

# Athletes and Eating Disorders

Timberline Knolls

# Learning Objectives

- Participants will summarize the prevalence rates of Eating Disorders (ED) and Athletes
- Will describe the personality characteristics and similarities between ED and athletics.
- Will evaluate the obesity trends in NFL players.

# Outline

- Epidemiology
- Risk factors
- Causes: bio-psycho-social-spiritual
- Physical effects
- Prevention
- Treatment considerations

# Epidemiology--Athletes

- Eating Disorder prevalence rates:
  - 13% in judged sports
  - 3% in refereed sports
  - 3% in non-athlete population
- Judged sports participants scored higher than those in refereed sports on measures of over-concern with weight and size:
  - Eating Disorder Inventory 2 (EDI-2)
  - Body Dysmorphic Disorder Examination (BDDE)
  - Body Shape Questionnaire (BSQ)
- Judged sports may be a risk factor because they allow physical appearance to influence performance evaluation while refereed sports do not

# Risk Factors:

- Baseline Eating Disorder risk factors of non-athletes
- Level of competition: elite v. non-elite
- Type of sport:
  - Team v. individual
  - Judged v. refereed sports
  - Aesthetic sports
  - Endurance sports
  - Weight classes

# Risk Factors:

- Norwegian study: **ELITE ATHLETES** significantly higher rates of Eating Disorders compared to population controls (2)
  - 20% elite female athletes met criteria for Eating Disorder vs. 9% female controls
- Female athletes competing in **AESTHETIC** sports found to be at highest risk for EDs
- Female athletes in **WEIGHT-CLASS** and **ENDURANCE** sports at elevated risk for EDs

# The Sports

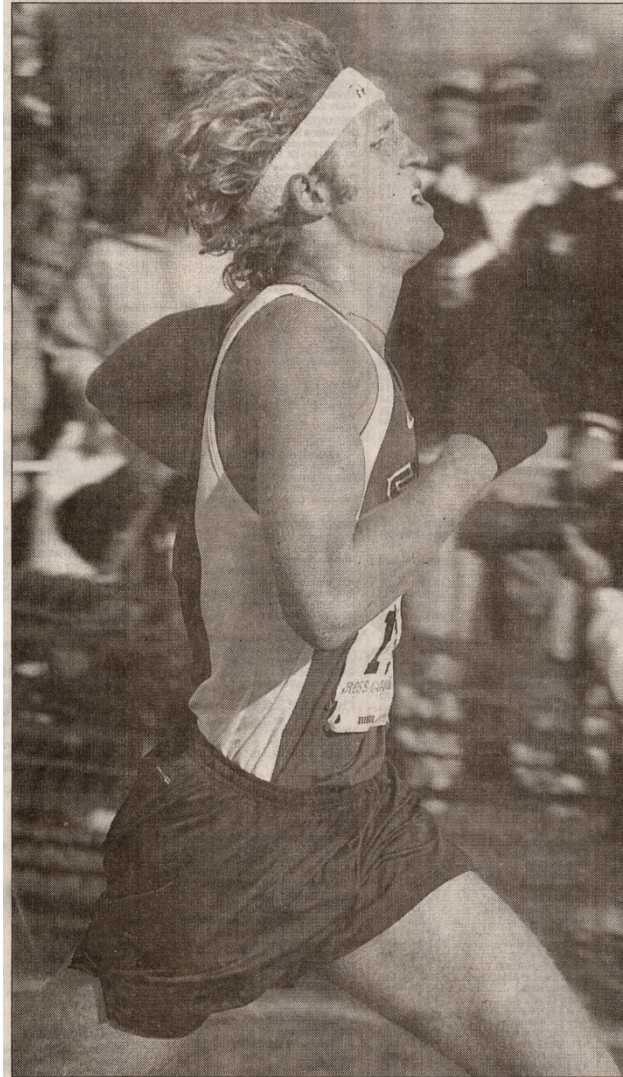
## Women:

- Gymnastics
- Ballet
- Figure skating
- Cross country
- Rowing
- Swimming
- Diving
- Cheerleading
- Body building
- Team sports

## Men:

- Wrestling
- Boxing
- Cross country
- Ultra-marathoners
- Cycling
- Ski jumping (AN/BN)
- Football (BED)
- Horse racing (AN/BN)
- Rowing (AN/BN)
- Body building

STATE CROSS-COUNTRY



Star Tribune photos by Duane [redacted]  
Left, Faribault's [redacted] legs [redacted]  
the final yards to clinch the boys' AA  
cross-country title Saturday. Above  
Stillwater's [redacted] takes t  
girls' AA championship in the 4,000  
meter run.



