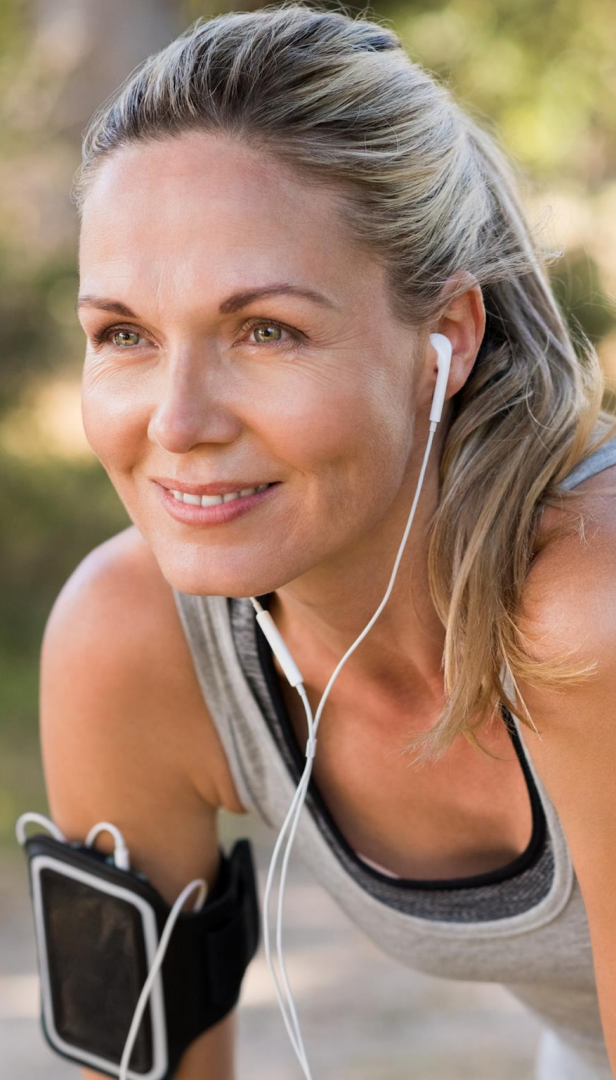


Nutritional Support During Menopause

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BODYBIO



Agenda

- | Overview of the systemic changes during Menopause
- | Closer look at metabolic health, cognition and gut health
Dietary Recommendations for Menopause
- | Key supplements to consider

Overview of Menopause

Pre-Menopause: 17 beta estradiol E2 is the main circulating oestrogen produced largely by the ovaries. Hormones do have a typical 28 day cycle (lunar) and a clear rhythm

Menopausal Transition: This begins several years before the menopause. During this time hormones production is more erratic with more fluctuations and is associated with many of the symptoms e.g hot flushes, sleep issues (40s onward)

Menopause: Cessation of menses. 17 beta estradiol E2 is only now synthesized in the breast, brain, muscles, bone and adipose (fat) tissue) and acts more locally (no longer ovaries) (average age is 51)

