Signs to Look for in Athletes with Eating Disorders

USTFCCA

12.2014
Core Disordered Eating Behavior

- Patten of disordered eating: calorie restriction, rigid eating, hoarding, frequent binge eating
Compensatory and Sustaining Behaviors

- Exercise excessive / compulsive
- Body checking, weighing
- Purging (vomiting, laxatives, diuretics, chewing and spitting), regurgitation
Body Image

- Fear of becoming fat, preoccupation with thinness associated with body checking, frequent weighing
- Body Image is distorted, associated with intense self criticism and distress
Mindset/Other Behaviors

- Preoccupied
- Isolation and social avoidance, especially around meals
- Comparing self to others out of context
- Critical self evaluation
- Lack of flexibility
- High Anxiety
- Poor sleep
Types of Eating Disorders

- Anorexia
- Bulimia Nervosa
- BED
- Avoidant Restrictive Food Intake Disorder
- EDNOS ... orthorexia, purging disorder
Eating Disorders

• Risk factors include family history, perfectionism, driven temperament, stresses such as trauma and loss
• Can affect males and females,
• Age of onset is typically early adolescence
Protective Aspects of Sport

• Sport participation can
  – Increase body satisfaction,
  – Improved self esteem,
  – Increase social connection,
  – Provide structure and discipline
  – Reduce isolation
Many develop eating disorders in the context of their sport.
Negative Energy Balance in Sport Can Precipitate an Eating Disorder!

- Relative energy deficiency in sport occurs when diet is not keeping up with demand
- LAE is common in teenagers in general: variable growth and activity demands, social comparisons and increasing independence around meals
- LAE is pathway to medical complications and worsens mindset
Effects of Eating Disorder on Sport Performance

• Eventually the eating disorder begins to effect the athlete physically and psychologically
• VO2 Max and running speed usually decrease after a period of intense dieting
• Inadequate carbohydrate intake leads to glycogen depletion, hypoglycemia and fatigue
• Inadequate protein can lead to muscle wasting, reduced strength and inability to repair after intensive training
• Dehydration leads to fatigue, dizziness and earlier depletion
Negative health effects of long term energy imbalance

Low available energy and osteopenia, amenorrhea (female athlete triad)
Drop in metabolic rate, reduced T3
Cardiovascular changes: low blood pressure, low pulse
Hypoglycemia
Gastrointestinal symptoms
Elevation in cholesterol
Impaired sleep, fatigue, depression
Prevalence in Athletes

• Lifetime prevalence of AN and BN in female athletes ranges from 0.5% to 3.7% and from 1.1% to 4.2%, respectively.
• Prevalence in male athletes is unclear
• Estimates can even range as high as 62% among female athletes
Red Shirt

- An eating disorder is a metabolic injury
- Training should be discontinued during period of evaluation
- Follow guidelines for return to training
Psychological Athletes with Eating Disorders Need to Be in Treatment

As symptoms worsen, athlete becomes isolated

Disorder becomes a way the athlete copes with pressure

Poor performance increases the pressure on the athlete

Performance is eventually affected

Athlete deteriorates psychologically without intervention
Signs of eating disorders in athlete

• Weight loss/ resistance to regain; weight is lower than necessary for best performance
• Poor body image, preoccupation/focus on weight and shape
• Body checking, inspection, critical self evaluation
• Excessive training, exceeding coaches recommendations
• Vomiting after eating
• Binge eating
• Rigid food rules, eating beliefs, rituals around eating
• Acute signs: Fainting, dizziness and dehydration
Evaluation Recommended

- Excessive fatigue with poor rebound
- Gastrointestinal problems such as reflux, constipation, nausea, pain, vomiting
- Overuse injuries/stress fractures
- Very low heart rates
When Sports Culture Puts at Risks

• Emphasis on appearance, weight requirements or muscularity. For example: gymnastics, diving, bodybuilding, rowing or wrestling.

