Hormone-Supportive Strategies for Enhancing Health & Performance

Nikia Evans, MS, CSCS

Human Performance Coach | OHSU MD Candidate

Why are we here?
Why should you care?

Today's Roadmap:

- Quick intro
- Male hormones
- Female hormones
  - Menstrual cycle (including oral-contraceptives)
  - Phase-specific nutrition (fueling, hydration, supplementation)
- The FREYA Project – Applying these principles to your life!

Sims ST, Heather AK. Myths and Methodologies: Reducing scientific design ambiguity in studies comparing sexes and/or menstrual cycle phases. Exp Physiol. 2018;103(10):1309-1317.

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Welcome

I'm Nikia, a former collegiate and pro soccer player turned human performance coach and advocate for the education of coaches, athletes, parents, and healthcare professionals in hormone-supportive nutrition, training, and recovery.

- NSCA Certified Strength & Conditioning Specialist, Master's in Applied Physiology & Kinesiology, Nutrition Researcher with Stanford Center for Health Education—Nutrition Science Course Certificate for Healthcare Professionals

Why do hormones matter?

- Testosterone
- HGH/IGF-1
- Cortisol

The obvious goal of a human performance coach is to balance healthy levels of these hormones.

Chronic elevation of cortisol:

- Testosterone (↓ ↓)
- HGH/IGF-1 (↓ ↓)
- Leads to ↑ breakdown of muscle, ↓ muscle repair, ↑ abdominal fat, ↓ bone density, ↓ exercise recovery, ↑ suppression of the immune system

Overall, chronically ↑ cortisol makes athletes more susceptible to illness and injury, while impairing out ability to train consistently at high intensities and get the results we want.

Estrogen is similar to testosterone in its anabolic effects on athletic performance

We can support the production anabolic hormones including **testosterone and estrogen**, along with HGH/IGF-1 by:

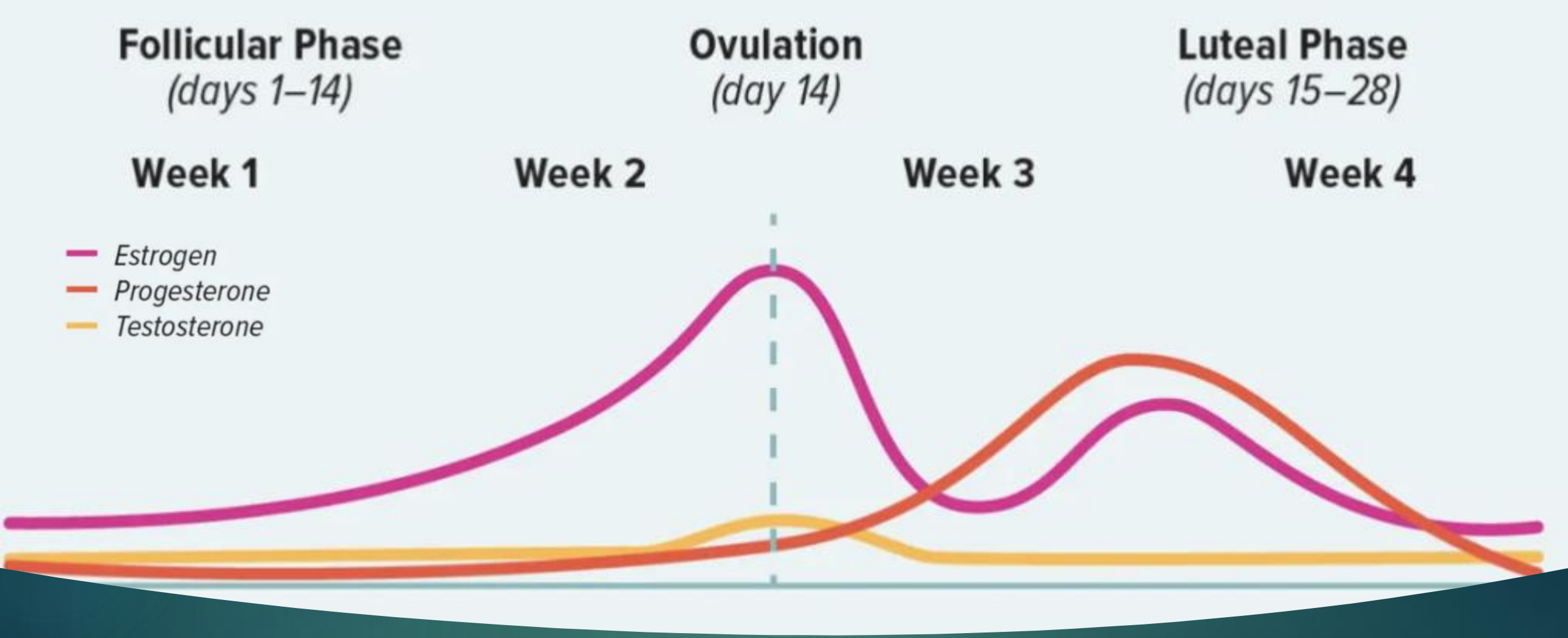
- **Combining resistance training and HIIT + progressive overload**
- **Ensuring adequate rest and recovery** (estrogen and testosterone are produced during the night and release peaks around 6:00 AM)
- **Avoiding overtraining and undereating** → chronically elevated cortisol disrupts hormonal balance (paradoxically, men may produce more estrogen and women may produce more testosterone in conditions of chronic stress)

