Exploring the Conceptualization and Persistence of Disordered Eating in Retired Swimmers

Date of resubmission: 7th April, 2017

Abstract

Disordered eating is a psychological ailment that befalls many athletes and can persist into retirement. Links have been established between disordered eating and societal and sport-specific pressures; however, little research has focused on the perspective of retired athletes in a time-based sport. The purpose of the current research was to explore the conceptualization of disordered eating in relation to swimming participation, how retirement affects eating patterns, and ways to mitigate disordered eating. Following IPA methodological guidelines, a homogeneous sample of retired swimmers (*N* = 6) were chosen for semi-structured, participant-driven interviews determined by scores on a disordered eating questionnaire. Three superordinate themes were revealed: (1) Pressures Unique to Swimming, (2) Transition to Eating Pattern Awareness, and (3) Maintaining Ideal Eating Patterns in Retirement. The results revealed a combination of novel findings and expansion of previous data on disordered eating. Suggestions for applications of current findings and for future research are also discussed.

*Keywords:* swimming; sport retirement; eating patterns; interpretative phenomenological analysis

Exploring the Conceptualization and Persistence of Disordered Eating in Retired Swimmers

Disordered eating falls on the less extreme end of the eating disorder continuum, making it a less impairing infliction than full-fledged eating disorders (American Psychiatric Association, 2013). Specifically, disordered eating encompasses subclinical eating disorders, and thus by definition, is not classified as a clinically diagnosed eating disorder (Beals, 2004). Although less severe, disordered eating is defined as a gamut of faulty cognitions and behaviors associated with unhealthy eating patterns and body image issues, that can affect athlete populations in particular (Petrie, Greenleaf, Reel, & Carter, 2008; Sanford-Martens, Davidson, Yakushko, Martens, & Hinton, 2005). Researchers have established that disordered eating can develop in athletes due to a compounded combination of societal pressures and sports-specific demands (Anderson, Petrie, & Neumann, 2012; Petrie et al., 2008; Stewart, Plasencia, Han, Jackson & Becker, 2014). Society dictates that women be thin and men muscular, while each sport requires additional specific weight and body-shape standards to optimize performance (Reel, Petrie, SooHoo, & Anderson, 2013; Voelker, Gould, & Reel, 2014). These societal and sport-specific burdens mean athletes can feel compelled to use extreme diets to satisfy both pressures and reach peak performance (Pope, Gao, Bolter & Pritchard, 2015).

Practice and competition uniforms may exemplify this culmination of sport and societal pressures, since a revealing design is often necessary for peak performance, for example an aerodynamic sprinter uniform (Greenleaf, Petrie, Carter, & Reel, 2009). These revealing uniforms can increase body shame and feelings of guilt, creating a higher likelihood for athletes to engage in disordered eating (Tylka & Hill, 2004). Furthermore, teammates, coaches, and crowds have been noted to scrutinize athletes’ bodies (Sundgot-Borgen & Torstveit, 2004). Athletes under this constant scrutiny can often experience increased self-objectification, perfectionism, and decreased self-esteem, compelling them to embrace unhealthy eating habits to cope (Arcelus, Haslam, Farrow, & Meyer, 2013; Haase, 2011; Tiggemann & Kuring, 2004; Voelker et al., 2014). Disordered eating can therefore develop from negative beliefs about one’s body or a disparity between the perfect body ideal and one’s current body type (Grogan, 2008). Thus athletes are at a greater risk for dissatisfaction with their bodies since body image can be tied to the specific demands of their sport (Jones, Glintmeyer, & McKenzie, 2005; Krentz & Warschburger, 2011; Petrie & Greenleaf, 2007).

The above mentioned research regarding athlete disordered eating patterns has tended to be quantitative in nature, with limited qualitative research conducted in this field (Busanich, McGannon, & Schinke, 2014). The qualitative research to date has focused primarily on active athletes or those with clinically diagnosed eating disorders, leaving largely unexplored the perspectives of retired athletes and those whose disordered eating lies on the lesser end of the continuum (Arthur-Cameselle, & Baltzell, 2012; Arthur-Cameselle & Quatromoni, 2014a,b; Papathamas & Lavallee, 2010). It could therefore be argued that researchers are too focused on current athletes, as disordered eating patterns can take years to dissipate. Every athlete will retire, and so further research into disordered eating and the prolonged effects is necessary to help those athletes facing retirement. Moreover, treatment options for disordered eating are largely considered inadequate, making this knowledge pivotal (Busanich et al., 2014; Stewart et al., 2014).

The lack of investigation into the conceptualization of disordered eating stems from evidence that athletes are often unwilling to admit to unhealthy eating patterns because they fear not being allowed to compete until the maladaptive behaviors stop (Nowicka, Eli, Ng, Apitzsch, & Sundgot-Borgen, 2013). The current study moderates that limitation by exploring current phenomena among retired athletes who have reduced pressure to hide their true eating patterns. Additionally, the majority of disordered eating research has focused on women, with only recent studies using male participants. Providing a unique perspective on disordered eating by utilizing input from both genders is therefore warranted (Busanich et al., 2014). Finally, the majority of resources have been allocated to aesthetic sports, due to a larger percentage of athletes with eating problems falling in these sports, which leaves other athletes without such support (Scoffier, Gernigon, & d’Arripe-Longueville, 2012; Torstveit, Rosenvinge, & Sundgot‐Borgen 2008). However, swimming also requires a tight, streamlined uniform, but it differs in that it has an endurance component and is time based and, thus, it not judged subjectively as with the aesthetic sports. These characteristics mean that studying retired swimmers can fill a void in disordered eating research and provide sport psychology with unique insight into this topic.

By examining the current and retrospective disordered eating patterns of retired swimmers, a greater understanding of this phenomenon can therefore be obtained. Accordingly, this study aimed to investigate retired swimmers’ perceptions regarding how disordered eating patterns developed in relation to their competitive performance and how these patterns have changed or persisted with the influence of sport retirement. Finally, this research aims to ascertain how disordered eating patterns developed in relation to participation in swimming, how these patterns have changed or persisted with the influence of sport retirement, and what retired swimmers believe could be done to help alleviate disordered eating patterns for current and retired swimmers.

