

PANEL

Hormone Whisperers: Adolescence as the foundation of women's health

whole-person
health
CONFERENCE 26



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Maisie



Polly



Maisie -15 years

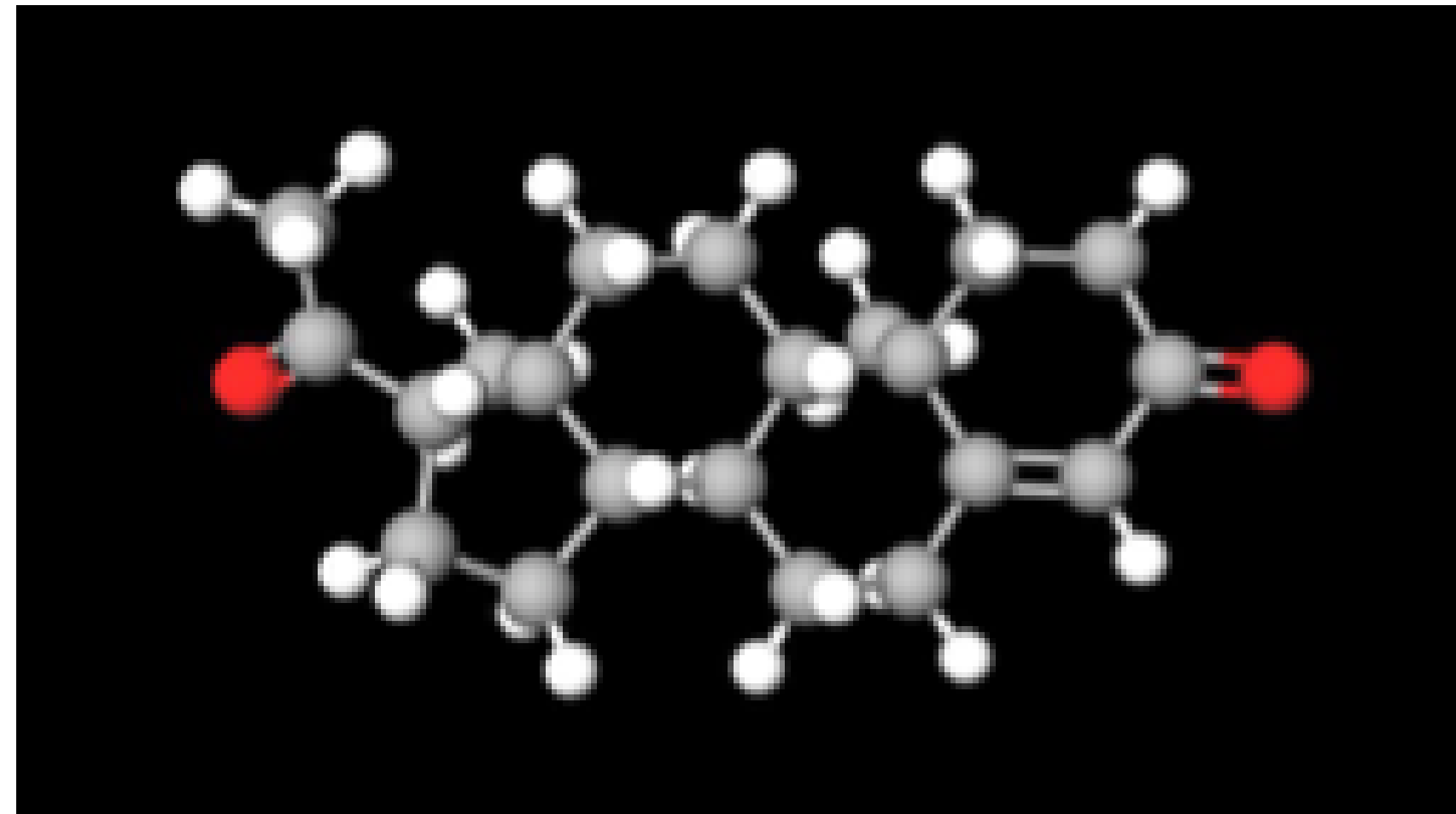


Clinical picture

- Menarche at 13
- Two years later, she's still having 90-day cycles
- Jawline acne

Why do irregular periods matter?

Reproductive hormones are systemic regulators oestrogen and progesterone receptors are expressed across every major body system — disruption of the HPO axis carries consequences beyond fertility.