# Level of Competition and Eating Disorders

- N=109 from Four Varsity Teams, NCAA Division I and III
- Examined relationship b/w female collegiate athletes' levels of competition and eating attitudes and behaviors
- ED females and Female Athletes have similar personality characteristics
  - High self-expectations, competitiveness, perfectionism, discipline, compulsiveness, drive, self-motivation and intense pressure to perform/be slim
- Differences
  - Athletes have better self images
  - Less likely to perceive themselves as fat
  - Different motivations from to be thin – performance vs. desire to be thinner (the line is blurred in aesthetic sports)

# Level of Competition and Eating Disorders

- Findings:
  - Lean sport athletes (running, rowing) had significantly lower BMIs
  - All (except 4) listed their ideal weight as less than their actual weight
  - Menstrual cycles of lean athletes more irregular than both non-lean athletes and non-athletes
- Eating Attitudes Test Scores
  - Division I athletes significantly higher EAT scores than Division III athletes
  - Lean sport athletes had significantly higher EAT scores than non-lean athletes and non-athletes
- Eating Disorder Inventory Scores
  - Division I significantly higher scores than Division III athletes
  - Lean athletes higher scores than non-lean athletes and non-athletes

# Level of Competition and Eating Disorders

- Division I (lean and non-lean sports) scored significantly higher on disordered eating, preoccupation with thinness, and fear of gaining weight.
- Division I athletes more likely to display characteristics that define ED patients, esp. drive for thinness (EDI subscale DT)
- Lean sports (distance running) and sports with weight restrictions (light-weight rowing) had higher scores on tests of eating behaviors and a tendency toward eating disorders than either non-athletes or non-lean sport athletes
- Lean-sport athletes signs and symptoms typical of ED patients:
  - Fear of fatness, body shape dissatisfaction, distinct feeling of self-discipline, denial and control
- Athletes in sports w/o weight restrictions or physical appearance pressures similar risk as non-athletic peers

# Anorexic-Like Athletes?

- Comparison of psychological profile of Anorexics and Athletes
  - Perfectionism
  - High self-expectations
  - Competiveness
  - Hyperactivity
  - Repetitive exercise routines
  - Compulsiveness
  - Drive
  - Tendency toward depression
  - Body image distortion
  - Pre-occupation with dieting and weight
- Anorexic-like athletic activities:
  - “Obligatory runners”
    - Running as obsessive v. competitive
  - Elite Athletes
  - Aesthetic Sports
    - Dancing, gymnastics, diving, figure skating
    - Appearance very important to judging
- Study focus on Aesthetic sports
- N= 458 Ages: 13-35

# Anorexic-Like Athletes?

- Surprising Findings
- Aesthetic athletes did not differ from the control group
  - No greater levels of disturbed eating behavior
  - No more perfectionism
  - No more obsessive
  - No more harm avoidant
  - Self esteem on par with controls
- Non-surprising findings
- Women with AN differed significantly from all three other groups:
  - General and eating-related pathology
  - High harm avoidance
  - Perfectionism and obsessiveness
  - Low self esteem
  - Low evaluation of facial attractiveness
- Study supports general well being of female athletes
- **HOWEVER**

# Anorexic-Like Athletes?

- Greater proportion of cases of ED-NOS in the aesthetic athletes than in the non-aesthetic athletes and control groups
- May support a subgroup of anorexia: *anorexia athletica*
- Small group (N=13)
- Displayed more disturbed attitudes
  - eating, weight, body image than women who did not have an eating disorder
  - Personality profile resembled control group rather than AN group
- Suggests environmental rather than personality
  - Single mindedness of athletic endeavor & messages to be thin may promote characteristics of AN
  - Not necessarily psychopathology (state v. trait condition)

# CAUSES

# Genetic Factors

BN associated with lifetime history of:

1. Major depression
2. Neuroticism
3. Conduct Disorder
4. Childhood sexual abuse
5. DUDs
6. Parental History of Alcoholism



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# Developmental Pathways: “Eating Problems”

- Females with Eating Disorders
  - Links with internalizing behaviors
  - Adolescents: depression and dysphoric mood
  - Adults: depression, bipolar, suicide attempts, impaired functioning
- Previous research indicated possible link between disordered eating and externalizing behaviors

