

Dairy Products Consumption in Multiple Sclerosis Patients: Useful or Harmful

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Introduction

Multiple sclerosis (MS) is an autoimmune and neurodegenerative disease of central nervous system. Prevalence of MS has been increased all over the world within recent years [1]. Many studies have demonstrated the etiologic roles and beneficial effects of nutrition in MS [2]. Among different nutritional factors, there are controversies about consumption of dairy products in MS patients [3].

What did Studies Report about Dairy Products Consumption in MS?

Some studies reported that intake of dairy products may be harmful in MS patients but other studies reported that only high fat or complete dairy products are harmful [4-6]. Epidemiological studies have found out the relationship between high incidence of MS and increasing intake of milk. Studies have expressed mentioned results are due to intake of saturated fatty acids from high fat dairy foods [7]. Indeed, intake of complete or high fat milk is known as a predisposing factor for MS [8]. Some studies said these findings were related to cow's milk allergy, but further studies showed healthy people and MS patients were similar in allergy to cow's milk [9]. A cohort study found that allergy to cow's milk is not predisposing factor for MS [10].

One study reported strong relationship between intake of cow's milk and prevalence of MS, but there was no significance about intake of cheese. This study expressed that probably there were some factors in no processed milk that may be affected on progression of MS [11].

Feeding infants with cow's milk instead of mother milk can produce unstable myelin and predispose to MS because deprivation of different essential fatty acids, vitamins and minerals in mother milk [12].

Molecular studies were done in this field. Stefferl et al. showed that the autoimmune response to MOG cross-reacts with the milk protein Butyrophilin (BTN). This molecular similarity may be regulated autoimmune response to Myelin Oligodendrocyte Glycoprotein (MOG) and improved experimental autoimmune encephalomyelitis. The idea of this study was that dairy product consumption is useful in MS patients [13]. Also, the idea of Kanwar et al. was that milk is full of prolin that inhibited stimulated T helpers and can be a preventive factor of MS [14]. But Guggenmos et al. reported that there was molecular similarity between MOG and BTN. It is suggested that BTN exposure may be affected on function of autoantibody against MOG and increase progression of MS. This study said dairy product consumption is harmful in MS patients [15].

Why Dairy Products are Necessary in MS Patients?

Supplementation with Calcium-containing compounds maintains the structure and stability of myelin, may be protect from MS in future and reduced relapses in multiple sclerosis patient [16,17]. On the other hand, multiple sclerosis patients have low bone mineral density due to Glucocorticoid use and reduced mobility during the disease progression [18-20].

For increasing of bone mineralization, calcium primarily should be provided by dairy products [21]. Dietary intake of dairy products

is more efficient for supporting and protecting of bone integrity than other calcium-containing foods or supplements. Therefore guidelines in nutrition recommended specifically intake of 800 to 1500 mg of calcium from milk or other dairy products for promoting bone mineralization [22]. Spatially in women with MS, Osteoporosis prevention must be a part of the medical treatment plan [23]. Milk contains other fat soluble vitamins such as vitamin A which has been shown to have some protective effects against multiple sclerosis [24-26].

Conclusion

There are a few studies with controversial results and different reasons about probable negative or positive effects of dairy foods in etiology and progression of MS.

However, supplementation with calcium can support nutritional deficiencies and help to protect from osteoporosis but it is an expletive way not principal way. By literature review we understand that dietary intake of low fat dairy foods plays the essential roles in calcium supply, bone healthy and power of mobility in MS patients. Therefore, we recommended to MS patients that supply calcium requirements from low fat dairy products and complete lack of dietary intake with calcium supplements.

Not only we did not find out any definite reasons for cutting dairy products but also there are two aspects agree with our idea:

- 1- There are many vitamins and minerals as well as calcium in dairy products that dietary intake are recommended.
- 2- Long term and high dose supplementation with calcium will be threatened health because of some side effects such as nephrolithiasis [27].

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