Frontiers | Links Between Testosterone, Oestrogen, and the Growth Hormone/Insulin-Like Growth Factor Axis and Resistance Exercise Muscle Adaptations. Accessed September 30, 2023.

Why do hormones matter?

- **Estrogen**
- **Progesterone**
- Testosterone
- HGH/IGF-1
- Cortisol

Sims ST, Ware L, Capodilupo ER. Patterns of endogenous and exogenous ovarian hormone modulation on recovery metrics across the menstrual cycle. BMJ Open Sport & Exercise Medicine. 2021;7(3):e001047



The Menstrual Cycle

Phase-specific Training, Nutrition, & Hydration For Better Results

Different phases of the menstrual cycle are characterized by different combinations of hormones.

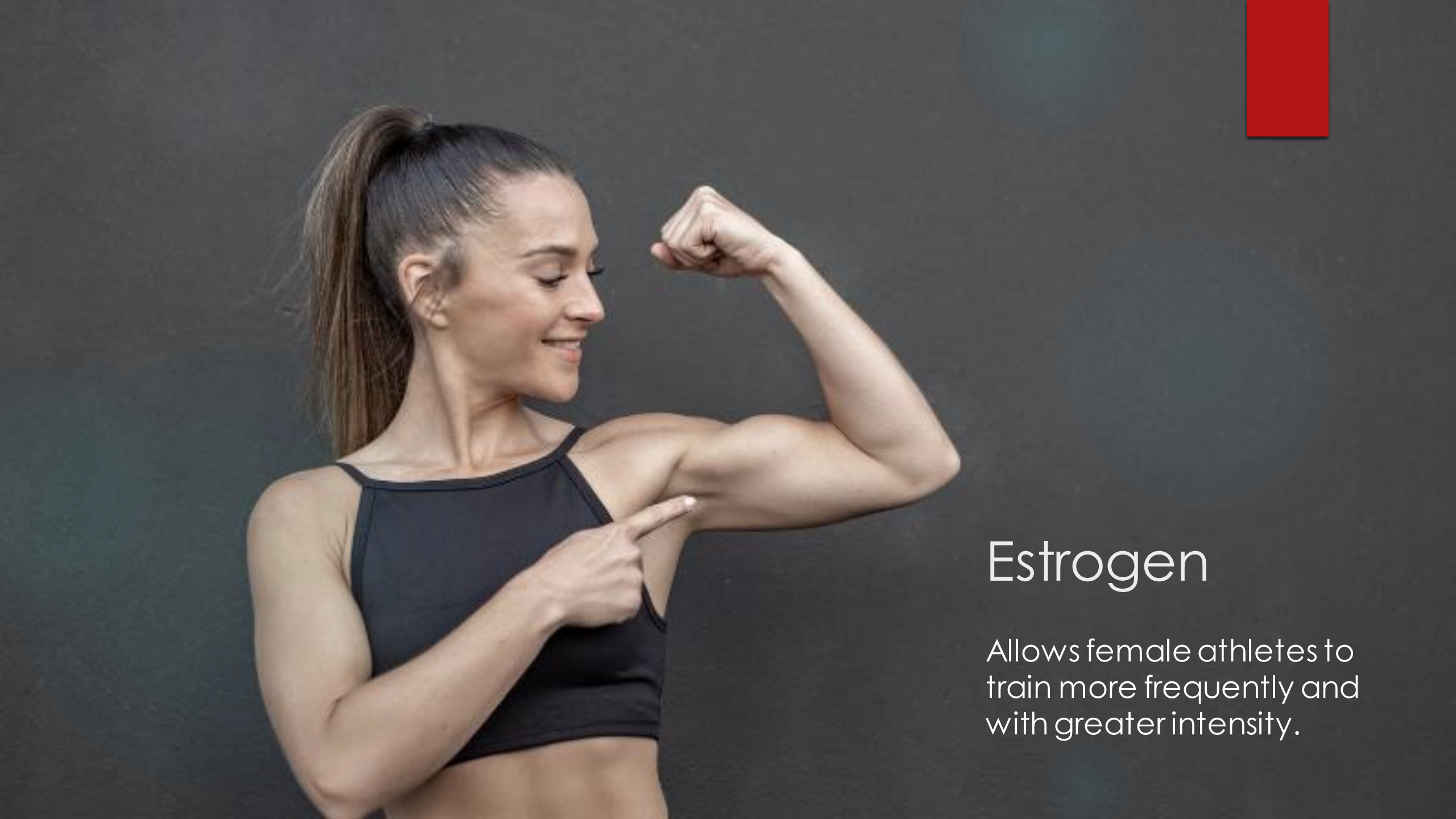
Follicular Phase (days 1-14):