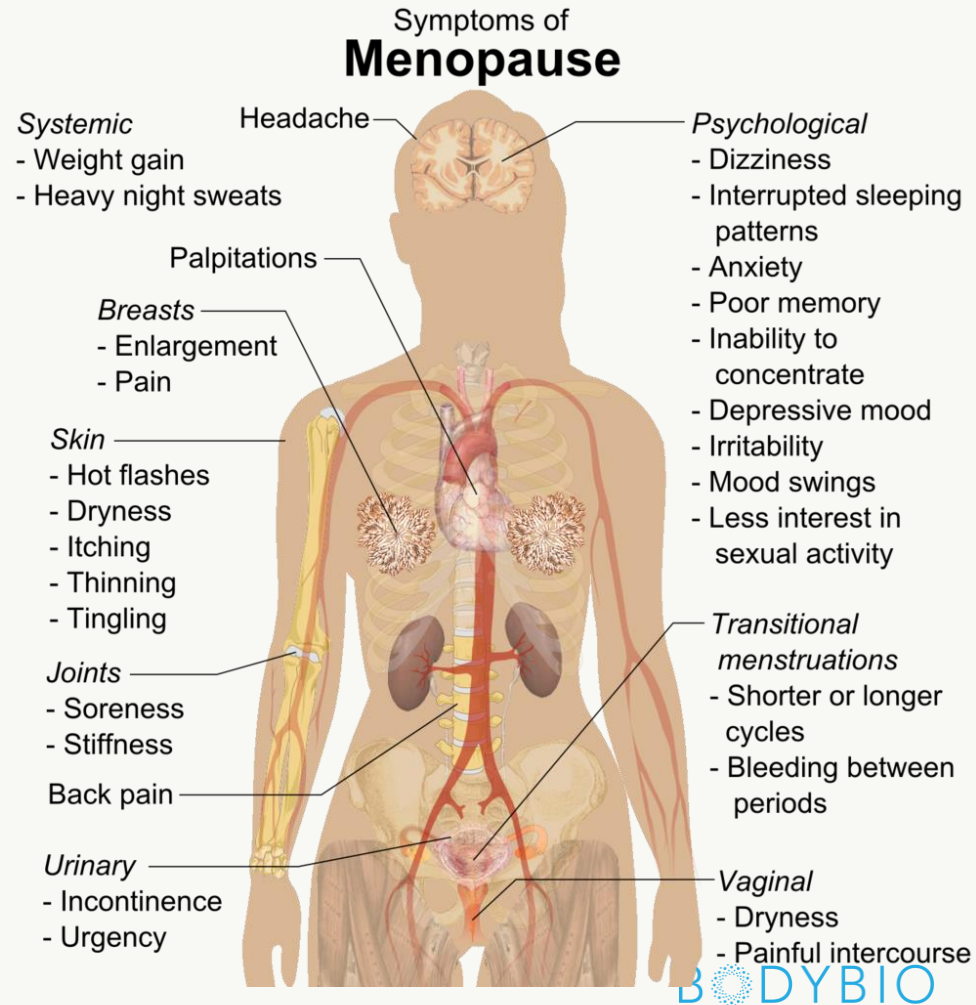
There is a significant decrease in systemic oestradiol and progesterone levels

Hormone Decline

Oestradiol and Progesterone are MUCH MORE than just about reproduction.

We have **receptors** for these hormones in nearly every organ in the body

When they decline this has an impact on **every organ of the body**
This can affect women's health long term



Body Wide Changes

After Menopause women are at an increased risk of:

- Anxiety, Depression
- Poor Cognitive Function
- GERD and Digestive imbalances
- Autoimmune Disease
- Osteoporosis
- Cardiovascular Disease
- Weight Gain
- Poor Sleep Quality



Specific Health Concerns

- Metabolic Health
- Brain Health & Cognition
- Gut Health

Metabolic Health & Weight Gain

Oestrogen is involved energy, mitochondrial function, metabolism and appetite regulation

Involved in glucose utilization and metabolism. Enhances glucose absorption via upregulation of transporters (GLUT 3 and 4) - Women

Menopausal women are 3 x more likely to gain weight than pre-menopausal women

Oestrogen influences the central nervous system, which regulates food intake with a preferential effect on carbohydrate intake. High estrogen = increased hunger

Decline in adiponectin, net result loss of subcutaneous fat and an increase in abdominal fat. Enhanced visceral fat lipolysis by adipose tissue lipoprotein lipase triggers the production of excessive free fatty acids, causing insulin resistance and metabolic diseases.

