Treatment Outcomes from an Intensive Outpatient Program treating Competitive Athletes with Eating Disorders: Implications for Research & Clinical Practice

Paula Quatromoni, DSc, MS, RD
Boston University
Walden Behavioral Care
paulaq@bu.edu
Disclosure

- Faculty, Boston University
- Senior Consultant (paid), Walden Behavioral Care
- Creator of the Walden GOALS Program

- Findings constitute outcomes of clinical practice
- This work was unfunded
- Publications available at: http://sites.bu.edu/nutritionalepilab/
Objectives

• Rationale for athlete-specific eating disorder treatment
• Intervention strategies and program components
• Assessment and monitoring tools
• Treatment outcomes
• Implications for research and clinical practice
Nutrition for the Athlete

- Increased nutritional needs
- Adequate hydration
- Optimal performance
- Training & recovery demands

- Support immunity
- Prevent injury
- Faster recovery
- Mental focus
### 2015 NCAA Survey

**n=21,233**

#### I wish our coaches and athletics administrators talked more about...

<table>
<thead>
<tr>
<th>Topic</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation for a career after college</td>
<td>49%</td>
<td>64%</td>
</tr>
<tr>
<td>Proper nutrition for athletic performance</td>
<td>42%</td>
<td>56%</td>
</tr>
<tr>
<td>Getting good sleep</td>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td>Managing time demands</td>
<td>27%</td>
<td>34%</td>
</tr>
<tr>
<td>Keeping sports in perspective</td>
<td>26%</td>
<td>33%</td>
</tr>
<tr>
<td>Importance of academic success and graduation</td>
<td>26%</td>
<td>32%</td>
</tr>
<tr>
<td>Speaking up when you see things that aren’t right</td>
<td>24%</td>
<td>33%</td>
</tr>
</tbody>
</table>

*Note: Only items with >20% endorsement listed. Other items included: personal conduct; social networking; treatment of members of the opposite sex; academic integrity; hazing or bullying; drinking/substance abuse; and concussion treatment.*
NCAA Schools that employ full time Sports RDs

<table>
<thead>
<tr>
<th>Conference</th>
<th>Schools</th>
<th>Conference</th>
<th>Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG 10</td>
<td>14</td>
<td>American</td>
<td>4</td>
</tr>
<tr>
<td>SEC</td>
<td>12</td>
<td>Colonial</td>
<td>4</td>
</tr>
<tr>
<td>ACC</td>
<td>12</td>
<td>Mountain West</td>
<td>3</td>
</tr>
<tr>
<td>PAC 12</td>
<td>12</td>
<td>FCS</td>
<td>2</td>
</tr>
<tr>
<td>BIG 12</td>
<td>9</td>
<td>A-SUN</td>
<td>1</td>
</tr>
<tr>
<td>IVY</td>
<td>5</td>
<td>C-USA</td>
<td>1</td>
</tr>
</tbody>
</table>

None in Division II
None in Division III
12 of the 34 NCAA Division I conferences (35%)
79 total schools (7%)
Common Obstacles to Good Nutrition

• Not eating/drinking enough
• Skipping meals
• Missing out on recovery nutrition
• Uninformed vegetarianism
• Dieting
• An obsession with the scale or with body image
• Unhealthy relationship with food
• Schedules, commitments, and demands on time
• A failure to plan…
Eating Disorders in Sport

At risk:

- Athletes training & competing at high levels
- Aesthetic, weight-based, and “lean” sports
- Perfectionists, harshly critical, low self-worth
- Injured athletes

- Performance pressures
- Thin ideal in sport
- Muscular ideal (males)
- Over-valuation of athlete identity
- Compulsive exercisers
Contributors to Eating Disorders

Environment
- Home
- **Sport**
- Academic
- Campus
- Work
- Society
- Trauma

Personal

Genes

Psychosocial

Culture
Why are Athletes at Risk?

