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Menopausal Hormone Replacement Therapy

Separating Fact From Fiction

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MHT Myths:

Separating Fact From Fiction

Top 5 MHT Myths: Outline

the Top 5 MHT Myths:

- MHT must be stopped at age 60
- MHT causes and significantly increases breast cancer
- MHT causes cardiovascular disease
- MHT causes dementia
- MHT causes weight gain

Top 5 MHT Myths

Full Name	Acronym
Breast Cancer	BC
Menopausal Hormone Therapy	MHT
Oral Micronized Progesterone	OMP
The Menopause Society	TMS
Transdermal	TD
Women's Health Initiative	WHI

Top 5 MHT Myths

- Many women experience symptoms with menopause that significantly affect their quality of life.
- Hormone therapy is FDA approved only for reducing bothersome hot flashes, vulvovaginal atrophy, and preventing osteoporosis, but many women find additional benefits along with improved quality of life.
- Due to heterogeneity among studies, there are many misconceptions about MHT.

What are the top MHT Myths?

Top 5 MHT Myths

- Myths and controversies often stem from the challenges found in interpreting studies.
- Here we will clarify what the studies say about MHT.
- One crucial point to understand is that MHT should be individualized to the patient:
 - Patient's symptoms
 - Patient's health history
 - The form and route of administration of HRT
- Although this sounds complicated, once the information has been fully presented; a clear pattern emerges.

Myth: MHT must be stopped at 60.

Origin: This myth probably stems from the Women's Health Initiative (WHI), which followed 68,000+ women aged 50-79 with or without MHT.

- Two-thirds of the MHT participants initiated MHT more than 10 years after menopause and were over age 60.
- During the trial, increased risks of cardiovascular disease and breast cancer were found.
- In an analysis of women 50-59 and less than 10 years since menopause, risks were rare and benefits were more significant.
- In women older than 59 or more than 10 years since menopause there were fewer benefits and the risks were greater.
- On the surface, the story seems clear: MHT is riskier for older women.
- Does this mean that it needs to be discontinued at a certain age?

Myth: MHT must be stopped at 60.

Truth: While the previous statements about the WHI are true, they do not line up exactly with the **myth that women must** *stop* **MHT at 60.**

If we explain the WHI story with more detail, it looks different:

- In women > 59 who initiate HRT *for the first time*:
 - The benefits are not as strong compared to women who initiate MHT at a younger age.
 - Some have interpreted this to mean that women *should stop HRT at a certain age*, but TMS and other associations emphasize that **these two groups are different**. Starting MHT early and staying on it is not the same as starting MHT after age 59.

Myth: MHT must be stopped at 60.

Truth: The benefit-to-risk ratio is less favorable when MHT is initiated in a patient:

- Who is older (> age 60) or
- Has experienced menopausal low estrogens with no MHT for a prolonged period (> 10 years)

Initiate MHT Younger (<59 years old or <10 years since menopause)	Initiate MHT Older >59 or > 10 years since menopause
Good benefit to risk ratio: Safe and effective for most	Fewer benefits, more risks
Reduced all-cause mortality	No effect on all-cause mortality
Reduced coronary heart disease	No effect on coronary heart disease
Rare risk of stroke and VTE with oral estrogens	Greater risk of stroke and VTE with oral estrogens



Myth: MHT must be stopped at 60.

Recently published in 2024:

ORIGINAL STUDY

Use of menopausal hormone therapy beyond age 65 years and its effects on women's health outcomes by types, routes, and doses

Seo H. Baik, PhD, Fitsum Baye, MS, and Clement J. McDonald, MD

Methods: Prescription drug and encounter records of 10 million senior Medicare women from 2007-2020 and Cox regression analyses.

Baik SH, et al. Menopause. 2024;31(5):363-371.

Myth: MHT must be stopped at 60.

Use of menopausal hormone therapy beyond age 65 years and its effects on women's health outcomes by types, routes, and doses.

Results:

Therapy type (all beyond age 65)	Risk reduction $\sqrt{}$	Risk increase X
Estrogen monotherapy	Reduction in mortality, breast cancer, lung cancer, colorectal cancer, congestive heart failure (CHF), Venous thromboembolism (VTE), atrial fibrillation, acute myocardial infarction (MI), and dementia	
E2 + synthetic progestin	Risk reduction in endometrial cancer, ovarian cancer, ischemic heart disease (IHD), CHF, and VTE	Increased risk of BC mitigated with low dose, TD E2, or vaginal E2
E2 + progesterone	Risk reduction CHF	Increased risk of BC

Baik SH, et al. Menopause. 2024;31(5):363-371



Myth: MHT must be stopped at 60.