**Methods**

**Methodology**

Interpretive phenomenological analysis (IPA) is an established methodology used to grasp what it means to experience a particular phenomenon (Smith, 2008). The phenomenological aspect of IPA refers to personal encounters with phenomena that is both unique to the participants in question, and from their perspective on the concept (Fade, 2004). The interpretive component of IPA utilizes the analytic capabilities of the researcher or interviewer to interpret emerging themes in the relevant context (Larkin, Watts, & Clifton, 2006). The current research adopted IPA, and its use can be seen in the following procedures and analysis. With emphasis on underlying cognitions, IPA allowed this study to elicit detailed commentary from the participants by exposing a richness through participant-driven semi-structured interviews that is often left undiscovered when only statistical measures are used (Brocki & Wearden, 2006). The employed methodology enabled the interviewer to probe participants such that the detailed phenomena of their particular experience, in this case disordered eating patterns, are fully disclosed (Smith & Osborn, 2008).

**Participants**

Following institutional ethical approval, 50 retired swimmers were contacted via email and other social media platforms, asking them to fill out an online questionnaire. The criteria for participation were that participants had (a) retired from swimming at least a calendar year previously (*M* = 4.8 years; *SD* = 6.1 years); (b) swum the bulk of their careers in the United States, and (c) reached regional competitions (half competed at the national level and one competed at the Olympic Games). Of the 50 retired swimmers contacted, 38 filled out the questionnaire. However, five participants left crucial questions blank or withdrew from the study. The final number of participants was *N* = 33 with a 66% response rate. Of the 33 participants, the average age was 26.4 years (*SD* = 6.3) 54.5% identified as female, 45.4% as male with the majority of describing their race at Caucasian/White (84.8%; 6.1% Hispanic; 3% Asian, 3% Pacific Islander, 3% Other).

During their swimming careers, participants had competed for a minimum of three consecutive years, trained a minimum of 10 hours a week, and did so between the ages of 13 and 21 years old. These criteria were deemed necessary for each participant to be considered a fully vested competitive swimmer and for their sport experience to occur when disordered eating is most likely to develop (Rosendahl, Bormann, Aschenbrenner, Aschenbrenner, & Strauss, 2009). Retired swimmers who scored above the 75th percentile from the online questionnaire, showing heightened signs and symptoms of disordered eating, were then chosen for interviews (*N* = 6). IPA recommends small participant pools (e.g., four to twelve participants), for interviews to facilitate a richer understanding of the phenomena, rather than a superficial overview from multiple sources (Touroni & Coyle, 2002). Thus, the interview sample followed IPA guidelines, as a sample of four women and two men, were interviewed (Smith & Osborn, 2008).

**Eating Disorder Examination Questionnaire 6.0**

All original participants (*N* = 33) were asked to fill out the Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0). When scoring, EDE-Q’s 28 items are classified into four sub-scales: restraint, eating concern, weight concern, and shape concern (Fairburn & Beglin, 2008). An example question from the restraint sub-scale is: *“Have you deliberately tried to limit the amount of food you eat to influence your shape or weight?”* A sample eating concern sub-scale question is: *“Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in?”* A sample weight concern question is, *“Have you had a strong desire to lose weight?”* Finally, a shape concern question example is: *“Have you had a definite desire to have a totally flat stomach?”* Remaining questions not grouped into these subclasses indicate occurrence and frequency of certain behaviors. For example: “*Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food?”*

All sub-scales and frequency indicators were scored from zero to six, with higher scores signifying higher levels of psychopathology. The global score was calculated from the sub-scales, again indicating the severity of symptoms presented. Earlier research on the EDE-Q has shown high internal consistency for all four sub-scales with Cronbach’s alpha ranging from 0.78 to 0.93. Test-retest reliability analysis also demonstrates the soundness of the EDE-Q (*r* = 0.81 to *r* = 0.94 for the sub-scales) (Luce & Crowther, 1999). It should be noted that previous researchers reported issues with frequency of behavior questions; however, more current researchers have found evidence of validity for this area of the questionnaire (Luce, Crowther, & Pole, 2008; Pope et al., 2015). The EDE-Q validity and reliability has been very closely matched with the Eating Disorder Examination (EDE) interview guide, which is largely considered the leading template for measuring eating disorder pathology (Luce & Crowther, 1999). Additionally, the questionnaire has recently shown reliability for diagnosing eating disorder in university-aged male and female participants as well as confirming the eating disorder psychopathy of men with eating disorder diagnoses, despite criticism that the questionnaire was originally designed for only women (Jennings & Phillips, 2017; Rose, Vaewsorn, Rosselli-Navarra, & Wilson, 2013).

Past researchers have provided normative data from which the current research will base its findings; however, no past research has used this particular scale for retired athletes and for both men and women (Fairburn & Beglin, 2008; Mond, Hay, Rodgers, & Owen, 2006). Previous data norms have determined that sub-scales and global scores of above 4.0 warrant a clinical diagnosis (Jennings & Phillips, 2017; Luce et al., 2008). However, as the focus of this study is disordered eating, not clinically diagnosed eating disorders, these caveats must be considered when scoring and interpreting measures. Thus the current study was scored as prescribed by earlier guidelines (e.g., Fairburn & Beglin, 2008; Mond et al., 2006). The current researchers determined that participants with global scores above 2.8 (which coincides with the current 75th percentile) were well above average in their symptomatology indicating the presence of disordered eating, and thus were chosen for the interview.For example, participants at this threshold were above the 80th percentile in all of the subclass based on a large sample of over 5,000 women measured by Mond and colleagues in 2006.

**Interview Guide**

Based on the EDE-Q scores, those participants with the highest global scores and thus showed greatest indication of disordered eating were asked to partake in a semi-structured interview carried out via Skype (Luce et al., 2008). In total, six participants were interviewed. The semi-structured format was chosen for the interviews as IPA dictates that participant-driven discussion about the phenomena at hand is preferable (Smith & Osborn, 2008). After, conducting a pilot interview, only minor wording changes that enhanced question specificity were made to the interview guide. The complete interview guide was structured such that introductory questions established rapport with the participant to increase the chance that the participant would fully disclose their disordered eating experience (Smith, 2008). After introductory questions, there followed an investigation of the participant’s current eating patterns and accompanying behaviors and cognitions. The next section explored how swimming participation and retirement influenced current eating patterns. The subsequent phase of the interview included questions about when eating patterns developed, and if and how they had changed since retiring. The interview concluded with an exploration into what might have helped participants avoid disordered eating when they were active swimmers and as they entered retirement. All questions were open-ended and aimed at exposing the underlying cognitions of participants as they explained the detailed phenomenon of disordered eating while being both active and retired swimmers (Carradice, Shankland, & Beail, 2002; Smith, 2008; Winter & Collins, 2015). As advised by IPA researchers, the questions did not lead participants, but clarifying prompts were included when necessary (Smith, 2008). For example, after discussing the social components of eating, the interviewer used the prompt: “Could you expand on this and give some examples?”