Internal Factors
- Drive & commitment
- Perfectionism
- Beliefs & attitudes
- Coexisting mood disorders
- Knowledge
- Behaviors
- Transitional life stage

External Factors
- Home environment
- College environment
- Sport environment
- Training demands
- Teammates/Coaches
- Pressure to perform
- Pressure of comparison
- Sociocultural pressures
- Diets & Misinformation

Arthur-Cameselle & Quatromoni, 2011
# Trait Similarities

<table>
<thead>
<tr>
<th>A Good Athlete</th>
<th>An Individual with an Eating Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental toughness</td>
<td>Asceticism (severe self-discipline)</td>
</tr>
<tr>
<td>Commitment to training</td>
<td>Excessive/Compulsive exercise</td>
</tr>
<tr>
<td>Pursuit of excellence</td>
<td>Perfectionism</td>
</tr>
<tr>
<td>Coachability</td>
<td>Overcompliance</td>
</tr>
<tr>
<td>Unselfishness</td>
<td>Selflessness</td>
</tr>
<tr>
<td>Performs despite pain</td>
<td>Denial of discomfort</td>
</tr>
</tbody>
</table>

*Thompson & Sherman, Eating Disorders: J Treat & Prev, 1999*
Factors Related to ED Onset

Disordered eating among female athletes in any sport is predicted by two main factors: desire to enhance sport performance by losing weight, and negative emotions about missing training sessions (Krentz & Warschburger, 2011)

<table>
<thead>
<tr>
<th>Themes</th>
<th>Primary Codes</th>
<th>Athletes</th>
<th>Non-Athletes</th>
<th>Secondary Codes (disproportionately affecting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Factors</td>
<td>Low Self Worth</td>
<td>100%</td>
<td>88%</td>
<td>Poor body image similarly affected 5 of 6 women</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Feeling inadequate (athletes)</td>
</tr>
<tr>
<td></td>
<td>Co-morbid Diagnoses</td>
<td>67%</td>
<td>76%</td>
<td>Anxiety (athletes)</td>
</tr>
<tr>
<td></td>
<td>Perfectionism/Control</td>
<td>42%</td>
<td>24%</td>
<td>Depression (non-athletes)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning disabilities (non-athletes)</td>
</tr>
<tr>
<td>Physical/Behavioral</td>
<td>Changes in Weight</td>
<td>47%</td>
<td>71%</td>
<td>Dieting practices similarly affected 2 in 5 women</td>
</tr>
<tr>
<td>Factors</td>
<td>Rigid Eating/Dieting</td>
<td>41%</td>
<td>41%</td>
<td>Rapid weight changes (athletes)</td>
</tr>
<tr>
<td></td>
<td>Injury/Illness</td>
<td>33%</td>
<td>0%</td>
<td>Puberty body changes (non-athletes)</td>
</tr>
<tr>
<td>Relationship Factors</td>
<td>Peer Issues</td>
<td>75%</td>
<td>94%</td>
<td>Peers role modeling EDs (athletes)</td>
</tr>
<tr>
<td></td>
<td>Family Issues</td>
<td>50%</td>
<td>77%</td>
<td>Others controlling food intake (athletes)</td>
</tr>
<tr>
<td></td>
<td>Other Relationships</td>
<td>33%</td>
<td>6%</td>
<td>Bullying/Fitting in (non-athletes)</td>
</tr>
<tr>
<td>Environmental Factors</td>
<td>Sport Environment</td>
<td>67%</td>
<td>18%</td>
<td>Performance pressures (athletes)</td>
</tr>
<tr>
<td></td>
<td>Cultural Thin Ideal</td>
<td>17%</td>
<td>18%</td>
<td>Team weigh-ins (athletes)</td>
</tr>
</tbody>
</table>

n = 29

Arthur-Cameselle & Quatromoni, 2017
The realities...

• Pressures are exceedingly high
• Nutrition knowledge is low
• Misinformation is abundant and targeted at athletes
• Access to nutrition professionals is limited
• Knowledge does not translate to healthy behaviors
• Unhealthy behaviors are contagious
Warning Signs

- Eating too little, exercising too hard, overtraining or compulsive exercise
- Increased focus on weight or body shape, size, image
- Underweight, rapid or recent weight loss
- Dieting, binge/purge or binge/diet cycling
- Stress fractures or recurrent overuse injuries
- Extremist thinking, rigid behaviors, highly self-critical
- Dissatisfied with performance
- Supplements valued, food distrusted
- Overly restrictive diets, veganism, extreme clean eating, orthorexia
- Difficulty coping with stress… sports, academics, family, coach, peers, bullying
Relative Energy Deficiency in Sport

