Eating Disorders Among Athletes

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Eating Disorder

• Severe alterations in eating patterns linked to physiological changes. Alterations associated with food restriction, binge eating, purging, and fluctuations in weight. Also involves emotional and cognitive changes that effect the way a person perceives and experiences his/her body.
Anorexia Nervosa (AN)

- Diagnosis Criteria:
  - Under 85% expected weight (age, height)
  - Fear of gaining weight
  - Disturbance in body image
  - Amenorrhea

Anorexia Nervosa

- Two types
  1. Restricting type: not engaged in binge-eating/purging behavior
  2. Binge-eating/purging type: regularly engaged in binge-eating/urging
     - Vomiting, laxatives, diuretics, enemas
Bulimia Nervosa

- Diagnosis Criteria:
  - Recurrent Binge eating
    - Eating a large portion of food (2 hr period)
    - Lack of control
  - Recurrent compensating behavior
    - Vomiting, laxatives, diuretics, enemas, other medication, fasting, exercise
  - 2x a week for at least 3 months

Bulimia Nervosa

- 2 types
  1. Purging Type: self-induced vomiting, laxatives, diuretics, enemas
  2. Nonpurging Type: fasting or excessive exercise
**Anorexia Athletica**

- Must meet all 5
  - 1. Fear of weight gain
  - 2. Calorie Restriction
  - 3. Weight loss
  - 4. No medical disorder to explain wt. loss
  - 5. Gastrointestinal complaints
- Must meet 1 other criteria of AN or BN

**Eating Disorder Not Otherwise Specified (EDNOS)**

- Does not meet all criteria
- Females- have regular menses
- AN- Normal weight range
- BN- less than 2x a week
- Compensatory behavior after normal consumption of food
- Chewing/spitting out food
Binge-Eating Disorder (BED)

- Binge eating episodes without use of compensatory behaviors
  - Vomiting, laxatives etc.

Signs and Symptoms

- Preoccupation with food and weight
- Repeatedly expressed concerns about being fat
- Increasing criticism of one's body
- Frequent eating alone
- Use of laxatives
- Trips to the bathroom during or after meals
- Continuous drinking of diet soda or water
- Compulsive, excessive exercise
- Always being cold
Statistics- Prevalence

- 7-10 million
- 1 million
- 1 in 200
- 2-3 in 100

Statistics- Mortality

- ED highest mortality over any other mental illness
- Mortality rates of ED are 12x higher than rate of ALL other causes of death among females 15-24 yrs old
Medical Complications
- Slow heart rate
- Low blood pressure
- Risk of heart failure
- Osteoporosis
- Muscle loss/weakness
- Dehydration
  - Kidney Failure
- Fainting, fatigue
- Dry hair and skin, and hair loss
- Lanugo

Female athletes
- 62%
- All sports
  - Gymnastics, figure skating, dancing
Reasons for eating disorders

<table>
<thead>
<tr>
<th>Body Image</th>
<th>Low body fat for competition/aesthetics</th>
<th>Make specific weight class</th>
<th>Improved performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sports</td>
<td>Figure Skating Dance Gymnastics</td>
<td>Row Martial Arts</td>
<td>Running Track and field</td>
</tr>
</tbody>
</table>

Female Athlete Triad (FAT)

Disordered eating
- Anorexia
- Bulimia
- Delayed menarche
- Absence of menstrual cycle
- Increased risk of stress fractures
- Low bone density

Menstrual dysfunction    Osteoporosis
FAT Warning Signs

- Irregular/absent menstrual cycles
- Tired / fatigued
- Problems sleeping
- Frequent/recurring injuries
  - Stress fractures
- Striving to be thin
- Decreased caloric intake to improve performance or physical appearance
- Cold hands and feet

Disordered Eating in Males

- Males can sustain dramatically lower body fat than females without profound medical consequences
- Still less prevalent than in females, however…
  - More cases are appearing
  - Younger ages of onset
  - Disordered eating behaviors and anabolic steroid abuse
- Few studies have been completed…
  - Single source samples
  - Non-specific weight control behaviors
Male Athletes & Eating Disorders

- Athletes may choose a sport (consciously or unconsciously) as a way to sustain his disorder
- Sometimes the sport itself promotes eating disordered behavior
  - Weight limits
  - Pressures from coaches and teammates
  - Judging criteria and performance demands
- Athletes may be at a higher risk than non-athletes
  - Drive to win
  - Financial success