Oestrogen and the Brain

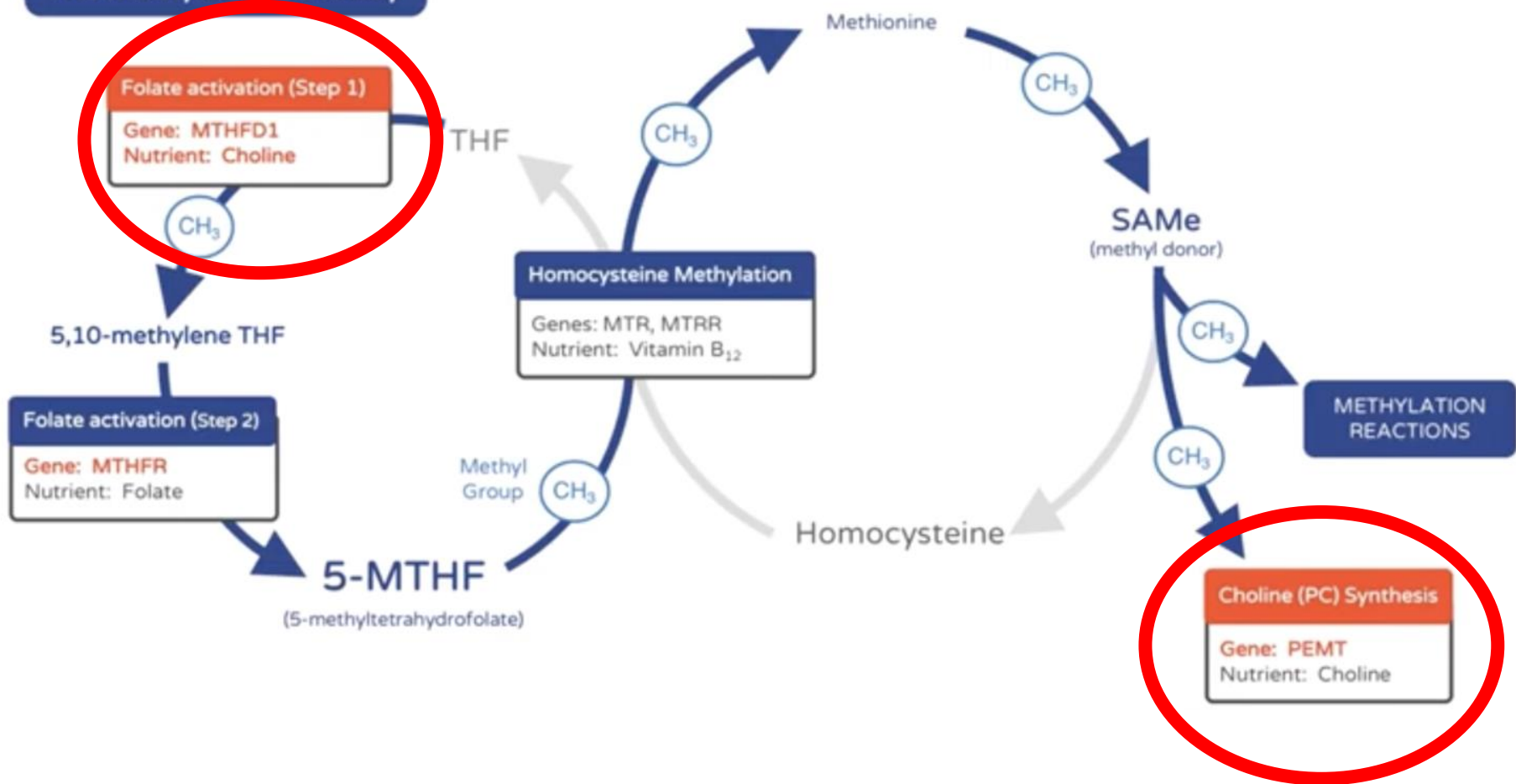
- Oestrogen is critical to proper brain function particularly cognition and mood
- Brain is an endocrine organ – it synthesizes oestrogen as well as receives it peripherally.
- Neuroprotective and involved in synaptic plasticity
- Oestrogen acts like a selective serotonin reuptake inhibitor (SSRI), via oestrogen's ability to inhibit the re-uptake of serotonin.
- Oestrogen supports the health of BDNF = brain plasticity
- Increases neurogenesis to improve learning and memory
- Involved in methylation and production of choline
- Involved in glucose utilization and mitochondrial health in the brain

Phosphatidylcholine

- Oestrogen influences methylation and choline production (via PEMT)
- Oestrogen influences basal forebrain cholinergic neurons which project to the hippocampus and cortical regions, influencing learning and memory
- Choline requirements and cofactors for methylation become more important. Choline supports production of acetylcholine
- Food sources – eggs, liver, chicken, fish, pork, soya products, dairy, sunflower seeds, prawns, broccoli, green peas
- Administration of phosphatidylcholine increases brain acetylcholine concentration



The Methylation Pathway



BodyBio PC (containing PC, PE, PI, and PS)

- BodyBio PC liposomal Phosphatidylcholine Complex for cellular health
- Phospholipids are the building blocks of your cell membranes. Vital for keeping our cells healthy and functioning optimally - which means it has a positive impact on everything from digestion to cognitive function.
- Levels of Phosphatidylcholine decline with age esp at Menopause
- Increased levels of Phosphatidylcholine can help the body heal while also improving brain function, mental focus, and memory.
- ½ tsp or 2 capsules contain 1300mg Phosphatidylcholine Complex



Circadian Rhythm Changes

- Oestrogen programs and maintains the **master clock of the body and timing of organs via clock genes**
- Cortisol is often lower in the morning and higher at night – so women feel **tired and wired – cannot fall asleep at night and problems waking in the morning**
- Impact of Vasomotor Symptoms on Sleep
- Oestrogen decline impacts brain regions responsible for emotional processing
- Oestrogen influences serotonin and GABA, increasing **anxiety and stress response**



CALM

Calm is a natural supplement for stress and anxiety.