**RED-S**
A clinical syndrome that also affects males

Barriers to ED Treatment, in general

- Utilization of ED treatment is notably lower (19-36%) compared to treatment for other mental health conditions (35-41%)
- Engagement with treatment for EDs is notably delayed (10-15 yrs)
- Shame, stigma and gender stereotypes
- Low mental health literacy
- Unhelpful prior treatment experiences
- Fear
- Low motivation
- Cost and/or restrictions on treatment service eligibility

Innes et al Eat Disord 2017
Barriers are Augmented for EDs in Sport

• Under-recognized and undetected, especially when atypical
• Poor understanding of what an eating disorder is or who is affected
• Stereotypes – “Athletes don’t get eating disorders”
• Stigma – “It’s a woman’s disease” “I coach male athletes, so….”
• Perception problem – “I’m not THAT sick!”
• Fears tied to identity, masculinity, being perceived as “weak,” playing time, scholarships, or sport being taken away
Barriers are Augmented for EDs in Sport

- Low awareness that behaviors are problematic
- Culture of sport accepts, endorses, praises and sometimes demands disordered behavior
- So secretive, you think you’re the only one, or that you’re “broken”
- Limited/No access to counselors or RDs inside athletics – Where to turn? Who to trust?
- Do traditional eating disorder treatment programs/providers understand the athlete identity and unique pressures?
Why is this timely?

- It is time to attend to athlete mental health.
- We know now more than ever about the devastating consequences of eating disorders in sport on physical health, mental health and sports performance.
- Yet there is no research to guide ED treatment interventions for athletes.
- Recent qualitative research put forth a rationale for specialty treatment programs that understand the athlete identity and unique risk factors in sport.
  
  Arthur-Cameselle & Quatromoni, 2017

- 2018 IOC consensus statement called for research on treatment to better inform return-to-play guidelines.
  
  Mountjoy et al Br J Sports Med 2018
Walden GOALS

Our mission is to equip athletes with the mental and nutritional skills to achieve their full athletic potential and sustain a positive mindset.
Walden GOALS

Multidisciplinary team
3 nights/week IOP
Adult competitive athletes
Group & Individual sessions
Shared dinner meal
Therapeutic food exposure

Information and Referrals
Emily Slager, 781-899-2460 ext. 4022
ESlager@WaldenBehavioralCare.com
Walden GOALS Program: Five Pillars

Fueling for Sport & Life
- Understanding personalized nutritional needs
- Interrupting disordered eating behaviors
- Achieving food and nutrient adequacy

Eating Competence
- Rebuilding a healthy relationship with food
- Applying informed intuitive eating
- Developing skills for meal planning and reliably feeding oneself

Body Esteem
- Exploring body image in the context of sport and society
- Challenging body dissatisfaction
- Building body appreciation

Recovery Skills
- Building coping and communication skills
- Managing co-existing mental health diagnoses
- Coping with injury and other stressors in society and in the sports environment

Resilience
- Refocusing and re-engaging in recovery when relapse occurs
- Developing and engaging support systems
- Practicing skills for self-care

Life skills that allow athletes to achieve their full athletic potential and sustain a positive mindset

Stranberg & Quatromoni, In Review, JAND 2019
Risk Assessment Tools

Eating Disorder Examination Questionnaire (EDE-Q)
Female Athlete Screening Tool
Eating Competence

RED-S Clinical Assessment Tool (RED-S CAT)

Mountjoy, Br J Sports Med 2014
EDE-Q

ED symptoms in past 28 days
Global score
Four subscales
  • Restraint
  • Eating concerns
  • Shape concerns
  • Weight concerns

Maximum Score for each = 6

Fairburn, 2008
Female Athlete Screening Tool

- Weight/Body Image Satisfaction
- Attitudes, Beliefs, Thoughts, Worries, Guilt
- Self-worth, Perfection
- Food & Alcohol Behaviors
- Dieting Practices
- Training & Performance Habits
- Injury