Reasons for ED in Male Athletes

<table>
<thead>
<tr>
<th>Make weight for competition</th>
<th>Low body fat advantageously for competition/aesthetics</th>
<th>Desire to bulk up</th>
<th>Body sculpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrestlers</td>
<td>Football</td>
<td>Wrestling</td>
<td></td>
</tr>
<tr>
<td>Horse Racing</td>
<td></td>
<td>Horse Racing</td>
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<tr>
<td>Jockeys</td>
<td>Football</td>
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<td>Figure Skating</td>
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<td>Football</td>
<td>Gymnastics</td>
<td></td>
</tr>
<tr>
<td>Body Building</td>
<td></td>
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Muscle Dysmorphia

The athlete becomes preoccupied with increasing muscle mass, excluding everything else in their lives.

Making Weight

Some athletes will...
- Sit in heated cars or saunas wearing rubber suits
- Skipped meals
- Self-induced vomiting
- Laxatives
Prevalence of Eating Disorders

Estimates of the prevalence are highly variable
- Female athlete: 1% - 62%
- Male athlete: 0% - 57 %

Due to
- definition of eating disorders applied
  - DSM (Diagnostic and Statistical Manual of Mental Disorder) criteria
- the athletic populations studied
  - female athletes
  - Lean sport athletes
- assessment measures

Assessment measures

Popular measures
- EAT (Eating Attitudes Test)
- EDI (Eating Disorder Inventory)
  - EDI-BD (Body Dissatisfaction)
  - EDI-DFT (Driving For Thinness)
- New measures – Q-EDD
  (Questionnaire for Eating Disorder Diagnosis)
Disorder Eating Assessment of College Student-Athletes

• Purpose:
  1. Identify at-risk athletes as part of a screening process designed for eating disorder prevention
  2. Refine the assessment of disorder eating in athletes

Disorder Eating Assessment of College Student-Athletes

• Subjects:
  1. For two consecutive years
  2. 2001: 773 athletes, 46% women
  3. 2002: 882 athletes, 43% women
  4. Both lean & nonlean sport athletes
Disorder Eating Assessment of College Student-Athletes

- **Measures:**
  - Q-EDD
    1. A fifty item self-report questionnaire on DSM
    2. Clinical & subclinical & asymptomatic individuals
  - Diagnosis of Muscle Dysmorphia
    1. 8 questions added in 2002 data
    2. Target men’s eating issues

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### Table 2: Comparison Among Prevalence Rates (Percentages) for Female Athlete Samples

<table>
<thead>
<tr>
<th>Behaviors in the Last 3 Months:</th>
<th>Dieting</th>
<th>Purging</th>
<th>Diet Pills</th>
<th>Amenities</th>
<th>Bulking</th>
<th>Shaving</th>
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<tbody>
<tr>
<td>2002 Q-EDD (n = 354)</td>
<td>6.2</td>
<td>2.8</td>
<td>2.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2001 Q-EDD (n = 353)</td>
<td>7.1</td>
<td>1.7</td>
<td>4.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Johnson, Powers, &amp; Dick (1999)</td>
<td>16.2</td>
<td>8.7</td>
<td>1.4</td>
<td>0</td>
<td>1.1</td>
<td></td>
</tr>
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### Table 3: Comparisons Among Prevalence Rates (Percentages) for Male Athlete Samples

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</tr>
</thead>
<tbody>
<tr>
<td>2002 Q-EDD (n = 467)</td>
<td>4.9</td>
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<td>.4</td>
<td>0</td>
<td>0</td>
<td>1.2</td>
</tr>
<tr>
<td>2001 Q-EDD (n = 419)</td>
<td>4.8</td>
<td>1.5</td>
<td>.7</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Johnson, Powers, &amp; Dick (1999)</td>
<td>12.6</td>
<td>3.3</td>
<td>.6</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
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Disorder Eating Assessment of College Student-Athletes

- Result
  Type of Sport
  2001 – 18.8% lean & 12.1% non-lean
  2002 – 17.5% lean & 9.2% non-lean

Muscle Dysmorphia
1 % male athletes & 0% female athletes

Personality and Psychological Factors as Predictors of Disordered Eating Among Female Collegiate Athletes

Purpose

- What personality traits and psychological factors are predictors of disordered eating among female collegiate athletes