**Procedures**

After being informed about the parameters of the study and giving consent, the participants completed the above questionnaire, the EDE-Q 6.0. Those participants whose scores on the EDE-Q 6.0 indicated current disordered eating patterns were asked to take part in an interview (Mond et al., 2006). The interviews were performed via Skype and lasted just under one hour on average (*M* = 51 minutes, *SD* = 10.99). Researchers have demonstrated that Skype provides an appropriate and convenient alternative to face-to-face interviews (Janghorban, Roudsari, & Taghipour, 2014). All of the interviews were recorded, with the consent of the participants.

**Data Analysis**

The first step in data analysis was to transcribe each interview verbatim. After several re-reads of each interview’s transcript, the lead researcher began annotations of emerging themes. The lead researcher observed data saturation after six interviews, the point at which new themes stop appearing, and when interview quantity was capped (Turner, Barlow, & Ilbery, 2002). With each read of the transcripts many themes and common constructs were noted. After several re-reads of the transcripts, connections between themes were then documented and configured to form the three superordinate themes and corresponding subthemes (Fade, 2004).

**Trustworthiness**

Trustworthiness featured in the current research in that it adhered to research methodology such as IPA, exhibited a substantial familiarity with both the topic with which the participants are associated, and ensured participants a clear study withdrawal option, thus fostering honesty (Lincoln & Guba, 2000; Shenton, 2004). The chief factor ensuring this study’s trustworthiness was the utilization of the member checking process by sending verbatim transcript to each interviewee. This process suggests that interviewees be able to review the preliminary analysis to ensure that theme interpretation conveys the true intentions of participants, and that themes were not incorrectly interpreted (Creswell, 2007). Since IPA’s inherent subjectivity values the interpretation of the researcher, the current study also employed reflexive journaling, not to eliminate the primary researcher’s presence in the analysis, but rather to recognize their presence and further increase trustworthiness (Fade, 2004). The journaling aided in the final technique of bracketing by requiring the researcher to reflect on one’s presumptions, beliefs, and experiences and thus consider any root biases that the primary researcher had during the interview process and subsequent analysis (Sparkes & Smith, 2014). Bracketing was applied to further ensure trustworthiness by monitoring and managing any subjective predisposition held by the researcher (Morrow, 2005).

**Results**

Six participants were chosen for interviews based on their EDE-Q global scores. After reviewing interview transcripts, three superordinate themes and several subthemes were extracted. The quotes below represent those themes. To preserve anonymity, the participants received pseudonyms. Superordinate themes and subthemes (Table 1) surrounding the experience of disordered eating identified for retired swimmers were: Pressures Unique to Swimming, Transition to Eating Pattern Awareness, and Maintaining Ideal Eating Patterns in Retirement.

**Pressures Unique to Swimming**

All participants discussed how swimming uniquely impacted the conceptualization and persistence of disordered eating patterns. Three subthemes that identified what aspects unique to swimming contributed to disordered eating emerged: swimmers increased appetites, swimming as a social sport, and fueling the hydrodynamic body.

**Swimmers increased appetites.** Due to extensive training hours and endurance aspects of swimming, all participants consumed large amounts of food: “When I was a swimmer I ate a whole lot more… I was just able to eat anything” (Sarah). Sarah and Don described an insatiable appetite and “binge eating” habits resulting from many hours in the pool: “When I was doing those 2, 3, or 6 hour workout days, I ate what I wanted, justified by the workout, so I think that was a lot like over working-out and then binge eating essentially combined” (Don). Participants found it: “really, really difficult to adjust (to retirement) because I was used to eating so much” (Suzanne). In each case, eating habits had to change drastically: “Current eating habits are almost exactly the opposite (of when swimming), where I’m limiting the number of calories I take in” (Don). Portion control awareness and food intake discipline were lacking due to the hunger that swimming participation creates. After years of this hunger, and all caloric intake burned off in the pool, retirement was a shock to the body and the mentality surrounding diet. This sudden change prompted disordered eating patterns in retirement, as demonstrated in the following quotation:

I would eat the same amount (of calories) that I would normally eat as a swimmer, and then I would feel awful and sluggish and just terrible because it wasn’t like I was burning them, and that made me feel ill. It was binge eating essentially (Sarah).

**Swimming as a social sport.**According to all participants, swimming’s social aspects greatly influenced their disordered eating patterns. Body critiques and comparisons, exacerbated by the sport’s uniform, were frequently discussed in interviews; Don explained this phenomenon: “Because you're so close to naked, people feel it's okay to comment on what they see.” Sport-specific and social pressures were evident since: “no one wants to be overweight or not healthy looking, if you're spending every practice in a swimsuit” (Denise). Suzanne expanded, discussing the pressure to look like teammates who excelled and exhibited an ideal physique:

The fact that you're in swimsuits, you feel like every single day people can tell the difference between the way your weight fluctuates…and you were so aware of having teammates who were fast and skinny.

Communal meals were another social factor affecting disordered eating development. Teammates at the same table scrutinized food one another’s quantity and quality. Participants felt pressure from teammates to eat minimally and healthfully to improve performance in the pool, like Denise who: “never wanted to show up to the table with a bunch of ice cream.” Furthermore, Don elaborates:

I think a lot of current swimmers feel entitled to judge or comment on other people's habits and it can become very negative…Peer pressure to eat significantly less or eat significantly healthier…ends up in a place of judging and shaming.