STUDY: Use of menopausal hormone therapy beyond age 65 years and its effects on women's health outcomes by types, routes, and doses

Conclusions:

Among senior Medicare women, MHT use beyond age 65 years vary by types, routes, and strengths.

Lower risk was associated with:

- Lower E2 doses
- TD or vaginal E2 rather than oral preparations
- E2 (bioidentical) rather than conjugated estrogen

Baik SH, et al. Menopause. 2024;31(5):363-371.

Myth: MHT must be stopped at 60.

Truth:

- MHT can be continued as long as necessary for symptom management, but individual characteristics and prescriptions can help mitigate risk with age.
- Review for contraindications at yearly follow-up visits including BC and CVD risk.
- Use the lowest dose necessary.
- TD E2 is safer than oral, especially with age.

Myth: MHT causes and significantly increases breast cancer (BC)

Fact: MHT may rarely increase BC risk depending on the formulation and the length of time.

There were two hormone regimens given in the WHI study.

Estrogen only showed a non-significant reduction in BC cases, estrogen + progestin showed a rare increase.

Women Aged 50-59 on Estrogen-Only Therapy After 20 years Follow-up	Women Aged 50-59 on Estrogen + Progestin Therapy
7 fewer BC cases per 10,000 users per year (non-significant BC reduction)	9 additional BC cases per 10,000 users per year (considered RARE)
Significantly lower BC mortality	No significant difference in BC mortality

Lee SR, et al. 2020; 26: 69. NAMS. Menopause. 2022;29(7):767-794.



Myth: MHT causes and significantly increases breast cancer (BC)

Combined findings of MHT and BC risk:

- TD E2 + synthetic progestin had a slightly increased BC risk, but E2 + bioidentical progesterone did not (Founier et al.)
- Estrogen only therapy, bioidentical estrogens across several studies did not show an increase in BC risk when compared to those who never used estrogens.

Fournier A, et al. Int J Cancer. 2005;114(3):448-454. Fournier A, et al. Breast Cancer Res Treat. 2008;107(1):103-111

Myth: MHT causes and significantly increases breast cancer (BC)

- BC mortality is reported to be reduced in MHT users in many but not all observational studies.
 - The cause of reduced BC mortality cannot be confirmed from these outcomes.
 - This may be due to the increased mammograms and earlier diagnosis in HRT users.

Lee SR, et al. 2020; 26: 69. NAMS. Menopause. 2022;29(7):767-794

Myth: MHT causes and significantly increases breast cancer (BC)

- Different types of progestogens have different types of effects on the breast health and breast cancer risk.
- **Synthetic progestins**, such as medroxyprogesterone acetate (MPA), may be associated with an elevated risk of developing breast cancer.
- However, bioidentical **progesterone** does not increase cell proliferation in breast tissue in post-menopausal women (Gompel A, 2018).
- A systematic review by Stute et al. (2018) concluded that HRT that combines estrogens with progesterone does not increase the risk of breast cancer in the first 5 years of use.

Gompel A. Climacteric. 2018;21(4):321-325. Stute P, et al. Climacteric. 2018;21(2):111-122.

Myth: MHT causes and significantly increases breast cancer (BC)

- "Women should be counseled about the risk of BC with HRT, putting the data into perspective, with risk similar to that of modifiable risk factors such as two daily alcoholic beverages, obesity, or low physical activity" (NAMS 2022).
- Regular breast cancer screening is to be considered for all post-menopausal women, including those on HRT.

Lee SR, et al. 2020; 26: 69. NAMS. Menopause. 2022; 29(7):767-794.

Myth: Estrogen commonly causes breast cancer

Truth: BC risk, though serious, is rarely increased with MHT and can be mitigated by using OMP and getting regular BC screening.

Always individualize care!

Gompel A. Climacteric. 2018;21(4):321-325. Stute P, et al. Climacteric. 2018;21(2):111-122.



MYTH: MHT causes cardiovascular disease

Origin: MHT Studies have found that some forms and regimens of MHT may cause changes that negatively impact the cardiovascular system.