Hypothesis

- Asymptomatic athletes will exhibit
  - Positive well-being
  - Exercise for “positive” reasons
  - Perfectionism???
Methods- Subjects

- 204 Female collegiate athletes
- 3 Division I universities
- Mean age of 20 years
- 17 sports
- BMI avg. 23.1 kg/m2
- 10 Previously Diagnosed with Eating Disorder

Methods

- Web-based surveys
- On campus computer lab
- Researchers available
- No coaches resent
- $5 compensation
Methods

• Demographic information and Weight
  ◦ Self-reported

• Disordered Eating
  ◦ Questionnaire for eating disorder diagnosis (Q-EDD)
  ◦ Classified as
    • Eating Disorder
    • Symptomatic
    • Asymptomatic

Methods

• Perfectionism
  ◦ Multidimensional Perfectionism Scale (MPS)
    • Measured 6 dimensions

• Psychological well-being
  ◦ Life orientation test-revised (LOT-R)
    • Positive vs. negative outcome
  ◦ Rosenberg Self-Esteem scale (RSE)
Methods

- Reasons for exercise
  - Reasons for exercise inventory (REI)
    - Motivation for exercise
- Appearance Orientation
  - Appearance orientation subscale from multidimensional body-self relations (MBSRQ-AO)
    - Investment in look, time spent in grooming

Results

- 148 Asymptomatic
- 56 Disordered Eating
  - 52 Symptomatic
  - 4 Eating Disordered
- Demographic
  - N= 50 minority ethnicities
  - No difference in sport
Multivariate analysis of variance (MANOVA)

- Perfectionism
  - No significant difference among 2 groups

- Psychological Well-being
  - Asymptomatic higher self-worth

MANOVA

- Reasons or exercise
  - Similar on Health/Fitness
  - Disordered Eating more likely to
    - Exercise to feel better
    - More attractive

- Appearance Orientation
  - Symptomatic
    - More time and energy for grooming
Logistic Regression

- QEDD status used as outcome
- Psychological and personality variables as predictors
- Classified
  - 79.4% all athletes
  - 90.5% Asymptomatic
  - 50% Symptomatic

Logistic Regression Results

- Significant Predictors of disordered eating
  - Appearance Orientation
  - Exercising to improve appearance
  - Lower levels of self-esteem
Results

QEDD classification

- Not related to
  - Age
  - Year in school
  - Sport

- Related to
  - Ethnicity
    - Caucasian/nonminority more likely to develop disordered eating

Body Image, Binge Eating, and Bulimia Nervosa in Male Body Builders

- Subjects: 74 volunteers
  - 22 men with Bulimia Nervosa
  - 27 competitive male body builders
  - 25 recreational male body builders

- 22 man clinical sample had sought treatment from eating disorder clinics, symptomatic at time of testing.
  - Binge eating weekly in the past 3 months
  - Persistently over concerned with body shape/weight
  - Using at least one method of weight control within the last 2 weeks
Subjects Cont’d

• Male body builders were recruited at a local gym
  ◦ Criteria for competitive male body builders:
    ✓ Actively training for a competition
      or
    ✓ Competed within the last year
  ◦ Criteria for recreational male body builders:
    ✓ Engaged in traditional forms of weight training at least twice weekly for the last 7 months
      and
    ✓ Had never competed in body building with no plans to do so in the next year

Procedure

• Subjects completed an assessment package:
  ◦ Demographics questionnaire
  ◦ Beck Depression Inventory
  ◦ Eating Disorder Inventory
  ◦ Body building questionnaire (too classify between competitive and recreational)
  ◦ Anabolic Steroid Questionnaire
Results

Men with bulimia had higher scores on the EDI. There were no differences between Body building groups.

However...

Eating disturbances and preoccupation with weight and shape were common among both groups.

1 of the 22 Bulimic men used steroids, while 21 of the 52 body builders used them (mostly the competitive body builders).

Discussion

• 30% of competitive BB’s met the criteria for Bulimia at some point in their lifetime. (A rate 8% higher than recreational BB’s)
• The fact that Bulimic tendencies do exist even in non-competitive BB’s shows that more personal reasons may contribute to the overvaluing of weight and shape.
Discussion

- Although male bulimics were more likely to purge, there were no differences between them and the body builders in the lifetime prevalence of using vigorous exercise, strict dieting, or diuretics.
- The use of steroids in recreational BB’s provides evidence that their practices are for cosmetic, NOT competitive purposes.

