

MODULE 1 OF 10 — REFERENCE SHEET

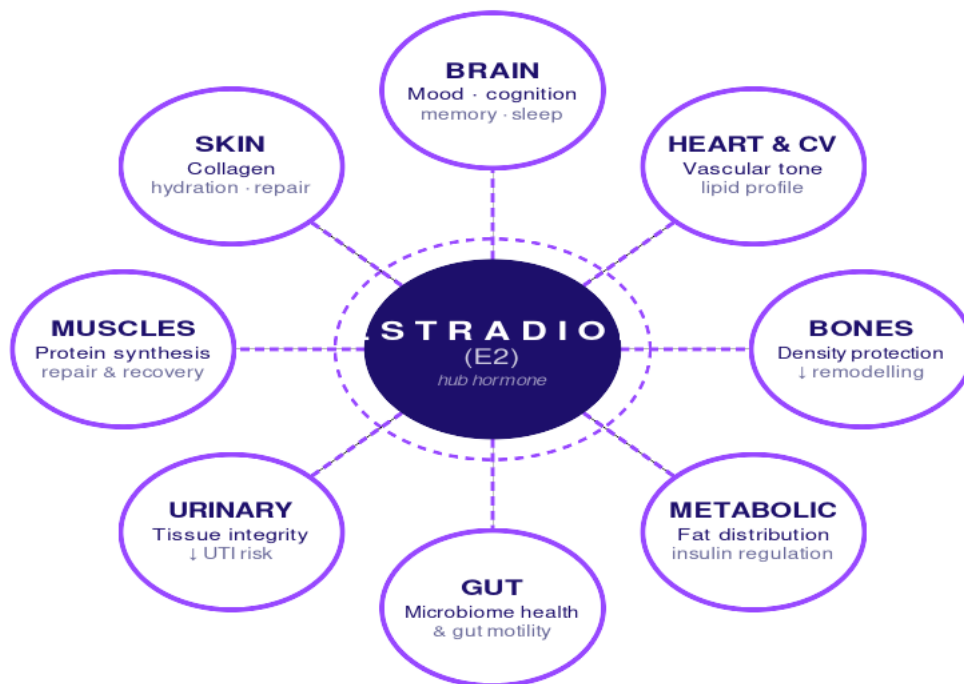
THE HORMONAL FOUNDATION

KEY TAKEAWAYS

1. The HPO (Hypothalamic-Pituitary-Ovarian) axis governs reproductive hormone production through a negative feedback loop. As ovarian reserve declines, this regulation becomes erratic — causing the unpredictable hormone fluctuations that define perimenopause.
2. Estrogen exists in three main forms: estradiol (E2, most biologically potent), estrone (E1, produced post-menopause), and estriol (E3). E2 acts on receptors in virtually every organ system — brain, heart, bone, skin, gut, bladder and blood vessels.
3. Perimenopause is defined not by age but by menstrual irregularity and hormonal fluctuation. It typically begins in the mid-to-late 40s but can start in the late 30s, and is confirmed retrospectively after 12 consecutive months without a period.
4. The STRAW+10 staging system provides a standardised clinical framework for classifying menopausal transition stages based on menstrual pattern and hormone levels. A single FSH or E2 blood test is rarely diagnostically definitive in perimenopause.
5. Understanding the HPO axis and hormone receptor biology provides the scientific foundation for every module that follows — vasomotor symptoms, mood, cognition, bone health, sleep and metabolic changes all trace back to estrogen's withdrawal from these systems.

PROCESS DIAGRAMS

ESTRADIOL (E2) — RECEPTOR SITES ACROSS EVERY BODY SYSTEM



Declining estradiol affects all eight systems simultaneously — which is why perimenopause symptoms vary so widely between women.

SCIENCE REFERENCES

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- Speroff L & Fritz MA. (2011). *Clinical Gynecologic Endocrinology and Infertility* (8th ed.). Lippincott Williams & Wilkins.

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