



# Hormonal aging: menopause and andropause

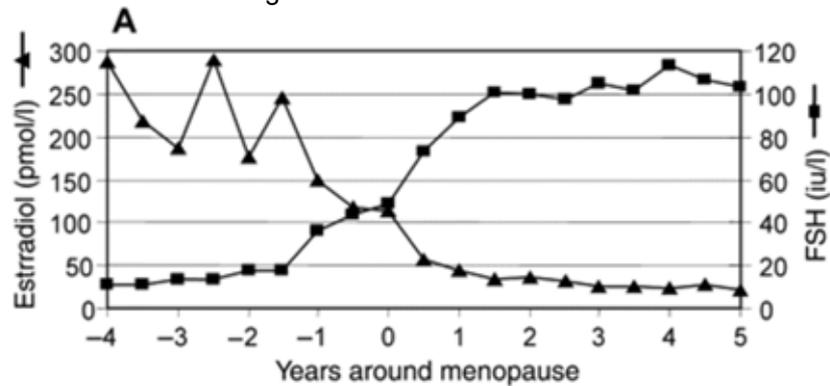
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Research Scientist

# Menopause vs. Andropause

## Women

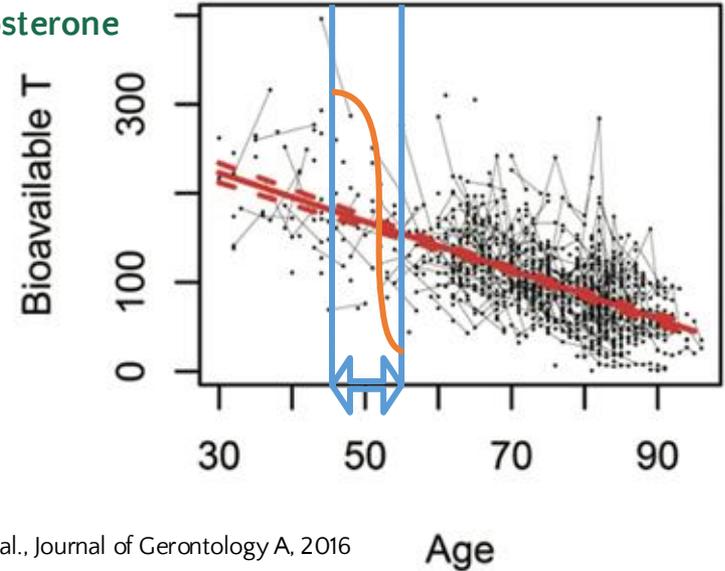
**Estradiol (the dominant type of estrogen)**  
FSH: follicle stimulating hormone



Burger et al., Human Reproduction Update, 2007  
doi: 10.1093/humupd/dmm020

## Men

**Testosterone**



Fabbri et al., Journal of Gerontology A, 2016  
doi: [10.1093/gerona/glw021](https://doi.org/10.1093/gerona/glw021)



