6-14-2022 10:00 AM

Evaluating the impact of a safe exercise training workshop on knowledge and self-efficacy to manage dysfunctional exercise among eating disorders clinicians at Alsana eating disorders center

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A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Psychology

Abstract

Engaging in dysfunctional exercise (DEX) is detrimental to eating disorders (EDs) prognosis, although common amongst clients. Though nutritionally supported exercise can improve ED treatment outcomes, without negatively impacting weight restoration, clinicians remain hesitant to address DEX, perhaps due to a lack of information and training. The current study examined the effects of a Safe Exercise at Every Stage (SEES) training on clinician knowledge and self-efficacy in managing DEX in ED treatment. Eating disorders clinicians completed measures before (n = 96) and after (n = 44) SEES training to assess their knowledge and self-efficacy around treating DEX, with a subsample completing both time points (n = 40). Paired sample t-tests revealed a significant increase in both overall self-efficacy and knowledge after the SEES training. Semi-structured interviews exploring clinicians' thoughts on managing DEX were conducted. Three themes were revealed: "*The SEES Training Impact*," "*Bridging the Gap Through Staff and Community Support*," and "*On the Horizon*". Results highlight the benefits of clinician training round exercise I the context of ED treatment and the need for continued training and providing accessible guidelines to ED clinicians for the management of DEX.

Keywords

eating disorders, dysfunctional exercise, physical activity, Safe Exercise at Every Stage guidelines, training intervention, clinician self-efficacy, clinician knowledge, semi-structured interviews

Summary for Lay Audience

Eating disorders (ED) have a lifetime prevalence of 9% in the general population. One symptom present in nearly 80% of all cases is dysfunctional exercise (DEX), which is associated with an elevated risk of relapse, longer illness chronicity and length of hospital stay, and worse overall pathology. Recent meta-analyses have noted that nutritionally supported exercise interventions can improve ED symptomatology, vital signs, and musculoskeletal health, without negatively impacting weight gain in EDs. However, clinicians lack resources, guidelines, and training to help them manage and safely integrate exercise into ED treatment. The Safe Exercise at Every Stage (SEES) guideline is a clinical tool developed to support safe exercise engagement in ED populations. The proposed study tested the effect of a 2-day interactive SEES training on eating disorders clinicians' knowledge and self-efficacy around managing DEX. Clinicians completed a survey before and after the training, and a subsample of clinicians participated in semi-structured interviews to discuss the perceived benefits, costs, and barriers to managing DEX in ED settings. We found that the SEES training had a positive impact on the clinicians' knowledge and self-efficacy. Clinicians also reported being highly satisfied with the training. The semi-structured interviews highlighted the importance of staff and community support for understanding and addressing DEX during ED treatment, and how the ED field could better support addressing DEX in this special population. Overall, the SEES training may be a valuable tool in helping ED clinicians gain confidence in this area of ED treatment and thereby help to close the gap between knowledge and practise currently plaguing the ED field.

Acknowledgments

To Dr. Rachel Calogero, your research has been foundational to forming my perspective and approach to exercise and eating disorders. Without it, the SEES guideline, and field of EDs overall, would be missing key aspects to helping individuals find fulfilling, attuned lifelong relationships with exercise. Thank you for your contributions, help and support throughout this project.

To my committee members Dr. Linday Bodell and Dr. Paul Tremblay, thank you for your insights and time throughout the project. Dr. Marita Cooper and Dr. Brian Cook, your guidance, input, and unwavering confidence in me throughout this project can't be thanked enough. I am endlessly grateful to have been able to work alongside you in executing this thesis. Katarina who is forever gracious and patient in helping me with this project; be it by conducting the interviews or answering late-night questions. Abby, thank you for your help with conducting interviews, and for your boundless enthusiasm in facilitating this project. Lastly, to my cohort, I don't think I could have put it any better than Jason, your witty, intelligent, and kind personalities have been shining stars in a very strange start to our degrees.

Perhaps most importantly, to my mom, dad and sister, I express my ongoing gratitude for your presence in my life. Your untiring encouragement, mindful advice, and more than occasional reassurance and guidance were crucial over the last years. Thank you. Lastly, to my wonderful partner Rachel, cheers to being one step further from becoming CEMAs.

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Chapter 1

1 Introduction

Eating disorders (EDs) have continued to expand into younger and more diverse populations than ever before (Gorrell & Murray, 2019; Rodgers, Berry, & Franko, 2018). Eating disorders include an array of eating and feeding pathologies such as anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and other feeding and eating disorder (OSFED; American Psychiatric Association, 2013). The 12-month prevalence of eating disorders varies with the highest prevalence between men and women being OSFED (~7.4%), followed by AN (3.6%), BN (2.1%), and BED (2%) (Galmiche et al., 2019; Micali et al., 2017).

Unlike most other mental health disorders, EDs cause serious harm to both individual's physical and mental well-being taking a significant toll on all the body's systems (Melher et al., 2010). Individuals with EDs have a decreased quality of life, and greater rates of comorbid anxiety, depression, and substance use disorders (Godard et al., 2007; Ulfvebrand et al., 2015). Combined, these disorders have the highest mortality rate of any mental illness, although this may be recently overshadowed by the mortality rates for substance use disorders (Fichter & Quadflieg, 2016; Hjemsæter et al., 2019). Most succumb to the disorder as a result of suicide or cardiac complications (Fichter & Quadflieg, 2016). Despite best efforts, the treatment of EDs is characterized by high levels of drop-out (DeJong, Broadbent, & Schmidt, 2012), partial responses to available therapies, and elevated relapse contributing to the low recovery rates (50%) in this population (Goddard et al., 2013; Hay, 2013; Reel, 2013). As a result, EDs are costly to

treat, ensuing significant direct (+8,042 US$) and indirect (+4,455 US$) costs per patient per year (Stuhldreher et al., 2012).

A factor that may interfere with ED treatment and recovery is dysfunctional exercise (DEX), a term coined by Calogero and Pedrotty-Stump (2010) to cover the array of attitudes, feelings, beliefs, motivations, and experiences related to problematic exercise in the context of eating disorders. Between 22 and 81% of individuals with EDs report some degree of DEX (Dalle Grave, 2008; Shroff et al., 2006), and it is observed across ED diagnoses (Mathisen et al., 2018;2020; Monell et al., 2018; Sellbom et al., 2022). Notably, DEX is often the first presenting and last remaining symptom of EDs (Dalle Grave et al., 2008; Davis et al., 1994). When DEX engagement goes unmanaged during treatment, ED pathology is often exacerbated and ED treatment and recovery are undermined (Alberti et al., 2013; Berends, Boonstra, & Van Elburg, 2018; Carter, Blackmore, Sutandar-Pinnock, & Woodside, 2004; Cook et al., 2011; Solenberger, 2001). DEX itself has been associated with overuse injuries, bone fractures, and cardiac complications (Dalle Grave et al., 2008). Moreover, engagement in DEX after treatment was found to predict relapse in a 15-year prospective study, in which DEX was the second strongest predictor of relapse among over 120 predictor variables (Strober, Freeman, & Morrell, 1997).