Contains Manganese, Taurine, Glycine, Rhodiola Rosea Root Extract, Soy-Free Phosphatidylserine

1-2 capsules taken 1-2 times per day to support the stress response.



BodyBio Fish Oil+

Fish Oil+ combines a phospholipid-based 3:1 DHA/EPA essential fatty acids with herring roe extract, a completely natural, whole-food source of SPMs.

Highly bioavailable – use of phospholipids

SPMs = Specialized pro-resolving mediators which are powerful inflammation-fighting metabolites. Fish Oil+ uses an all natural, whole food source of SPMs: herring roe extract

Powerful Anti-inflammatory action

Take two 500 mg capsules daily (1g) with food



Supporting Cognition & Brain Health

- ✓ Address lifestyle factors – stress, sleep, exercise, mindset
- ✓ Anti-oxidant and anti-inflammatory foods and nutrients
- ✓ Manage metabolic health & blood sugar
- ✓ Phytoestrogenic rich foods
- ✓ Methylation support (folate, B6, B12, methionine)
- ✓ Protein / Amino acids = neurotransmitter health
- ✓ BDNF support (cocoa, lion's mane, oily fish, matcha green tea, blueberries, eggs, soy, curcumin, coffee, olive oil)



Gut Health / Microbiome Diversity

- Increase in dysbiosis, IBS symptoms, constipation
- Altered Microbiome Composition – decrease in diversity
- Reduction in certain beneficial spp e.g Akkermansia
- Reduction in SCFA producers Faecalibacterium and Roseburia
- Bacterial shifts may promote inflammation (systemic effects)
- Oestrogen supports gut lining integrity/ increased risk of gut permeability

Improving microbiome diversity and balance

Any dietary change will impact the microbiome
– Mediterranean style,
avoidance of additives,
sweeteners etc

Increase fibre from
plants: vegetables,
fruits, seeds, nuts,
wholegrains

Functional foods for
motility - psyllium, kiwi
fruit/ flaxseed / prunes

Omega 3 fatty acids &
specific vitamins
(riboflavin)

Fermented foods

Probiotic and
Prebiotics
Supplementation

Butyrate
supplementation

Polyphenols

Butyrate

- **Metabolic Syndrome** - sodium butyrate shown to reduce body fat, blood lipids and improve insulin sensitivity
- **Cardiovascular Health:** anti-atherosclerotic properties. By influencing the gut-brain neural circuit and suppressing the sympathetic nervous system, butyrate can potentially protect against cardiovascular complications
- **Neuroprotection** – lowers inflammation, helps with brain fog
- **Non Alcoholic Fatty Liver Disease** – butyrate and improving microbiome diversity may be protective against NAFLD
- **Bone Health** – reduces risk of loss of bone density. Promotes bone formation via an increase in the differentiation of regulatory T cells (Treg).
- **Lower inflammation.** Inhibiting growth of pathobionts, increasing mucosal barrier integrity, modulation of immune cells

Sodium Butyrate

- As microbiome diversity reduces and bacterial composition shifts many women will benefit from supplementation at Menopause
- Particularly relevant for those with gut symptoms, metabolic dysregulation, brain fog, inflammation or following very low carb or low fibre diets
- Take 1-2 capsules with food



Impact of oestrogen decline

Oestrogen Action	Oestrogen deficiency
Energy production / metabolic health / appetite regulation , mitochondrial health	Weight gain, fatigue, appetite changes, cognitive health
Adipose health	Adipose inflammation, altered fat profile – abdominal fat, reduction in muscle mass, cardiovascular risk,
Insulin sensitivity, pancreatic beta cell survival, lipid balance	Insulin resistance / fatty liver / T2D, dysregulated lipid metabolism
Macrophage polarization – immune balance / antioxidant protection. Regulates inflammasome	Inflammation, immune dysfunction / autoimmunity, cardiovascular risk, cognitive health
Methylation / Choline synthesis and metabolism	Increase choline need, bladder symptoms, cognitive health
Gut function, microbiome diversity, digestive enzyme function, epithelium health	Constipation, IBS, dysbiosis, reduction in Akkermansia, SCFA producers, glucose metabolism, digestive enzyme decline, inflammation – systemic health links
Muscle repair, Cartilage / Joint health, bone health, collagen production	Arthralgia (joint pain), osteoporosis, arthritis, recovery post exercise, loss of skin elasticity and thickness