NEUROLOGICAL

Steroid hormones modulate dopamine and serotonin synthesis, cognitive function directly relates depression & anxiety

HEART HEALTH

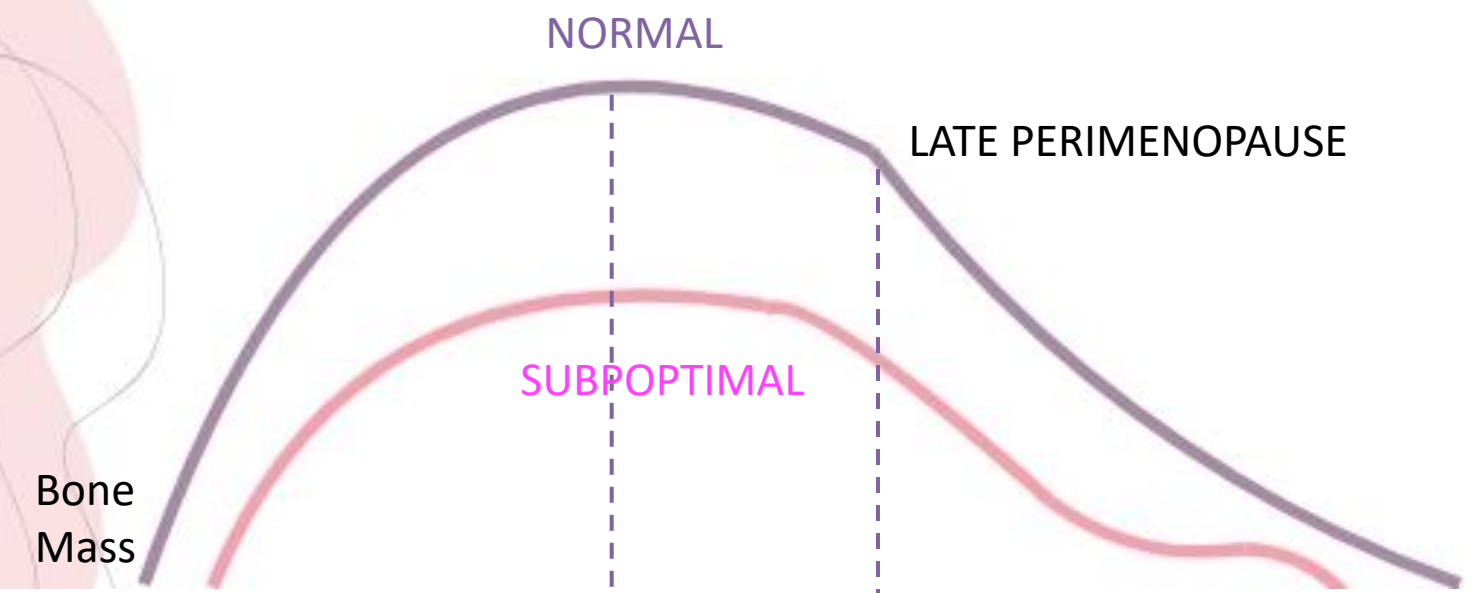
Hypoestrogenism in amenorrhoeic women is associated with impaired endothelial function, elevated LDL levels, and increased susceptibility to lipid peroxidation

BONE

When oestrogen levels fall, suppression of RANKL diminishes, promoting osteoclast activity and accelerated bone resorption
Anovulation- low P4 levels decrease bone formation

MICROBIOME

Gut microbiota composition is measurably altered in functional hypothalamic amenorrhoea- motility, inflammation



Maisie



Clinical picture

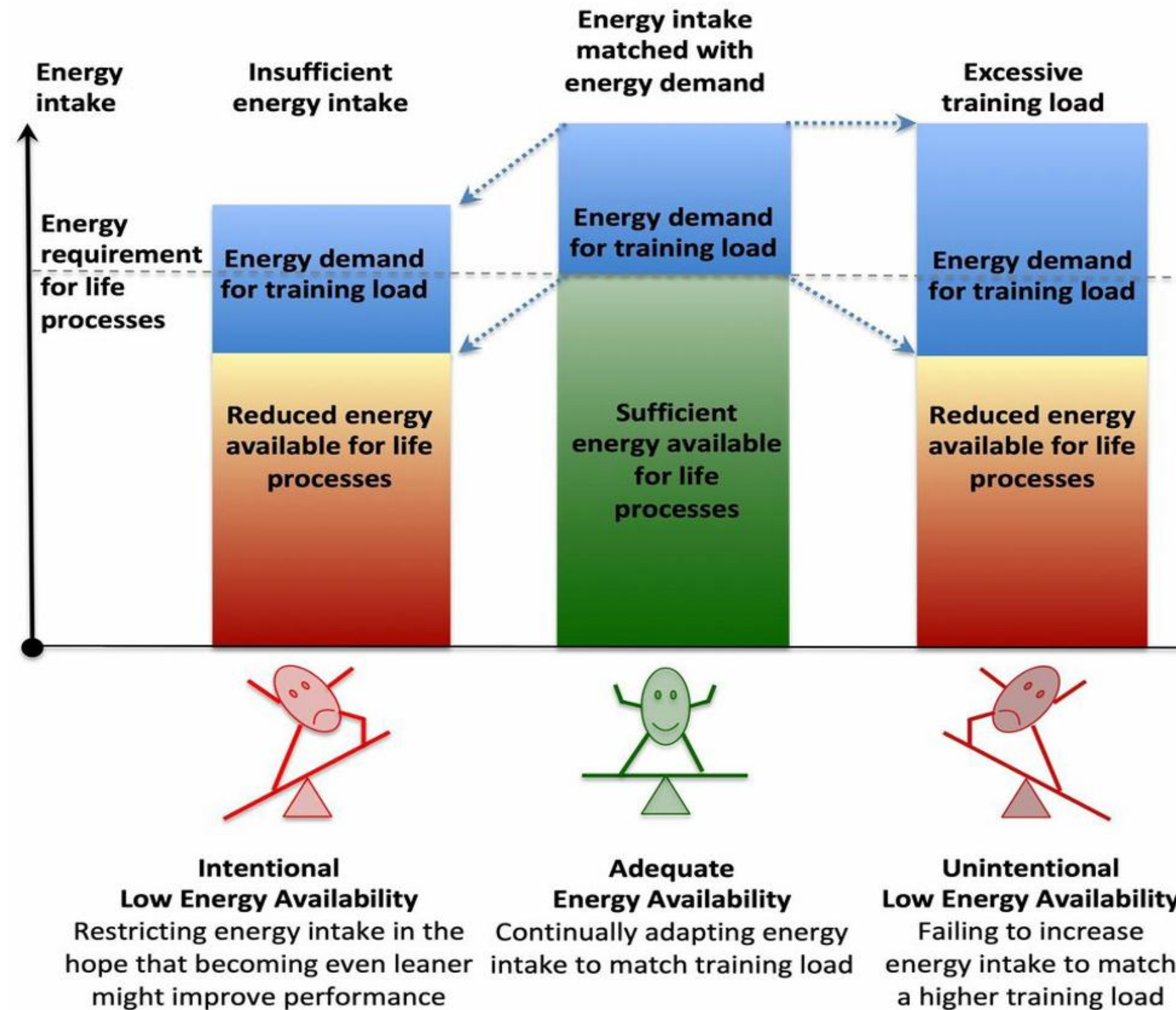
- Menarche at 13
- Two years later, she's still having 90-day cycles, likely anovulatory
- Clinical androgen signs: jawline acne
Assess for under-fuelling: ask directly about restriction and activity level