Despite the role of DEX in the experience of EDs, treatment has generally ignored the problem of exercise and adopted the long-standing practice of recommending abstinence from exercise during ED treatment, which has not been effective for addressing DEX in this population or ED treatment and recovery overall (Calogero &

Pedrotty, 2004; Calogero & Pedrotty-Stump, 2010; Davies, 2015; Hechler et al., 2005; Quesnel et al., 2018). Evidence has accumulated over the past two decades that incorporating nutritionally supported, safe, and supervised exercise into ED treatment can address DEX without undermining ED treatment and recovery or interfering with weight gain and maintenance (Calogero & Pedrotty, 2004; Sundgot-Borgen et al., 2002; Hallward et al., 2021; Martysen et al., 2022). As such more recent research highlights the intention to address DEX in treatment and incorporate exercise back into clients' lives (Hallward et al., 2021; Martysen et al., 2022). Despite this intention, many ED clinicians report feeling ill-equipped to address DEX and use exercise in ED treatment (Quesnel et al., 2018).

To address this gap in clinician knowledge and training, the Safe Exercise at Every Stage (SEES) guideline was developed to guide clinicians in the management of DEX during ED treatment (Dobinson, Cooper, & Quesnel, 2018). To date, no studies have examined whether a training based on the SEES guideline is effective in improving clinical decision-making around DEX during ED treatment among ED clinicians. Developed from the SEES guideline, the current study assessed the impact of a two-day training on clinicians' knowledge and self-efficacy around addressing DEX in ED treatment as well as the feasibility of SEES training in a clinical setting.

1.1 Exercise and Eating Disorders

Despite DEX being illustrated in the first published report on EDs, with Gull (1888) documenting a persistent wish to be 'on the move' by his clients, the exact etiology of DEX remains unknown (Costa et al., 2016). Over time, the definition and

underlying conceptualization of DEX have evolved. Research first began on DEX in the context of runners without a clinical diagnosis (Morgan, 1979). Soon after, ED clinicians noticed similar patterns of DEX in their clients (Yates, 1983). The role of DEX in ED has been convoluted from the start. Initial research stat that if exercise was restricted during treatment, the rate of weight gain could be increased, hospital time shortened, and the cost of treatment decreased (Kaye et al., 1988). However, others (Kron et al., 1978) brought to light how exercise patterns seemed to be prevalent among many with EDs, with exercise becoming more excessive and disorganized as the ED worsened. Thereby, arguing that DEX was a clinical feature of EDs rather than a secondary symptom. As such, early initiatives (Long & Hollin, 1995) began to trial CBT programs targeted at DEX. Although the CBT intervention offered some success, continued research was encouraged (Davis et al., 1997; Long & Hollin, 1995).

Following these early findings, many tried to quantify a volume of exercise to represent a cut-off point for pathology. Some research suggested that exercising at least five times a week for at least 1h without stopping (Penas-Lledo et al., 2002) indicated pathology, while others proposed exercising for more than 3h on any one day (Shroff et al., 2006), or exercising for at least 6h a week (Davies & Kaptein, 2006) implied pathology. Despite these efforts, no consensus has been drawn, and more recent research has determined that the quantity of exercise does not explicitly predict a dysfunctional relationship with exercise (Glazer, 2008; Bratland-Sanda, Mathisen & Sundgot-Borgen, 2019; Sundgot-Borgen & Torstveit, 2004).

Calogero and Pedrotty-Stump (2007; 2010) expanded the definition of DEX in the context of EDs well beyond the volume or intensity of exercise to include a wide range of qualities and behaviors that reflect one's relationship with exercise. Other work has continued to center on the psychological motivation to exercise as the critical component underlying dysfunctional exercise (Cook et al., 2011; Hallward et al., 2021; Hart & Wade, 2020; Meyer et al., 2008; 2011). Over time, research has come to appreciate that individuals with EDs have a different relationship with exercise that center around qualities which includes: an obsession/preoccupation (Davis et al., 1998; Davis & Kaptein, 2006; Naylor et al.,2011: Bratland-Sanda et al., 2019), withdrawal symptoms (Davis & Claridge, 1998; Robbins & Joseph, 1985) such as restlessness/irritability (Bamber et al., 2000; Szabo et al., 1997), dysphoria (Boyd et al., 2007), or guilt if exercise is missed (Bamber et al., 2000; 2003; Boyd et al., 2007; Szabo et al., 1997; Mond & Calogero, 2009; Sachs 1981; Thaxton, 1982), unenjoyable (Davis et al., 1994), used to manage affect (Meyer et al., 2011), driven by weight and shape concerns (Dalle Grave et al., 2008) or perfectionism (Shroff et al., 2006), compulsive (Adkins & Keel, 2005; Davis et al., 1994; Meyer et al., 2011), rigid (Beaumont et al., 1994; Davis et al., 1994; Meyer et al., 2011; Yates, 1991) and overall distressing (Naylor et al., 2011), and compromising social relationships and functioning (Young et al., 2018; Trott et al., 2020).

A model of DEX proposed by Dittmer et al. (2018) combines the outlined characteristics of DEX in those with EDs. Their model of DEX comprehensively suggests that an individual with DEX a) feels driven to perform exercise in response to an

obsession or according to rules that must be applied rigidly, and the exercise is aimed at preventing some dreaded consequences or at preventing or reducing distress, often based on distorted beliefs about exercise, b) engages in exercise in a time-consuming way (takes more than 1 hour per day) that significantly interferes with their daily routine, occupational functioning or social relationship or is continued despite medical injury, illness, or lack of enjoyment, c) engages in exercise in a way that is excessive or unreasonable, and that d) these qualities are noted across the clients' engagement in vigorous exercise (i.e. gym sessions, sports engagement), marked increase in daily movement or incidental physical activity (i.e. chores, walking to the mailbox), and motor restlessness (pacing, overall agitation). Bratland-Sanda et al. (2019) offer an extension to this model proposing that one's obsession with exercise, regardless of actual engagement in exercise, further characterizes DEX.

Collectively, the literature indicates that DEX is a complex, yet an impactful component of EDs. When a client's relationship with exercise embodies the aforementioned qualities across settings and time, exercise can become detrimental worsening and exacerbating the ED. Perhaps paradoxically, when exercise is incorporated into treatment in tandem with psychological interventions clients have experienced improved quality of life, reduced eating pathology, and decreased comorbid symptomatology (Calogero & Perotty, 2004; Cook & Hausenblas, 2008; Moola, Gairdner, & Amara, 2013; Vancampfort et al., 2014).