These studies found negative CVD impacts with the following:

- Oral estrogens such as CEEs
- Oral progestins (synthetic progestogens)
- Initiating MHT with women aged 59 or > 10 years after menopause

Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519.

MYTH: MHT causes cardiovascular disease

- E2 therapy has been found to support a healthy cardiovascular system, through maintaining vascular elasticity and endothelial function.
 - The health of the patient at the time of starting MHT and their individual risk factors should be reviewed.
 - MHT has been found to be safe, with rare CVD risks, especially when started in women < 60 years old or < 10 years from onset of menopause.

NAMS. Menopause. 2022; 29: 767-794. Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519.

MYTH: MHT causes cardiovascular disease

- The **cardiovascular system** is a **dynamic, complex** system that interacts with every other system in the body.
- The impact of MHT on CVD is multifactorial, and includes:
 - The health of the patient at the time of MHT initiation
 - The ROA and form of the progestogen AND the estrogen
- When women >59 or more than 10 years post menopause initiate MHT, they are more likely to have worse baseline cardiovascular than women initiating MHT at a younger age.
 - This may be why women who initiate MHT later in life may have an increased risk of DVT, stroke, and CVD.
- Women who initiate MHT within 10 years of menopause may have improved long term cardiovascular outcomes.

NAMS. Menopause. 2022; 29: 767-794. Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519.



MYTH: MHT causes cardiovascular disease

- Oral estrogen or progestin therapy goes through extensive first-pass metabolism which increases liver clotting factor synthesis.
 - Increased clotting factors are a root cause of stroke and VTE.
 - Increased VTE and stroke risk is thought to be linked to oral estrogens and progestins.

Kaemmle LM, et al. Climacteric. 2022;25(4):327-336. Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519

MYTH: MHT causes cardiovascular disease

- For most patients, the benefits outweigh the risks.
- However, best practice dictates:
 - Assess cardiovascular health when screening for both initiating and continuing MHT at any age.
 - Initiating MHT within 10 years of menopause if possible.
 - Proceed with extra caution if initiating MHT > 10 years post menopause or > 59.
 - Use TD E2 and OMP for the safest long-term CV outcomes.

NAMS. Menopause. 2022; 29: 767-794. Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519.



MYTH: MHT causes cardiovascular disease

- Transdermal (TD) estrogen has <u>not</u> demonstrated increased VTE and stroke risk, likely due to bypassing liver metabolism.
 - TD ET has not been as thoroughly studied as oral estrogens.
 - Caution is advised with patients at high stroke or VTE risk for all estrogen therapy, but TD estrogens are safer.
- **Oral micronized progesterone** does not cause increased synthesis of liver clotting factors in available studies and has not demonstrated risk for VTE and stroke.

Kaemmle LM, et al. Climacteric. 2022;25(4):327-336. Renoux C, et al. BMJ. 2010;340(jun03 4):c2519-c2519.

Myth: MHT causes dementia

Origin:

- Dementia is a chronic degenerative disease of the brain.
- Dementia increases sharply for women as they go through menopause.
- This fact put estrogen replacement on the radar for dementia prevention.
- Several large studies that are older found increased dementia risk.

Henderson VW. J Steroid Biochem Mol Biol. 2014;142:99-106. Mills ZB, et al. Int J Mol Sci. 2023;24(4):3205. Nerattini M, et al. Front Aging Neurosci. 2023;15.

Myth: MHT causes dementia

What are the factors that might cause different dementia outcomes?

- Timing with menopause: "Critical Window Hypothesis":
 - There is a theoretical critical window in which supporting estrogen levels can prevent brain decline.
- Age of onset of menopause.
 - Starting menopause earlier increases dementia risk due to lower overall estrogen exposure.
- MHT Formulation:
 - Older formulations have a negative impact while newer formulations may be neutral or beneficial.
- MHT dosing and regimen:
 - Lower dose E2 and intermittent or sequential progestogen dosing may be ideal.
- Other health conditions that increase dementia risk may mimic menopause symptoms:
 - Some women might seek out MHT in part due to a decline in brain health.

Henderson VW. J Steroid Biochem Mol Biol. 2014;142:99-106. Mills ZB, et al. Int J Mol Sci. 2023;24(4):3205. Nerattini M, et al. Front Aging Neurosci. 2023;15.



