The Myth of the Oestrogen 'Drop':

Why Perimenopause Isn't a One-Size-Fits-All Decline

When people say there is a "drop in oestrogen" during perimenopause, they're usually referring - often incorrectly or simplistically - to changes in **estradiol levels as the ovaries age**. The phrase "drop" suggests a steady or gradual decline. In reality, this doesn't match what the best longitudinal data shows.

Likewise saying oestrogen is "low" in perimenopause, when it quite honestly **is not** - and definitely not the 'cause' of symptoms - means many continue to live with challenging symptoms they believe are due to "low oestrogen", when it could be quite the opposite. Let's break it down clearly:

🔍 What do people mean by a 'drop in oestrogen'?

They usually mean:

- That **estradiol levels fall continuously** across perimenopause.
- That this **decline begins early**, and is the **main cause** of symptoms.
- That **menopause = oestrogen deficiency**.

This idea frames perimenopause as a hormone loss issue from the start, when in reality, the biology tells a different story. Plus, narrators really should be specific and say estradiol and not oestrogen.

📉 What does 'drop' actually mean?

In scientific terms, a **"drop"** would imply:

- A **consistent downward trend** in hormone levels.
- Possibly a **sharp fall** from a previous stable state.
- A **measurable, progressive decline**.

But estradiol doesn't behave that way in perimenopause.

Instead, research from **SWAN** and other cohort studies shows that estradiol:

- Often **rises** or becomes **erratic** before declining.
- Has **four trajectory patterns**, not one universal drop.
- It is still **produced by the ovaries** and **other tissues** (like fat, skin, brain) across the transition.

So using "drop" is inaccurate unless referring specifically to **the late stage** of the transition (within ~12 months of final menstrual period), and even then it depends on the individual trajectory.

🧠 Why is this a myth? Where did it come from?

The **"oestrogen drop" myth** likely emerged from:

1. **Postmenopausal hormone research (1990s–early 2000s):**
   - Studies focused on the effects of hormone therapy in people *after* menopause, when estradiol is genuinely lower than in cycling years.
   - Researchers and clinicians **generalised postmenopausal hormone profiles backwards** into perimenopause.

2. **Medical education bias:**
   - Many health professionals were taught a **linear model of hormone decline**, which doesn't reflect actual data.
   - Teaching often **equated menopause with deficiency**, instead of showing **dynamic transition patterns**.

3. **Early menopause awareness campaigns:**
   - Used simplified messaging (e.g. "your hormones are crashing") to drive public understanding and MHT uptake.
   - These often ignored the role of **progesterone loss**, **cycle disruption**, and **nervous system adaptation**.

4. **Lack of language for fluctuation:**
   - "Drop" was a convenient shorthand before we had clearer insights from large longitudinal studies like SWAN.
   - It gave people a single narrative, even though estradiol behaves very differently depending on the person and phase.

📊 What does the data actually show?

The **Study of Women's Health Across the Nation (SWAN)** identified four estradiol patterns:

1. **Rise–Early Decline (31.5%)**
2. **Rise–Late Decline (13.1%)**
3. **Flat (28.6%)**
4. **Low–Slow (26.9%)**