1.2 Clinical Management of Dysfunctional Exercise

In a foundational paper, Beumont et al. (1994) challenged the time's current ideology of recommending abstinence from exercise during treatment. Instead they suggested that DEX should be treated in clinical settings and the aim should be to return clients to normal engagement in activity before discharge. They proposed a program that included both exercise counseling and supervised activity, taking an approach similar to how a clients' relationships with food are rehabilitated. A decade later, Calogero and Pedrotty (2004) developed and tested the effects of participation in a supervised exercise program that was integrated into eating disorders treatment and designed to specifically address DEX and support overall ED treatment without interfering with weight recovery or maintenance. A total of 127 residential eating disorders patients across ED diagnoses participated in the study. The exercise program included stretching, yoga, Pilates, partner exercises, strength and balance training, aerobic activities, and recreation activities combined with the opportunity to process the activity before, during, and after each session. Compared to the control group, who received standard care, the intervention group's emotional commitment to exercise, exercise involvement and exercise rigidity improved significantly. Of note, the exercise group gained one-third more weight than did the control group.

Since that time, exercise interventions have been incorporated into youth (Fernandez-del-Valle et al., 2010; 2014) and adult ED treatment and across ED diagnosis (Bratlan-Sanda et al., 2009; Mathesien et al., 2020). The interventions have ranged from yoga (Carei et al., 2010; Karlsen et al., 2018; Neumark-Sztainer et al., 2013) to resistance

training (Agne et al., 2022; Chantler et al., 2006; Szabo & Green, 2002; Fernandez-del-Valle et al., 2010;2014), aerobic exercise (Tokumura et al., 2003; Sundgot-Borgen et al., 2002), and other alternative exercise modalities (Catalan-Matamoros et al., 2011; Duesund, & Skarderud, 2003). These global initiatives have resulted in improvements in clients' muscle mass (Agne et al., 2022; Chantler et al., 2006; Sazbo & Green, 2002), fitness markers such as VO2max (Tokumura et al., 2013), DEX markers (Schlegel et al., 2015; Mathisen et al., 2018;2020), quality of life (Agne et al., 2022; Duesund & Skarderud, 2003), therapeutic alliance (Catalan-Matamoros et al., 2011) and reduced drive for thinness (Carie et al., 2010). Recently, Dittmer et al. (2018) incorporated an exercise and psychoeducation intervention aiming to reduce excessive exercise, re-experience joy with activity and develop a flexible exercise regime in a mixed sample of individuals with AN and BN (N=32). Their intervention was successful in reducing compulsive exercise, drive for thinness, depression, general ED pathology, and acceptability of emotion and did not impact weight recovery (Dittmer et al., 2018). Notably, none of the exercise interventions have hindered the process of weight recovery or resulted in any adverse outcomes (Hallward et al., 2021; Hausenblas & Symons Downs, 2002; Hausenblas et al., 2008; Moola et al., 2013; Ng et al., 2013; Vancampfort et al., 2014).

Despite the benefits of incorporating supervised exercise that is nutritionally supported and safe into ED treatment, the common wisdom and widespread practice have been to prescribe bed rest or exercise abstinence as the safest strategy (Davies, 2015; Quesnel et al., 2018). Yet, given the high prevalence of DEX, enforcing abstinence rules

in both inpatient and outpatient settings can be a difficult and unpleasant experience for both clients and clinicians and is not effective (Beumont et al., 1994; Calogero & Pedrotty, 2004; Davies, 2015). Not only this, research has shown that bed rest and exercise abstinence are detrimental to both the psychological and physiological well-being of ED clients (Ibrahim, Cutinha, & Ayton, 2019). In EDs, individuals who continue to engage in DEX immediately after discharge have an increased risk of relapse (Carter et al., 2004; Strober et al., 1997). Conversely, when trials of individuals with BN and BED have compared a control group (n=39) with an exercise intervention group (n=58), they saw a decrease in DEX engagement following treatment (Bratland-Sanda & Vrabel, 2018). Further, when individuals' standard treatment is complemented with supervised, safe exercise engagement, they refrain from binging and have a better overall prognosis long term (Bratlanda-Sanda et al., 2010). Further, promoting complete exercise abstinence before providing new and healthy ways to cope may remove a vital and significant coping mechanism for an individual and may also cause negative affect or withdrawal symptoms (Geller et al., 2000; Morris et al., 1990). Beyond the research findings, the American Psychological Association has discouraged bed rest as a standard of practice (Yager et al., 2014). Additionally, restricting all forms of exercise raises ethical concerns as we are preventing clients *"from partaking in socially acceptable healthy lifestyle behaviors and take control of their recovery"* (Cook & Leininger, 2017).

Most clinicians (86%) view exercise as an important factor in the maintenance and pathology of an ED (Hechler et al., 2005). Clinicians recognize that DEX is compulsive in nature rather than joyful, used to regulate affect in a dysfunctional way,

should only be limited when BMI is extremely low, is a way to self-injure, and agree that it is a core symptom of an ED (Bratland-Sanda et al., 2009). Despite these general understandings, clinicians are unsure of how to manage DEX and fear that addressing exercise in treatment may result in reinforcing pathological exercise tendencies or in clients "*overdoing it*" (Quesnel et al., 2018). Even for exercise health professionals like physical therapists, exercise recommendations such as the type of physical therapy intervention (aerobic exercise, resistance training, breathing exercises, or body-related interventions) and the optimal dose to recommend to clients with EDs are not known (Soundy et al., 2016). These trends highlight a significant gap in the management of a central symptom of EDs in clinical settings.

Clinicians' fears and lack of training have translated into inconsistent attempts to assess and manage DEX in treatment settings (Bratland-Sanda et al., 2009; Hechler et al., 2005). Across time, client records have found that non-systematic approaches to incorporating exercise in EDs settings have been implemented (Kron et al., 1978). Clinicians seem to seldom (if at all) assess the level, type, duration, and intensity of exercise, or use guidelines for managing it (Bratland-Sanda et al., 2009; Hechler et al., 2005). Even when treatment centers do assess exercise behaviors, this process has not been supplemented by input from an exercise professional or include any type of concrete guidelines for management (Bratland-Sanda et al., 2009). Further yet, the initial assessments may only include the question "are you physically active" without any follow-up questioning (Bratland-Sanda et al., 2009). In one study, the assessment of DEX varied greatly by geographical location (Australia, Sweden, Denmark) highlighting the

lack of standardization in addressing DEX and with it the need for clear guidelines and knowledge translation (Bratland-Sanda et al., 2009). Beyond assessment, there is significant variation in the emphasis given to addressing DEX in treatment, leading some treatment programs to continue promoting the idea of abstinence from exercise while other programs include yoga or group activity in an ad-hoc fashion without evidence-based support or tailoring the activity to the specific client's relationship with exercise (Quesnel et al., 2018).

The Loughborough Eating Disorders Activity Program (LEAP) program is the only manualized initiative of its kind and offers a 12-week CBT group-based intervention that addresses exercise psychopathologies such as compulsivity, exercise myths, rigidity, weight, and shape motivated exercise, etc. (Hay et al., 2018). The LEAP program has been trialed once, in 78 clients with EDs. Half of the clients were assigned to the CBT-anorexia group and half were assigned to the LEAP program. The LEAP program aimed to improve emotional coping, prevent relapse, provide education and skills along with promoting healthy exercise. Clients were assessed before therapy, after therapy, 3- and 6-months post-therapy. Despite both groups improving in DEX markers, between groups there were no significant differences (Hay et al., 2018). Although results are preliminary, the program's lack of success may indicate the need to pair efforts in addressing psychopathological thinking about exercise with engagement in exercise itself.