First step pathology

- FSH, LH, prolactin
- Testosterone, oestradiol
- TFTs (TSH, T4, T3)
- Metabolic markers like HbA1c, triglycerides

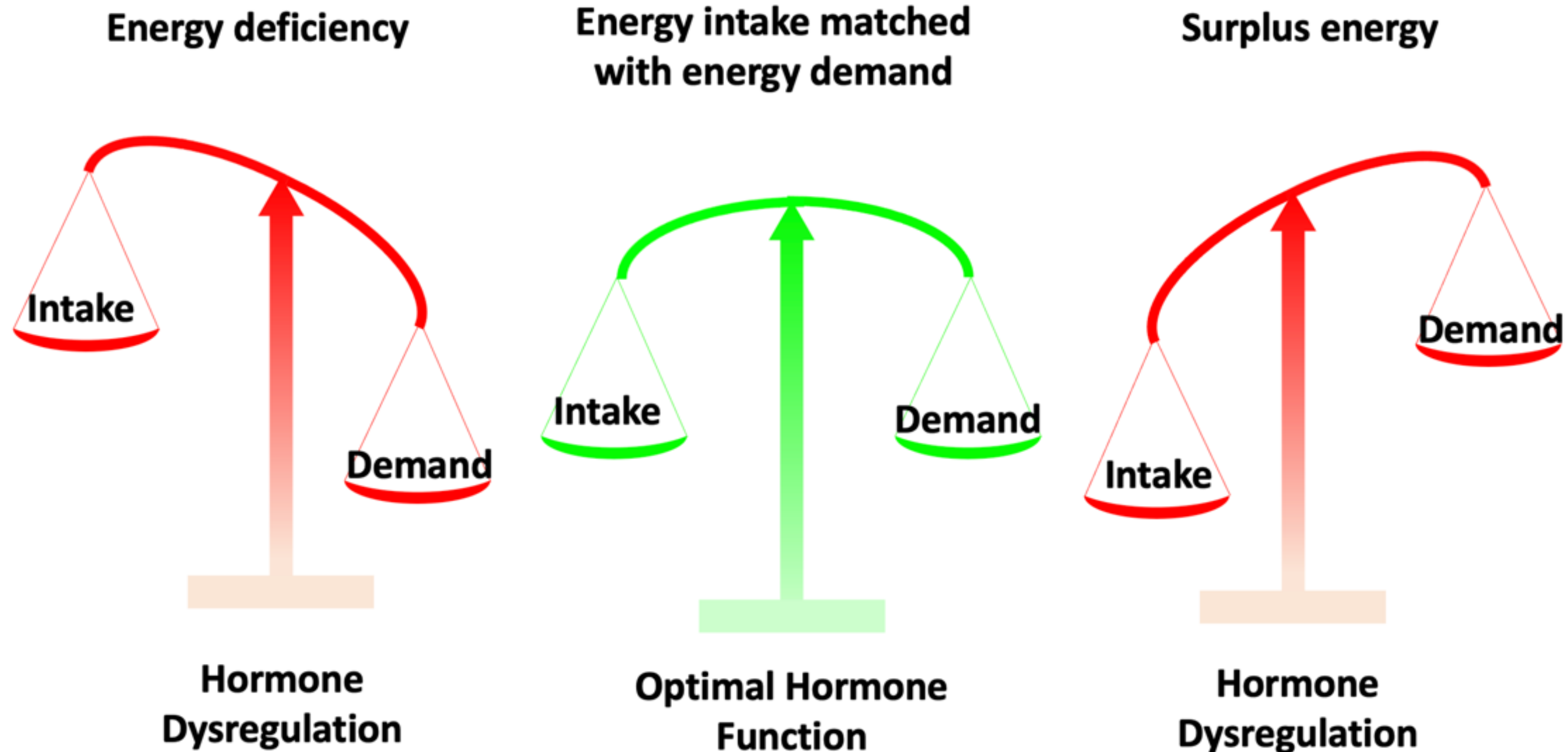
Energy Availability Concept

Matching Energy Intake with Energy Demand

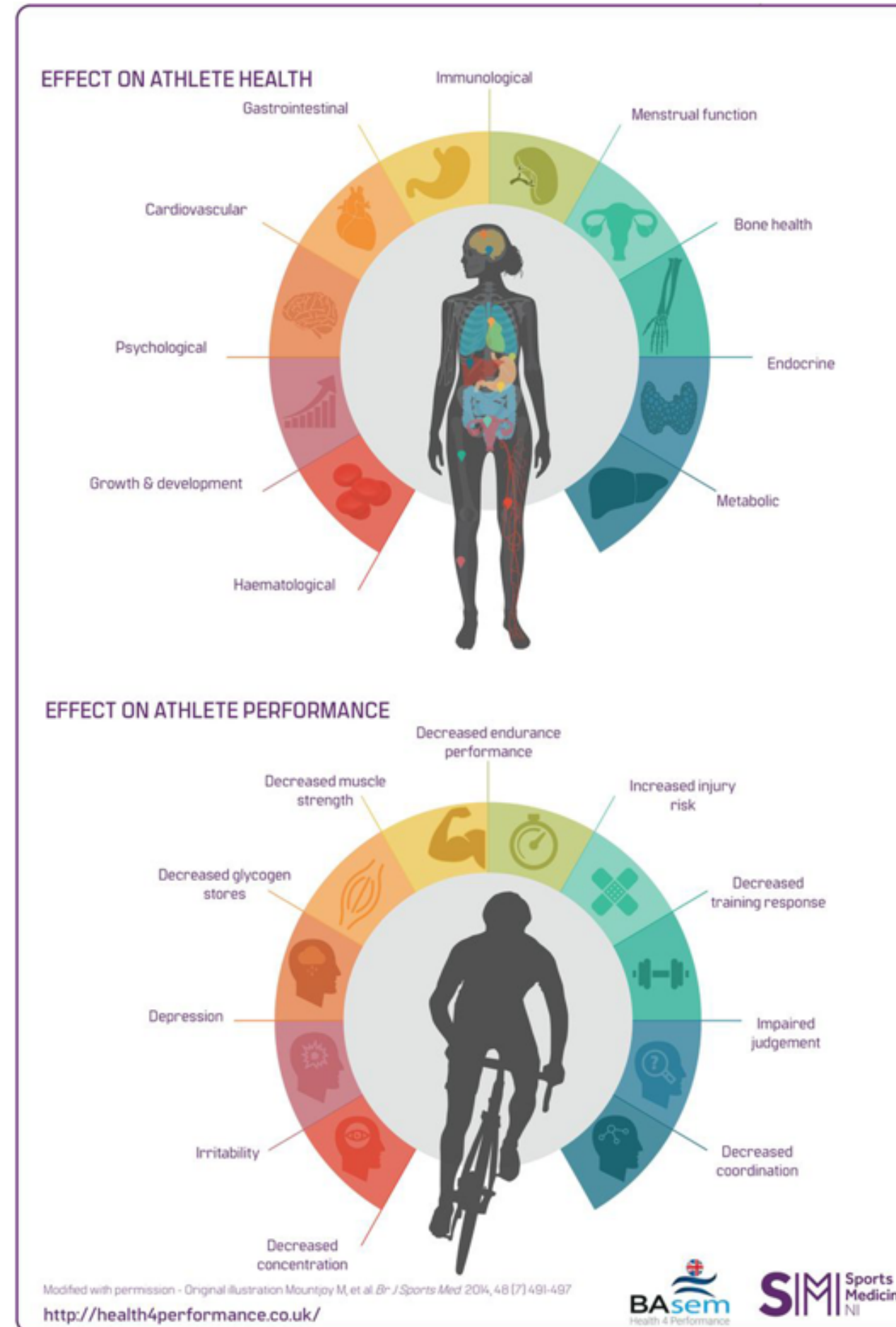


Low Energy Availability forces the body to trigger hormonal responses that adversely affect normal life processes, leading to negative health and performance consequences

Energy Availability and Hormone Function



Significance of relative energy deficiency in sport (REDs)



REDs syndrome of adverse effects on health and performance caused by chronic low energy availability