McNulty et al, JADA 2001;101:886
Female Athlete Screening Tool

Healthy Score < 77
Subclinical Score 77-94
Clinical Eating Disorder > 94

Minimum Score = 33
Maximum Score = 130

McNulty et al, JADA 2001;101:886
Eating Competence

ecSatter

<table>
<thead>
<tr>
<th>ecSI 2.0</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Below are statements about your eating. Think about each one, then choose the best response for you.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = Always</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>O</th>
<th>S</th>
<th>R</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am relaxed about eating.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I am comfortable about eating enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have regular meals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I feel it is okay to eat food that I like.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Available at: ellynsatterinstitute.org
Eating Competent Athletes

- Feel good about eating
- Are reliable about feeding themselves
- Choose foods that give them pleasure
- Eat as much as they are hungry for
- Will not overeat in the presence of big servings
- Will eat it all if they want to; will not if they don’t
- Will allow “forbidden foods” at meals and snacks, making them ordinary foods that they can eat in ordinary ways

Adapted from: ellynsatterinstitute.org
# RED-S Clinical Assessment Tool

## Table 1  Relative Energy Deficiency in Sport risk assessment model for sport participation (modified from Skårderud et al.)

<table>
<thead>
<tr>
<th>High risk: no start red light</th>
<th>Moderate risk: caution yellow light</th>
<th>Low risk: green light</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia nervosa and other serious eating disorders</td>
<td>Prolonged abnormally low % body fat measured by DXA or anthropometry using The International Society for the Advancement of Kinanthropometry ISAK$^{141}$ or non-ISAK approaches$^{142}$</td>
<td>Healthy eating habits with appropriate energy availability</td>
</tr>
<tr>
<td>Other serious medical (psychological and physiological) conditions related to low energy availability</td>
<td>Substantial weight loss (5–10% body mass in 1 month)</td>
<td>Normal hormonal and metabolic function</td>
</tr>
<tr>
<td>Extreme weight loss techniques leading to dehydration induced haemodynamic instability and other life-threatening conditions</td>
<td>Attenuation of expected growth and development in adolescent athlete</td>
<td>Healthy BMD as expected for sport, age and ethnicity</td>
</tr>
<tr>
<td></td>
<td>Abnormal menstrual cycle: FHA amenorrhoea &gt;6 months</td>
<td>Healthy musculoskeletal system</td>
</tr>
<tr>
<td></td>
<td>Menarche &gt;16 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal hormonal profile in men</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced BMD (either from last measurement or Z-score &lt; −1 SD).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>History of 1 or more stress fractures associated with hormonal/menstrual dysfunction and/or low EA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Athletes with physical/psychological complications related to low EA/disordered eating - ECG abnormalities - Laboratory abnormalities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prolonged relative energy deficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disordered eating behaviour negatively affecting other team members</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of progress in treatment and/or non-compliance</td>
<td></td>
</tr>
</tbody>
</table>

BMD, bone mineral density; DXA, dual-energy X-ray absorptiometry; EA, energy availability; FHA, functional hypothalamic amenorrhoea; ISAK, International Society for the Advancement of Kinanthropometry

Return to Play/Training Decisions
Also requires treatment compliance

<table>
<thead>
<tr>
<th>High risk red light</th>
<th>Moderate risk yellow light</th>
<th>Low risk: green light</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ No competition</td>
<td>▶ May compete once medically cleared under supervision</td>
<td></td>
</tr>
<tr>
<td>▶ Supervised training allowed when medically cleared for adapted training</td>
<td>▶ May train as long as is following the treatment plan</td>
<td></td>
</tr>
<tr>
<td>▶ Use of written contract (see supplementary appendix 1)</td>
<td>▶ Full sport participation</td>
<td></td>
</tr>
</tbody>
</table>