More recent programs such as the Friedburg Sports Therapy Program for outpatients with an ED implemented an intervention that was successful in improving traits of DEX (i.e., over-commitment to exercise, rigidity, and drive for thinness). Their

program included both engagement in exercise and psychoeducation (Schlegel et al., 2015). The psychoeducation addressed topics such as reasons for exercise and dysfunctional thoughts and expectations associated with the obsessive-compulsive features of exercising (e.g., exercising alone, strict rules, etc.). The program examined the intensity and duration of exercise and how to detect one's limits and the importance of making time for relaxation. It went on to address the influence of having an achievement-oriented outlook on exercise and perfectionism. Lastly, it helped clients explore the positive effects of exercise and urged them to reflect on past experiences.

Together, studies that have aimed to engage clients in both the practice and process of exercise, have more effectively remediated the client's relationships with exercise (Calogero & Pedrotty-Stump, 2010). For example, programs that have only focused on incorporating an exercise program into EDs treatment without supplemental therapy to address the DEX have not shown improvements in measured markers of depression (Chantler et al., 2006), quality of life (Thien et al., 2000), and overall psychopathology with DEX (Thien et al., 2000).

Overall, the inconsistencies in DEX management across treatment programs and a general lack of knowledge and formalized guidelines continue to limit clinician's training on how to address DEX systematically during treatment.

1.3 Safe Exercise at Every Stage Guideline

To address the lack of formalized guidelines for exercise during ED treatment, I co-developed the Safe Exercise at Every Stage (SEES) guideline (Dobinson, et al., 2019).

The SEES guideline is a tool that supports clinicians in managing and addressing DEX during ED treatment. The AGREE-II Next Steps Consortium was used to support the development of the guideline (Brouwers et al., 2010) in conjunction with the National Health and Medical Research Council Guidelines (2011) instrument to ensure that SEES meets high standards (National Health and Medical Research Council, 2011) and a review of the best available research in conjunction with input by experts in the field of EDs and related conditions. The guideline is made up of two main components. The first is a medical section that comprehensively reviews the physical and psychological symptoms of an ED and how engaging in DEX may impact them. Based on this information, a simple graded level system was developed to support clinicians in determining what level of exercise is safe for each client based upon their current level of physical and psychological well-being, making up the second component of the guideline. In tandem, the guideline provides tools to address pathological thinking about exercise (see Appendix A). The development of the guideline was undertaken in 2016 and published in 2019.

1.3.1 SEES Guiding Principles

The SEES guideline is underpinned by five key principles: non- abstinence, safety, comprehensive, intuitive and mindful movement, and collaboration.

*1. Non-abstinence***.** This principle is central to the SEES guideline. Appropriate exercise engagement and education during treatment have been associated with improved quality of life, body composition, reduced eating disorders attitudes and behaviors (e.g., drive for thinness, weight and shape concerns, and eating restraint), and improved

comorbid physical and psychological symptomatology (e.g., anxiety, depression, muscle degradation, body esteem issues, perceived stress, and osteoporosis) in those with AN, BN and EDNOS (Hausenblas et al., 2008; Ng et al., 2013; Moola et al., 2013; Vancampfort et al., 2014). Thus, the SEES guideline centers around the idea of non-abstinence from exercise during treatment.

2. Safe. It is crucial that incorporating exercise into ED treatment promotes the safety of clients. As mentioned, the management of DEX is currently limited; due, in part, to gaps in knowledge among health professionals (Quesnel et al., 2018). This limited knowledge has likely contributed to uncertainty and confusion related to the safety of clients engaging in any exercise during ED treatment. The SEES guideline was developed to provide a summary of the current evidence of the physiological and psychological impacts of DEX on individuals with ED. Thus, the SEES guideline bases any of its recommendations on this evidence, subsequently promoting physical and psychological safety as paramount to any exercise.

3. Holistic. The shortcomings of separately addressing behavioral or psychopathological aspects of DEX in EDs support the key principle of addressing DEX holistically. One's relationship with exercise is multifaceted, comprising of physical, emotional, social, cognitive, and sociocultural components (Calogero & Pedrotty, 2007). As a result, the SEES guideline is focused on not only making recommendations for how to help clients safely engage in exercise but also on incorporating ways in which to remediate one's relationship with activity taking into account aspects such as supervision, environment and setting. The prioritization of a comprehensive approach in the SEES

guideline underpins the combination of medical, cognitive, emotional, and behavioural benchmarks noted within it.

4. Intuitive and Mindful Movement. Mindful and intuitive movement is defined as, "movement that is done with attention, purpose, self-compassion, acceptance, awareness, and joy... focused on the process of becoming more connected, healthier, and stronger" (Calogero & Pedrotty, 2010 p.434). The SEES guideline aims to provide an alternative way for clients to experience exercise. Rather than the typical dysfunction, mindful movement aims to support individuals to foster trust in their bodies' preferences and needs related to exercise contributing to the likelihood of positive, rather than destructive, health outcomes over time (Calogero & Pedrotty, 2004). According to Calogero and Pedrotty (2007, p.184), mindful and intuitive movement should:

1. Rejuvenate the body, not exhaust or deplete it.
2. Enhance mind-body connection, not allow or induce disconnection.
3. Alleviate mental and physical stress, not produce more.
4. Provide genuine enjoyment and pleasure, not pain and dread.

Collaborative. Developing a strong therapeutic alliance in treatment is a well-established predictor of positive treatment outcomes (Graves et al., 2017). Collaborative client-practitioner relationships have been identified as more likely to prevent dropout, reduce client ambivalence toward change, and increase treatment acceptability by both clients and clinicians (Geller et al., 2003). The SEES guideline promotes collaboration between the individual, their loved ones, and a team of experienced ED professionals to

help guide safe exercise engagement at all stages of ED treatment and recovery. This approach differs from directive approaches in that it emphasises listening to the individual's needs and preferences, addressing client motivation and ambivalence, and fostering client autonomy. It should be noted that collaborative approaches are not wholly client-directed. Rather, collaborative approaches view clients as active members in clinical decision-making and, consequently, these decisions are still made within the context of clinicians prioritizing the client's engagement in safe and healthful exercise. This approach aims to facilitate open and honest conversations with clients about exercise, identifying their needs and concerns about exercise engagement. Not only this, but the SEES guideline requires the multidisciplinary approach to addressing DEX. Involving medicine, psychology, athletic professionals and dietitians in the implementation of the guideline to appropriately address this convoluted aspect of EDs.