- Major estrogen peak + Testosterone bump

Luteal Phase (days 15-20):

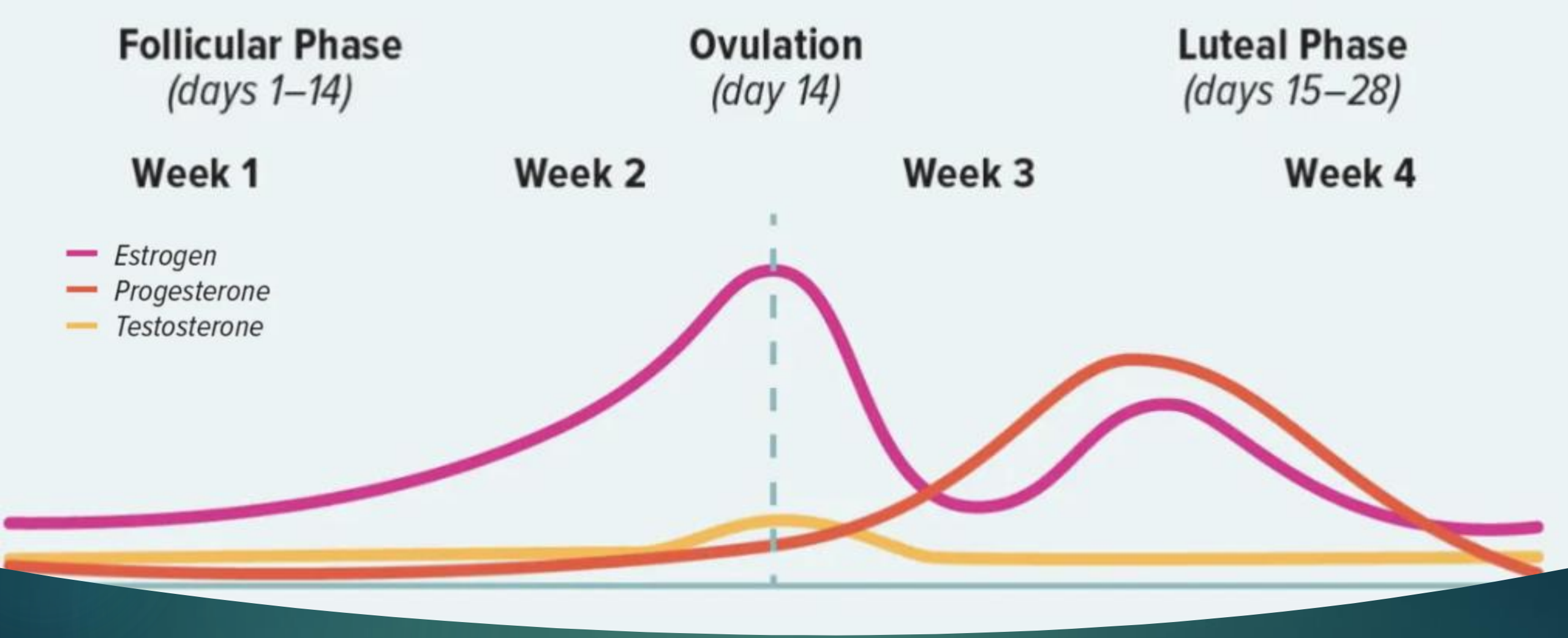
- Progesterone dominant + Estrogen playing more of a supportive role

Professional athletes and some collegiate programs have begun periodizing training, nutrition, and hydration according to their female athletes' hormone status (including the use of contraceptives).