Menopause – *Dietary Recommendations*

Dietary Recommendations

- Mediterranean style of eating (antioxidant, anti-inflammatory)
- Omega 3 fatty acids, Monounsaturates
- Choline rich foods (oily fish, eggs, liver, soy)
- High in fibre – vegetables, beans, seeds, nuts/seeds
- Probiotic & Prebiotic rich
- Cruciferous vegetables –hormone detoxification
- Phytoestrogenic foods
- Polyphenol / resveratrol rich (berries, pomegranate etc)
- Immune modulation nutrients (TH1, TH2, TH17)
- Be mindful of caffeine / alcohol impacts esp hot flushes



Supporting Healthy Body Composition

- Sufficient protein consumption - important for muscle protein synthesis, body composition, appetite regulation
- Helps lower SHBG
- At least **1.2-1.5g/kg** shown to be more beneficial in promoting strength and muscle mass spaced through the day
- Higher protein intake with sufficient BCAA helps support protein synthesis (particularly leucine)
- Leucine also shown to increase insulin sensitivity



Phytoestrogens

Phytoestrogens bind to receptors having a mild oestrogenic effect.

- ✓ Symptom relief e.g hot flashes, night sweats
- ✓ Cardiovascular protection
- ✓ Neuroprotection
- ✓ Metabolic health
- ✓ Bone health
- ✓ Gut health - composition and diversity of gut microbiota

Gut microbiome play a role in utilisation of phytoestrogens from foods. The main groups of phytoestrogens are isoflavones, stilbene, coumestan, flavonols and lignans.



Food Sources of Phytoestrogens

Soy Products	Tempeh, tofu, miso, natto, edamame beans
Legumes	Chickpeas, lentils, kidney beans, split peas, butterbeans, peanuts,
Seeds, Nuts, Sprouted seeds	Alfalfa sprouts, flaxseed, sesame seeds, sprouted mung beans, broccoli sprouts, pistachio nuts, sunflower seeds,
Fruits	Strawberry, pomegranate, cranberry, blueberry, raspberries, apples, red grapes, plums, prunes, dates, dried apricots, peaches
Vegetables	Broccoli, Cabbage, Carrots, Celery, Spinach, Sweet potatoes, Brussels sprouts, kale, beetroot, garlic, courgette
Grains	wheat bran, rye, barley, rice, oats, quinoa, buckwheat

Metabolic Health & Anti-inflammatory Nutrients

NUTRIENT	
N-acetyl-L-cysteine (NAC)	Insulin sensitivity, precursor glutathione, antioxidant, anti-inflammatory, liver health, cognitive health, cardiovascular
Lipoic Acid	Insulin sensitivity, lipid health, Anti-inflammatory and antioxidant effects, cognitive health, bone health, Neuroprotection
Magnesium	Optimal insulin function, bone health, vitamin D levels, Low serum magnesium levels have been linked to metabolic syndrome, sleep and muscle recovery
Curcumin	Blood sugar regulation, anti-inflammatory, Neuroprotective, Enhanced immunity, relief from hot flashes, Lipid profile improvement
Omega 3 Fatty acids	Cell membrane health / lower inflammation 1-3g daily
Resveratrol	improve fasting plasma glucose / SIRT pathways / Lower inflammation, chronic pain management, Cognitive function, hot flashes, bone health 150mg-500mg
Sodium Butyrate	Supplementation can reduce body fat content and blood lipids, enhance whole-body energy expenditure, and improve insulin sensitivity, gut health

Look at overall calories and macros to support weight loss if needed.
Exercise regularly – cardio and weights, Stress management and sleep quality

BodyBio Key Supplements Mentioned

- ✓ **BodyBio PC:** 1 tsp daily / 2-4 capsules with food
- ✓ **BodyBio Fish Oil+:** 2 capsules daily with food
- ✓ **BodyBio Sodium Butyrate:** 2 capsules with food
- ✓ **BodyBio CALM:** 1-2 capsules, 1 hour before bed
- ✓ **BodyBio Vitamin B+:** 1 capsule daily

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Thank you!

Christine Bailey

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