1.4 Current Aims and Hypothesis

To answer the call for additional research on incorporating DEX in EDs (Hart & Wade, 2020; Hallward et al., 2021), the proposed project involved the delivery and evaluation of a two-day training workshop based on the SEES guideline to instruct ED clinicians on how to manage DEX in their practice. Specifically, we tested the impact of the SEES training on clinicians' perceived knowledge and self-efficacy around managing DEX during EDs treatment. In this mixed-methods multi-site study, we administered surveys assessing clinicians' self-efficacy and level of knowledge about addressing and managing DEX with clients. Semi-structured qualitative interviews were conducted with a subsample of Alsana's clinicians who undertook the training to explore the perceived

benefits, costs, and barriers to implementing SEES in clinical ED settings. I analyzed responses from the semi-structured interviews conducted with clinicians who completed the SEES training to better understand the factors that inhibit and/or facilitate the management of DEX in ED treatment settings. The semi-structured interviews also helped to understand how the SEES training can be better tailored for future implementation. Ultimately, this study offered an opportunity to train ED professionals to address DEX and assess its effectiveness in providing clinicians with a tool to manage this neglected area of ED treatment.

Hypothesis 1: Clinicians' knowledge of DEX in the treatment of EDs will be significantly higher after the SEES training.

Hypothesis 2: Clinicians perceived self-efficacy in their clinical decision-making related to addressing and managing DEX during ED treatment will be significantly higher after SEES training.

Chapter 2

2 Method

2.1 Power

Participants were recruited from all clinical staff at Alsana Treatment Center. Based on an a priori power analysis using G*Power (Faul et al., 2007), we aimed to recruit a minimum of 84 participants for a within-subjects design with two repeated measures with 95% power (alpha = .05, two-tailed) to detect a small yet practically relevant effect (*d* =.40) in our dependent measures of interest (Camerer et al., 2018; Open Science Collaboration, 2015).

2.2 Participants

The study was approved by the Western Research Ethics Board for Non-Medical Research Involving Human Subject in Spring 2021 (see Appendix B for approval). Alsana Eating Disorder Treatment Centers have eight US-based residential locations, including two sites in Saint Louis, Missouri, two sites in Birmingham, Alabama, two sites in Westlake, California, and one site each in Monterrey and Santa Barbara, California. Alsana Eating Disorder Treatment Centers offer partial hospitalization programs and intensive outpatient programs virtually as well as in-person in Saint Louis, Birmingham, Monterrey, Westlake, and Santa Barbara. All clinicians working at Alsana treatment centers across the US were mandated to take part in the SEES training. In total, 118 participants attended the first day of SEES training (August 26^{th,} 2021) and 92 participants attended the second day of SEES training (September 6th, 2021). Before the SEES training, Dr. Brian Cook, the Vice President of Research, Movement, and

Outcomes at Alsana, contacted the clinicians via mass email (see Appendix C) to invite them to participate in the study and provide them with the Qualtrics link. There were no criteria that explicitly excluded clinicians from participating in the study. All clinicians who participated in the SEES training had the option to partake in both the quantitative and qualitative portions of the study.

The clinicians who choose to participate in the study were able to complete Survey 1 between the dates of August 10, 2021, and August 26, 2021. Of the 118 clinicians who attended the Day 1 SEES training day, 96 of them completed the first survey. Survey 2 was available for completion between September 6, 2021, and September 22, 2021. Of the 92 participants who participated in the Day 2 training, 44 of them completed the second survey. We used the data only for the participants who completed both time points which left us with a total sample of 40.

Demographic characteristics for the sample (i.e., those who completed both surveys) are presented in Table 1. The majority of participants were women (97.5%) with 2.5% identifying as non-binary. Of those, most were White (87.5%) followed by 7.5% identifying as “more than one race”, 2.5% as African American, and 2.5% as Asian. The mean age of the sample was 30.43 years old (SD = ±7.18) and had worked in the field of EDs for a mean of 3.48 years (SD = ±4.86; range = 2 months to 28 years). Participants reported their professional background as nurses (5%), psychologists (42.5%), dieticians (17.5%), registered clinical counselors (2.5 %), administration (12.5%) and 15.0% identified as “other therapists”. Of these participants, 17.5% had a Bachelors’ degree, 80% had a Master’s degree, and 2.5% had a Ph.D. or Doctoral level degree. In our sample, 90% of the clinicians rated engaging in exercise during treatment as *“very”* or

"extremely important" while 90% rated receiving education about exercise during treatment as *"very"* or *"extremely important"*. Lastly, 87.5% rated that with support exercise could be managed during ED treatment.

Table 1

Sample Demographics for Quantitative Data Analysis

Characteristic		**M (SD)**
Age (years)		30.43 (7.18)
Year in ED Field		3.48 (4.86)
		N (%)
Gender		
	Female	39 (97.5)
	Male	0
	Non-binary	1(2.5)
Race		
	White	35 (87.5)
	Black or African American	1(2.5)
	Asian	1(2.5)
	More than one race	3(7.5)
Specialty in ED field		
	Direct Care	2 (5.0)
	Nurse	2 (5.0)
	Psychologist	17 (42.5)
	Registered Clinical Counsellor	1 (2.5)
	Dietician	7 (17.5)
	Administration	5 (12.5)
	Other Therapist	6 (15.0)
Education Level		
	Bachelor's Degree	7 (17.5)
	Master's Degree	32 (80.0)
	Ph.D. or Doctoral	1 (2.5)

Sample Demographics for Quantitative Data Analysis

Characteristic		**M (SD)**
Therapeutic Orientation		
	Cognitive Behavioural	5 (12.5)
	Eclectic	10 (25.0)
	Other	6 (15.8)
	Missing	19 (47.5)
ED History		
	Self	11 (27.5)
	Loved one	4 (10.0)
	Self & loved one	5 (12.5)
	None	19 (47.5)
	Prefer not to answer	1 (2.5)

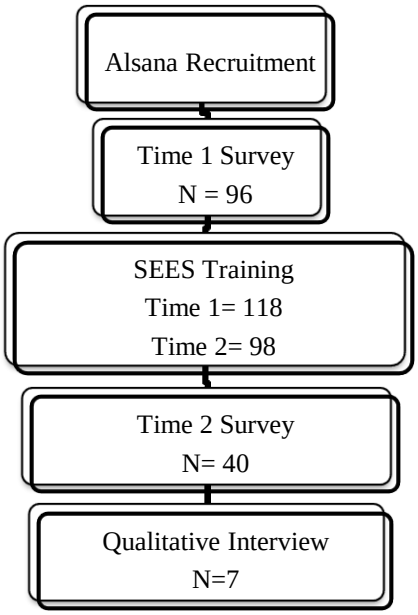
Note. N = 40. ED = eating disorders.