# Developmental Pathways: “Eating Problems”

- Unhealthy weight loss in both M&F associated with:
  - Delinquency
  - Drug use
  - Unprotected intercourse
  - Multiple sexual partners
- Increasing dieting severity associated with
  - Alcohol, cigarette, marijuana and drug use
- M&F with disordered eating more likely experienced physical and sexual victimization

# Developmental Pathways: “Eating Problems”

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# Socio-cultural causes

- Family “culture”: body/weight, food, exercise, image consciousness
- Media: critical, unrealistic images of female and male bodies, misogyny
  - Dance/performing arts
  - Ex. Jenifer Ringer and Nutcracker critic
- Judges/Coaches (the culture of a sport)
  - Gymnastics, figure skating, diving, dance
  - Ex. Jenny Kirk

# Ballet: Eating Disorders and Media

- NYC Ballet vet Jenifer Ringer in role of the Sugar Plum Fairy in *The Nutcracker*.
- She spoke publicly about her AN and overeating
- Dance critic: she looked like she'd "eaten one sugar plum too many."
- Alastair Macauley (the NY Times critic): "the body matters to ballet, an overweight body inhibits performance," etc.

# Ballet and media



# Ballet and media

- The ballerina, [Jenifer Ringer](#), obviously NOT overweight.
- Hypothesis: critic has his own body image and eating struggles.
- Evidence:
  - “Acute asthma in childhood gave me a chest deformity that often made me miserable into my adolescence. (It was ameliorated by major thoracic surgery at age 20.) On my doctor’s advice, I lost 20 pounds last year.”

# Figure Skating

- Jenny Kirk, junior national champion, public advocate for Eating Disorder recovery in skaters
- “85% of female figure skaters suffer with an eating disorder or serious body image issue”
- Scoring trends reward combinations that become unrealistic the more a skater weighs
- Skaters getting progressively younger, scoring standards favor those who lack womanly body features
- Past Olympiads: taller/womanly (Katarina Witt, Debi Thomas or Nancy Kerrigan)



# Trends

- What's going down (1):
  - In 1976, average gymnast 5'3" tall weighing 105 pounds
  - In 1992, average gymnast 4'9" tall weighing 88 pounds (1)
- What's going up (2):
  - From 1985-2005, the average weight of a player in the NFL grew by 10% to an average of 248#
  - At offensive tackle, the average weight of players increased from 281 lbs. to 318 lbs.
  - As of 2005, 552 players weighed >300 lbs, which is 33% of all active players

1. <http://www.eatingdisorders.org.nz/index.php?id=761>

2. Joyce B. Harp and Lindsay Hecht, "Obesity in the National Football League," *Journal of the American Medical Association*, vol. 293, no. 9, Mar. 2, 2005, p. 1061.

# Obesity in NFL players

- Health risks: HTN, CAD, hyperlipidemia, OSA
- 34% of offensive linemen in study suffered from sleep apnea
- National Institute for Occupational and Safety and Health (NIOSH) conducted a mortality study in the early 1990s of the rate and causes of death of NFL players.
  - Former linemen “had a 50% greater risk of cardiovascular disease than the general population.”
  - Linemen “had a 3.7 times greater risk of CVD” than players in other positions.



# Obesity in NFL players

- A survey looking at most common problems former players experience in retirement:
  - Difficulty with pain (48%),
  - loss of fitness and lack of exercise (29%),
  - weight gain (28%),
  - trouble sleeping (28%),
  - difficulty with aging (27%),
  - trouble with transition after professional football (27%)

