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- **Stanford Children's Health – Young Athletes Academy**
- Introduction from Dr. Emily Kraus, primary care sports medicine physician at the Stanford Children's Orthopedic and Sports Medicine Center
- Young Athletes Academy partners with 18 Bay Area high schools and youth sports clubs to provide first line athletic trainers and preventative injury support, with local clinics for escalating issues in Sunnyvale, Palo Alto, and Emeryville

Featured expert panelists:

- **Jennifer Carlson, M.D.** - Clinical Associate Professor of Pediatrics in Adolescent Medicine at Stanford; member of the Academy of Eating Disorders, the Society for Adolescent Health and Medicine, and the Female Athlete Triad Coalition; serves as a fellow for the American Academy of Pediatrics.
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- **Jennifer Medina, MA, PCCI** – Professional Clinical Counselor Registered Intern (PCCI) at the Mid-Peninsula Eating Disorder; played collegiate soccer at Cal-Berkeley and professionally, suffered from eating disorder
jennifer@mdpec.com
- **Wendy Sterling, MS, RD, CSSD** – founder of Sterling Nutrition registered dietitian and Board Certified Specialist in Sports Dietetics; team nutritionist for the Oakland Athletics; consulted for Golden State Warriors, New York Jets, New York Islanders, and the local synchronized swimming team - the Santa Clara Aquamaids
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Anna Thomas – started the event by sharing her experience as a competitive athlete D1 athlete in the 1980's struggling with an eating disorder. When first asked to speak, she questioned the relevance of her 30-year old story, but soon realized that her story is unfortunately still too relevant for our female athletes today.

- 1st day of practice in college the coach sent her to a trainer who put her on a 1,000 calories per day eating plan
- Anna's coach shamed her for the way that her body looked, pressured her to be thinner
- Routine weigh-in's for her and 1 other player, fitness tests (that she consistently beat), and disparaging comments about her weight
- Eating disorder snowballed as she bounced between making herself too thin and getting angry, rebelling and putting on more weight than usual
- Went from starting every game and playing whole game her freshman year to never seeing the field by her senior year
- Coach read her eating issues as insubordination and defiance, and a challenge to his authority, instead of realizing that she needed help

Dr. Jennifer Carlson:

- Important to note - male athletes are typically reminded to consume thousands of calories (remember all the discussion about Michael Phelps daily intake), while female athletes are not told to replenish calories as necessary, thus energy imbalances are more common in female athletes
- Highlighted the Relative Energy Deficit in Sports that affects all athletes (male and female). When in energy deficit, i.e., not taking in enough calories, an athlete will be negatively impacted in all the major systems of the body (see RED-S slide) – immunological; gastro-intestinal; cardiovascular; psychological; growth & development; hematological; metabolic; endocrine, bone health; menstrual function
- Specific to the female athlete is the Female Athlete Triad – i.e., the cause and effect between low caloric intake, menstrual function and bone density. A healthy female athlete taking in adequate calories will have strong bone health and regular periods. An unhealthy female athlete who doesn't take in enough calories will present with irregular periods and poor bone density.
- Myths:
 - Missed periods or irregular periods means that a female athlete is physically fit and in top shape
 - Low resting heart rate (below 50) is indicative of reaching peak fitness
 - Either of these things is actually an important WARNING SIGN, indicating medical instability
- Highly recommended toolkit for coaches and athletic trainers from NEDA (National Eating Disorder Association) <https://www.nationaleatingdisorders.org/coach-trainer>

Jennifer Medina:

- With athletes, the beginning of disordered eating is always the desire to perform better - to be better, stronger, faster, more lean
- “Genetics loads the gun, but environment pulls the trigger” – i.e., there is evidence of genetic predisposition to disordered eating, but the environments created by coaches, family and teammates make the difference between who has issues and who doesn’t
- It can start with internal pressure, a comment from a coach, or during and after an injury, when the athlete’s identity has been stripped away and she’s eager to get back on the field, court or pool and desperate to get back to her former playing status and form
- Times of serious injury are especially dangerous for someone pre-disposed to eating disorders- for many female athletes the reason to eat is fuel to train well, perform better and be a part of the strong team experience, when the ability to train and play is removed, there is less motivation to fuel. Must recognize that fueling promotes healing.
- Disordered eating is the predecessor to an eating disorder; e.g., cutting out entire parts of your diet

- Fad diets relevant to some parts of the population are usually not appropriate for competitive athletes with heavy training loads. E.g., most fad diets cut out carbs completely yet carbs are incredibly important to female athletes for energy balance and nutrients.
- Same character traits that make athletes good, when misapplied to eating, also make them successful at eating disorders, for example:
 - Hard working, competitive, committed → perfectionistic, over-trains
 - Never complains, physically tough, can withstand discomfort → denial of pain or discomfort
 - Obedient, pleaser → over compliant, too eager to please, ignores her own needs
- Used the metaphor of an eating disorder like playing on a field in a giant stadium full of fans. The fans are the constant chatter in your head, enabling your disorder and fueling your unhealthy habits. The trick of beating the disorder is emptying the stadium and quieting the chatter.