Timing with menopause: "Critical Window Hypothesis":

- Starting MHT early in the menopause process shows better dementia outcomes in observational studies.
- The proposed mechanism is to preserve premenopausal brain health with higher estrogen levels.
- Once the brain has experienced prolonged low hormones and subsequent brain health decline, it may not be able to recover.
- Spending a prolonged time in menopause without MHT may reduce the potential benefit of MHT when eventually initiated.

Henderson VW. J Steroid Biochem Mol Biol. 2014;142:99-106. Mills ZB, et al. Int J Mol Sci. 2023;24(4):3205. Nerattini M, et al. Front Aging Neurosci. 2023;15.

Myth: MHT causes dementia

- Older formulations of MHT such as oral CEEs and synthetic progestins (used in the WHI) may be associated with higher risk of dementia.
- Newer bioidentical transdermal (TD) E2 and oral progesterone are associated with a reduced risk of dementia.
- Oral estrogens and synthetic progestins increase liver clotting factor synthesis which, in addition to the cardiovascular risks we reviewed previously, can impair vascular profusion in the brain.

Myth: MHT causes dementia

• Higher MHT doses are associated with increased dementia risk and lower doses are associated with reduced dementia risk.

If estrogen is good for the brain, shouldn't a higher dose be better?

- Higher doses could reflect the patient experiencing persistent symptoms, which might indicate poorer underlying health as a potential contributor to dementia risk rather than the MHT itself.
- Early signs of dementia have significant overlap with menopause symptoms:
 - Hot flashes
 - Mood swings
 - Poor sleep



Myth: MHT causes dementia

- Progesterone protects the endometrium in part by reducing estrogen receptor density and limiting estrogen receptor activity.
- Progesterone may also reduce the benefit of estrogen in the brain when taken continuously at the same time.

- Continuous combined MHT may have worse outcomes for dementia than cyclic regimens.
 - Continuous-combined = Daily E2 + progestogen
 - Cyclic schedule = Daily E2 + progestogen on a cycle of 10-12 days per month, with the rest of the month off



Associated with increased incidence of dementia	Associated with reduced risk of dementia
Initiate MHT > 5 years post menopause	Initiate MHT < 5 years post menopause
Lower lifetime estrogen exposure: Late menarche, early menopause, nulliparous	Higher lifetime estrogen exposure: Early menarche, late menopause, having one or more pregnancies
Oral estrogens	Transdermal Estradiol
Oral Progestins	Oral Progesterone
High dose E2 in menopause	Low dose E2 in menopause
Continuous combined MHT	Sequential MHT such as daily TD E2 + oral progesterone 200 mg 10-12 contiguous days per month



Myth: MHT causes dementia.

Truth: The current state of research is not adequate to fully address the effect of MHT on dementia risk.

MHT may have a role in reducing the risk of dementia:

- Initiate MHT close to onset of menopause
- Use the newer, preferred forms of TD E2 and OMP.
- Consider cyclic OMP 10-12 days per month.
- Use the lowest effective dose.

The research does not support using MHT as an Alzheimer's or dementia treatment.

Top 5 MHT Myths: MHT and Weight Gain

Myth: MHT causes weight gain.

Origin:

This myth probably stems from the fact that many women experience weight gain around and after menopause without any noticeable lifestyle changes.

Some may apply the effect to the new hormones they are taking.

Top 5 MHT Myths: MHT and Weight Gain

Myth: MHT causes weight gain.

Truth:

Weight gain on MHT is likely due to aging, decline in physical activity and muscle mass, and *low* estrogen.

In fact, estrogen therapy has a beneficial effect on insulin sensitivity, muscle mass preservation, normalizing cortisol levels, and metabolic rate.

Some women may have increase water retention with progesterone, which can be mitigated by using vaginal progesterone or changing lifestyle habits to reduce water retention.

Davis SR, et al. Climacteric. 2012;15(5):419-429.

Myth: MHT causes weight gain.

Hormone changes, especially low estrogen, may contribute to:

- Increase fat mass
- Reduce muscle mass
- Change fat distribution from "pear" to "apple" shape
- Reduce insulin sensitivity
- Increased cortisol
- Increased inflammation
- Leptin insensitivity
- Fatigue
- All the above can contribute to mid-life weight gain!

Davis SR, et al. Climacteric. 2012;15(5):419-429. Kapoor E, et al. Mayo Clin Proc. 2017;92(10):1552-1558.



Myth: MHT causes weight gain.

There is significant evidence that estrogen therapy can reduce the weight gain typically seen in mid-life.