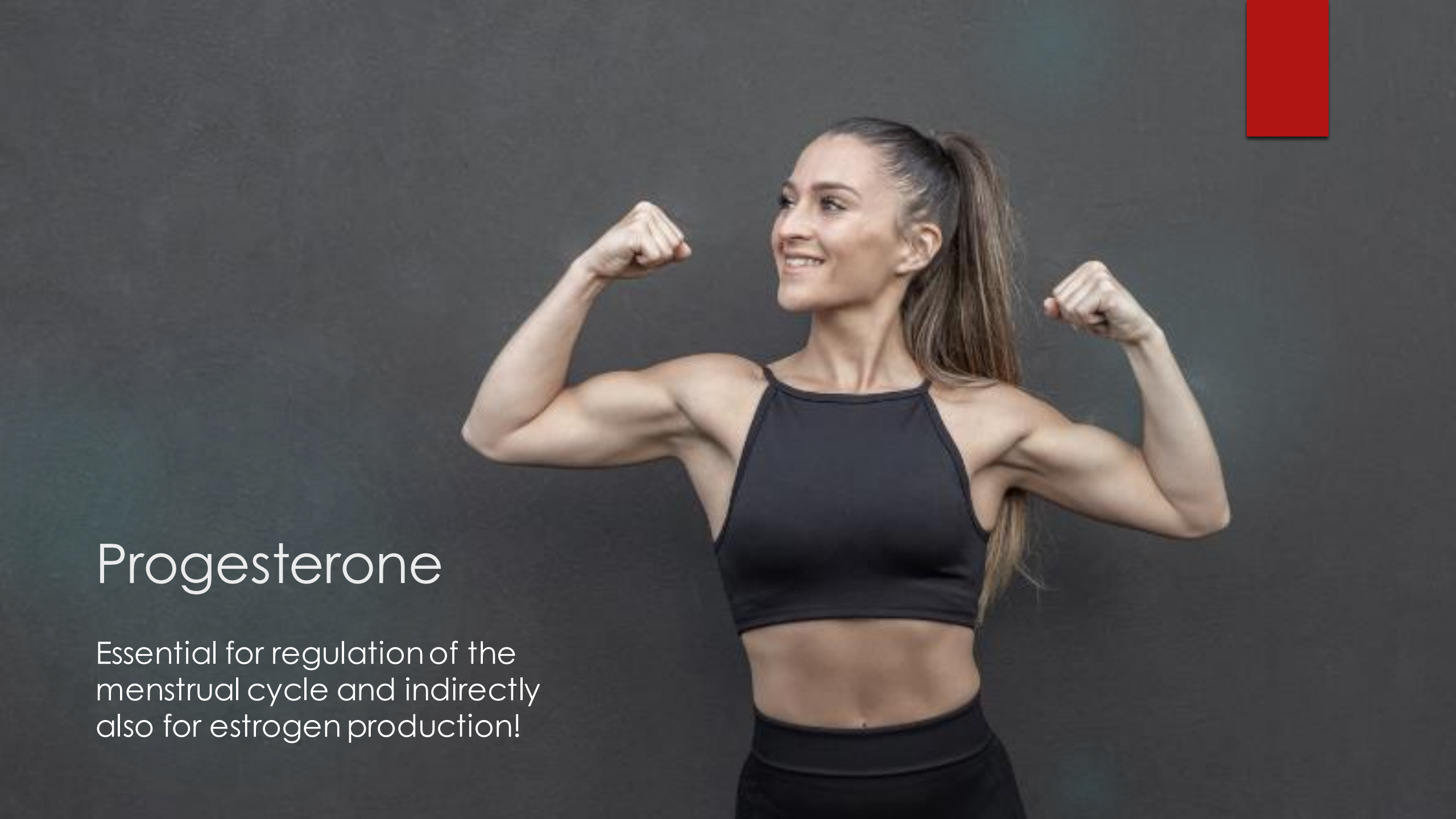


Estrogen

Allows female athletes to train more frequently and with greater intensity.