**Fueling the hydrodynamic swimmer body.** Five of the participants felt that food fuels swimming, thereby justifying high caloric intake: “You have to eat if you want to perform” (Denise), and “after swimming practice, you’ve got to refuel” (Sarah). However, swimmers were aware that: “how much you weigh affects how fast you swim”, as the “smaller you are, the more hydrodynamic” (Suzanne). Thus, eating patterns developed to improve performance:

If you're not optimally eating or you're not your optimal weight or muscle-to-fat ratio, you could potentially handicap yourself in the water and not be the fastest you could possibly be if you're not at your optimal weight (Don).

Suppressing swimmers’ appetites to improve hydrodynamics fostered a contradictory, confusing atmosphere where disordered eating could evolve and persist into retirement.

The hydrodynamic “swimmer’s body” ideal perpetuates within and beyond the swimming community, adversely impacting retirement eating. Generally, the term “means [having a] strong, flat stomach” (Katrina) and a performance boosting, socially-desirable body type. This ideal can be attainable for active swimmers, but it can rarely be achieved by retired ones: “I think, as a former elite swimmer who used to look the part, it's difficult at times to look in the mirror and not see the same muscle groups” (Don). Goals to regain the swimmer’s body can therefore motivate disordered eating patterns in retirement. John went on to say:

I looked so good back then and I felt so much better, and that’s what I want. I want that all the time, not just in the past, so that’s my motivation. I mean that’s how I looked and felt while swimming, and that’s what I want again.

Distress surrounding the loss of a “swimmer’s body” post-swimming induced body dissatisfaction among participants, which contributed to worrisome dieting techniques in retirement. Therefore, aiming to maintain the swimmer’s body without the corresponding exercise regime was a marker for the appearance of disordered eating.

**Transition to Eating Pattern Awareness**

Interviews revealed a transition to awareness regarding what food choices the retired swimmer body requires. Disordered eating stemmed from a lack of awareness, as interviewees described using sporadic and unhealthy habits to manage weight gain and undesired retirement-driven body changes. The subthemes for this category included self-realization concerning dietary needs, taking time to find a new normal without swimming, and nutrition education.

**Self-realization.**Self-realization describes the internal change needed to lessen disordered eating habits that retired swimmers develop to cope with unwanted body changes. Many swimmers enter retirement unaware that major dietary changes are necessary, as Katrina described: “When swimming ended, it was still that ‘who cares’ mentality, like ‘I used to eat this much back then.’” All the participants reportedly took time to realize that eating patterns must change to maintain preferred body shape and weight, made explicit when John noted that he is now “conscious of everything I eat.” Self-realization is time-consuming and frought with struggle. John continued:

It started after I finished swimming I think, so I immediately did what most swimmers do and just started eating everything in sight. I gained a bunch of weight and then I realized, ‘you need keep track of food’. I started reading more health and work-out stuff online about how you should make up your diet.

Establishing new eating patterns takes: “a self-realization, a one-eighty, like you’re no longer working out four hours a day, you’re no longer burning this many calories, so you can’t eat like you were” (Katrina). The process of becoming aware is often a “jarring transition” (Suzanne) and includes bouts of disordered eating. Entering retirement involved not only the physical transition of less swimming, but crucially also the accompanying mental change of realizing that one cannot indulge in large portions as calories are not being burned in the pool. Before this realization, the unwanted body changes due to over eating can result in the adoption of unhealthy measures dieting tools to compensate such as skipping meals. Retired swimmers must learn in a few short months what many non-athletes spend years learning as they go through puberty, that moderation is key to a consistent and healthy body weight.

**Taking time to find a new normal**. All participants described how, after years of swimming, establishing new routines and exercise habits to create a “new normal” (Sarah) was a crucial step toward awareness and reduction of disordered eating patterns. Swimming’s intense physical requirements often dictate eating patterns, forcing swimmers to: “time meals around practices” (Denise), as the sport requires a high volume of demanding training hours. Retirement disrupted routine, and until re-established, it meant disordered and irregular eating: “once I got into a routine, it was easier to eat healthy” (Katrina). Participants generally felt that establishing a new routine re-introduced an element of control, encouraging balanced, healthy eating patterns.

Reaching this new balanced normal took time; all participants discussed the time it took to transition to new eating habits after retirement. Disordered eating emerged during this lengthy transition as retirees struggled to learn about their bodies without swimming in their lives and establish a new normal. Suzanne describes:

At first I remember it being really difficult to adjust because I was used to eating so much and you are still are hungry for the first say month or two after you’ve quit and it takes some time.

Additional reports of unwanted weight gain and experimentation with erratic eating patterns surfaced with retirement: “I would kind of fluctuate between that for the first few months. I finally started to figure things out properly about three to six months after finishing swimming” (Sarah). John related a similar experience:

Within a few months to a year after we graduated a lot of (old teammates) gained a ton of weight and now they are skinny again, so I think that a lot of people go through that where they are like ‘oh I can’t have the same lifestyle as before.’

The lengthy transition to a new normal meant months and even years before an awareness and understanding of healthy eating could emerge. A new normal in terms of diet, exercise, and overall mindset was needed to replace muddled and unhealthy habits created by the difficult shift into retirement.

**Nutrition education*.*** Participants named coaches as possible but unreliable teachers of healthy eating patterns who could help diminish future disordered eating in active swimmers: “Nutrition was something I feel that most coaches and swim teams everywhere just ignored” (John). Suzanne continued: “I think coach wasn’t particularly helpful in that regard. He avoided the topic of weight and nutrition altogether. When he would say something, it wasn’t helpful.”

Classroom nutrition courses were the most common form of education cited; however, participants often ignored advice or simply did not care about the information. Sarah relayed an experience where a nutritionist did impact her:

A nutritionist talked about your body as a boat and what boat you were going to be. And so, what are you putting onto your boat? Are you putting on fresh food? Or are you a trash barge? That was definitely not the first time I had heard her talk about food, but it was one of the times that actually stuck with me.

Participants discussed a fear that food education could lead them to obsess over choices and slide down a slippery slope of increasingly disordered eating. Denise considered: “I think a lot of times those kinds of meetings or restrictions can be turned into ‘if I don't do what they say, I’m going against them and I’m going to be fat’ and that's treacherous.” Nutritional education must be stimulating to engage active swimmers, teach lessons that remain relevant into retirement, and also be nuanced and positive to avoid sparking thoughts of disordered eating.