# Jamie Dukes Raises Awareness

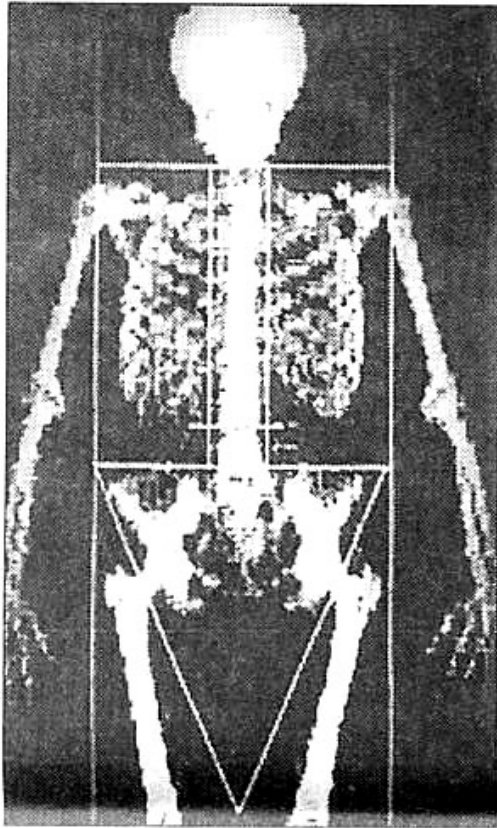


At age 44, he retired from the NFL in 1996, standing 6'1" tall, carrying a muscular 290 pounds. A decade later, prodigious eating and reduced exercise left him at 385 pounds. The weight-related deaths of his friends and concern of his wife and children led Dukes to undergo gastric banding surgery.

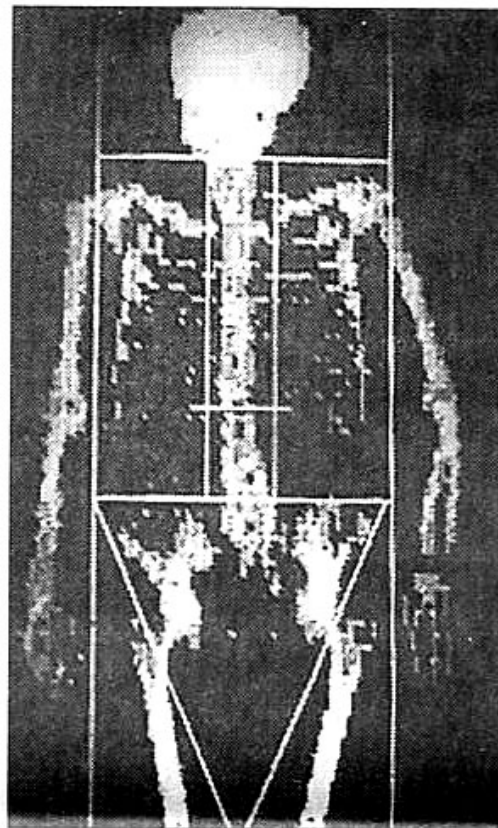
# Effects

- Decreased performance
- Physical Injury
- Stunted social development
- Diminished emotional health
- Female Athlete Triad
- Death

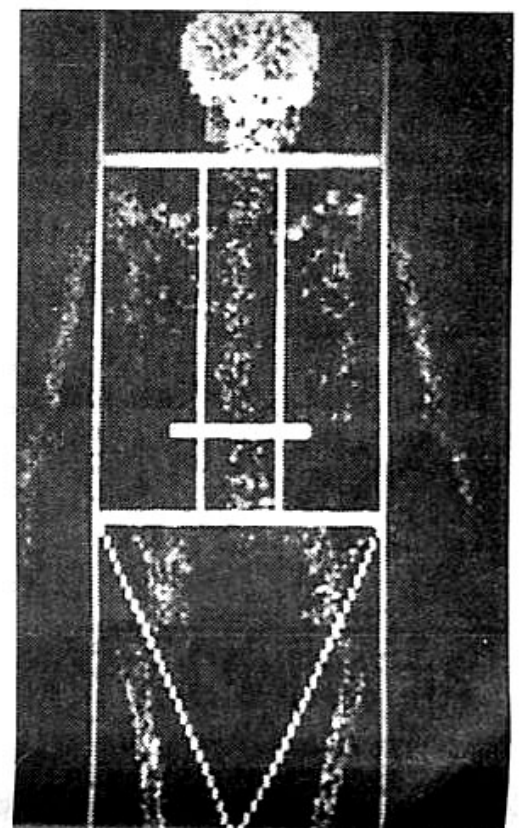
## **Anorexia nervosa:** *Accelerating the timeline for osteoporosis*



**Above, the bone scan of a healthy 25-year-old woman shows normal density.**



**A scan of this 25-year-old anorexic woman shows a loss of about one-third of her bone mass.**



New York Times photos  
**X-rays of this 30-year-old anorexic woman reveal the bone density of a 70-year-old.**

# Triad Among Runners

- Study looked at the triad among 91 young female runners (18-26)
- Measurement process
  - EDI
  - # of menstrual cycles/year
  - Dual x-ray absorptiometry
- Findings:
  - Eating Disorder strongly associated with menstrual irregularity
  - Menstrual irregularity associated with low BMD
  - Disordered eating associated with low BMD in the absence of menstrual irregularity