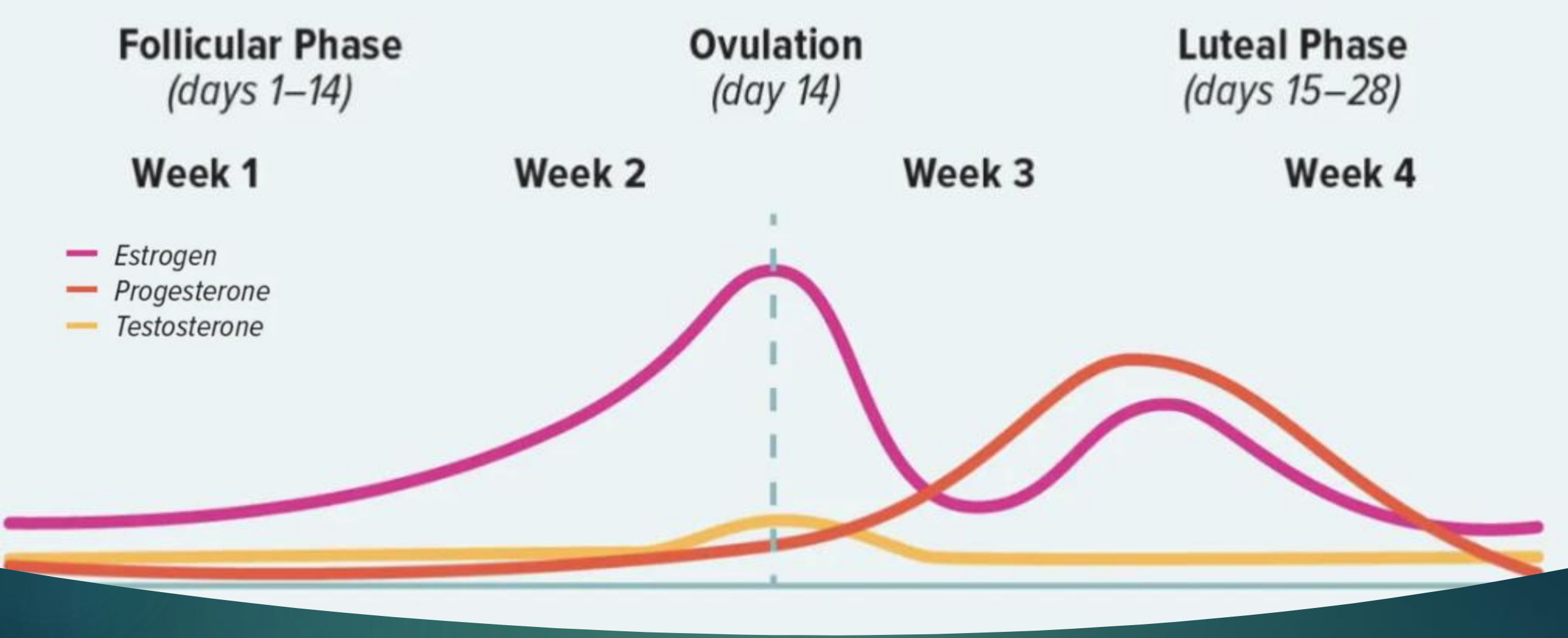


The Menstrual Cycle



Progesterone

Essential for regulation of the menstrual cycle and indirectly also for estrogen production!



The Menstrual Cycle

So how do we improve athletic performance throughout the menstrual cycle?

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Phase-specific:

- Training
- **Nutrition**
- Recovery

Phase-specific Recommendations

Insights from the 2023 ISSN Position Stand:

"We recommend that female athletes of reproductive age should **track their hormonal status** (natural, hormone driven) against training and recovery to determine their individual patterns and needs…"

Sims ST, Kerksick CM, Smith-Ryan AE, et al. International society of sports nutrition position stand: nutritional concerns of the female athlete. *J Int Soc Sports Nutr*. 2023;20(1):2204066.

Phase-specific **Nutrition**

Primary consideration of all athletes should be **achieving optimal energy availability (EA), meeting carbohydrate needs, and proper timing of meals (particularly protein) post-exercise**.