• Emphasis on the individual rather than the entire team: gymnastics, running, figure skating, dance or diving

• Endurance sports such as track and field/running, swimming

• Overvalued belief that lower body weight will improve performance.
Screening for Eating Disorders in Sport

- BMI not a sensitive indicator
- Typical screening instruments SCOFF, EDI, EAT, EDE Q miss up to 40 percent of cases
- Body dissatisfaction is contextual
- Exercise should be assessed based on the sport expectations
Screening Tools

• BEDA Q: (9 items) Brief Eating Disorders Assessment Questionnaire, Sundgot Borgen 2014

• FAST: Female Athlete Screening Tool, McNulty: j am dietetics

• AMDQ: Athletic Milieu Direct Questionnaire Nagel, J athletic trainers
Negative Energy Balance in Sport Can Precipitate an Eating Disorder!

- Relative energy deficiency in sport occurs when diet is not keeping up with demand
- LAE is common in teenagers in general: variable growth and activity demands, social comparisons and increasing independence around meals
- LAE is pathway to medical complications and worsens mindset
When to refer an athlete for **intensive** treatment?

- Weight loss to below 85% of expected weight based on height
- Caloric intake is low and athlete continues to resist increasing caloric intake
- Symptoms are worsening over time
- Athlete engages in excessive training, despite recommendations or injury
- Psychological problems depression, anxiety, obsessional thinking that interfere with training, performance or general functioning at school or work
- Medical complications serious (bradycardia, EKG changes, electrolyte abnormalities, syncope)
- Poor progress in outpatient setting
Runners

- May be at increased risk for eating disorders
- Weight may not be the indicator in lean sports because may not always “look different” or have different weight than naturally lean “normal” lean runners
- Low pulse, amenorrhea, high creatinine, low testosterone, electrolyte abnormalities may be signs
- Fainting, eating behavior, training behavior may distinguishing characteristics
Eating Disorders and Exercise

• Unhealthy exercise plays a role in many, if not, most eating disorders.
• Unhealthy exercise is often related to body image issues.
• Eating disorders can be precipitated and perpetuated by unbalanced exercise.
Medical Reasons Athletes Need to Be in Treatment

- Medical complications are common and potentially life threatening
- Patients with eating disorders have fluid, electrolyte and energy imbalances, increasing the risk of medical compromise while competing... fainting, seizures, falls, tendon/ligament injuries
- Postponing treatment can lead to worse outcomes
- Malnutrition has significant impact on thinking affecting concentration, seeing things in context and impairing judgment
- Malnutrition can lead to brittle bones and metabolic compromise and increased risk of musculoskeletal injury
Rhabdomyolysis

- Who is at risk? Compulsive exercisers, marathon runners, medication exposures, amphetamines, crush injuries, ketoacidosis
- Myalgia (muscle aches/weakness), myoglobin in urine (dark urine), elevated CPK, AST, ALT, reduced urine output
- Treatment: rest, hydration, possible dialysis
- Risks: kidney, organ failure
Psychological reasons athletes need to be in treatment

- Recovery without treatment is unlikely
- Athlete ill with eating disorders tend to deteriorate psychologically and become isolated and more rigid
- As performance is increasingly affected, pressure on athlete is increased, disorder is a coping mechanism
“Conventional Wisdom” says that ED patients should not exercise while in treatment. Why?

- It is risky from a **medical** standpoint.
- It will interfere with the **weight gain** process.
- ED patients are “**addicted**” to exercise and cannot control it; thus, their exercise will be compulsive and/or excessive.
- They will use it as their **primary means of coping**.
Intensive Sport Aware Treatment

- Partial Hospital or Residential Care important unless athlete accepts rest accepting only trainer supported exercise, monitoring and willing to aggressively change eating habits
- Focus on restoring energy balance, changing eating behavior, psychological skills
- Sport aware training also looks at aspects of sport culture, sport nutrition, body image in sport and builds on mental toughness, commitment and practice of skills
- Training is gradually added with attention to energy balance, mindset and readiness
Medical Concerns about exercise in treatment and recovery

- Might prolong energy imbalance and organ damage
- Undermine weight gain
- Increased cardiac risk
- Increase risk of injury
Returning to Sport

• Include trainer and coach in treatment planning
• Set goals for return to sport
• Monitor safety
• Energy availability is greater than 45 kcals/g lean muscle mass
• Required sports dietitian, sports psychologist
• Test exercise load and eating to assure energy balance
• No stress fractures, menstrual dysfunction
Female Athlete Triad: Clearance and Return-to-Play (RTP) Guidelines by Medical Risk Stratification. *Cumulative Risk Score determined by summing the score of each risk factor (low, moderate, high risk) from the Cumulative Risk Assessment.


