





Reproductive duration: effective factors and its relationship with women's health

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AGENDA

- ❑ **The importance of the subject**
- ❑ **Reproductive duration definition**
- ❑ **Menarche**
- ❑ **Menarche & Women's Health**
- ❑ **Menopause**
- ❑ **Menopause & Women's Health**
- ❑ **Sexual Hormones**
- ❑ **Duration of Reproductive & Women's Health**



The importance of the subject

- Women of reproductive age are at a lower risk of several diseases with increasing prevalence and very important, such as cardiovascular diseases, compared to men of the same age.

Sylvia H. Ley, et al. Duration of Reproductive Life Span, Age at Menarche, and Age at Menopause Are Associated With Risk of Cardiovascular Disease in Women. J Am Heart Assoc. 2017 Nov; 6(11): e006713

Farahmand M. et al. Association between duration of endogenous estrogen exposure and cardiovascular outcomes: A population – based cohort study. 2019 Life Sciences 221(13)



Reproductive duration definition

- It is a period in a woman's life during which the woman can become pregnant and give birth. It starts with puberty and first menstruation and ends with last menstruation, which is followed by menopause. This period can be different for every woman.



Menarche & Women's Health

- *Menarche* is the first menstrual cycle, or first menstrual bleeding, in female humans. From both social and medical perspectives, it is often considered the central event of female puberty, as it signals the possibility of fertility.



Menarche

Factors affected

- Genetics
- Geographical location
- Body mass index (BMI)
- Socioeconomic status
- Nutrition

Maryam Farahmand, Fahimeh Ramezani Tehrani, Fereidoun Azizi. Whether age of menarche is influenced by body mass index and lipoproteins profile? a retrospective study. Iran J Reprod Med. 2012 Jul;10(4):337-42



Menarche

- Due to the rapid closure of epiphyseal plates in bones, early onset of sexual activity and social and psychological problems are also among other important complications of *early puberty*



Menarche & Diseases

Age at menarche

- Cardiovascular diseases (Hypertension)
- Metabolic Syndrome
- Breast cancer
- Diabetes
- Psychosocial problems (The use of cigarettes, alcohol, substance abuse, depression, anxiety, bulimia)

Maryam Farahmand, Fahimeh Ramezani Tehrani 1, Marzieh Rostami Dovom, Fereidoun Azizi. Menarcheal Age and Risk of Type 2 Diabetes: A Community-Based Cohort Study. *J Clin Res Pediatr Endocrinol.* 2017 Jun 1;9(2):156-162

Maryam Farahmand 1, Maryam Mousavi 2, Amir Abbas Momenan 3, Fereidoun Azizi 4, Fahimeh Ramezani Tehrani. The association between arterial hypertension and menarcheal age. *Maturitas.* 2023 Aug;174:14-22.

Maryam Farahmand 1, Fahimeh Ramezani Tehrani 1, Samira Behboudi Gandevani 1, Fereidoun Azizi. Is There any Association between Age at Menarche and Risk of Metabolic Syndrome? The Tehran Lipid & Glucose Study. *Arch Iran Med.* 2019 Sep 1;22(9):495-500.



Menopause

● Symptoms

- Irregular periods
- Vaginal dryness
- Hot flashes
- Night sweats
- Sleep problems
- Mood changes
- Weight gain and slowed metabolism
- Thinning hair and dry skin
- Loss of breast fullness



Menopause

- *Natural Menopause*

VS

- *Surgical Menopause*

- *Age at menopause*

Journal of Endocrinological Investigation

<https://doi.org/10.1007/s40618-021-01616-2>

ORIGINAL ARTICLE

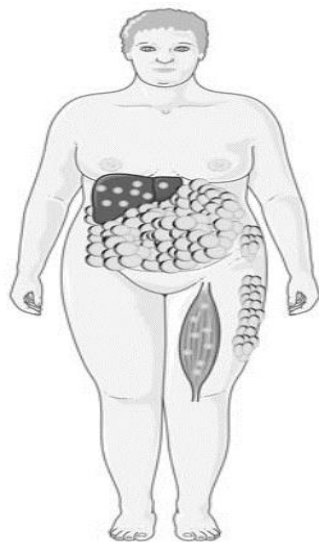


Aging and changes in adiposity indices: the impact of menopause

M. Farahmand¹ · M. Bahri Khomamid² · M. Rahmati¹ · F. Azizi³ · F. Ramezani Tehrani¹ 

Received: 2 March 2021 / Accepted: 14 June 2021

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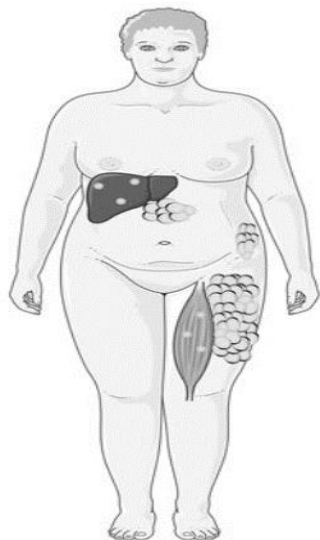
Metabolically Unhealthy Obesity