Female athletes can improve performance and recovery by:

- Increasing **carbohydrates**, **protein** (especially EAAs), and **calories** during **luteal phase** of menstrual cycle (or active pill weeks of oral contraceptive use).

Sims ST, Kerksick CM, Smith-Ryan AE, et al. International society of sports nutrition position stand: nutritional concerns of the female athlete. *J Int Soc Sports Nutr*. 2023;20(1):2204066.

Phase-specific **Hydration**

Female athletes have greater risk of hyponatremia and dehydration during the times when progesterone is elevated.

Female athletes can improve performance and recovery by:

- Increasing **hydration** during the **luteal phase** of the menstrual cycle (or active pill weeks of oral contraceptive use) by increased consumption of water and electrolytes.

Sims ST, Kerksick CM, Smith-Ryan AE, et al. International society of sports nutrition position stand: nutritional concerns of the female athlete. *J Int Soc Sports Nutr*. 2023;20(1):2204066.

Phase-specific **Supplementation**

According to Dr. Stacy Sims, PhD, athletes can consider supplementing with the following for improved performance and recovery:

- **Creatine 3 to 5 g per day**
- **250 mg Magnesium, 45 mg Zinc, 1000 mg Omega-3 fatty acids from fish oil, each evening 7 days prior to menstruation** to reduce PMS symptoms
- Improve recovery with **tart cherry juice** (to stimulate melatonin production) and **collagen before bed**

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We've only just scratched the surface!

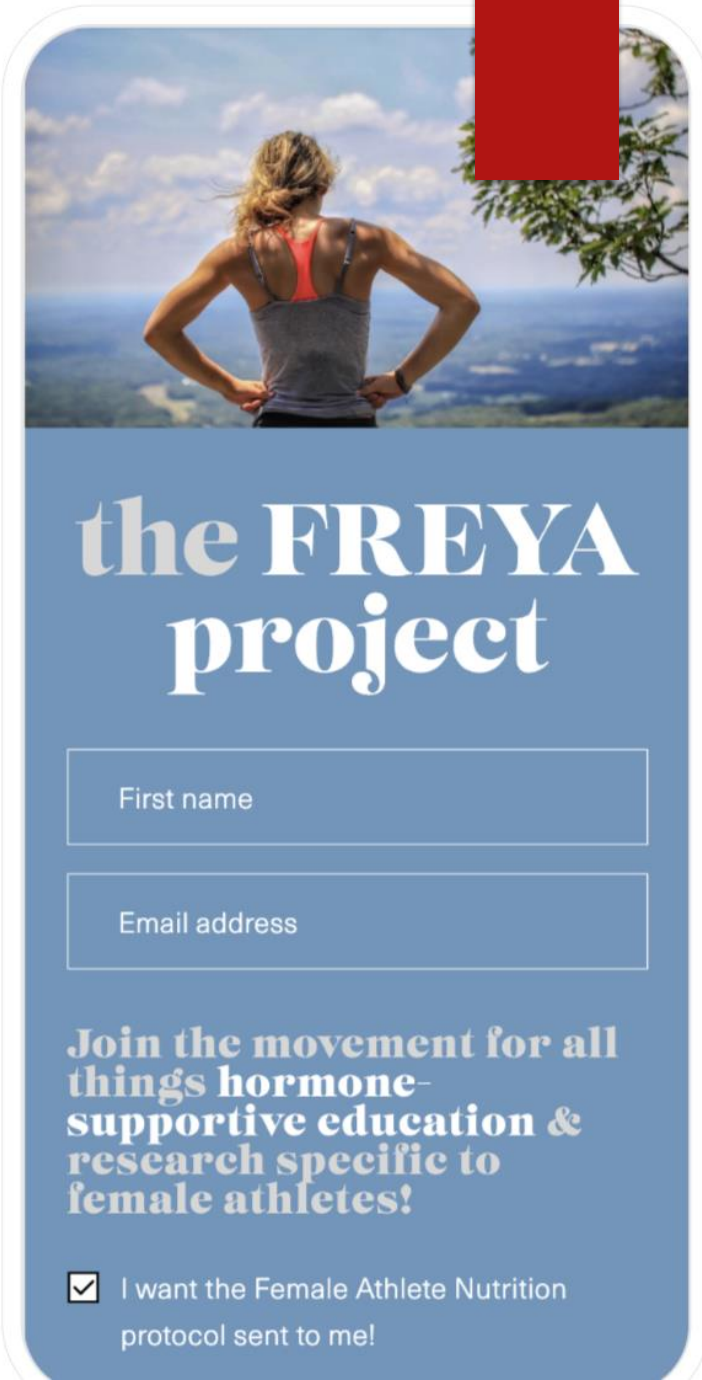
Individualized nutrition and training plans are already the norm at the highest levels of athletics and include **periodization based on metrics like HRV, velocity-based readiness assessments, and power-based recovery scoring.**

- Menstrual cycle tracking and the periodization of training and phase-specific nutritional support are the next step in supporting our female athletes.

