Female Weight Cuts

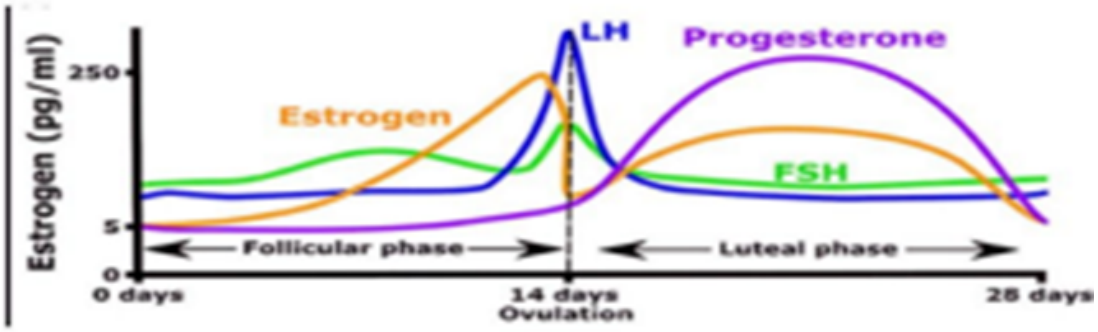
with Dr. Kokes

The elusive perfect female weight cut...You can follow the plan exactly, eat everything right, train to annihilate, and still get thrown a curve ball when it comes to weigh-ins. Female physiology adds another layer on to the already complicated and scarcely researched combat weight cut.

Hormones have such a significant impact on female physiology and the trickiest part about them is their fluctuations that are impacted by nutrition, training, sleep and the stress response. There is very little research on female athletes, let alone papers that separate the differences between

athletes on and off birth control. This leaves us to make a lot of educated guesses and use anecdotal insight to move the education forward towards the safest and most effective ways for female athletes to cut weight.

Let's start with the menstrual cycle, male coaches listen up, you need a handle on this too. Please keep in mind all cycles can vary and the best way to understand yours is to start tracking. My preferred app is Fit-R-Woman and using ovulation tracking sticks to get a good handle on ovulation and cyclical changes. The following information applies to a regular cycle without contraception.



Front. Physiol., 15 January 2019 | https://doi.org/10.3389/fphys.2018.01834

Follicular Phase

Day 1: Bleed starts and lasts on average 4-8 days
Day 13: Estrogen begins to rise
Day 14: FSH/LH (Follicle Stimulating Hormone/ Luteinizing Hormone) stimulates egg release (ovulation). Estrogen dips.

Luteal Phase

-FSH/LH decreases
-Corpus luteum forms and produces progesterone
-High progesterone and estrogen thicken the uterine lining
-If the egg is not fertilized the corpus luteum degenerates and progesterone decreases
-Estrogen decreases and the uterine lining is begins to shed (period starts)

The ebb and flow of hormones is where weight cuts can be severely impacted. So here is what we know about the physiology of female hormones. Also keep in mind these hormones are not working independent of one another, it is a complex web they weave.

During the luteal phase we see an increase in estrogen and progesterone. Estrogen has significant physiological effects that can impact weight cuts in a number of different ways. Estrogen has an impact on fluid retention and in today's society due to diet in lifestyle we often see an estrogen dominant hormonal picture. This can look like significant bloating, digestive changes, significant cramping, and abnormal menstruation (etc.). As estrogen rises we also see an increase in free fatty acid release and suppression of liver gluconeogenesis. These changes can impact nutrition intervention recommendations during fight camp. Estrogen increases central nervous system fatigue so we can see fairly substantial implications to the athletes energy levels and ability to train through these hormonal changes. Estrogen and serotonin have a strong connection which may leave athletes feeling good. This feeling good sensation may not be bad but it could potentially leave the athlete overconfident and push past their limits in the week leading up to a fight. Estrogen also increases ligament laxity so it is really important to understand these implications and make recommendations to the athletes looking out for their best interests and safety. Feeling really good but also having increased ligament laxity could end up as a recipe for injury.

Progesterone may impact weight cuts even more specifically. With a rise in progesterone, body temperature increases 0.5°C on average. Due to the change in temperature, sweat thresholds change as well which potentially could make a water cut (if absolutely necessary) easier. Progesterone competes with the same receptor aldosterone binds to so not only would we see more sweating but saltier sweat which will also influence water weight. Progesterone decreases insulin receptor expression so this in combination with the changes estrogen brings will significantly influence nutrition recommendations during fight week if it happens to fall during the luteal phase. The higher hormone phase can also increase heart rate. This can mimic anxiety type symptoms, working on breath work and mindfulness while understanding these physiological changes could be a game changer for a female athlete who experiences these symptoms.

What can we apply from this for weight cutting?

First off, I strongly believe that athletes should be working with professionals to find a safe way to make weight based on their individualized physiology. The ideal goal for making weight would be to avoid water cutting as much as possible as it leaves the athlete at increased risk not only to poor performance but the higher potential for increased severity of brain trauma if a concussion is sustained. In saying this, female hormones also have an impact on concussions. We see through the research that sustaining a concussion in the luteal phase leaves women more symptomatic and have longer recovery times. Estrogen also has an inverse relationship with brain derived neurotrophic factor (BDNF) which is essential to neuronal healing, survival, and growth.

It seems that in the luteal phase we actually may have an easier time making weight based on the impact progesterone has on the body especially if the need to cut small amounts of water is present. During the follicular phase we are looking at a completely different physiology so it is very important to see how a female athlete responds in both phases out of fight camp. Hydration & electrolyte needs will differ between the two along with nutrition recommendations and fight camp training regimes to get the best out of an athlete.

We can also see how these hormone fluctuations will impact nutrition leading up to a fight.During the luteal phase lower insulin receptors, decreased liver gluconeogenesis and increased free fatty acid release all should be considered when implementing nutrition plans to make weight effectively. We can not pick the day a fight will land on so it is essential to see how your body responds to foods and training in both the follicular and luteal phase of the cycle to maximize performance gains. These hormones play a massive role in tailoring nutrition, sleep, and training to female athletes, but that is a
whole other blog post.

It is extremely important for coaches, trainers, and nutrition staff to understand the differences in physiology and how this will impact performance and an athletes ability to make weight. These are not necessarily negatives they just have to be accounted for in the athletes plan. I can not stress enough how key it is for female athletes to track not only their periods but symptoms that go along with it. This will allow professionals to plan and compensate for fluctuations throughout the month.

Many combat athletes have been missing periods for years and it is my goal to educate and elevate this discussion as you are not optimizing your performance if you are missing your period. Birth control has a significant and potentially negative impact on performance, there is a lot that goes into this conversation but talking to a knowledgeable health professional is essential to make sure you are performing at the top of your game. Premenstrual syndrome (PMS) is just that, a syndrome, as in we can do something about it. Although period symptoms of bloating, cramping, pain, irregularity, acne, heavy bleeding etc. are common they are NOT normal. Please reach out for support in this area as it is very obvious how these symptoms can impact your performance and the pill is NOT your only option.

Dr. Nikole MacLellan ND, RD, BSc AHN, CISSN
(@sportsdockokes)