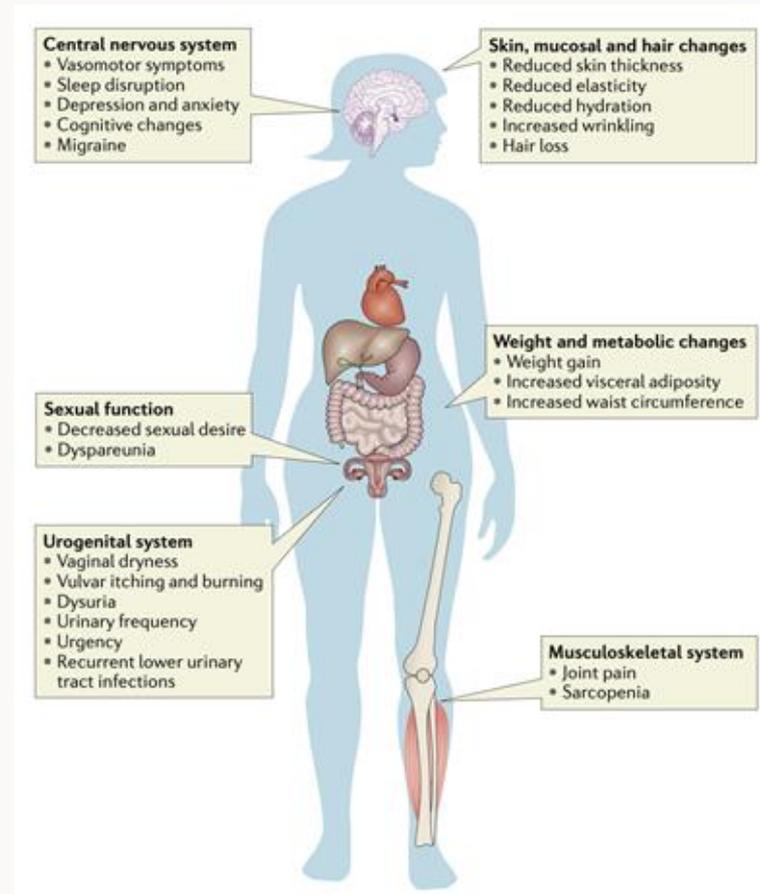
# What happens in menopause?