We aimed to randomly select a subset of 10–15 participants from the larger sample to participate in the qualitative portion of the study. Saturation was reached in previous research with a similar objective and methodological protocol, using a range of 10-15 participants (Hockin-Boyers & Warrin, 2021; Latimer-Cheung et al., 2013; Levy, 2013; Quesnel et al., 2018). Potential participants were those who indicated in the consent form administered in the Time 1 survey that they were willing to be contacted for the qualitative portion of the study. From this pool, a total of seven participants were selected at random and recruited via email (see Appendix D). To randomly select participants, I entered their unique ID's into an online randomizer (https://www.random.org/lists/). In a rolling recruitment process, a total of 32 individuals were contacted between September 26, 2021, and December 7, 2021. To avoid any conflict of interest, I hired two research assistants (KH, AB) to contact the potential participants. After the initial contact, each potential participant was sent two reminder emails. Of these 32 individuals, eight individuals agreed to participate, though one

participant failed to schedule their interview after being contacted. Although the initial aim was to recruit 10-15 participants, saturation of information was reached after seven participants were interviewed, thus terminating the recruitment process (Figure 1). The demographic information for these seven participants is included in Table 2.

Figure 1

Participant Recruitment



Most participants in the qualitative portion of the study were women (6) and one identified male. Of those, most were White (6) with one identifying as “more than one race”. The mean age of the sample was 32.43 years old (SD = ±6.24) and had worked in the field of EDs for a mean of 5.86 years (SD = ±3.93). Participants reported their professional backgrounds as a nurse (1), psychologists (2), dieticians (3), and registered clinical counselors (1). Of these participants, one had a Bachelors’ degree, six had a Master’s degree.

Table 2

Sample Demographics for Qualitative Data Analysis

Characteristic		**M (SD)**
Age (years)		32.43 (6.24)
Year in ED Field		5.86 (3.93)
		N (%)
Gender		
	Female	5 (71.4)
	Male	2 (28.6)
	Non-Binary	0
Race		
	White	6 (85.7)
	Black	0
	Asian	0
	More than one race	1 (14.3)
Specialty in ED field		
	Direct Care	1 (14.3)
	Nurse	0
	Psychologist	2 (28.6)
	Registered Clinical Counsellor	1 (14.3)
	Dietician	4 (57.1)
	Administration	0
	Other therapist	0
Education Level		
	Bachelor's Degree	2 (16.7)
	Master's Degree	4 (80.2)
	Ph.D or Doctoral	0
Therapeutic Orientation		
	Cognitive Behavioural	2 (28.6)
	Eclectic	1(14.3)

Sample Demographics for Qualitative Data Analysis

Characteristic		M (SD)
	Other	3 (42.8)
	Missing	1(14.3)
ED History		
	Self	
	Loved one	3 (42.8)
	Self & loved one	0
	None	4 (57.1)
	Prefer not to answer	0

Note. N = 7. ED = eating disorders.

2.3 Materials and Measures

2.3.1 Demographics

At baseline only, participants completed a standard demographics questionnaire including gender identity, race/ethnicity, education level, and age. They were also asked about their clinical experience and other information that would help describe the sample, including years worked in the ED field, percentage of time working directly with clients, work setting, personal history of an ED, and therapeutic orientation. Lastly, we used a 5-point Likert Scale (1 = *not at all important* to 5 = *extremely important*) to ask questions about the importance of including exercise in the treatment of EDs, the value of educating clients about DEX, and the ability to manage DEX in ED treatment (see Appendix E).

2.3.2 Baseline Measures

***Godin physical activity questionnaire*.** The Godin Physical Activity Questionnaire (Godin & Shepherd, 1985) was used to assess the quantity of participant activity engagement (see Appendix F). The three-item self-report measure assessed the

frequency of mild, moderate, and strenuous exercise completed in 15-minute bouts within a standard week. In the second part of the measure, participants were asked how often during a 7-day period they engaged in regular activity long enough to "work up a sweat." A total exercise score was calculated by weighing and summing each dimension of the frequency with its related metabolic equivalent (a variable of energy expenditure). This questionnaire is easily understood and has regularly been used to determine exercise tendencies (Jacobs et al., 1993). The Godin Physical Activity Questionnaire has been validated in comparison to physical activity monitors and maximal fitness test scores (Jacobs et al., 1993).

Decisional balance. The Exercise Decisional Balance (Nigg et al., 1998) scale was used to assess the clinicians' perceptions of the negative and positive aspects of exercise (see Appendix G). Participants were asked to rate 10 statements on a 5-point Likert scale from 1 (*not important*) to 5 (*extremely important).* Questions assessed both positive aspects

(5 items) of exercise engagement (e.g., "I would have more energy for my family and friends if I exercised regularly") and negative aspects (5 items) of undertaking exercise (e.g., "Exercise prevents me from spending time with my family and friends"). This scale demonstrated high internal consistency for both pros ($\alpha = .83$) and cons ($\alpha = .71$), and the decisional balance measurement model was previously noted to be invariant across gender and ethnic subgroups (Paxton et al., 2008). Internal reliability for the Exercise Decisional Balance in the current study was $\alpha = .75$.

Exercise beliefs. The Exercise Regulation Questionnaire (BREQ-3) was developed to understand exercise motivations and has been extensively used in exercise contexts (Cid et al., 2018; see Appendix H). Following the question stem "Why do you engage in exercise?", participants were asked to rate their reasons for engaging in exercise on a 5-point Likert scale from 0 (*not true for me*) to 4 (*very true for me).* The measure consists of six subscales: Amotivation "I don't see why I should have to exercise"; External regulation "I take part in exercise because friends/family/partner says I should"; Introjected regulation "I exercise because others will not be pleased with me if I don't"; Identified regulation "I exercise because I value the benefits of exercise"; Integrated regulation "I consider exercise a fundamental part of who I am"; Intrinsic regulation "I exercise because it's fun." The BREQ-3 can be used as either a multidimensional instrument with separate scores on each subscale or as a unidimensional index indicating an overall degree of self-determination (named the Related Autonomy Index). For this study, I calculated scores for each subscale. The BREQ-3 has shown reliability and validity across gender groups (Cid et al., 2018). Internal reliability for the BREQ-3 in the current study was $\alpha = .76$.

2.3.3 Outcome Measures

Knowledge questionnaire. A Knowledge Questionnaire (KQ) was developed to assess participants' baseline knowledge of DEX and was comprised of two separate parts. The first part consisted of items to assess the conceptualization, clinical presentation, and impact of DEX on ED treatment and management practices (e.g., What factor would you say is most important in understanding the quality of a client's relationship with exercise?"). A panel of doctoral-level researchers (RC, BC, and MC) with expertise in the

areas of scale construction, exercise, eating disorders, and health reviewed the pool of items written for the test. The final eleven items selected had four-foil response options. A correct answer was assigned a score of ‘‘1’’ and an incorrect answer was scored ‘‘0.’’ Responses to items were summed to create a total score for the KQ-MC which corresponded to the number of correct answers. The second part of the KQ consisted of 10 questions about myths and facts around exercise and DEX (e.g., “Yoga is always a safe activity for individuals with an eating disorder”). A correct answer was assigned a score of ‘‘1’’ and an incorrect answer was scored ‘‘0.’’ Responses to items were summed to create a total score for the KQ-MF which corresponded to the number of correct answers. A total KQ score was also calculated by summing all 21 items (see Appendix I).