**Maintaining Ideal Eating Patterns in Retirement**

When asked to describe current eating patterns, all participants discussed ideals motivated by subthemes of internal components, those inside the psyche of each retired swimmer, and external components, which referred to motivators that existed in the physical world. Disordered eating was triggered when retired swimmers found themselves deviating from optimal eating patterns.

**Internal component.** The ideal eating pattern all participants attempted to adopt in retirement was based on internal health benefits and feeling good, as in: “when I eat, I eat to feel good” (Sarah). Ideal eating patterns were designed to help retirees: “feel healthy…which has to do with feeling better” (Denise). However, when participants did not follow ideal eating patterns, disordered eating emerged to compensate for what many described as a “lack of discipline” (Don) and a failure to follow internal rules and motivations.

Strong negative emotions surrounded deviation from desired eating patterns. Guilt was especially prevalent, contributing to psychological self-retribution and disordered eating to cope. After straying from ideal patterns, participants described overeating and feelings of “extreme regret” (Sarah). Negative emotions contributed to discorded eating behavior and mind-set and that created a destructive domino effect: “skipped workout, felt guilty, skipped dinner” (Sarah).

In addition to negative emotions, internal intensity was a key personality trait contributing to disordered eating when deviating from ideal patterns. Denise suggested that elite swimmers may have an addictive type personality or be: “very obsessive about certain things,” which can translate to negative eating patterns post-career. Suzanne described having: “tunnel vision” when it comes to swimming, dieting, or life in general. This intensity, which participants described as beneficial to performance, can translate into disordered eating patterns when athletes approach dieting with the same ferocity.

**External component.** The external motivation behind eating patterns in post-career swimmers involved ambitions of losing weight, as: “there's definitely a level of vanity involved” (Don). All six contributors spoke about weight loss as a driving force behind eating patterns, saying: “I would love to lose a few inches off my waistline” (Denise), and: “well right now, I’m trying to lose weight” (John). This motivation meant that participants used disordered eating to accelerate weight loss when trying to shed weight gained in retirement. Don specified: “I just skipped lunch *and* I skipped dinner…because I’m also trying to lose weight.” As discussed, years of sport-specific pressures and societal expectations produced a strong desire to reduce weight, or: “I thought [losing weight] would make me a better swimmer and also just more likable as a person” (Suzanne). When coupled with internal components, losing weight via diet often translated to disordered eating for these retirees, who desired the toned physiques they had as swimmers.

**Discussion**

This study examined disordered eating from the perspective of retired swimmers, and considered how sport participation and retirement influenced eating patterns. In short, elite swimming and subsequent retirement impacted the conceptualization and persistence of disordered eating in participants. This study therefore supports previous empirical research on the conceptualization of disordered eating in sport, but it is the first to incorporate retired athletes, thus presenting novel information and perspective on this topic (Petrie et al., 2008; Sanford-Martens et al., 2005). Our findings highlight that participation in sport combined with subsequent retirement presents its own complications, and eating patterns reflect these particular experiences. Moreover, as the majority of an athlete’s life will be spent as a retiree, further research is warranted on the retired population.

It was demonstrated that sport-specific and societal pressures contribute to disordered eating, both of which are widely evidenced in the literature (Anderson et al., 2012; Greenleaf et al., 2009; Sundgot-Borgen & Torstveit, 2004). This study expands the knowledge in the field by adding a level of specificity about sport-specific demands that has been currently lacking. For participants in this study, competitive swimming contributed to disordered eating by creating an insatiable appetite due to the fuel required for an endurance-based sport. Complications arose when that large appetite combined with practicing in a revealing swimsuit, pressure from teammates not to over-indulge, and a sport-inherent insistence to maintain a hydrodynamic body shape. Participants disclosed that concern surrounding teammates’ perception of body size and diet was more influential in determining eating patterns than overall societal standards. It was pressure from swimming and those inside the swimming community that influenced which eating patterns active swimmers would adopt and then maintain into retirement. Swimmers, by nature of their sport, have a body that essentially fulfils societal ideals, allowing them to partially drown out societal pressures. However, memories of having this “swimmer’s body” developed into stressors for retired swimmers, who resorted to disordered eating to try and re-institute that standard. This type of comparison to their previous body type, which was an ideal and created a negative body image that influences disordered eating development (Reel et al., 2013; Grogan, 2008). Originally having a swimmer’s body, and then losing it in retirement may exacerbate the disparity for retired swimmers, increasing the likelihood that they will engage in disordered eating in retirement.

This transition from active to retired swimmer is underscored by a mental adjustment: the retired swimmer must shift from a mentality in which large indulgences are justified to an aware consumer that understands caloric limits and portion control. Disordered eating can develop during this transition until a new normal is established, sans swimming. Each retired swimmer’s road to self-realization during this transitions and a post-swimming alteration of eating patterns takes time. Until this newfound awareness is established, disordered eating often can present in the form of binging and subsequent restricting as demonstrated by all six interviewees. The lengthy transition toward these aware eating patterns is not something previously discussed in the literature, as the entire subject of retirement and disordered eating has been somewhat lacking.

Importantly, this study fulfilled its aim of furthering both theoretical and applied knowledge concerning disordered eating alleviation. Retired athletes believed that more specific nutritional education addressing appropriate eating patterns for both active and retired swimmers could be valuable. Participants echoed past research in this regard, saying coaches must be more aware of disordered eating, and offset its development with nutritional education (Arthur-Cameselle, & Baltzell, 2012). Specifically, this nutritional education should be more innovative, so swimmers can adhere to nutritional advice to improve performance in the pool and later to maintain healthy eating patterns in the tricky transition to retirement. Education must also strike that delicate balance of informing but not restricting what swimmers eat, as participants voiced concerns that restrictions could accidentally inspire disordered eating. As seen with other research focused on a single sport, the discussion initiated by the participants are specific to swimming, which allows this study to be readily applied to the prevention of disordered eating or to current and retired athletes (Voelker et al., 2014).