Defined as  
12 months of no period

Occurs roughly  
ages 45 to 55

Symptoms affect  
85% of women

Symptoms last around  
7 years



# What happens in menopause?

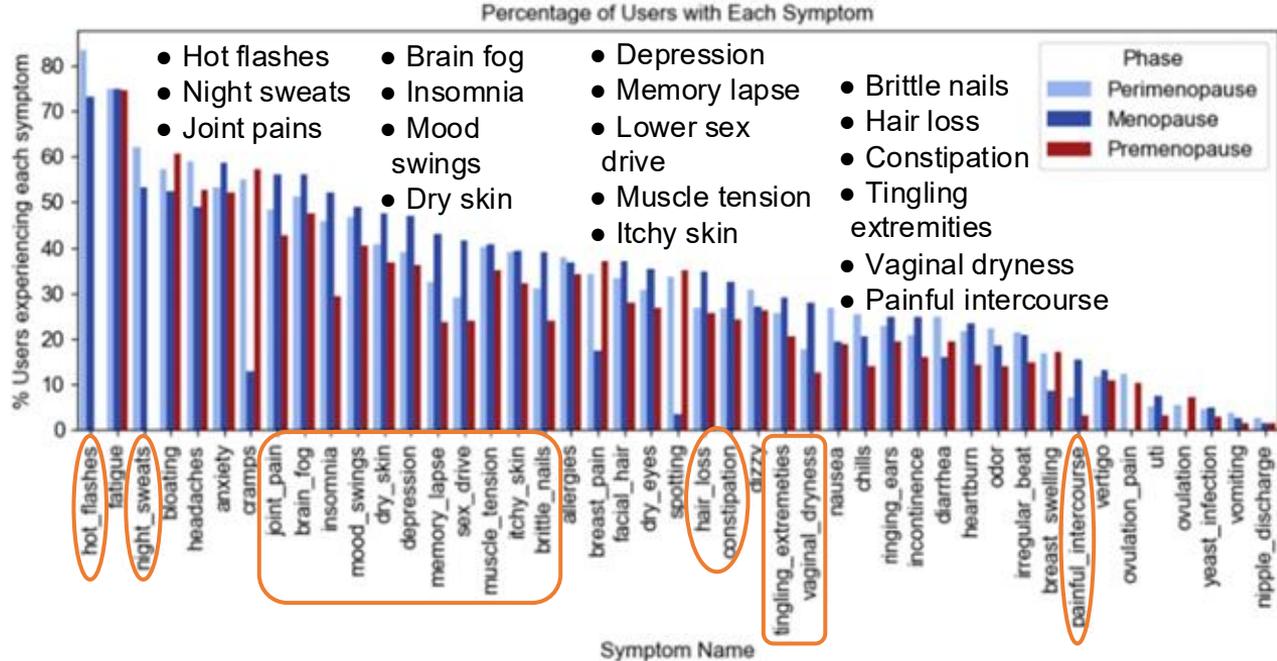
Defined as  
12 months of no period

Occurs roughly  
ages 45 to 58

Symptoms affect  
85% of women

Symptoms last around  
7 years

## Symptoms reported pre-, peri-, and post menopause



# What happens in andropause?

## No clear definition

Diagnosis: symptoms and consistent low testosterone level in the morning

## Also called

Male menopause

Late-onset hypogonadism (LOH)

After age 50,  
>10% low Testosterone  
and >25% high SHBG

## Proportion of men with low testosterone across age groups

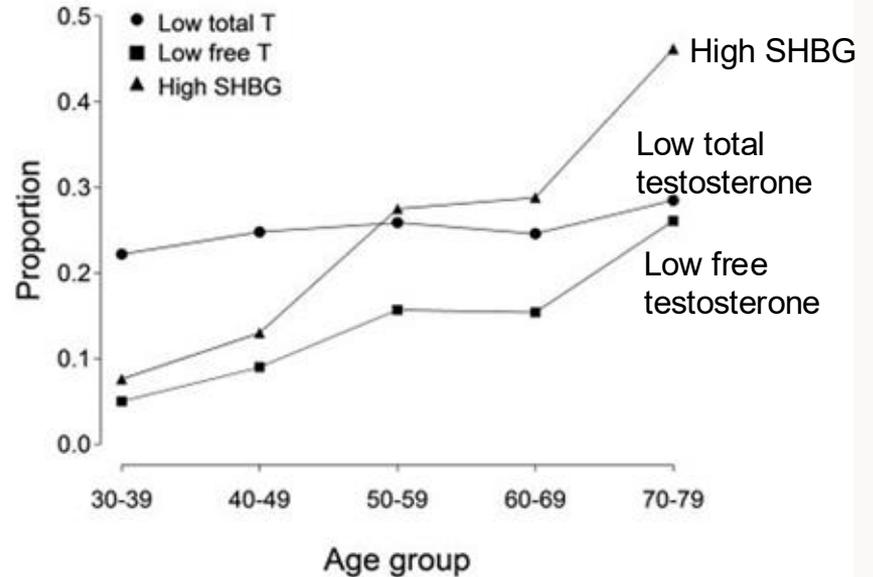


FIG. 2. Proportion of men with low total testosterone [ $<300$  ng/dl (10.4 nmol/liter)], low free testosterone [ $<5$  ng/dl (0.17 nmol/liter)], and high SHBG ( $>46.25$  nmol/liter, defined as highest quintile of SHBG) by 10-yr age group. T, Testosterone.

\*SHBG: sex hormone-binding globulin (the more of them the less free testosterone available for the body to use)



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Sleep disturbance is  
the most common

## Symptoms reported at high and low total and free testosterone levels

TABLE 3. Prevalence of symptoms overall and by total and free testosterone (nanograms per deciliter) category (n = 1475)

Variable	Overall (n = 1475)	low total low free T	low total norm free T	norm total low free T	norm total norm free T
		Total T < 300 ng/dl, free T < 5 ng/dl (n = 145)	Total T < 300 ng/dl, free T ≥ 5 ng/dl (n = 228)	Total T ≥ 300 ng/dl, free T < 5 ng/dl (n = 25)	Total T ≥ 300 ng/dl, free T ≥ 5 ng/dl (n = 1077)
Low libido	202 (11.6)	38 (28.1)	37 (12.4)	6 (14.1)	121 (9.4)
ED	309 (16.3)	54 (27.7)	54 (21.1)	8 (17.8)	193 (13.9)
Osteoporosis/osteoporotic fracture	24 (1.4)	3 (1.3)	4 (3.1)	2 (4.4)	15 (1.1)
Two or more of the non-specific symptoms <sup>a</sup>	360 (20.0)	55 (42.8)	52 (17.6)	10 (23.8)	243 (17.6)

Data represent number (percent). Estimates are weighted inversely to the probability of selection. To convert to nanomoles per liter, multiply values by 0.0347. T, Testosterone.

