estrogen receptor, can modulate the estrogenic or anti-estrogenic function in the body[7]. Pumpkin seed protein not only helps to balance blood sugar and insulin, but it can also support the menstrual cycle[8]. Women at their age between 70 to 93 are considered healthy if they have no major chronic health issues like diabetes, cancer, any cardiovascular diseases, neurodegenerative disease like Parkinson's disease, Dementia, Amyotrophic Lateral Sclerosis (ALS), or kidney disease[9,10].

3. Recommended Protein Intake by Women

According to the Dietary Reference Intake (DRI) report for macronutrients, the average sedentary woman should eat about 46 grams of protein while a man should eat about 56 grams of protein per day[11]. However, at the time of the menopausal transition period, the range of protein intake by women should be in the range of 2.0 to 2.4 grams per kg body weight of the individual[12].

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Consuming more proteins than the recommended amounts for the body's need, can cause toxic symptoms like intestinal discomfort, dehydration, nausea, headaches, and can interfere with the detoxification process by changing the gut microbiome diversity[13-16]. Most importantly, the chronic over consumption of proteins may further increase the risk of cardiovascular disease, blood vessel disorders, kidney issues, and seizures[17].

4. Best Foods to Boost Metabolism in Menopause

Fruits, vegetables and whole grains, especially those that are less processed and contain more fibre, are healthier than other kinds during menopause[18]. The best protein sources for women, especially at menopause, are from chicken breast, turkey bacon, egg whites and fish[19]. For ladies who are vegans or vegetarians, the protein sources should be the numerous plant products like beans, nuts, and peas[20,21]. It's conclusive that whey protein, which contains collagen and amino acids, is essential for generating healthy skin and nails and helps to maintain skin's elasticity and firmness[22,23].

5. Symptoms of Protein Deficiency

Some signs and symptoms of protein deficiency include edema, hair loss, increased hunger, and more severe infections, among others[24]. Protein is one of the body's main building blocks. It plays a key role in the structure and function of muscles, skin, enzymes, and hormones. Besides, long-term protein deficiency can cause edema, a weakened immune system, muscle, etc[25]. However, research suggests that eating only animal proteins, but no carbs, can cause a few negative side effects, like higher Low-Density lipoproteins (LDL) or bad cholesterol levels[26].

6. The Pros and Cons of Plant Proteins and Animal Proteins

Our prospective study focused on the role of protein intake, from plant or animal sources, by middle-aged women, especially at their menopausal stage. In general, we can conclude a positive correlation between dietary

Table 1. Criteria of Plant and Animal Proteins

Criteria	Plant Protein	Animal Protein
Nature of the protein: Complete/ Incomplete proteins	Plant proteins are often, but not always, incomplete sources of protein[27,28]. Cannot provide all the 9 essential amino acids. Therefore, one should eat a variety of them[27-28] .	Animal proteins are complete proteins [35]. They provide all the nine essentials amino acids[35] .
Sources	Nuts and seeds; Whole grains; Legumes such as beans; peas; and lentils; vegetables[29-31].	Dairy products; Poultry; Beef; Pork; Eggs; Quinoa; Whole sources of soy[35].
Merits	Linked to a lower risk of stroke, heart disease, and early death[32-34] . Lower in saturated fats, iron, and hormones [32-34]. Provides plenty of nutrients, fibre, and antioxidants that can improve your overall health[32-34]. Plant-based diet may decrease the risk of having stroke and ischemic heart disease[32-34] . Phytochemicals are substances found in plants that may help prevent cancer[32-34] . Plant-based diets have lower levels of type 2 diabetes, and unlikely to have over-weight[32-34] . Plant protein can decrease the creatinine levels in urine and reduces some stress off from kidneys[35].	Low-fat containing animal proteins, like poultry and fish can lower the risk of type 2 diabetes, risk of heart disease, and also the risk of having colorectal, stomach, pancreatic, and prostate cancer[36] .
Demerits	Plant-based diets are low in calcium and vitamin D, zinc and iron, B12, and Ca[37]. Therefore, supplements needed.	Unprocessed and processed red meat has been linked to a shorter lifespan[38]. Long-term, high protein- diets may cause the bone disorder,calcium imbalance, increased cancer risk, liver disorders and artery diseases[38].

protein intake and healthy ageing in later life. However, consumption of high amounts of protein and animal protein was associated with the development of several chronic diseases. Plant protein and protein from dairy products were favourable and recommended at that age. Moreover, replacing animal protein with plant protein in the diet has been found to reduce the risk of coronary artery disease, type-2 diabetes, and stroke[1]. Moreover, plant proteins are reported to maintain the muscle mass, improve physical function, and reduce frailty in older adults[39-41]. Furthermore, plant protein was found to be associated with the maintenance of mental balance in older adults[42-43](Table 1).

One potential explanation is that plant protein is associated with a reduced risk of chronic diseases[41-45]. Although all protein sources were associated with better odds of healthy ageing, the other dietary components related to plant protein sources, such as dietary fibre, micronutrients, and polyphenols, may also have contributed to physical fitness at old age. Lastly, the substitution of refined carbohydrates with dietary plant proteins is also beneficial because of the removal of the potential adverse effects from refined carbohydrates on cardiometabolic health[46].

In brief, the role of protein intake in midlife to have healthy ageing is favorably associated with several domains of health, like good physical and mental function, and sources of proteins.

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