Prevent an Eating Disorder - Save an Athlete
Dr. Melissa Novak D.O.
Primary Care Sports Medicine
Oregon Health Sciences University

20 Year Old Collegiate Track Athlete

- Tibia (thin)
- Overstressing the lower legs can result in shin splints. Shin splints are small tears in the leg muscles at their point of attachment to the shin.

2014 Female Athlete Triad Coalition Consensus Statement

What we are going to talk about

- Define Female Athlete Triad Syndrome
- Explain How **YOU** can Prevent and Screen in the during physical therapy
- Explore Diagnosis and Return to Play Guidelines
Meet Sarah.

- “I realized that as I worked harder and lost some weight, my times were improving."
- “So I figured that if a little weight loss was good, a lot would be even better.”

TO THIN TO TRAIN??

Age 22, Multi-organ Failure, 60lbs
Christy Henrich

Born: July 18, 1972  Died: July 26, 1994

Christy Henrich
Simple Logic:

- Sarah's downward spiral into the depths of anorexia is perhaps most disturbing for its simple logic:

- If a few pounds were good for performance, a lot of pounds would be amazing…

Improved cardiovascular fitness
Increased strength and power
Decreased morbidity and mortality
Decreased high-risk behavior
Decreased risk of breast cancer
Improved cognitive function
Improved bone strength
Improved self-esteem
Healthy aging

Unrealistic standards of appearance and performance
If a little weight loss is good, More is Better

“Smarten up”

- “Even though your score is suppose to be based on your routine, you must know that you are giving the judge lots of signals…approach the apparatus with your head high, clothes tidy, hair in place. You will be “saying” to the judge you have trained well…Judges will see you in a positive light. They may even be tempted to run out on the floor and pinch your cheek because you are killing them with “cute”. Judges love “cute” so work it babe!”

Female Athlete Triad- Defined in 1992

The Female Athlete Prism-The Spectrum of the Female Athlete Triad
Screening Recommendations

- Female Athlete Triad Coalition recommends screening once a year with self-reported questionnaire.
- If there is any one symptom of the triad further investigation should be initiated.

Female Triad Coalition Questions??

- Have you ever had a menstrual period?
- How old were you when you had your first menstrual period?
- When was your most recent menstrual period?
- How many periods have you had in the last 12 months?
- Are you presently taking any female hormones (estrogen, progesterone, birth control pills)?
- Do you worry about your weight?
- Are you trying to or has anyone recommended that you gain or lose weight?
- Are you on a special diet or do you avoid certain types of foods or food groups?
- Have you ever had an eating disorder?
- Have you ever had a stress fracture?
- Have you ever been told you have low bone density (osteopenia or osteoporosis)?

Low Energy Availability

Energy Availability = Energy Intake - Energy Expenditure

Consequences of Low Energy Availability

- Osteoporosis
  - Healthy bone
  - Osteoporosis

How Can You Assess Low Energy Availability

- Energy availability calculator on Female Athlete Coalition Website: [http://www.femaleathletetriad.org/calculators/](http://www.femaleathletetriad.org/calculators/)
- Nutrition assessment with sports dietician
- Energy expenditure apps

How Athlete’s Reduce Energy-disordered eating

- Abnormal eating behaviors
  - Fasting
  - Binge-eating
  - Purging
  - Diet pills
  - Laxatives
  - Diuretics
  - Enemas
- Eating disorders/mental health disorder
  - Anorexia/Bulimia
Menstrual Dysfunction

- Amenorrhea: primary or secondary
  - Primary: delay of menarche
  - Secondary: cessation after regular menstrual cycles have been established
- Underlying factor is inadequate energy availability
- Amenorrheic women are infertile due to absence of ovulation, **BUT** they may ovulate before menses is restored = unintended pregnancy!

Osteopenia/Osteoporosis

**Bone loss is often irreversible**

**May be present without menstrual dysfunction**

**Stress fractures occur more often with menstrual irregularities**

Health Consequences

- **Psychological Health**
  - Low self esteem, depression, anxiety
  - 5.4% athletes with eating disorders reported suicide attempts
- **Medical Complications**
  - Cardiovascular, endocrine, reproductive, skeletal GI, renal and central nervous systems

Sarah: “I felt alone…”

- For most health issues, off to the PCP…
- “When I went to see my PCP, it was not helpful”
  - “I was told I should gain weight to reach 120 pounds”
  - “That’s more than I ever weighed before I even began running”

Well Meaning Useless Advice… “I FELT ALONE”

- Disconnect between a PCPs advice and the goals of an athlete
  - No constructive path for an athlete to follow
  - Yes, she needed to add some pounds back on, but she wasn’t willing to give up her athletic dreams to do so

“**I felt alone**”

Prevention/Early Detection

- Education!!
  - Athletes, parents, coaches, athletic trainers, judges, administrators
- Pre-participation Physical
- Presentation with any associated clinic syndrome
- Rule changes
  - Discourage unhealthy weight loss practices
Identify Athletes at Greatest Risk

- Restrict dietary energy intake
- Exercise for prolonged periods
- Vegetarian
- Limit the foods they will eat
- Early start of sport-specific training and dieting, injury and sudden increase in training volume

Identify Athletes Most at Risk for Stress Fracture

- Low BMD
- Menstrual disturbance
- Late menarche
- Dietary insufficiency
- Genetic predisposition
- Biomechanical abnormalities
- Training errors
- Bone geometry

Nonpharmacologic Treatment

- Main goal of treating the triad is increasing energy availability
- Goals: Improved bone health and menstrual function
- Multidisciplinary team is key
- Time course is different for each athlete