<sup>a</sup> Overall number (prevalence): sleep disturbance [528 (33.0%)], lethargy [149 (11.2%)], depressed mood [298 (15.4%)], or low physical performance [348 (18.2%)].

\*ED: erectile dysfunction



# Would hormone therapy help?

## Yes, for most women!

real change and  
not a chance event

### Changes in menopause symptoms after 1 year of hormone therapy

Table 2 | Primary symptoms related to menopause. Figures are numbers (percentages) of women

Symptom	Baseline		One year		Adjusted† difference at one year (95% CI)	P value§
	Combined HRT (n=1041*)	Placebo (n=1085*)	Combined HRT (n=1043*)	Placebo (n=1087*)		
Hot flushes	317 (30)	311 (29)	98 (9)	269 (25)	-15 (-18 to -12)	<0.001‡
Night sweats	283 (27)	281 (26)	145 (14)	252 (23)	-9 (-13 to -6)	<0.001‡
Insomnia	471 (45)	472 (44)	367 (35)	450 (41)	-6 (-10 to -2)	<0.001‡
Feeling depressed	195 (19)	207 (19)	234 (22)	256 (24)	-1 (-5 to 2)	0.6
Feeling anxious	293 (28)	284 (26)	300 (29)	313 (29)	0 (-4 to 4)	0.7
Dizziness	117 (11)	137 (13)	133 (13)	143 (13)	0 (-3 to 2)	1
Aching joints or muscles	659 (63)	680 (63)	592 (57)	688 (63)	-7 (-11 to -2)	<0.001‡
Tiredness	523 (50)	516 (48)	556 (53)	554 (51)	2 (-2 to 7)	0.5
Headache	264 (25)	288 (27)	268 (26)	273 (25)	1 (-3 to 4)	0.6
Migraine	44 (4)	56 (5)	51 (5)	60 (6)	-1 (-3 to 1)	0.8
Irritability/mood swings	181 (17)	183 (17)	186 (18)	220 (20)	-2 (-6 to 1)	0.1
Heart racing or skipping beats	114 (11)	112 (10)	149 (14)	128 (12)	2 (0 to 5)	0.1
Dry skin or scaling	319 (31)	332 (31)	304 (29)	326 (30)	-1 (-5 to 3)	0.6
Vaginal or genital dryness	249 (24)	244 (22)	150 (14)	211 (19)	-5 (-8 to -2)	<0.001‡
Vaginal or genital itching	115 (11)	101 (9)	121 (12)	118 (11)	1 (-2 to 3)	0.9

Hot flashes  
decreased

Night sweats  
decreased

Insomnia  
decreased

Joint pains  
decreased

Table continues ...