MHT may still coincide with midlife weight gain...

But when compared to women who do not use MHT, MHT users in the WHI found:

- Preserved lean body mass better
- Had a lower upper to lower body fat mass ratio
 - This means the metabolically healthier "pear shape" weight gain was retained, which is healthier than switching to the "apple shape".

Chen Z, et al. Am J Clin Nutr. 2005;82(3):651-656.

Myth: MHT causes weight gain.

In a small study comparing oral CEE's to a transdermal E2 patch:

Oral Conjugated Equine Estrogens	Estradiol Patch
Decrease in lean body mass	Increase in lean body mass
Increase in total body fat mass	No change in total body fat mass
No change in bone mineral density	Increase in bone mineral density
Decrease in lipid oxidation	Increase in lipid oxidation

This is a small study and needs to be taken with a degree of skepticism, but we see here once again that TD E2 outcomes were preferrable to oral estrogens.

dos Reis CM, et al. Maturitas. 2003;46(1):59-68.



Myth: MHT causes weight gain.

Multiple other studies using different formulations of MHT have found benefits:

- Reduced waist circumference
- Reduced waist to hip ratio
- Increased metabolic rate
- Increased insulin sensitivity
- Reduced caloric intake
- Increased energy expenditure

Boonyaratanakornkit V, et al. Biomed Res Int. 2015;2015:140196. Demir B, et al. Gynecol Endocrinol. 2008;24(6):347-353. Hirschberg AL. Maturitas. 2012;71(3):248-256. Yüksel H, et al. Gynecol Endocrinol. 2007;23(2):99-104.



Myth: MHT causes weight gain.

Truth: Weight gain occurring around menopause may be slowed or stopped with MHT.

Key Points:

- Estrogen loss at menopause promotes weight gain through multiple physiologic changes.
- Estrogen replacement mitigates the effects of estrogen loss but may not do so completely.
- Behavioral changes with aging are also at play:
 - Reduced physical activity
 - Increased caloric intake
- MHT along with lifestyle changes may help prevent weight can and possibly help with weight loss at menopause.

Top 5 MHT Myths: Insights

Consistent insights from the top 5 menopause myths:

- They often stem from older research which used oral CEEs and synthetic progestins.
- Still... Older research found in most cases the benefits of MHT outweighed the risks.
- However, bioidentical transdermal E2 and oral micronized progesterone stand out as thus far showing improved outcomes and reduced risks in many health areas.
- The benefit to risk ratio is always optimized when we:
 - Individualize treatment decisions to the health of the patient
 - Used the lowest effective dose
 - Reassess the patient wholistically every year
- Understanding the origin of these myths, the small truth inside the myth can help healthcare providers and patients understand how to make the right choice for the individual patient!



Summary:

Myth #1: MHT must be stopped at age 60

Truth: There is no specific age when MHT must be stopped.

- There are some concerns with age, but these are due to the baseline health of the patient:
 - Initiating MHT when >59 or >10 years since menopause shows fewer benefits and more risk.
 - Staying on MHT that was initiated <59 or < 10 years since menopause is safe as long as MHT is still safe for the individual patient.
 - TD E2 may be best in older women (over oral CEEs or oral E2).
- Patient risks should be assessed every year to optimize the benefit to risk ratio.

Summary:

Myth #2: MHT causes and significantly increases breast cancer

Truth: MHT is safe and effective for most women. The BC risk, though serious, is rare and can be mitigated by regular screening.

- Estrogen-only therapy is associated with a reduction in BC risk.
- Bioidentical progesterone is not associated with increased BC risk in the first 5 years of use.
- Many older studies used synthetic progestins which were associated with a <u>rare</u> increased risk of BC, but no increase in BC <u>mortality</u>.

Summary:

MYTH #3: MHT causes cardiovascular disease

Truth: E2 therapy has been found to support a healthy cardiovascular system, through maintaining vascular elasticity and endothelial function.

- E2 therapy is best when it is used transdermally.
- Oral estrogens and progestins can increase liver clotting factor synthesis which is associated with increased stroke and VTE risk.
- There are ways to mitigate these risk:
 - Use the preferred TD E2 and oral progesterone forms.
 - Screen for moderate or high CVD risk in all patients wanting to initiate MHT.
 - Patients > 59 or > 10 years after menopause should avoid oral estrogens.