Wendy Sterling:

- Shared the importance of nutrition and how it plays a key role in the performance of female athletes.
- Focus on Energy Balance – i.e., eating the calories that one burns off is essential to maintaining energy equilibrium.
- **Warning Signs** for energy imbalance in female athletes:
 - Chronic fatigue
 - Lots of working out, but no improvement
 - Soreness
 - Bonking during practice
- Who's at risk for energy imbalance:
 - Vegetarians (popular among high school students for ethical reasons)
 - Picky eaters
 - High mileage/long (multiple) workout athletes
 - Athletes with history of eating disorder
 - Weight focused sports, e.g., light weight crew, wrestling
 - Athletes going through major life transitions, e.g., transition to high school, parents' divorce
- Assessing energy balance requires looking at volume (how much someone is eating), balance/variety (what types of different foods they are eating), timing (how often they are eating), and consistency (are they showing any particular habits in their eating).
- Guidelines for how much female athlete should consume per day: 1800-2400 calories (plus 500 calories or more, depending on how many calories they burn during a workout), 15% protein, 30% fat, 55% carbs, and 1300 mg of calcium. In short, because of workouts, female athletes HAVE to add in more calories than typical teen not working out.

- This baseline is best distributed in a 3 meal, 2-3 snacks format where snacks are interspersed throughout the day between meals to replenish energy as necessary.
- *See visuals of recommended plates in Wendy Sterling PDF of slides. Important Note:* half of plate should be carbohydrates or grains for female athletes, though carbs are thought to be bad for non-competitive adults and often left off dinner plates these days, they are incredibly important for young female athletes and help get enough calories for the energy balance.
- Important nutrients for adolescent female athletes:
 - **Calcium** for peak bone mass production (see *Wendy Sterling PDF for good sources of calcium and amounts*)
 - **Healthy fats** to help with hormonal balance & menstrual regularity
 - **Sodium** – the main electrolyte that needs replacing after workouts & sweating.
- Iron deficiency common among female athletes - affects concentration, focus, energy, and can lead to anemia. Female athletes with heavy periods are especially at risk of anemia.
- Vegetarians need more iron because plant-based iron is harder for the body to absorb and use effectively.

Q&A session:

Q: What should my athlete be eating on a typical day of competition? When, what, how much?

A: Follow same guidelines and 3 meals with 2 - 3 snacks and similar schedule. Sometimes games fall right in meal time, so may have to get up early to fit the meal in 2 hours before start of the competition.

Q: Can you help us coaches/parents with the words to use if we notice our athlete might be having issues with food?

A: Ask, “How are you doing?” instead of “What are you doing?” Watch out for red flags such as consistent injuries that keep the athlete from fully returning to the playing field. The panelists also warned that most red flags will be subtle and not always easy to catch, so being vigilant and caring is absolutely essential when it comes to coaching.

Q: As a coach, if my athlete has a known issue, how should we communicate to the rest of the team? Sometimes coaches ignore it all together, yet there's an undercurrent within the team that leaves the athlete feeling even more alienated. Other coaches “out” the player to the team when the player is not ready to go public and share her experience. What's the healthiest way to address it with the team?

A: Ask the player how she wants to handle it with her teammates and involve her parents in the discussion. Honor her wishes.

Q: Related to the Netflix documentary *What The Health?* that equated one egg to five cigarettes, what are viable sources of protein if eggs are now out of the question?

A: The film is grossly exaggerated and based on little to no research studies. Eggs are still fine to eat, but that the best sources of protein are those with high iron levels (such as red meat).

Q: What are your recommendations for post-training recovery?

A: Glycogen restoration should be addressed immediately after a workout (within 45 minutes of the end of workout.). Whether it's eating a snack right after practice and then going home to eat dinner an hour or two later, or eating a meal after practice and then snacking a little later, it important that athletes combine carbs and protein in order to recover properly.