<table>
<thead>
<tr>
<th></th>
<th>Cumulative Risk Score*</th>
<th>Low Risk</th>
<th>Moderate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Clearance</strong></td>
<td>0 – 1 point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Provisional/Limited Clearance</strong></td>
<td>2 – 5 points</td>
<td></td>
<td>Provisional Clearance</td>
<td></td>
</tr>
<tr>
<td><strong>Restricted from Training and Competition</strong></td>
<td>≥ 6 points</td>
<td></td>
<td>Limited Clearance</td>
<td>Restricted from Training/Competition-Provisional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Disqualified</td>
</tr>
</tbody>
</table>
## Female Athlete Triad: Cumulative Risk Assessment


<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Low Risk = 0 points each</th>
<th>Moderate Risk = 1 point each</th>
<th>High Risk = 2 points each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low EA with or without DE/ED</td>
<td>□ No dietary restriction</td>
<td>□ Some dietary restriction; current/past history of DE;</td>
<td>□ Meets DSM-V criteria for ED*</td>
</tr>
<tr>
<td>Low BMI</td>
<td>□ BMI ≥ 18.5 or ≥ 90% EW** or weight stable</td>
<td>□ BMI 17.5 &lt; 18.5 or &lt; 90% EW or 5 to &lt; 10% weight loss/month</td>
<td>□ BMI ≤ 17.5 or &lt; 85% EW or ≥ 10% 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>Oligomenorrhea and/or Amenorrhea</td>
<td>□ &gt; 9 menses in 12 months*</td>
<td>□ 6-9 menses in 12 months*</td>
<td>□ &lt; 6 menses in 12 months*</td>
</tr>
<tr>
<td>Low BMD</td>
<td>□ Z-score ≥ -1.0</td>
<td>□ Z-score -1.0*** &lt; -2.0</td>
<td>□ Z-score ≤ -2.0</td>
</tr>
<tr>
<td>Stress Reaction/Fracture</td>
<td>□ None</td>
<td>□ 1</td>
<td>□ ≥ 2; ≥ 1 high risk or of trabecular bone sites†</td>
</tr>
</tbody>
</table>

Cumulative Risk (total each column, then add for total score)  

<table>
<thead>
<tr>
<th></th>
<th>______ points</th>
<th>+</th>
<th>______ points</th>
<th>+</th>
<th>______ points</th>
<th>= Total Score</th>
</tr>
</thead>
</table>

*Copyright © BMJ Publishing Group Ltd & British Association of Sport and Exercise Medicine. All rights reserved.*
Medical Clearance for Adding Exercise in Treatment

- BMI
- DEXA
- EKG
- Blood Pressure / pulse; postural VS
- CMP, mag, phos, urinalysis, CBC
Questions about Return

• Safety in athletes with osteopenia or osteoporosis?

• Guidelines:
  – Weight bearing and strengthening can help, increasing lean body mass
  – High impact may injure further
Our Experience with Runners

• Over half of Victory cases
• Early competitive running during adolescence make growth curves and target weight difficult to assess
• Low pulse with unstable EKG a significant concern
• Increased risk of compulsiveness/addiction
• Weight targets: often do not restore normal endocrine function/mindset until at BMI of 20, percent body fat of 20% for females (perhaps genetically more muscular, not typical physique)
Recovery Path

**Days to weeks** improved energy status reverses conservations mechanisms and shifts to synthesis of anabolic hormones and stimulation of bone formation.

**Weeks to months**
- Recovery of sex hormone function, reduction of reabsorption, changes in behavior.

**Months to Years**
- Shift in mindset, body image
- Increased bone formation
Recovery Rates

• Approximately 70% of affected individuals will eventually have complete or moderate resolution of symptoms (Wagner 2006)
• 20% protracted course
• Intensive treatment may be necessary during periods of significant relapse

*Recovery is a marathon not a sprint*