Stay connected!

Female athletes deserve the knowledge to reach their full athletic potential!

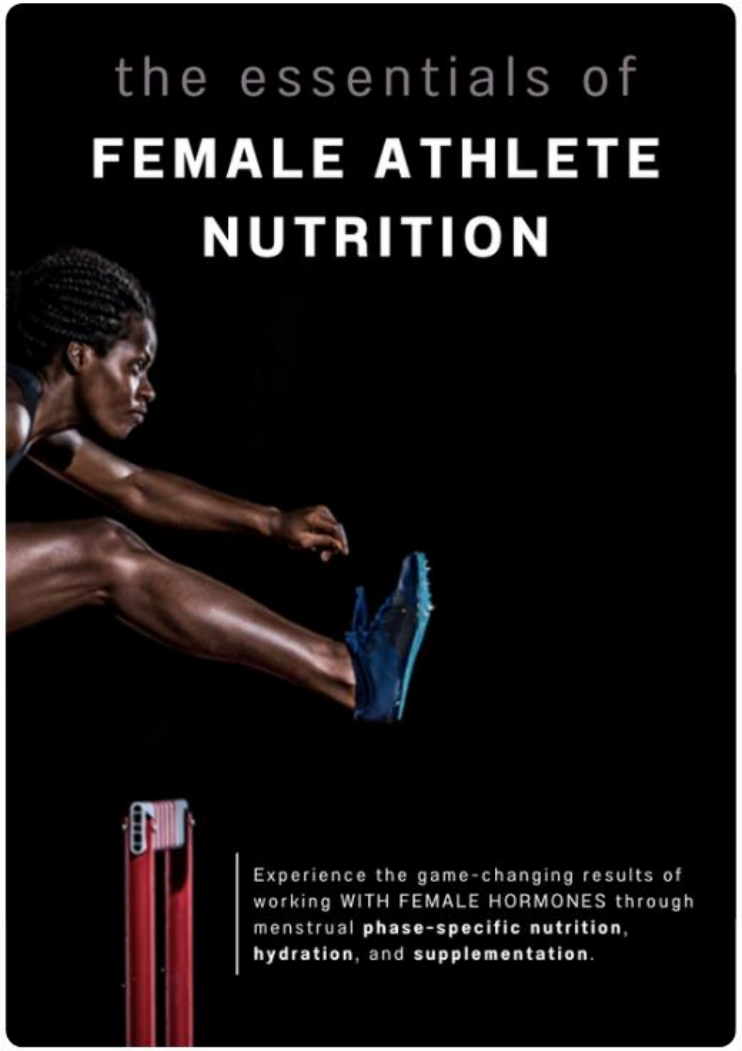
- Grab FREE resources and stay in the loop by subscribing to our growing email for updates on hormone-supportive education, research, & local events for female athletes!
- Get access to the upcoming FREE workshop on phase-specific training, nutrition, and recovery for female athletes!
- Participate in research with wearables you already own and gain insight into your health and performance.



Scan below to grab the **Female Athlete Nutrition** handout!

If you have any questions about this presentation or just want to connect, feel free to email me directly:

evansnik@ohsu.edu



Resources

- Frontiers | Links Between Testosterone, Oestrogen, and the Growth Hormone/Insulin-Like Growth Factor Axis and Resistance Exercise Muscle Adaptations. Accessed September 30, 2023. https://www.frontiersin.org/articles/10.3389/fphys.2020.621226/full
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- Sims ST, Heather AK. Myths and Methodologies: Reducing scientific design ambiguity in studies comparing sexes and/or menstrual cycle phases. *Exp Physiol*. 2018;103(10):1309-1317. doi:10.1113/EP086797
- Sims, S. T. (2016). Roar. Rodale.