Self-efficacy. Clinicians’ self-efficacy related to addressing and managing DEX in the context of EDs was assessed with the Counselor’s Activity Self-Efficacy Scale (CASES; Lent, Hill, & Hoffman, 2003; see Appendix J). The CASES includes 46 items examining a range of clinical skills for performing counseling tasks, including exploration skills, insight skills, action skills, session management, client distress, and relationship conflicts. Participants responded to each item using a 10-point Likert scale from 0 (*no confidence*) to 9 (*complete confidence).* Lower scores indicated less confidence and higher scores indicated more confidence in a particular skill or situation. The CASES includes three parts, the first two parts assess the clinician’s self-efficacy across the four types of counseling skills (exploration, insight, action, and session management). The third section assesses problem and crisis management skills, or difficult situations to face as a counselor (Lent et al., 2003). For this research, only Part I

and Part II of the CASES scale were used as Part III included several items that were irrelevant to skills used in managing DEX or the main research questions (e.g., “Please indicate how confident you are in your ability to navigate if your client... is sexually attracted to you”). In addition, in Part I and II, the questions were modified to directly inquire about DEX. For example, “Help your client to talk about his or her concerns at a “deep” level” was changed to “Help your client to talk about his or her concerns about dysfunctional exercise at a “deep” level.”

Lent et al. 2003 specific items were summed to reflect four factors of self-efficacy: Insight Skills, Exploration Skills, Actions Skills, and Session Management. Insight Skills (six items; e.g., “Please indicate how confident you are in your ability to ... capture an understand the messages about dysfunctional exercise that clients communicate”) consisted of challenging client inconsistencies, offering interpretations, and using self-involving immediacy statements; Exploration Skills (five items: e.g., “Please indicate how confident you are in your ability to ... use statements that go beyond what the client has overtly stated and that give the client a new way of seeing his or her behavior, thoughts or feelings about dysfunctional exercise”) included items about basic communication competencies such as attending, using restatements, and reflecting feelings; Action Skills (four items; e.g., “Please indicate how confident you are in your ability to ... develope prescribed therapeutic assignments for clients to try out between second sessions to address dysfunctional exercise”) included skills involved in providing relatively structured interventions, such as information giving, direct guidance, and homework assignments; and Session Management included a range of items (e.g., “Please indicate how confident you are in your ability to ... keep sessions on track and

focused on their dysfunctional exercise behaviours and thoughts*")* which reflected one's overall self-efficacy during client sessions (17 items). Total scores for each of these factors were calculated by summing the relevant items. A global self-efficacy score was also calculated by summing all 25 items, with higher scores indicating more confidence in the clinical management of dysfunctional exercise. Internal reliability for the global score of the CASES in the current study was $\alpha = .87$.

Satisfaction survey. A satisfaction survey was developed for this study to assess the clinicians' experience of the SEES training and for them to provide feedback on it (see Appendix K). A panel of three doctoral-level researchers with expertise in scale construction reviewed the pool of items written for the satisfaction survey. The measure included four items which asked participants to rate if they would refer colleagues to the workshop, using a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree).* They also rated how well organized the SEES training was if the objectives of the SEES training were met, and their overall satisfaction with the SEES training, using a 5-point Likert scale from 1 (*very poor*) to 5 (*excellent).* We also included three open-ended questions: 1) What could have been improved upon in the workshop? 2) What did you enjoy about the workshop? 3) Do you have any additional comments to share about the workshop?

2.4 Safe Exercise at Every Stage Training

The basic principles of the SEES guideline (Dobinson et al., 2019) were modified and expanded to deliver an online training course to clinicians at the Alsana Eating Disorder Treatment Centers on managing DEX in ED treatment. The training was

delivered in 2-hour sessions over two days. There were approximately ten days between the two training sessions. The two SEES training sessions (see Appendix L) covered different topics relevant to understanding and managing DEX in ED treatment settings. With the help of Dr. Marita Cooper, I led the development and delivery of the SEES training which involved a series of didactic, interactive sessions, and the assessment of case studies. More specifically, the training included lectures, case studies, role-play, and facilitated discussion that was designed to educate and enhance the clinician's understanding of DEX in EDs.

Training Day 1. A primary goal of the training was for clinicians to learn how to help clients re-establish a fulfilling and supportive relationship with activity (Cook & Leininger, 2017). Most clinicians treating EDs don't have an exercise background (Bergmeier et al., 2021), thus we focused first on helping clinicians gain a thorough understanding of exercise and how it is presented and integrated into society and everyday life. On the first day of training, we reviewed the role of exercise in today's society; information related to identifying and recognizing DEX in an ED population; understanding the effects of DEX on ED treatment outcomes and examining the benefits of safe exercise for addressing DEX with ED clients. We continued the training by providing education around the core constructs and clinical presentations of DEX. To supplement this information, research studies incorporating exercise into treatment were presented. Finally, we completed the Day 1 training by presenting a value-based intervention and implemented this into a case study of an individual in ED treatment seeking help with DEX.

Training Day 2. We first aimed to teach clinicians how to integrate safe exercise into treatment to facilitate a fulfilling relationship with exercise by utilizing the compendium of physical activity (Ainsworth et al., 2011), the FITT principle (Liguori, & American College of Sports Medicine, 2020) and the Talk Test (Persinger et al., 2004). These skills lent themselves to teaching clinicians how to safely diversify their client's types of activity and exercise environment (Bratland -Sanda et al., 2009; Catalan-Matamoros et al., 2011; Danielsen et al., 2016). We introduced the concept of having a mindful relationship with exercise, thus having a relationship with an activity that was process-oriented rather than goal-oriented, enjoyable, and fostered a mind-body connection and rejuvenation (Calogero & Pedrotty, 2004; Calogero & Pedrotty-Stump, 2007). Specifically, we taught them skills in helping foster awareness of the body during activity (Calogero & Pedrotty, 2004; Duesund, & Skarderud, 2003), promote joy, and administer homework and debriefing about exercise (Calogero & Pedrotty, 2004; Long, 1995; Long & Smith, 1990). Clinicians were taught to support their clients in mindful movement by providing opportunities to learn to listen to their physiological and psychological cues before, during, and after exercise engagement and use these internal signals to choose and adjust their life-enhancing movement (Calogero & Pedrotty, 2007).

We paired these efforts with introducing clinicians to skills that aimed to improve the quality of one's relationship with exercise by addressing psychopathological thinking underpinning an individual's dysfunction with exercise. We presented skills shown to be successful at reducing DEX in clients. For example, Dittmer et al. (2018) aimed for their psychological intervention to improve emotional coping. Thus, our training focused on

helping clinicians understand how DEX can become a method of coping, and how to help clients find a more adaptive way to do so. Other skills common to successfully improving DEX included cognitive restructuring (Bratland-Sanda et al., 2010; Dittmer et al., 2018; Mathisen et al., 2018), value-based interventions, psychoeducation (Bratland-Sanda et al., 2010; Dittmer et al., 2018; Soundy et al., 2016), and debunking common myths and facts surrounding exercise (Hay et al., 2018). Finally, the training concluded with a case study to put the training into practice.

