

# The Beneficial Effects of Probiotics on Lipid Metabolic Abnormalities in Postmenopausal Women

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## Opinion

Menopause is a natural course of aging that occurs in almost all women, which is clinically diagnosed after 12 months of amenorrhea following the final menstrual period owing to the loss of ovarian follicular activity. Usually Menopause occurs between 45 to 55 years of age, and averages 51 years [1]. In general, women have a longer life expectancy than men and average life span has been increasing globally [2]. If women live up to 90 years of age, they spend nearly half of their lives in menopause. Emerging menopause among women, one of the biggest physiological changes is hormonal change. The physiological properties of menopause turn out to be a sharp decrease in estrogen [3]. The basic female sex hormone, estrogen, is responsible for the female reproductive system and secondary sexual manifestations. Estrogens made up of three major circulatory natural forms: estrone (E1), estradiol (E2), and estriol (E3) in women. Especially, estradiol, E2 is the most biologically active estrogen, primarily secreted by ovarian granulosa cells located next to theca cells and regulated by follicle-stimulating hormone (FSH) [4].

The average level of the total estrogen during women's reproductive period is 100-250pg/mL. However, circulatory concentration of E2 declines until 10pg/mL in post menopause [3]. This hormonal menopause is associated with pathological menopausal syndrome such as disturbances in sleep/mood, vasomotor symptoms including hot flashes and night sweats, urogenital atrophy, osteopenia, and osteoporosis, psychiatric disorders, sexual dysfunction, skin lesions, cardiovascular disease, cancer, metabolic disorders and obesity. Lobo et al. [4]. Notably, women tend to develop more cardiovascular disease after menopause as a result of estrogen deficiency and alterations in lipid metabolism [5]. Estrogens, especially E2, execute a protective role in the cardiovascular system and are produced primarily in the ovaries using LDL cholesterol. However, if estrogen production decreases due to the menopause, circulatory LDL cholesterol cannot be consumed to synthesize estrogen. Therefore, blood LDL cholesterol levels heighten and the risk of cardiovascular disease (CVD) and various lipid metabolic disorders such as type 2 diabetes, atherosclerosis, and vessel complications also increase [6].

Recently probiotics have been drawn attention as foods that have a positive effect on lipid metabolic disease in obese postmenopausal women. Probiotic is a substance that may not be digestible by the host, such as fiber, but that serves as food for probiotic bacteria and thus promotes their growth [7]. Probiotics are widely used as dietary supplements. It is also well known that probiotics help preventing intestinal infections various pathogens, digesting food and producing vitamins such as vitamin B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, vitamin K and etc. [8]. Interestingly, many excellent studies using probiotics have been reported in obese postmenopausal women. The supplements of probiotics showed that beneficial effects on the lipid metabolism, insulin resistance, gut permeability, and reduced cardiovascular risk factors [9]. One of the biggest causes of cardiovascular disease is endothelial dysfunction, which is responsible for vascular remodeling and inflammatory response as well as atherosclerosis development [10]. Recent studies have demonstrated that the uptake of multistrand probiotic improved iron uptake

[11] and positively modified vascular endothelial function among postmenopausal obese women by decreasing arterial stiffness [12]. The food sources for probiotics are yogurt and other fermented foods [13].

As natural menopause, which is inevitable for almost all women is associated with altered lipid levels and increased risk of metabolic disorders, CVD, including vessel complications [14]. Preventing metabolic disorders, CVD, or alleviating complicated symptoms through good food intake is critical to maintaining the health of postmenopausal women. Generally, the body absorbs nutrients from a complex mixture in foods [15]. If the nutrients are consumed in a purified and concentrated form, they can easily interfere with the absorption of other nutrients or with the absorption of other nutrients from foods consumed at the same time [15]. Therefore, I conclude that steady intake of probiotics such as fermented foods or yogurts are recommended to ameliorate lipid metabolism-related diseases in daily diet for postmenopausal women. In general, life expectancy is on the rise and recently premature menopause is also rising [16]. Thus, menopause status perhaps can take up half of women's life. However, keeping this half time healthy through good daily foods such as probiotics will improve women's quality of life.