Summary:

Myth #4: MHT causes dementia

Truth: Estrogens have a beneficial impact on the brain. The increased risk of dementia associated with MHT is likely linked to oral estrogens and progestins, which can increase dementia through increasing liver clotting factor synthesis and anti-estrogen effects.

- Some steps to optimize MHT for dementia concerns:
 - Initiate MHT close to onset of menopause
 - Use the newer, preferred forms of TD E2 and OMP.
 - Consider cyclic OMP 10-12 days per month.
 - Use the lowest effective dose.

Summary:

Myth #5: MHT causes weight gain.

Truth: MHT mitigates weight gain and metabolic changes that happen with menopause and aging.

• Lifestyle factors should also be addressed, as MHT does not prevent all age associated weight gain.



Top 5 MHT Myths: References

- Baik SH, et al. Use of menopausal hormone therapy beyond age 65 years and its effects on women's health outcomes by types, routes, and doses. Menopause. 2024;31(5):363-371.
- Boonyaratanakornkit V, et al. The role of ovarian sex steroids in metabolic homeostasis, obesity, and postmenopausal breast cancer: molecular mechanisms and therapeutic implications. Biomed Res Int. 2015;2015:140196.
- Chen Z, et al. Postmenopausal hormone therapy and body composition--a substudy of the estrogen plus progestin trial of the Women's Health Initiative. Am J Clin Nutr. 2005;82(3):651-656.
- Davis SR, et al. Understanding weight gain at menopause. Climacteric. 2012;15(5):419-429.
- Demir B, et al. The effects of estrogen therapy and estrogen combined with different androgenic progestins on carbohydrate and lipid metabolism in overweight-obese younger postmenopausal women. Gynecol Endocrinol. 2008;24(6):347-353.
- dos Reis CM, et al. Body composition, visceral fat distribution and fat oxidation in postmenopausal women using oral or transdermal oestrogen. Maturitas. 2003;46(1):59-68.
- Fournier A, et al. Unequal risks for breast cancer associated with different hormone replacement therapies: results from the E3N cohort study. Breast Cancer Res Treat. 2008;107(1):103-111.

Top 5 MHT Myths: References

- Fournier A, et al. Breast cancer risk in relation to different types of hormone replacement therapy in the E3N-EPIC cohort. Int J Cancer. 2005;114(3):448-454.
- Gompel A. Progesterone, progestins and the endometrium in perimenopause and in menopausal hormone therapy. Climacteric. 2018;21(4):321-325.
- Henderson VW. Alzheimer's disease: Review of hormone therapy trials and implications for treatment and prevention after menopause. J Steroid Biochem Mol Biol. 2014;142:99-106.
- Hirschberg AL. Sex hormones, appetite and eating behaviour in women. Maturitas. 2012;71(3):248-256.
- Kaemmle LM, et al. The impact of micronized progesterone on cardiovascular events a systematic review. Climacteric. 2022;25(4):327-336.
- Kapoor E, et al. Weight Gain in Women at Midlife: A Concise Review of the Pathophysiology and Strategies for Management. Mayo Clin Proc. 2017;92(10):1552-1558.
- Lee SR, et al. The 2020 Menopausal Hormone Therapy Guidelines. Journal of Menopausal Medicine. 2020;26(2):69.
- Mills ZB, et al. Is Hormone Replacement Therapy a Risk Factor or a Therapeutic Option for Alzheimer's Disease? Int J Mol Sci. 2023;24(4):3205.

Top 5 MHT Myths: References

- NAMS. The 2022 hormone therapy position statement of The North American Menopause Society. Menopause. 2022;29(7):767-794.
- Nerattini M, et al. Systematic review and meta-analysis of the effects of menopause hormone therapy on risk of Alzheimer's disease and dementia. Front Aging Neurosci. 2023;15.
- Pourhadi N, et al. Menopausal hormone therapy and dementia: nationwide, nested case-control study. BMJ. 2023:e072770.
- Renoux C, et al. Transdermal and oral hormone replacement therapy and the risk of stroke: a nested case-control study. BMJ. 2010;340(jun03 4):c2519-c2519.
- Stute P, et al. The impact of micronized progesterone on the endometrium: a systematic review. Climacteric. 2016;19(4):316-328.
- Yüksel H, et al. Effects of postmenopausal hormone replacement therapy on body fat composition. Gynecol Endocrinol. 2007;23(2):99-104.



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