Unique to this study was the exploration into current eating patterns of retired swimmers, and what drives them to maintain what they consider to be an ideal diet. As seen in previous research, eating patterns were motivated by an external component of weight loss (Reel et al. 2013; Voelker et al., 2014). The desire to lose weight drove retired athletes—who were accustomed to swimming pressures, had a lack of nutritional education, and who experienced complicated retirement transitions—to unhealthy measures. The goal of losing weight in retirement mirrored societal expectations, but again, the pressure of a previous career in swimming primarily exacerbated this external motivation. The retired swimmers also had internal factors that motivated them to sustain ideal eating habits. When they could not reach those ideals, disordered eating habits developed as compensation. These internal motivations included health, avoiding strong negative emotions like guilt, and an obsessive intensity. Feeling healthy was a novel internal motivator that all participants in this study discussed, which again confirms the need for applied nutrition education for retired athletes. Participants made food choices intending to feel healthy, but when a meal left them sluggish instead, disordered eating ensued for hours or even days. Negative emotions can therefore be indicative of disordered eating because these habits often lead to increased shame (Sanftner, Barlow, Marschall, & Tangney, 1995).

Negative emotions are discussed only briefly in the disordered eating literature, but this research highlights their importance. Guilt, as highlighted by the participants, might have stemmed from sport-specific pressures to eat in order to improve performance in the pool, which continues into retirement. Other qualitative researchers have shown that certain character traits can contribute to eating disorders (Papathomas & Lavallee, 2006). The last internal motivator considered by this study was the character trait of intense obsessiveness. All participants affirmed this trait in themselves, and attributed to it both their success as a swimmer and also their disordered eating habits. Perfectionism linked to low self-esteem was cited in research as a common personality trait for active athletes experiencing disordered eating, but was mentioned only minimally by the participants in this study (Arcelus et al., 2013; Jones et al., 2005; Shanmugam, Jowett, & Meyer, 2011). Perhaps this discrepancy is due to most eating disorder research focusing on sports like diving or gymnastics, where perfection is pivotal in reaching top competition levels (Carter & Rudd, 2005).

**Practical Implications and Future Research**

This study provides ample clinical relevance for the field of sport psychology. Since disordered eating is more prevalent than full-fledged eating disorders, this study informs clinical care by focusing on this end of the eating disorder continuum (Carter & Rudd, 2005). It furthers practical knowledge by adding to the understanding of conceptualization and persistence of this issue for both active and retired swimmers, thus providing practitioners with examples of triggers within sport and retirement. The current research was novel in that it included both male and female participants, with similar responses confirming that both gendersrequire care regarding disordered eating (Busanich et al., 2014). Male and female participants discussed the combined social and sport-specific pressures, in contexts that related to their gender, but no substantial gender differences were gleaned from the current study. However, gender differences have been reported in the contexts of disordered eating and eating disorders, with regard to the treatment of the psychopathy (e.g., Jennings & Phillips, 2017). Gender differences are, therefore, a potentially important aspect of future research and when considering the practical implications. For example, every athlete must transition into retirement, and more studies are needed, like this one, to further inform the psychological care of this population.

In terms of practical care, preventative and treatment measures should be implemented into the team environment. Specifically, sports teams should encourage practitionerstrained in basic cognitive behavioral therapy techniques to be an obvious and available resource for swimmers as they reach their final months on the team to combat disordered eating conceptualization and persistence (Fairburn, 2008). Additionally, employing a registered nutritionist has been shown to aid eating disorder treatment across the continuum (American Dietetic Association, 2006). The introduction of such a professional as a regular part of the available resources available to active swimmers and especially as they enter retirement, could therefore be considered. Finally, teaching mindful eating has been shown to help with the prevention and recovery from disordered eating and thus teams could work to introduce and develop this treatment option (Baer, Fischer, & Huss, 2005).

In the current research, factors shown to contribute to disordered eating in active athlete populations such as objectification, perfectionism, or athletic identity were not discussed by current participants, suggesting that retired athletes experience disordered eating uniquely, which can assist practitioners with clients on the cusp of retirement (Haase, 2011; Gapin & Petruzzello, 2011; Petrie & Greenleaf, 2007). Finally, the level of specificity regarding how swimming and retirement expressly affect disordered eating will help practitioners better understand disordered eating for this, and perhaps other populations.

Future research should therefore utilize this study as an example establishing that more sport-specific research is warranted, as retirement from another sport, such as team or racquet sports, may present its own unique findings. Thus, expanding this topic to other sports, perhaps those that do not require endurance or a revealing uniform, is a valid approach for future research. Furthermore, exploring whether disordered eating in retirement has similarities across all sports is a worthy pursuit. Finally, research into pre-retirement interventions via nutritional education or other tactics would also provide useful alleyways to further the field both theoretically and practically.

**Limitations**

The EDE-Q 6.0 from which interviewees were chosen was not originally designed to determine disordered eating in retired athletes. The 2.8 cut-off was determined by the current researchers based off previous normative data (e.g., Mond et al., 2006), but a specific exploration into global scores that are indicative of disordered eating for both genders would greatly enhance the research area. Additionally, this study largely involved retired swimmers from the US, and the sample was of overwhelmingly Caucasian, so worldwide applicability is limited. The impact of the collegiate swimming program in America, which is very team-oriented and employs strict retirement rules, may have enhanced the social swimming environment and forced more abrupt ends to the swimming careers of participants in this study, potentially magnifying or skewing the results. The nature of qualitative research is such where depth is valued over breadth in terms of sample size (Brocki & Wearden, 2006). Therefore, the small sample size served its purpose within the prescribed methodological approach especially as the current research topic was of an exploratory disposition. However, it can be argued, it would be limiting to generalize these findings with the purposefully small and homogenous sample (Smith, 2008; Touroni & Coyle, 2002). Nonetheless, this study addressed a major concern regarding a lack of transparency about disordered eating habits by interviewing retired athletes (Nowicka, et al., 2013; Papathamas & Lavallee, 2010).

**Conclusion**

This study was the first to highlight how disordered eating is conceptualized in relation to swimming and its persistence into retirement. Building substantially off past research, it outlines how swimming participation and subsequent retirement specifically affects disordered eating due to the unique characteristics of the sport and the participants it attracts. The focus on a singular sport means that these results can provide for more tailored, applied care for active and retired swimmers. Additionally, the unique perspective on disordered eating from retired athletes offers an exploration into the unknown, a feat for any research. Due to its persistence into retirement, disordered eating should—despite being on the lesser end of the continuum—be a focus for researchers, practitioners, and coaches who aim to diminish the negative impact this issue has on sporting performance and the well-being of athletes who are entering or in the midst of retirement.

