



## Prevent an Eating Disorder- Save an Athlete

Dr. Melissa Novak D.O.  
Primary Care Sports Medicine  
Oregon Health Sciences University

- NO disclosures



### 20 Year Old Collegiate Track Athlete



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

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#### Consensus statement

Risk Factors	Magnitude of Risk		
	Low Risk = 0 points each	Moderate Risk = 1 point each	High Risk = 2 points each
Low EA with or without DEED	<input type="checkbox"/> No dietary restriction	<input checked="" type="checkbox"/> Some dietary restriction; recent past history of DE	<input type="checkbox"/> Meets DSM-V criteria for ED*
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Delayed Menarche	<input type="checkbox"/> Menarche < 13 years	<input checked="" type="checkbox"/> Menarche 13 to < 16 years	<input type="checkbox"/> Menarche $\geq 16$ years
Oligomenorrhea and/or Amenorrhea	<input type="checkbox"/> > 9 menses in 12 months*	<input checked="" type="checkbox"/> 6-9 menses in 12 months*	<input type="checkbox"/> < 6 menses in 12 months*
Low BMD	<input type="checkbox"/> Z-score $\geq -1.0$	<input type="checkbox"/> Z-score -1.0*** < -2.0	<input checked="" type="checkbox"/> Z-score $\leq -2.0$
Stress Reaction/Fracture	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> $\geq 2$ ; $\geq 1$ high risk or of trabecular bone sites*
Cumulative Risk (total each column, then add for total score)	___ points +	___ points +	___ points = Total Score

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#### Consensus statement

	Cumulative Risk Score*	Low Risk	Moderate Risk	High Risk
Full Clearance	0 - 1 point	<input type="checkbox"/>		
Provisional/Limited Clearance	2 - 5 points		<input type="checkbox"/> Provisional Clearance <input type="checkbox"/> Limited Clearance	
Restricted from Training and Competition	$\geq 6$ points			<input checked="" type="checkbox"/> Restricted from Training/Competition-Provisional <input type="checkbox"/> Disqualified

### 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





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



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

## TO THIN TO TRAIN??

### 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."

## 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

## "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!"

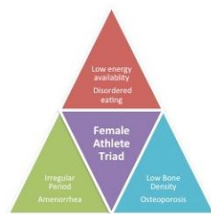


Unrealistic standards of appearance and performance

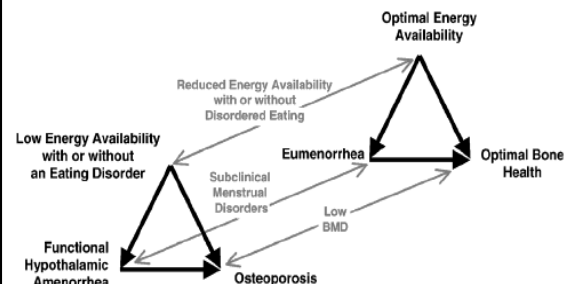
If a little weight loss is good, More is Better



## 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

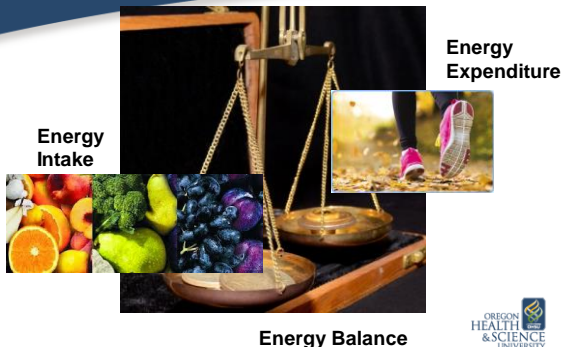


## Female Triad Coalition Questions??

- 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 any one 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



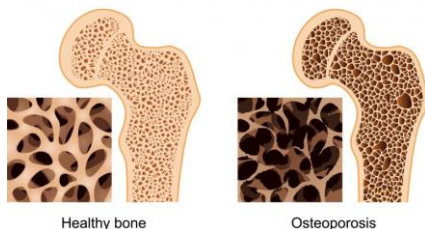
## How Can You Assess Low Energy Availability

- Energy availability calculator on Female Athlete Coalition Website  
– <http://www.femaleathletetriad.org/calculators/>
- Nutrition assessment with sports dietician
- Energy expenditure apps



## Consequences of Low Energy Availability

### Osteoporosis



## 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!

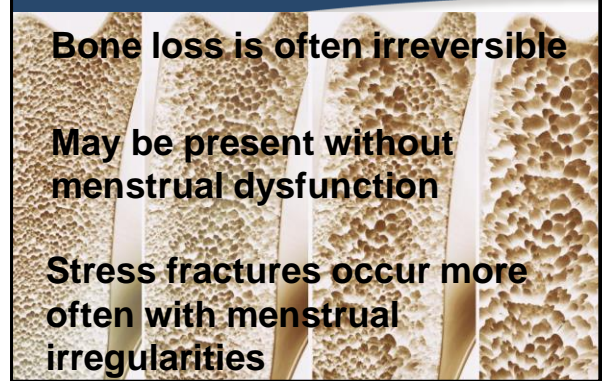


## Osteopenia/Osteoporosis

**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...”

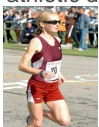


- For most health issues, off to the PCP...
- “When I went to see my PCP, it was not helpful”
  - “I was told I should gain weight to reach 120 pounds”
  - “That’s more than I ever weighed before I even began running”



## 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

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## 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:  
1<sup>st</sup> International Conference Held in San Francisco, CA, May 2012, and 2<sup>nd</sup>  
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

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