## References

- Landgren BM, Collins A, Csemiczky G, Burger HG, Baksheev L, et al. (2004) Menopause transition: Annual changes in serum hormonal patterns over the menstrual cycle in women during a nine-year period prior to menopause. *J Clin Endocrinol Metab* 89(6): 2763-2769.
- Takahashi TA, Johnson KM (2015) Menopause. *Med Clin North Am* 99(3): 521-534.
- Cervellati C, Bergamini CM (2016) Oxidative damage and the pathogenesis of menopause related disturbances and diseases. *Clin Chem Lab Med* 54(5): 739-753.
- Lobo RA, Davis SR, Villiers TJ, Gompel A, Henderson VW, et al. (2014) Prevention of diseases after menopause. *Climacteric* 17(5): 540-556.
- Mijatovic V, Mooren MJ, Stehouwer CD, Netelenbos JC, Kenemans P (1999) Postmenopausal hormone replacement, risk estimators for coronary artery disease and cardiovascular protection. *Gynecol Endocrinol* 13(2): 130-144.
- Lopez FRP, Chedraui P, Gilbert JJ, Roncero GP (2009) Cardiovascular risk in menopausal women and prevalent related co-morbid conditions: facing the post-Women's Health Initiative era. *Fertil Steril* 92(4): 1171-1186.
- Gasbarrini G, Bonvicini F, Gramenzi A (2016) Probiotics history. *J Clin Gastroenterol* 50 Suppl 2, Proceedings from the 8<sup>th</sup> Probiotics, Prebiotics & New Foods for Microbiota and Human Health meeting held in Rome, Italy on September 13-15, 2015 S116-s119.
- Jimenez CT, Ramirez MJM, Gil A, Llorente CG (2020) Effects of probiotics on metabolic syndrome: a systematic review of randomized clinical trials. *Nutrients* 12(1).
- Szulinska M, Loniewski I, Hemert S, Sobieska M (2018a) Dose-dependent effects of multispecies probiotic supplementation on the lipopolysaccharide (lps) level and cardiometabolic profile in obese postmenopausal women: A 12-Week Randomized Clinical Trial. *Nutrients* 10(6).
- Sagach V, Bondarenko A, Bazilyuk O, Kotsuruba A (2006) Endothelial dysfunction: Possible mechanisms and ways of correction. *Exp Clin Cardiol* 11(2): 107-110.
- Skrypnik K, Bogdanski P, Sobieska M, Suliburska J (2019) The effect of multistrain probiotic supplementation in two doses on iron metabolism in obese postmenopausal women: a randomized trial. *Food Funct* 10(8): 5228-5238.
- Szulinska M, Loniewski I, Hemert S, Sobieska M, Bogdanski P (2018b) Dose-dependent effects of multispecies probiotic supplementation on the lipopolysaccharide (LPS) level and cardiometabolic profile in obese postmenopausal women: A 12-Week Randomized Clinical Trial. *Nutrients* 10(6).
- Ko SH, Kim HS (2020) Menopause-associated lipid metabolic disorders and foods beneficial for postmenopausal women. *Nutrients* 12(1).
- Razmjou S, Abdounour J, Bastard JP, Fellahi S, Doucet E, et al. (2018) Body composition, cardiometabolic risk factors, physical activity, and inflammatory markers in premenopausal women after a 10-year follow-up: a MONET study. *Menopause* 25(1): 89-97.
- Jacobs DR, Gross MD, Tapsell LC (2009) Food synergy: An operational concept for understanding nutrition. *Am J Clin Nutr* 89(5): 1543S-1548S.
- Sarnowski C, Kavousi M, Isaacs S, Demerath EW, Broer L, et al. (2018) Genetic variants associated with earlier age at menopause increase the risk of cardiovascular events in women. *Menopause* 25(4): 451-457.

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