Only **one** (Low–Slow) reflects a consistent downward trend from the start. The rest show **initial rises**, **erratic peaks**, or relatively **stable patterns** until close to menopause day. These patterns matter because symptoms often occur **when levels are high or fluctuating**, not low.
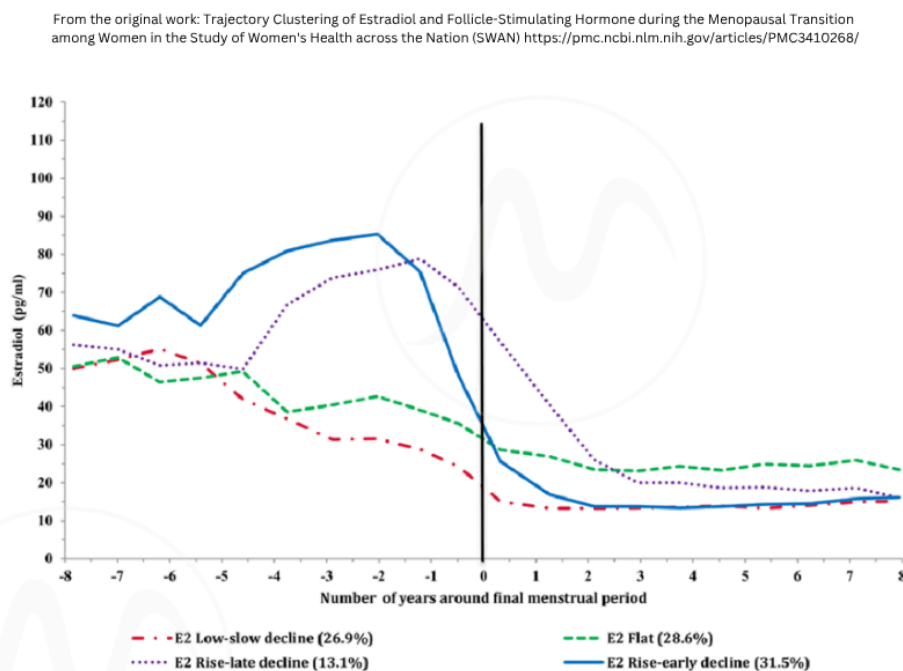
From the original work: Trajectory Clustering of Estradiol and Follicle-Stimulating Hormone during the Menopausal Transition among Women in the Study of Women's Health across the Nation (SWAN) https://pmc.ncbi.nlm.nih.gov/articles/PMC3410268/

Image citation:El Khoudary, Samar & Aggarwal, Brooke & Beckie, Theresa & Hodis, Howard & Johnson, Amber & Langer, Robert & Limacher, Marian & Manson, JoAnn & Stefanick, Marcia & Allison, Matthew. (2020).
Menopause Transition and Cardiovascular Disease Risk: Implications for Timing of Early Prevention: A Scientific Statement From the American Heart Association. Circulation. 142. 10.1161/CIR.0000000000000912.

🔄 What's more accurate than "drop"?

If you want to describe the biology of perimenopause clearly, it's better to say:

- "Estradiol becomes more erratic or surges in perimenopause, within one cycle."
- "Estradiol follows different patterns in different people."
- "Symptoms are more related to disrupted rhythm than from a deficiency."

And importantly:

- **"Progesterone starts to decline first, due to fewer ovulations."**
- **"The nervous system becomes more sensitive to these changes."**

The idea of a neat "oestrogen drop" has stuck because it's simple and easy to sell. But simple isn't always true. Perimenopause is not a straight line down; it's a shifting rhythm with multiple possible patterns. And progesterone loss - not just estradiol - is often what drives the early changes.

So when public voices keep telling people to "fix low oestrogen," they miss the bigger picture. They turn a complex transition into a deficiency problem and, in doing so, close down the real conversation we need to have about hormone rhythms, nervous system sensitivity, and whole-body health.

It's time to move past the myth. Perimenopause deserves better than a one-size-fits-all hormone story.

🔬 Key Research Highlights on Hormone Patterns in the Menopause Transition

1. Title: *Multiple Estradiol Trajectories in SWAN*
Authors: Tepper et al., 2012
Publication: *The Journal of Clinical Endocrinology & Metabolism*, Vol. 97, Issue 8
Description: This large-scale SWAN study identified four distinct estradiol (E_2) patterns during the menopause transition—challenging the myth of a single linear decline. The trajectories included: slow decline (~27%), flat (~29%), rise–slow decline (~13%), and rise–steep decline (~32%).
Read more here: https://pmc.ncbi.nlm.nih.gov/articles/PMC3410268/

---

2. Title: *Estradiol Patterns Linked to Symptom Onset*
Authors: Tepper et al., 2016
Publication: *Menopause: The Journal of the North American Menopause Society*
Description: This analysis of SWAN data linked estradiol fluctuation patterns to symptom emergence. Individuals with early or erratic estradiol surges were more likely to experience vasomotor symptoms (hot flushes, night sweats) and mood disruptions earlier in the transition.
Read more here: https://pmc.ncbi.nlm.nih.gov/articles/PMC5028150/