References

American Dietetic Association. (2006). Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and other eating disorders. *Journal of the American Dietetic Association, 106(12)*, 2073-2082.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.

Anderson, C. M., Petrie, T. A., & Neumann, C. S. (2012). Effects of sport pressures on female collegiate athletes: A preliminary longitudinal investigation. *Sport, Exercise, and Performance Psychology, 1*(2), 120-134. doi:10.1037/a0026587

Arcelus, J., Haslam, M., Farrow, C., & Meyer, C. (2013). The role of interpersonal functioning in the maintenance of eating psychopathology: a systematic review and testable model. *Clinical Psychology Review, 33*(1), 156-167. doi:10.1016/j.cpr.2012.10.009

Arthur-Cameselle, J. N., & Baltzell, A. (2012). Learning from collegiate athletes who have recovered from eating disorders: Advice to coaches, parents, and other athletes with eating disorders. *Journal of Applied Sport Psychology, 24*(1), 1-9. doi:10.1080/10413200.2011.572949

Arthur-Cameselle, J. N., & Quatromoni, P. A. (2014a). A qualitative analysis of female collegiate athletes’ eating disorder recovery experiences. *The Sport Psychologist, 28(*4), 334-346. doi:10.1123/tsp.2013-0079

Arthur-Cameselle, J. N., & Quatromoni, P. A. (2014b). Eating disorders in collegiate female athletes: Factors that assist recovery. *Eating Disorders, 22*(1), 50-61. doi: 10.1080/10640266.2014.857518

Beals, K. A. (2004). *Disordered eating among athletes: A comprehensive guide for health professionals*. Human Kinetics.

Baer, R. A., Fischer, S., & Huss, D. B. (2005). Mindfulness and acceptance in the treatment of disordered eating. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 23(4)*, 281-300. DOI: 10.1007/s10942-005-0015-9

Brocki, J. M., & Wearden, A. J. (2006). A critical evaluation of the use of interpretative phenomenological analysis (IPA) in health psychology. *Psychology and Health, 21*(1), 87-108. doi:10.1080/14768320500230185

Busanich, R., McGannon, K. R., & Schinke, R. J. (2014). Comparing elite male and female distance runner's experiences of disordered eating through narrative analysis. *Psychology of Sport and Exercise, 15*(6), 705-712. doi:10.1016/j.psychsport.2013.10.002

Carradice, A., Shankland, M. C., & Beail, N. (2002). A qualitative study of the theoretical models used by UK mental health nurses to guide their assessments with family caregivers of people with dementia. *International Journal of Nursing Studies, 39,* 17–26. doi:10.1016/s0020-7489(01)00008-6

Carter, J. E., & Rudd, N. A. (2005). Disordered eating assessment for college student-athletes. *Women in Sport & Physical Activity Journal, 14*(1), 62-71. doi:10.1123/wspaj.14.1.62

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. London, UK: Sage.

Fade, S. (2004). Using interpretative phenomenological analysis for public health nutrition and dietetic research: a practical guide. *Proceedings of the Nutrition Society, 63*(4), 647-653. doi:10.1079/pns2004398

Fairburn, C. G. (2008). *Cognitive behavior therapy and eating disorders*. New York: Guilford Press.

Fairburn C. G, Beglin S. J. (2008). Eating Disorder Examination Questionnaire (6.0). I*n Fairburn CG. Cognitive Behavior Therapy and Eating Disorders*. New York: Guilford Press.

Gapin, J. I., & Petruzzello, S. J. (2011). Athletic identity and disordered eating in obligatory and non-obligatory runners. *Journal of Sports Sciences, 29*(10), 1001-1010. doi:10.1080/02640414.2011.571275

Greenleaf, C., Petrie, T. A., Carter, J., & Reel, J. J. (2009). Female collegiate athletes: prevalence of eating disorders and disordered eating behaviors. *Journal of American College Health, 57*(5), 489-496. doi:10.3200/jach.57.5.489-496

Grogan, S. (2008). Body image: *Understanding body dissatisfaction in men, women, and children* (2nd ed.). New York: NY: Routledge.

Haase, A. M. (2011). Weight perception in female athletes: associations with disordered eating correlates and behavior. *Eating Behaviors, 12*, 64-67. doi: 10.1016/j.eatbeh.2010.09.004

Janghorban, R., Roudsari, R. L., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International journal of Qualitative Studies on Health and Well-being,* *9*, 241-252. doi: 10.3402/qhw.v9.24152

Jennings, K. M., & Phillips, K. E. (2017). Eating Disorder Examination–Questionnaire (EDE–Q): Norms for a Clinical Sample of Males. *Archives of Psychiatric Nursing, 31*(1), 73-76. doi:10.1016/j.apnu.2016.08.004

Jones, R. L., Glintmeyer, N., & McKenzie, A. (2005). Slim bodies, eating disorders and the

coach-athlete relationship a tale of identity creation and disruption. *International Review for the Sociology of Sport, 40*(3), 377-391. doi: 10.1177/1012690205060231

Krentz, E. M., & Warschburger, P. (2011). Sports-related correlates of disordered eating in aesthetic sports. *Psychology of Sport and Exercise, 12*(4), 375-382. doi:10.1016/j.psychsport.2011.03.004

Larkin, M., Watts, S., & Clifton, E. (2006). Giving voice and making sense in interpretative phenomenological analysis. *Qualitative Research in Psychology, 3*(2), 102-120. doi:10.1191/1478088706qp062oa

Lincoln, Y. S., & Guba, E. G., (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The handbook of qualitative research* (2nd ed., pp. 163–188). Beverly Hills, CA: Sage.