Features:

- ↑ Adiposity
- ↑ Inflammatory status
- ↓ Adipose tissue function
- ↑ Insulin resistance

Adipose distribution:

- ↓ Subcutaneous fat
- ↑ Visceral fat
- ↓ Lipid storage capacity
 - ↑ Hepatic fat
 - ↑ Skeletal muscle fat




Metabolically Healthy Obesity

Features:

- ↑ Adiposity
- ↔ Inflammatory status
- ↔ Adipose tissue function
- ↑ Insulin sensitivity

Adipose distribution:

- ↑ Subcutaneous fat
- ↓ Visceral fat
- ↔ Lipid storage capacity



**Age at Menopause
&
its related factors**

J Endocrinol Invest
DOI 10.1007/s40618-015-0346-z



ORIGINAL ARTICLE

The impact of oral contraceptives on cardiometabolic parameters

M. Farahmand¹ · F. Ramezani Tehrani¹ · M. Rostami Dovom¹ · S. Hashemi¹ · F. Azizi²

Received: 14 January 2015 / Accepted: 17 June 2015
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Age at Menopause

- High-dose OC-use for $>$ or $=$ 3 years increased the risk of earlier menopause compared with no OC-use (adjusted hazard ratio 1.12; 95% CI 1.03--1.21).
- The use of lower dose OCs did not increase the risk of earlier menopause.

Maryam Farahmand, Fahimeh Ramezani Tehrani, Leila Pourrajabi, Masood Najafi, Fereidoun Azizi, Factors associated with menopausal age in Iranian women: Tehran Lipid and Glucose Study, J Obstet Gynaecol Res 2013 Apr;39(4):836-41.

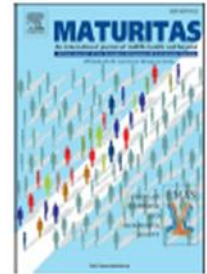
Gold, E. B. The timing of the age at which natural menopause occurs. Obstetrics and gynecology clinics of North America 2011; 38:425-440.



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Maturitas

journal homepage: www.elsevier.com/locate/maturitas



Original Article

Age at natural menopause in women with a history of chronic diseases—A population-based cohort study

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Age at Menopause

- Non communicable diseases
- Married
- Age at menarche
- Parity

Maryam Farahmand, Fahimeh Ramezani Tehrani, Leila Pourrajabi, Masood Najafi, Fereidoun Azizi, Factors associated with menopausal age in Iranian women: Tehran Lipid and Glucose Study, J Obstet Gynaecol Res 2013 Apr;39(4):836-41.

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Age at Menopause

- High-dose OC-use for $>$ or $=$ 3 years increased the risk of earlier menopause compared with no OC-use (adjusted hazard ratio 1.12; 95% CI 1.03--1.21).
- The use of lower dose OCs did not increase the risk of earlier menopause.
- Non communicable diseases
- Married
- Age at menarche
- Parity

Maryam Farahmand, Fahimeh Ramezani Tehrani, Leila Pourrajabi, Masood Najafi, Fereidoun Azizi, Factors associated with menopausal age in Iranian women: Tehran Lipid and Glucose Study, J Obstet Gynaecol Res 2013 Apr;39(4):836-41.

Gold, E. B. The timing of the age at which natural menopause occurs. Obstetrics and gynecology clinics of North America 2011; 38:425-440.



Menopause & Women's Health

- **Early Menopause**
- Cognitive Impairment or Dementia
- Mood (Depression & Anxiety)
- Cardiovascular Diseases
- Bone Loss (Fracture risk)
- Sexual Health
- Early Mortality



Menopause & Women's Health

- **Late Menopause**

- Breast Cancer
- Ovarian Cancer
- Endometrial Cancer

VS

- **Longer life expectancy (such as stronger bones & reducing ischemic heart disease)**



Sexual Hormones

Endogenous Estrogen

Maryam Farahmand, Fahimeh Ramezani Tehrani, Davood Khalili, Leila Cheraghi, Fereidoun Azizi. Endogenous estrogen exposure and chronic kidney disease; a 15-year prospective cohort study. *BMC Endocr Disord.* 2021 Aug 4;21(1):155. doi: 10.1186/s12902-021-00817-3.