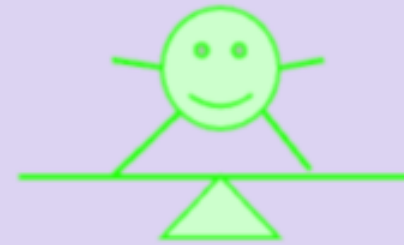
Personal Energy Availability Questionnaire (PEAQ)

Free app <https://mypeaq.streamlit.app/>

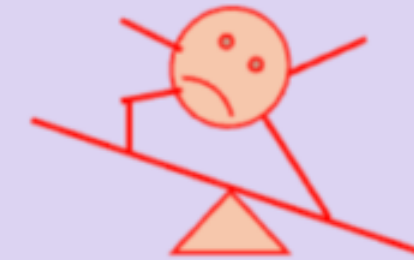
- Evidence based
- Downloadable report



Under-fuelling



PEAQ



Over-training



- PCOS should be diagnosed using the revised consensus Rotterdam criteria
- **In adults** requires the presence of two of;
 - i) *clinical/biochemical hyperandrogenism*,
 - ii) *ovulatory dysfunction* iii) *polycystic ovaries on ultrasound or elevated AMH levels*after other causes of these features are excluded
- In adolescents, **both hyperandrogenism and ovulatory dysfunction are required**, with ultrasound and AMH not recommended

Once diagnosed, assessment and management should address reproductive, metabolic, cardiovascular, dermatologic, sleep and psychological features.

International Evidence-based Guideline for the assessment and management of polycystic ovary syndrome 2023



THE LANCET

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HEALTH POLICY · [Online first](#), May 12, 2026 · *Open Access*

Polyendocrine metabolic ovarian syndrome, the new name for polycystic ovary syndrome: a multistep global consensus process

[Prof Helena J Teede, PhD](#) ^{a,b}  · [Mahnaz Bahri Khomami, PhD](#)^{a,†} · [Rachel Morman](#)^{c,†} · [Prof Joop S E Laven, PhD](#)^d · [Anju E Joham, PhD](#)^{a,b} · [Michael F Costello, DMedSc](#)^e · et al. [Show more](#)

Hypothalamic Suppression

PMOS

Absent or irregular* cycles

Absent or irregular* cycles

*Irregular menstrual cycles are defined as:
> 1 to < 3 years post menarche: < 21 or > 45 days
> 3 years post menarche to perimenopause: < 21 or > 35 days or < 8 cycles per year
> 1 year post menarche > 90 days for any one cycle

Multi-follicular ovaries

Multi-follicular ovaries

Low/normal androgens

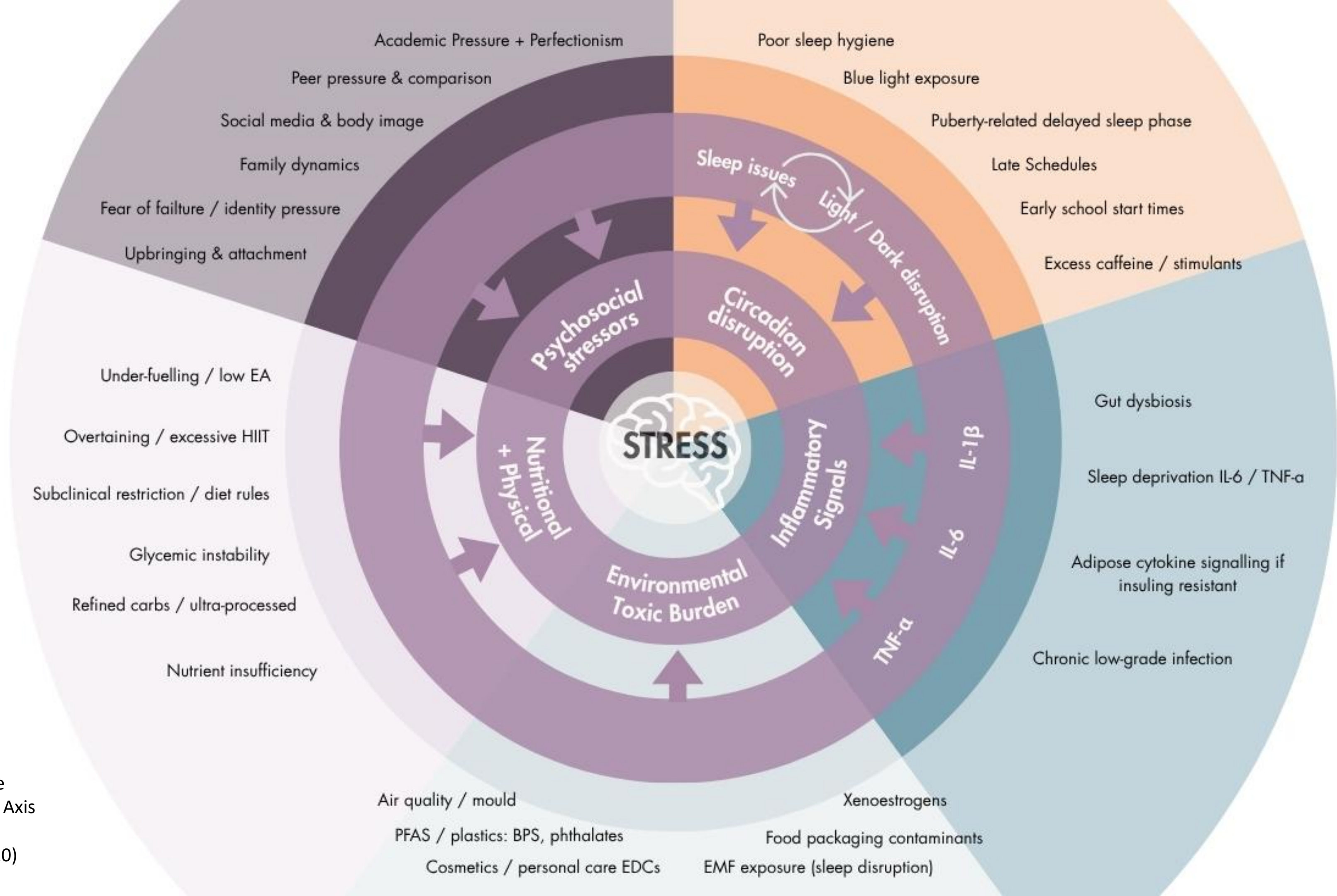
Elevated androgens on pathology or clinical signs