Luce, K.H., and Crowther, J.H. (1999). The reliability of the Eating Disorder Examination – self-report questionnaire version (EDE-Q). *International Journal of Eating Disorders, 25,* 349-351. doi:10.1002/(sici)1098-108x(199904)25:33.3.co;2-d

Luce, K. H., Crowther, J. H., & Pole, M. (2008). Eating Disorder Examination Questionnaire (EDE‐Q): Norms for undergraduate women. *International Journal of Eating Disorders, 41*(3), 273-276. doi: 10.1002/eat.20504

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy, 44, 53-62.* doi: 10.1002/eat.20504

Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counseling psychology. *Journal of Counseling Psychology, 52*(2), 250-260. doi:10.1037/0022-0167.52.2.250

Nowicka, P., Eli, K., Ng, J., Apitzsch, E., & Sundgot-Borgen, J. (2013). Moving from knowledge to action: a qualitative study of elite coaches’ capacity for early intervention in cases of eating disorders. *International Journal Sports Science & Coaching, 8*, 343-356. doi:10.1260/1747-9541.8.2.343

Papathomas, A., & Lavallee, D. (2006). A life history analysis of a male athlete with an eating disorder. *Journal of Loss and Trauma, 11*(2), 143–179. doi:10.1080/15325020500409192

Papathomas, A., & Lavallee, D. (2010). Athlete experiences of disordered eating in sport. *Qualitative Research in Sport and Exercise, 2*(3), 354-370. doi:10.1080/19398441.2010.517042

Petrie, T. A., & Greenleaf, C. A. (2007) Eating disorders in sport: From theory to research to intervention, In G. Tenenbaum and R. C. Eklund (Eds.) *Handbook of Sport Psychology*, (3rd Edition), John Wiley & Sons, Inc., Hoboken, NJ, USA. doi:10.1002/9781118270011.ch16

Petrie, T. A., Greenleaf, C., Reel, J., & Carter, J. (2008). Prevalence of eating disorders and disordered eating behaviors among male collegiate athletes. *Psychology of Men & Masculinity, 9*(4), 267-277. doi:10.1037/e505532008-001

Pope, Z., Gao, Y., Bolter, N., & Pritchard, M. (2015). Validity and reliability of eating disorder assessments used with athletes: A review. *Journal of Sport and Health Science, 4*(3), 211-221. doi:10.1016/j.jshs.2014.05.001

Reel, J. J., Petrie, T. A., SooHoo, S., & Anderson, C. M. (2013). Weight pressures in sport: Examining the factor structure and incremental validity of the weight pressures in sport—Females. *Eating Behaviors, 14*(2), 137-144. doi:10.1016/j.eatbeh.2013.01.003

Rose, J. S., Vaewsorn, A., Rosselli-Navarra, F., & Wilson, G. T. (2013). Test-retest reliability of the eating disorder examination-questionnaire (EDE-Q) in a college sample. *Journal of Eating Disorders, 1(1)*, 42. doi:10.1186/2050-2974-1-42

Rosendahl, J., Bormann, B., Aschenbrenner, K., Aschenbrenner, F., & Strauss, B. (2009). Dieting and disordered eating in German high school athletes and non‐athletes. *Scandinavian Journal of Medicine & Science in Sports, 19*(5), 731-739. doi:10.1111/j.1600-0838.2008.00821.x

Sanford-Martens, T. C., Davidson, M. M., Yakushko, O. F., Martens, M. P., & Hinton, P. (2005). Clinical and subclinical eating disorders: An examination of collegiate athletes. *Journal of Applied Sport Psychology, 17*(1), 79-86. doi:10.1080/10413200590907586

Sanftner, J. L., Barlow D. H., Marschall, D. E., & Tangney, J. P. (1995). The relation of shame and guilt to eating disorder symptomatology. *Journal of Social and Clinical Psychology*, *14*(4), 315-324. doi:10.1521/jscp.1995.14.4.315

Scoffier, S., Gernigon, C., & d’Arripe-Longueville, F. (2012). Effects of achievement goals on self-regulation of eating attitudes among elite female athletes: An experimental study. *Psychology of Sport and Exercise, 13*(2), 201-207. doi:10.1016/j.psychsport.2011.11.005

Shanmugam, V., Jowett, S., & Meyer, C. (2011). Application of the transdiagnostic cognitive-behavioral model of eating disorders to the athletic population. *Journal of Clinical Sport Psychology, 5*(2), 166-191. doi:10.1123/jcsp.5.2.166

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63-75.

Smith, J. A. (2008). *Qualitative psychology: A practical guide to research methods*. London: Sage.

Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (2nd ed., pp. 53–80). London, UK: Sage.

Sparkes, A. C., & Smith, B. (2014). *Qualitative research methods in sport, exercise and health: From process to product*. London, United Kingdom: Routledge.

Stewart, T. M., Plasencia, M., Han, H., Jackson, H., & Becker, C. B. (2014). Moderators and predictors of response to eating disorder risk factor reduction programs in collegiate female athletes. *Psychology of Sport and Exercise, 15*(6), 713-720. doi:10.1016/j.psychsport.2014.02.006

Sundgot-Borgen, J., & Torstveit, M. K. (2004). Prevalence of eating disorders in elite athletes is higher than in the general population. *Clinical Journal of Sport Medicine, 14*(1), 25-32. doi:10.1097/00042752-200401000-00005

Tiggemann, M., & Kuring, J. K. (2004). The role of body objectification in disordered eating and depressed mood. *British Journal of Clinical Psychology, 43*(3), 299-311. doi:10.1348/0144665031752925

Torstveit, M. K., Rosenvinge, J. H., & Sundgot‐Borgen, J. (2008). Prevalence of eating disorders and the predictive power of risk models in female elite athletes: a controlled study. *Scandinavian Journal of Medicine & Science in Sports, 18*(1), 108-118. doi:10.1111/j.1600-0838.2007.00657.x

Touroni, E., & Coyle, A. (2002). Decision-making in planned lesbian parenting: An interpretative phenomenological analysis. *Journal of Community and Applied Social Psychology,* *12*, 194–209. doi:10.1002/casp.672

Turner, A., Barlow, J., & Ilbery, B. (2002). Play hurt, live hurt: Living with and managing osteoarthritis from the perspective of ex-professional footballers. *Journal of Health Psychology, 7,* 285–301. doi:10.1177/1359105302007003222

Tylka, T. L., & Hill, M. S. (2004). Objectification theory as it relates to disordered eating among college women. *Sex Roles, 51*(11-12), 719-730. doi:10.1007/s11199-004-0721-2

Voelker, D. K., Gould, D., & Reel, J. J. (2014). Prevalence and correlates of disordered eating in female figure skaters. *Psychology of Sport and Exercise, 15*(6), 696-704. doi:10.1016/j.psychsport.2013.12.002

Winter, S., & Collins, D. (2015). Why do we do, what we do? *Journal of Applied Sport Psychology, 27*(1), 35-51. doi: 10.1080/10413200.2014.941511