# Athletes & Stress and Urge Incontinence

- Incontinence
  - A condition in which involuntary loss of urine is a social or hygienic problem and is objectively demonstrable
- Stress Urge Incontinence (SUI)
  - The involuntary loss of urine during coughing, sneezing, or physical exertion
- Urge Incontinence
  - Involuntary loss of urine associated with a sudden, strong desire to void (urgency)
  - Can occur alone and in combination with SUI
- Norwegian Study:
  - Prevalence in elite athletes
  - Association with ED
  - Association with menstrual irregularity
  - N=660 elite athletes (matched control= 765)



# Stress and Urge Incontinence

## Study Findings

- Statistically significant difference of SUI between athletes and controls during physical activities
- Urge incontinence varied with sport
  - Highest in endurance sports
- Prevalence of ED significantly higher among athletes
  - 20% cp. 9%
- SUI in ED athletes significantly higher than in healthy athletes
  - No difference in ED non-athletes and healthy non-athletes

### Conclusion:

- High prevalence of both SUI and urge incontinence in young female elite athletes.
  - 41% SUI
  - 16% urge incontinence
  - Highest in ED athletes

# Administrative changes

- Discontinue team weigh ins
- Focus on first on health of the athlete
- Focus on performance rather than weight
- Increase incentives to be at or above the minimum healthy weight for age/height
- BMI may be inaccurate measure if increased percentage of lean body mass
- Encourage women to have a healthy percentage body fat

# Ex.: Olympic Ski Jumping



# Ski Jump

- V-technique came into vogue in the 1980s
- Jumping more dependent on flight dynamics than on the propulsion force of the athletes
- Body weight became a critical factor
- 1 kg weight loss could result in added distance of 2-4 m (6.5-13 ft)
- Ex.: [Martin Schmitt](#), 2002 Olympic gold , weighed 132.6 # at 5 feet 11.5 inches tall
- Consumed 1,300 calories on some days to maintain his jumping weight



# Ski Jump

- Result: 22 percent of the ski jumpers at the 2002 Salt Lake Games were below the minimum height-weight proportion
- Jumpers are disqualified if their skis are too long in proportion to their body mass index
- To be eligible for max. length, a jumper needs BMI of at least 18.5
- For each 0.5-unit below this minimum, ski length is reduced by 2 percent.

# Treatment considerations:

- Assign a team of professionals: physicians, therapists (individual, group and family), nutritionist, athletic trainers, administrative reps
- Assess for and treat co-occurring disorders: depression, anxiety disorders and SUDs
- Psychiatrist: avoid anorexigenic agents: stimulants (Adderall, Ritalin), Topamax, Wellbutrin
- Therapists: CBT, DBT, Maudsley
- Support groups: group therapy, 12 step support groups

# Return to Sport Decision

- GUIDING PRINCIPLES in making recommendations for athletes' participation in sport is:
  - *Minimize factors* that increase risk of ED relapse or jeopardize current or future health.
  - *Maximize* the individual's opportunity for full recovery both physically and psychologically.
- The most expedient path for a return to competition is **not** the goal.

# Factors to Consider

- Physical Health/medical status
- Nutritional Status
- Stage of Change/motivation to recover (internal is best)
- Prognosis
  - Age of Onset (younger = better)
  - Duration of ED (shorter = better)
  - Type of Sport / Level of Competition



# When to Say No

- Medical instability
- Active Eating Disorder symptoms
- Eating Disorder patients who train primarily to control weight or for other compulsory reasons
- If there is significant evidence that training plays a role in perpetuating the Eating Disorder

# Other Concerning Factors

- Co-morbidity:
  - Anxiety Disorders
  - Depressive Disorders
  - Substance Abuse
- Low Self-Esteem
- Family History of Eating Disorders or Addiction
- Poor Body Image

# Athletes: The Good News

- Team sport athletes have better treatment prognosis
- Unique motivation to recover: love of sport
- Clear yet flexible boundaries around food intake, exercise and weight ranges necessary for athlete health improves recovery rates
- Built in supports for education and txt: coaches, trainers, admin, regulatory bodies
- Ongoing monitoring and support is critical: txt team, others in recovery, family, and trainers
- It takes a TEAM to recover!