# Walden RED-S Risk Assessment for Sport Participation

**Date: __________**

<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><strong>DSM-5 Eating Disorder Criteria</strong></td>
<td>None</td>
<td>Meets &gt;50% of diagnostic criteria, or other concern like compulsive exercise</td>
<td>Meets DSM-V criteria for any eating disorder diagnosis</td>
</tr>
<tr>
<td><strong>Low Energy Availability (EA)</strong></td>
<td>Adequate dietary intake; appropriate level of training; appropriate energy availability</td>
<td>Prolonged relative energy deficiency; current or past disordered eating</td>
<td>Extreme weight loss techniques (&lt; 30 kcals/kg of FFM per day)</td>
</tr>
<tr>
<td><strong>Low BMI</strong></td>
<td>BMI ≥18.5 (F), &gt;22 (M), ≥90% IBW, or stable weight</td>
<td>BMI 17.5-18.5 (F), 21-22 (M), &lt;90% IBW, or 5-10% wt loss/month</td>
<td>BMI &lt;17.5 (F), &lt;21 (M), ≤85% IBW, or &gt;10% wt loss/month</td>
</tr>
<tr>
<td><strong>Physical Complications of Low EA</strong></td>
<td>Normal hormonal and metabolic function; healthy BMD and musculoskeletal system</td>
<td>Low % body fat, attenuated growth/development, reduced BMD (z-score &lt; -1 SD), abnormal hormone profile (M), EKG or lab abnormalities</td>
<td>Any medical or psych condition r/t low EA including dehydration, electrolyte imbalance or very low BMD</td>
</tr>
<tr>
<td><strong>Stress Fracture or Fracture History</strong></td>
<td>No history</td>
<td>1 or more stress fractures</td>
<td>2 or more stress fractures</td>
</tr>
<tr>
<td><strong>Delayed Menarche</strong></td>
<td>Menarche &lt; age 15</td>
<td>Menarche 15 ≥ age &lt; 16</td>
<td>Menarche ≥ age 16</td>
</tr>
<tr>
<td><strong>Oligomenorrhea and/or Amenorrhea</strong></td>
<td>&gt;9 menses in 12 months</td>
<td>6-9 menses within 12 months</td>
<td>&lt;6 menses in 12 months</td>
</tr>
<tr>
<td><strong>Behavioral</strong></td>
<td>Eating Competent and Low Athlete Behavioral Risk Score</td>
<td>In IOP treatment; lack of progress in OPD treatment or Tx non-compliance</td>
<td>In treatment above the IOP level of care, or refusing treatment</td>
</tr>
</tbody>
</table>

| Cumulative Risk                          | ________ | ________ | ________ |
| Cumulative Risk                          | ________ | ________ | ________ |

- **Full Clearance** (0-3 F, 0-2 M): Unrestricted sports participation
- **Provisional Clearance** (4-8 F, 3-6 M): May train if treatment compliant; can compete under supervision if medically cleared
- **Restricted from Training/Competition** (>8 F, >6 M): Treatment contract; may train supervised if cleared; may not compete
## Patient Characteristics

\( n = 15 \)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean ± SD or Percentage</th>
<th>Sport</th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>20.9 ± 5.2</td>
<td>X-C/Track</td>
<td>40% (6)</td>
</tr>
<tr>
<td>Age range (yrs)</td>
<td>17 – 35</td>
<td>Ball Sports(^2)</td>
<td>27% (4)</td>
</tr>
<tr>
<td>Sex (% female)</td>
<td>100%</td>
<td>Ice Hockey</td>
<td>13% (2)</td>
</tr>
<tr>
<td>Diagnosis(^1)</td>
<td>5 AN, 1 BN, 9 OSFED</td>
<td>Bodybuilding</td>
<td>13% (2)</td>
</tr>
<tr>
<td>Length of stay (d)</td>
<td>25 ± 11 (8 weeks)</td>
<td>Triathlon</td>
<td>7% (1)</td>
</tr>
</tbody>
</table>

\(^1\)AN, anorexia nervosa; BN, bulimia nervosa; OSFED, other specified feeding/eating disorder

\(^2\)Tennis (2), Basketball (1), Lacrosse (1)