Evidence of "stressors"

May have insulin resistance

Low LH to FSH ratio

High LH to FSH ratio



Adapted; Guilliams TG, The
 Role of Stress and the HPA Axis
 in Chronic Disease
 Management (2nd Ed- 2020)

Maisie



Assessment

- High androgen picture; in the territory of PMOS, but too young to diagnose.
- May outgrow this.

Pelvic ultrasound is not recommended for diagnosis of PMOS within 8 years post-menarche.

Recommendations:

- Increase dietary protein (to improve insulin sensitivity and satiety)
- Blood sugar regulation: Reduce ultra-processed foods
- Inositol 2 grams twice daily
- Zinc 30 mg
- Encourage regular physical activity

Normal puberty	PMOS
Normal genetic "hairiness"	Coarse hair and/or hair on the jawline, below the chin, or in a vertical line below the belly button
Temporary or mild acne	Strong jawline acne that doesn't improve with simple treatment
Long cycles or long bleeds during the first two years of cycling	<u>Cycles</u> still longer than 45 days after at least two years cycling (<3 years) <u>Bleeds</u> still longer than seven days cycles shorter than 21 days

Polly – 15 years

Clinical picture

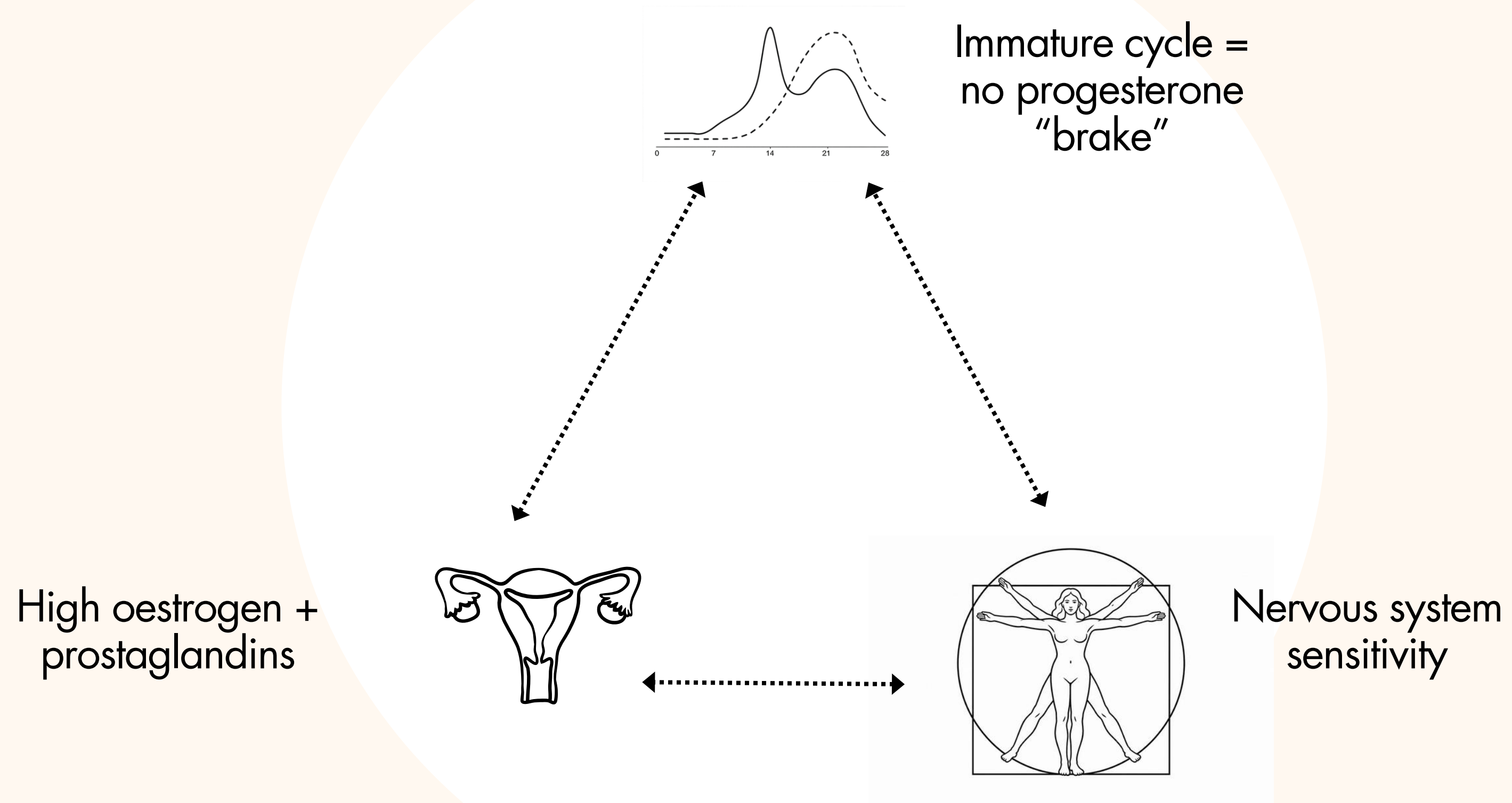
- Menarche at 12
- Strong period pain and heavy flow, bleeding through her pad at night
- Premenstrual headaches and negative mood