The Coaches’ Role

Too often, coaches are unprepared to respond to the needs of an eating disordered athlete. A study found 78% of female high school athletes perceived that they never had a coach speak to them about proper weight loss and nutrition.
Various studies have found...

- Coaches reported they decided whether or not their athletes needed to lose weight based on their appearance (29%), performance (24%), height and weight (12%), body fat % (10%), and fitness/health (9%).
- Most coaches place emphasis on body weight but 37% reported taking no nutrition coursework.
- 44% weighed their athletes.
- 30% suggested athletes lose weight by restricting calories.

High School Coaches’ Perceptions of and Actual Knowledge about Issues Related to Nutrition and Weight Control

Designed to test coaches’ perceived knowledge about nutrition and weight compared to their actual knowledge.
Participants
• 2 coaches of female high school sports in four different high schools.
• 53.7% male coaches, 46.3% female
• 46% coaching 1-5 years, 20% 6-10 years, 34% 10+ years
• All coaches were volunteers

Procedure
All subjects completed the Coaches’ Nutrition and Weight Survey and the Coaches’ Nutrition and Weight Quiz. Both were administered by an on-site coordinator.

Results - Nutrition
• 91% rated their knowledge as average even though only 40% had ever taken classes.
• Less than half were able to identify sources of complex carbohydrates.
• 80% thought that muscle is gained by eating protein.
• These same coaches say they frequently spoke to their teams about nutrition.
Results- Weight Control

- 40% think decreased body weight would improve their athlete’s performance.
- 33% communicated this to their whole team, 28% spoke to individuals.
- 76% reported monitoring their athletes’ weight by visual inspection (37%), group weigh-ins (17%), private weigh-ins (11%), and measuring body fat (11%)

Results- Weight Control

- 82% thought body image distortions happened equally among male and female adolescents.
- 68% thought they had an athlete with an eating disorder.
- 60% say they need more education about eating disorders.
Discussion

- Most frequently used method of monitoring was visual inspection, sending the message that appearance is the most important goal for the athlete.
- Most coaches who used weigh-ins used group weigh-ins, sending a subliminal message that you better lose weight because everyone will know.

What’s a coach to do?

A coach usually has one of the closest relationships with the athlete, and the coaches’ attitude has a huge impact.

1. Keep an open communication with athletes and their families.
2. Emphasize overall health versus performance.
3. Avoid pushing food on the athlete and select food establishments for team meals.
4. Schedule educational team meetings where professionals can give brief presentations.
5. Refer athletes you may be worried about.
6. Reinforce healthy strategies and behaviors to athletes.
Eating Disorder Symptoms among Undergraduate Varsity Athlete, Club Athletes, Independent Exercisers, and Non-exercisers

- Purpose:
  1. examine differences in ED exist between women who are varsity athletes, club athletes, independent exercisers and non-exercisers
  2. determine whether sports anxiety moderate any observed between-group effects.

- Subjects: 274 female undergraduates
- Measures:
  1. EDI (Eating Disorder Inventory) with subscales: DFT (drive for thinness), BUL (bulimia), BD (body dissatisfaction - eating-related behavior and attitude
  2. RSE (Rosenberg Self Esteem Scale)
     - higher scores indicate higher self-esteem
  3. PASAS (The Physical Activity and Sport Anxiety Scale)
     - higher scores indicate a higher amount of social anxiety
**Results**

1. Regular exercisers have higher rates of ED than non-exercisers
2. Non-exercisers have lowest DFT / BUL, also have lower BD
3. Female athletes competed in high level competition and had high levels of sports anxiety experienced the most ED symptoms.

**Suggestions**

1. Women may develop ED symptoms as a result of participating in athletic events and experiencing the associated pressure of competition
2. Coaches and athletic department of competitive athletes need to know that athletes may be at a higher risk for ED
Human Ecology

Society
- pervasive attitudes to body weight
- athlete experience more societal pressure

Family
- overbearing or controlling parents
- parents have a history of alcoholism or substance abuse
- victims of physical

Type of Sport
- specific aesthetic and performance demands
- thin-build sports or require a low body weight or lean physique
  - eg. gymnastics, distance running, figure skating, diving, cheerleading

Person:
- Personality- large tolerance of pain
**Human Ecology**

- **Others**
  - excessive demands from coach
  - discrepancy between one and the perceived idea body weight or peer
  - sudden traumatic event such as injury

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**Resources**