*Stranberg & Quatromoni, In Review, JAND 2019*
## Treatment Outcomes

15 patients, 19 admissions

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Max. Score</th>
<th>On Admission to GOALS</th>
<th>On Discharge from GOALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean ± SD</td>
<td>Range</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>-</td>
<td>128 ± 13</td>
<td>98 - 153</td>
</tr>
<tr>
<td>Body Mass Index (BMI)$^2$</td>
<td>-</td>
<td>21.4 ± 2.6</td>
<td>16.3 – 27.8</td>
</tr>
<tr>
<td>Percent Ideal Body Wt. (%)</td>
<td>-</td>
<td>98 ± 8</td>
<td>78 - 109</td>
</tr>
<tr>
<td><strong>Eating Competence$^3$</strong></td>
<td>48</td>
<td>17.8 ± 11.5</td>
<td>5 – 45</td>
</tr>
<tr>
<td>Eating Attitudes</td>
<td>15</td>
<td>4.5 ± 3.7</td>
<td>0 – 12</td>
</tr>
<tr>
<td>Food Acceptance</td>
<td>9</td>
<td>2.1 ± 2.5</td>
<td>0 – 9</td>
</tr>
<tr>
<td>Food Regulation</td>
<td>9</td>
<td>3.4 ± 2.8</td>
<td>0 – 9</td>
</tr>
<tr>
<td>Contextual Skills</td>
<td>15</td>
<td>7.9 ± 4.5</td>
<td>1 – 15</td>
</tr>
<tr>
<td><strong>Athlete Behavioral Risk$^4$</strong></td>
<td>130</td>
<td>86.8 ± 14.6</td>
<td>59 – 111</td>
</tr>
</tbody>
</table>

*Stranberg & Quatromoni, In Review, JAND 2019*
On discharge, one-third of all patients achieved eating competence.

Clinical ED behaviors were largely extinguished; 2/3 of clients scored in the healthy range on the discharge behavioral assessment while weight remained relatively stable through treatment.

Stranberg & Quatromoni, In Review, JAND 2019
**ED Symptoms Improved**

<table>
<thead>
<tr>
<th>Eating Disorder Examination Questionnaire (EDE-Q)</th>
<th>On Admission to GOALS</th>
<th>On Discharge from GOALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDE-Q Total Score</td>
<td>2.72 ± 1.34</td>
<td>1.90 ± 1.37</td>
</tr>
<tr>
<td>Restraint score</td>
<td>2.34 ± 1.96</td>
<td>1.51 ± 1.54</td>
</tr>
<tr>
<td>Eating Concern score</td>
<td>2.46 ± 1.34</td>
<td>1.48 ± 1.37</td>
</tr>
<tr>
<td>Shape Concern score</td>
<td>3.37 ± 1.68</td>
<td>2.63 ± 1.55</td>
</tr>
<tr>
<td>Weight Concern score</td>
<td>2.72 ± 1.44</td>
<td>1.94 ± 1.41</td>
</tr>
</tbody>
</table>

- Shape and weight concerns dominated the EDE-Q scores at baseline
- The GOALS program developed recovery skills and resulted in positive shifts in all outcome measures including EDE-Q scores and sub-scores

*Stranberg & Quatromoni, In Review, JAND 2019*
Summary

• Athlete-specific ED treatment at the IOP level of care had positive, measurable effects on
  • eating disorder behaviors
  • eating pathology
  • eating competence

• In the absence of rigorous evaluation research, these observations from clinical practice provide valuable insights
  • to guide clinical practice
  • to encourage the ongoing development of athlete specialty programs, provider teams and services

Stranberg & Quatromoni, In Review, JAND 2019
Goals & Accomplishments

- Mental health/mindset
- Food/feeding behavior
- Body image
- Sport
- Physical health
- Confidence
- Self-worth
- School
- Social

Recovery-focused
“What I hope to gain”

Symptoms-focused
“What I hope to fix”

Treatment-related

Stranberg & Quatromoni, In Review, JAND 2019
Benari & Quatromoni, SCAN Pulse 2006
Why this seems to work

- Multidisciplinary expert providers who “got me”
- Universality of the experience, of both the ED and of recovery
- OSFED diagnostic category being attended to
- Treatment success dissipates fear and establishes treatment buy-in
- Carefully and thoughtfully evaluating the role of exercise in ED treatment to inform the plan
- Treating compulsive exercisers who are not competitive athletes
- Meeting the needs of athletes at higher levels of care
Limitations

• Not a grant-funded research initiative
• Observational data at the IOP level of care
• No comparison group of athletes in regular IOP treatment
• No data on athletes who decline treatment
• No male athletes in our sample
• No extended follow-up
Research Needs

• Research on onset, disease course and recovery experiences of eating disorders in sport, particularly among male athletes
• Research on treatment efficacy and treatment outcomes
• Examine other outcomes including injuries, sport performance outcomes, removal from sport, and rates of readmission
• More rigor
  • Comparison group of athletes receiving standard ED treatment
  • Randomized study design
  • Larger sample size
  • Longer follow-up