First steps

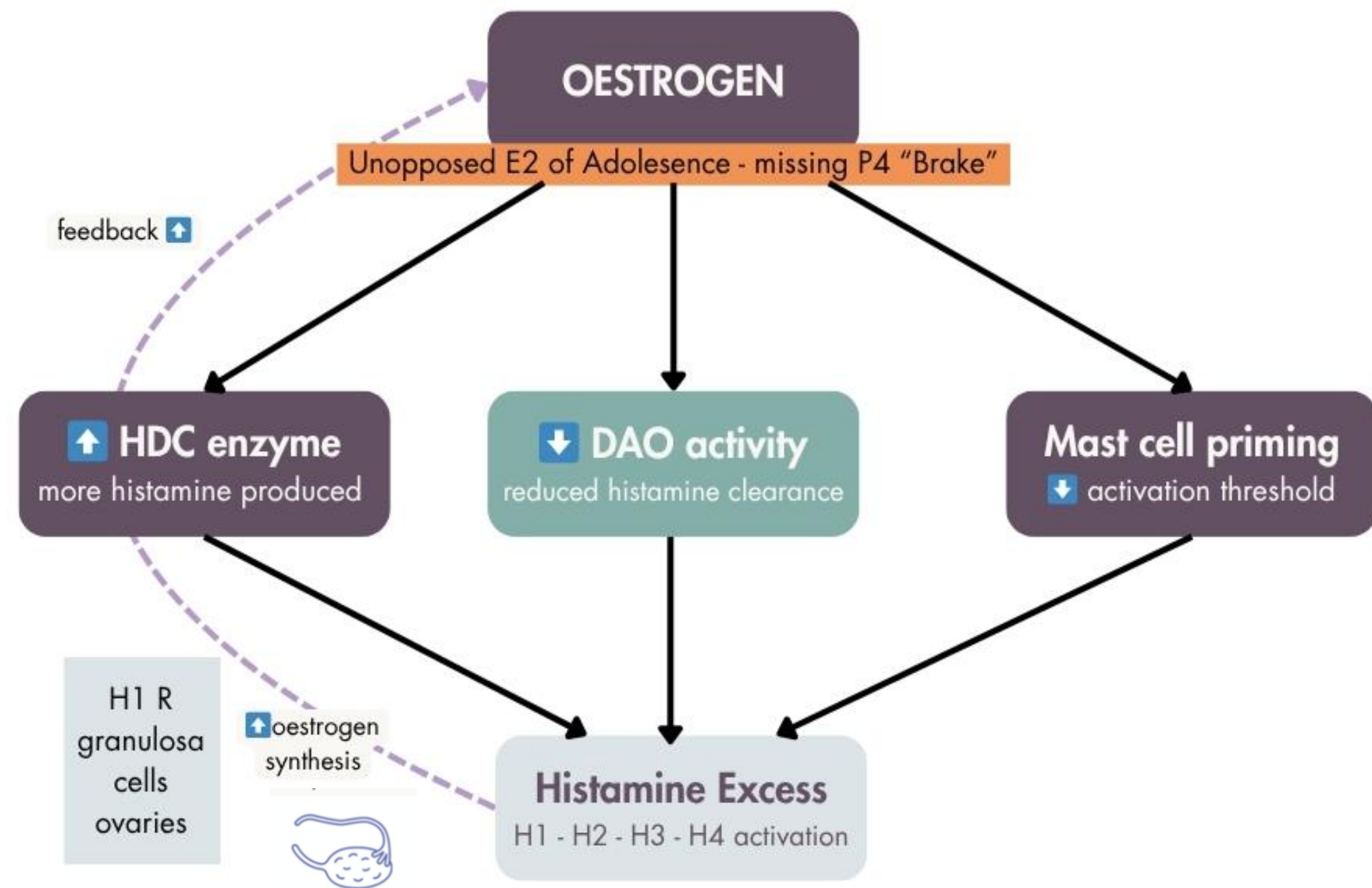
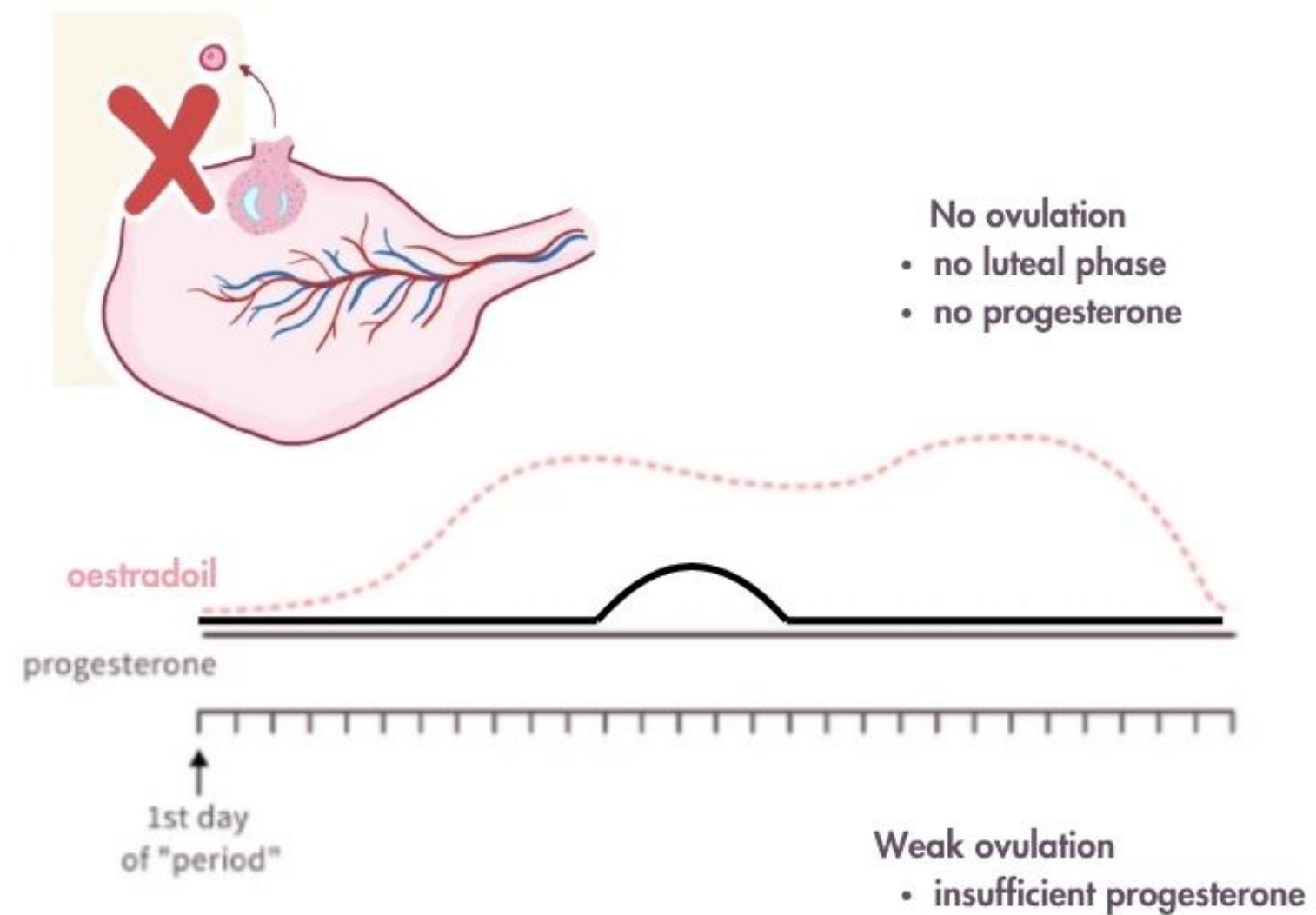
- Pain relief
- Iron studies



Pain and Hormonal Sensitivity in Teens



Anovulatory & "Weak" Cycles



Assessment

- Robust endometrial and prostaglandin response.
- Still maturing cycle creates relative progesterone insufficiency.
- A nervous system that is sensitive to hormonal change.

Recommendations

- Pain relief
- Iron supplementation if ferritin is low
- Dairy-free trial for three months
- Zinc, magnesium, omega-3, ginger, B-complex, and vitamin D
- If pain worsens, assess for possible endo with transvaginal ultrasound.

Polly



The goal is to give girls and young women a chance to mature their cycle and make ovarian hormones.