Welton et al., BMJ, 2008  
BMJ 2008;337:a1190  
doi:10.1136/bmj.a1190

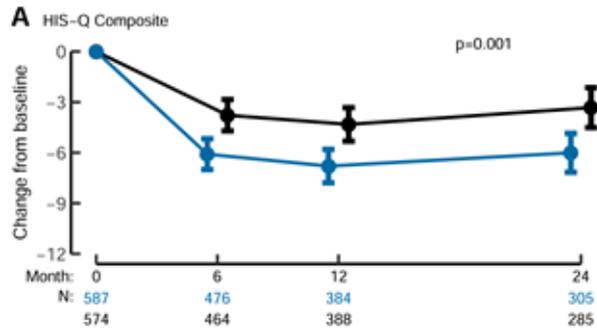


# Would hormone therapy help?

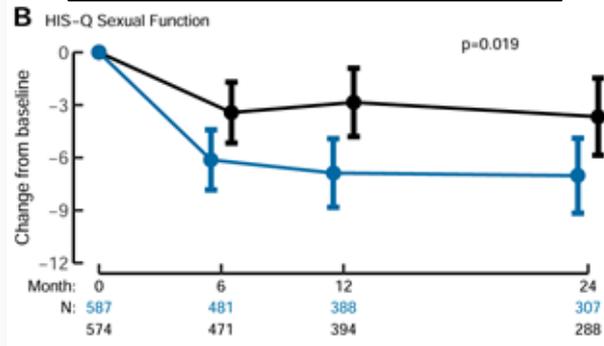
## Yes, for most men!

### Changes in andropause symptoms after 1 and 2 years of hormone therapy

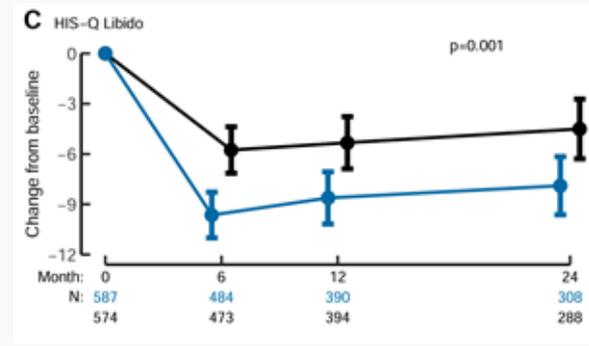
#### Overall symptoms decreased



#### Sexual functional improved



#### Libido improved



\*Negative numbers indicate fewer symptoms.



Open House 2026

Pencina et al., Journal of Clinical Endocrinology & Metabolism, 2024  
[doi.org/10.1210/clinem/dgad484](https://doi.org/10.1210/clinem/dgad484)

# Is hormone therapy too risky?

## Benefits outweigh risks for most people

Study in early 2000 (Women's Health Initiative) claimed that hormone therapy contains greater risks than was actually shown by data but was later debunked.

More info: Estrogen Matters by Drs. Bluming and Tavis.

**Don't let the possible risks keep you from finding relief from symptoms.**

## Talk to medical professionals

**Doctors can help evaluate your symptoms and risks to determine if hormone therapy can help.**



# Exercise helps reduce symptoms of hormonal changes

Resistance exercises (weights, push-ups, wall sits) minimize bone and muscle loss

High intensity workouts increases testosterone levels for men

Lowers risk of dying from heart disease in men

Improves mood and reduces anxiety

Improves sleep quality

Burns calories to counter weight gain

## Current recommendations:

- Aerobic: 150 min of moderate/ 75 min of vigorous aerobic activity per week
- Resistance: at least 2 non-consecutive days per week
- Extras: balance and flexibility (yoga)





# Thank You!

## Resources on menopause and andropause

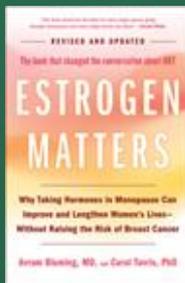
YouTube videos

James Simons, MD

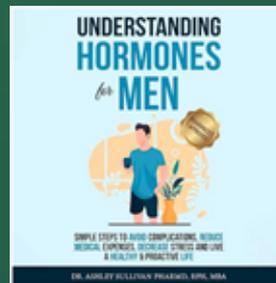
[www.youtube.com/watch?v=a2UgJe3zFnk](http://www.youtube.com/watch?v=a2UgJe3zFnk)



**Estrogen Matters**  
by **Avrum Bluming, MD**  
and **Carol Tavris, PhD**



Understanding  
Hormones for Men  
by Drs. Ashley Sullivan,  
PharmD, RPH, MBA



Article on andropause  
[www.columbiadoctors.org/news/how-testosterone-changes-affect-mens-health-you-age](http://www.columbiadoctors.org/news/how-testosterone-changes-affect-mens-health-you-age)