American Journal of Epidemiology

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Endogenous Estrogen Exposure and Cardiovascular Mortality Risk in Postmenopausal Women

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**Age at
menarche**

**Number of
Abortion**

**Number of
Parity**

**Endogenous
Estrogen**

**Hormonal
contraceptive**

Breastfeeding

Age at Menopause



Contents lists available at [ScienceDirect](#)

Life Sciences

journal homepage: www.elsevier.com/locate/lifescie



Association between duration of endogenous estrogen exposure and cardiovascular outcomes: A population – based cohort study

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RESEARCH ARTICLE

Open Access

Endogenous estrogen exposure and chronic kidney disease; a 15-year prospective cohort study



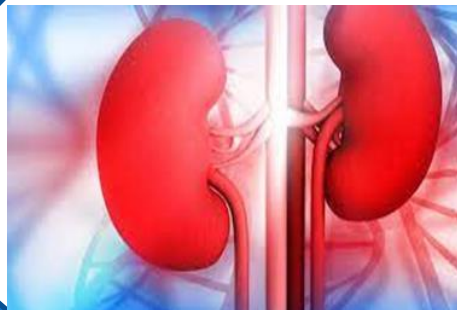
Maryam Farahmand¹, Fahimeh Ramezani Tehrani^{1*}, Davood Khalili^{2,3}, Leila Cheraghi³ and Fereidoun Azizi⁴



Endogenous Estrogen

Suppressing the transforming growth factor β -1

Up-regulating nitric oxide synthase activity



Reducing renin and angiotensin-converting enzyme synthesis

Regulating renal sodium & potassium homeostasis

The Journal of Clinical Endocrinology & Metabolism, 2022, **107**, e3321–e3329

<https://doi.org/10.1210/clinem/dgac248>

Advance access publication 4 May 2022

Clinical Research Article



The Impact of Endogenous Estrogen Exposure Duration on Fracture Incidence: a Longitudinal Cohort Study

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Association of reproductive factors with dementia: A systematic review and dose-response meta-analyses of observational studies

Chunying Fu,^{a,b,1} Wenting Hao,^{a,b,1} Nipun Shrestha,^c Salim S. Virani,^d Shiva Raj Mishra,^{e,f} and Dongshan Zhu,^{a,b,}*

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^fSalim Yusuf Emerging Leaders Program, World Heart Federation, Geneva, Switzerland



Duration of Reproductive & Women's Health

- Cardiovascular Diseases
- Fracture Incidence
- Chronic Kidney Diseases
- Hypertension Incidence
- Dementia(Alzheimer's Disease & Cognitive Impairment)

Maryam Farahmand ¹, Maryam Rahmati ¹, Fereidoun Azizi ², Samira Behboudi Gandevani ³, Fahimeh Ramezani Tehrani. The Impact of Endogenous Estrogen Exposure Duration on Fracture Incidence: a Longitudinal Cohort Study. *J Clin Endocrinol Metab* . 2022 Jul 14;107(8):e3321-e3329.

Chunying Fu,a,b,1 Wenting Hao,a,b,1 Nipun Shrestha,c Salim S. Virani,d Shiva Raj Mishra,e,f and Dongshan Zhu. Association of reproductive factors with dementia: A systematic review and dose-response meta-analyses of observational studies. *thelancet.com* Vol 43 Month January, 2022.



Take-Home Message

- Women of reproductive age are at a lower risk of several diseases
- Appropriate policy-making as a prerequisite to establishing healthy living patterns among Iranian women
- Understanding barriers by providing evidence
- Helping design effective preventive strategies
- Implement appropriate interventions

Say, 'My Lord!

Increase me

in knowledge.'

سوره مبارکه طه آیه شریفه ۱۱۴



A scenic landscape featuring a large, calm pond in the foreground. To the left of the pond, a small, rustic house with a brown roof is nestled among green trees. A herd of sheep is grazing on the grassy bank of the pond. In the background, a large, forested hillside rises under a bright sky. The text "Thank you" is overlaid in a large, yellow, italicized font across the center of the image.

*Thank
you*