Recovery

- Recovery of Bone Mineral Density
  – Process: YEARS
- Recovery of Menstrual Cycle
  – Process: MONTHS
- Recovery of Energy Status
  – Process: DAYS TO WEEKS

Treatment

- Recommend increasing dietary energy intake and decrease exercise energy expenditure or both
- Individual treatment plans: diet quality, timing, incorporation of energy dense foods, adjustments for training
- Increase energy intake gradually 20-30% over baseline needs
- Weight gain of approx 0.5 kg every 7-10d
- Regular monitoring with sports dietitian

Treatment

- Weight gain to achieve a BMI of >18.5
- Return of body weight associated with normal menses
- Reversal of recent weight loss
Calcium and Vitamin D

• 9-18 years
  – Vitamin D: RDA 600 units
  – Calcium: RDA 1300mg

• 19-50 years
  – Vitamin D: RDA 600 units
  – Calcium: RDA 1000mg

Pharmacological Therapy

• Lack of evidence based studies to recommend pharmacological therapy
• Would only be considered in athlete if lacking response to non-pharmacologic management with low BMD + clinical significant fracture history
• In general we do NOT treat with oral contraceptives as they mask the menstrual problems and do not increase bone density

Triad Clearance

• Conundrum: many athletes cleared without proper management and assessment
• Return to Play:
  – Athletes often return after triad associated injuries or illness without adequate management or follow up

Evidence Based risk factors associated with Poor outcomes

• Low energy availability with or without disordered eating/eating disorder
• Low BMI
• Delayed menarche
• Oligo/amenorrhea
• Low BMD
• Stress reaction/fracture history
• Leanness sport

Female Athlete Triad Cumulative Risk Assessment

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Low Risk = 1 point each</th>
<th>Moderate Risk = 1 point each</th>
<th>High Risk = 2 points each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low EI with or without MEED</td>
<td>☐ No dietary restriction</td>
<td>☐ Some dietary restriction; can’t meet energy of RDA</td>
<td>☐ Meets criteria for IDP</td>
</tr>
<tr>
<td>Low BMI</td>
<td>BM 15.5-19.5 or 80-89% of TDEE or weight stable</td>
<td>BM 17.5-19.5 or 80-89% of TDEE or 5-19% weight loss/month</td>
<td>BM 19.6-25 or &gt;89% of TDEE or &gt; 20% weight loss/month</td>
</tr>
<tr>
<td>Delayed Menarche</td>
<td>Menarche &lt; 15 years</td>
<td>Menarche 15 to &lt; 16 years</td>
<td>Menarche ≥ 16 years</td>
</tr>
<tr>
<td>Oligoamenorrhea and/or Amenorrhea</td>
<td>≥ 9 months to 12 months*</td>
<td>6-9 months in 12 months*</td>
<td>≤ 6 months in 12 months*</td>
</tr>
<tr>
<td>Low BMD</td>
<td>2-score 0-3</td>
<td>2-score 1-3</td>
<td>2-score ≥ 4</td>
</tr>
<tr>
<td>Dense Reaction Fracture</td>
<td>☐ none</td>
<td>☐ 1</td>
<td>☐ ≥ 2</td>
</tr>
</tbody>
</table>

*Assessment criteria: based on International Olympic Committee guidelines, For full score card see table above.

<table>
<thead>
<tr>
<th>Points</th>
<th>1 point</th>
<th>1 point</th>
<th>1 point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Athlete Participation in Sport

• Athlete must agree:
  – To comply with all treatment strategies
  – To be closely monitored by health-care professionals
  – Place a precedence on treatment over training and competition
  – Modify type, duration, and intensity of training and competition
• Often useful to have a written contract with the agreements
Return to Play- Complex Equation

- Willingness of athlete to comply with goals
- Sport-specific training demands
- Is the sport an increased risk of medical and/or psychological risk to the athlete
  - Yes: consider limiting or withholding training/competition
  - Withholding training/competition can be motivating

Clearance…

- Need to respect the athletes privacy, very sensitive issue
- However communication with coaching staff extremely important
  - Coaches may be a part of the solution
- If disqualified specific steps need to be outlined for the athlete
  - Who should they meet with
  - What are the consequences
  - Timeframe for return to training and competition

Questions before I summarize?

Female Athlete Triad- Summary

- Spectrum of health and disease based on energy availability
  - Disordered Eating
  - Menstrual Dysfunction
  - Bone Mineral Density
- Identification of those at risk
- Treatment team is multi-disciplinary

Sarah’s parting words-

- “Your body can’t run on nothing. Eventually, you will crash and burn. If a friend or coach says something, be open to considering what they’re telling you. The sooner you get help, the easier it will be to get your life back.”

Thank you!

Melissa Novak, DO
Primary Care Sports Medicine
Oregon Health & Science University
novakm@ohsu.edu
2014 Female Athlete Triad Coalition Consensus Statement on Treatment and Return to Play of the Female Athlete Triad:
1st International Conference Held in San Francisco, CA, May 2012, and 2nd International Conference Held in Indianapolis, IN, May 2013

Primary Authors: De Souza MJ, Nattiv A, Joy E, Misra M, Williams NI, Mallinson RJ, Gibbs JC, Olmsted M, Goolsby M, Matheson G
Expert Panel Members: Barrack M, Burke L, Drinkwater B, Lebrun C, Loucks AB, Mountjoy M, Nichols J, Sundgot-Borgen J
Endorsed by the American College of Sports Medicine, the American Medical Society for Sports Medicine and the Female Athlete Triad Coalition
Published in: British Journal of Sports Medicine, Vol 48, Feb 2014
Clinical Journal of Sport Medicine, Vol 24 (2), March 2014