2.5 Procedure

2.5.1 Pre-Post Survey

Upon receiving the recruitment email from Dr. Brian Cook, clinicians who wanted to participate in the study followed a link to a Qualtrics survey. Participants first completed the consent form (Appendix M) which included an option to participate in the survey portion of the study only, or both the survey and interview portion. Participants also indicated if they wanted to be compensated by being entered into a draw for one of two $35 Amazon gift cards for agreeing to undertake the Time 1 survey and one of two, $65 gift cards for the Time 2 survey. Following this, participants created a unique ID code for us to track their responses across both time points, provide them with compensation and create a master file. Then participants completed the demographics questionnaire, Godin Physical Activity Questionnaire, Exercise Decisional Balance Scale, the Exercise Beliefs Questionnaire, the Counselor's Activity Self-Efficacy Scale, and the Knowledge Questionnaire in this order. The Time 1 survey was open two weeks before the SEES training workshop and closed one hour before the start of the training.

I delivered the SEES training to clinicians with a co-facilitator (MC) across two days for two hours each day. The training was delivered exactly one week apart, at the same time of day. Immediately following the second day of the SEES training, participants were emailed the Qualtric's link for the Time 2 survey to complete (see Appendix N). If an individual chose to participate, they were asked for the unique ID they had created at Time 1. Then participants completed the CASES, Knowledge Questionnaire, and the Satisfaction Survey. The Time 2 survey was available to participants immediately after the training and was closed two weeks later.

2.5.2 Semi-Structured Interviews

Rationale. Qualitative research provides an avenue of investigation that is viable when detailed information from a unique perspective on a specific topic is valued (Creswell et al., 2007). Understanding the unique perspective of the clinicians navigating the management of DEX in EDs and engaging in the SEES workshop was crucial to meeting the aims of the study. Specifically, we hoped to evaluate not only the impact of the training on clinician knowledge and self-efficacy, but we also wanted to examine the feasibility and acceptability of delivering the SEES training in clinical settings. Given the dearth of available literature on implementing clinical training for managing exercise in EDs, gathering detailed and subjective information via semi-structured interviews from a clinician's unique perspective is beneficial. Specifically, it allowed us to obtain new information on the topic to extend the currently available literature.

Role of the researcher. Conducting semi-structured interviews involves an intimate process of direct interactions with participants (Chatfield, 2018). The role of the

researcher is to gain an in-depth understanding of the participant's perspectives and expert opinions on the feasibility and acceptability of the SEES training and the role of DEX in EDs overall. Given that I played a role in the development, delivery, and direct training of the clinicians who would be interviewed, I did not conduct any of the interviews. Two PhD-level research assistants both in psychology with experience conducting semi-structured interviews led the interviews. Three research assistants (two graduate students and one undergraduate student) supported the process of interview transcription.

Interview Protocol. Following the quantitative survey, a subset of the overall sample who indicated that they would like to be considered for the interview portion of the study were assembled. Specifically, I compiled the names and emails of participants who had identified themselves as willing to participate into a master file in Excel. I assigned each research assistant a subset from that master list to email. Each potential participant was contacted as per the procedure outlined above in section 2.2 Participants of this chapter. Once the clinician agreed to participate, the research assistant scheduled the interview and emailed them the consent form (Appendix O). The consent form outlined that all participants were to be compensated with a $10 gift card to Amazon for consenting to be part of the study. Each interview was conducted via Zoom and guided by a semi-structured interview guide developed for this study (see Appendix P). The interviews examined the barriers and facilitating factors for implementing the SEES guideline for DEX management in clinical settings, the resources required to implement such a program, and their experience with the SEES training. Together, seven interviews were conducted and took an average of 60–90minutes to complete. The interviews were

audio and video recorded and initially transcribed via Zoom. Research assistants then reviewed the transcripts produced by Zoom and compared them to the video recording to ensure verbatim transcription. Once the transcripts were completed, they were sent back to the participant for approval. Participants were given ten days to make any necessary edits and returned the revised document to the researcher. Once the document had been reviewed and approved the process of thematic analysis began.

Chapter 3

3 Results

3.1 Analytic Strategy

SPSS GLM Versions 26 (IBM Corporation, 2018) was used for all analyses. To begin, I excluded any cases for non-responding (i.e., did not answer any of the Time 1 survey items or only the demographic items), or duplicates. Then, individuals who only completed the Time 2 survey were deleted as they did not complete the consent form that was delivered at Time 1, and they also did not complete the Time 1 survey.

Next data were screened for missing data, and non-normality along with univariate and multivariate outliers. Little's MCAR analysis was conducted to determine the randomness of the missing data. In terms of the univariate outliers, skew and kurtosis were examined across the main variables. Dependent variables were assumed to be normally distributed if they had skewness values within ± 3 for skewness and ± 10 for kurtosis (Kline, 2011). In terms of the multivariate outliers, linear regressions were run with all dependent variables for both Time 1 and Time 2. The Mahalanobis distance value was saved and compared to a chi-squared distribution with a matching degree of freedom to the linear regression (i.e., the number of variables that were entered into the linear regression). Following this, the patterns of responding for cases in the Mahalanobis distance values were compared to the chi-squared distribution at the $p < .001$ level. Scores were removed only if they exceeded the $p < .001$ threshold.

Dependent samples (matched pair) t-tests were used to test for differences in knowledge and self-efficacy before and after SEES training. Specifically, t-tests were conducted for each domain of self-efficacy (i.e., Insight Skills, Exploration Skills,

Actions Skills, and Overall Session Management), the total score on the Knowledge Questionnaire, the total score for the multiple-choice items only on the Knowledge Questionnaire, and the total score for the myths and facts items only. Effect sizes, in the form of Cohen's *d,* were also calculated to estimate the size of any observed effects. Effect sizes were considered large if the value fell above $d = .80$, moderate between $d = .50 – .80$ and small below $d = .50$ (Cohen, 1988). Means, standard deviations, and minimum and maximum values were calculated for all study variables.

3.2 Preliminary Analyses

I first screened the initial 133 cases for duplicates and non-responders across both time points. I identified 23 duplicate cases at either Time 1 or Time 2, and 4 cases were identified as non-responders (i.e., did not answer any of the Time 1 survey items or only the demographic items), and these 26 cases were removed. Ten additional cases were identified that had completed the Time 2 survey but not the Time 1 survey or the consent form to participate, and these cases were also removed. This left 96 participants who completed the Time 1 survey. A further 56 cases were not included in the analysis because they did not complete the Time 2 survey, leaving 40 cases with completed surveys for both Time 1 and Time 2. Our primary analyses were performed with this final sample of 40. Though we recruited an adequate number of participants at Time 1 for sufficient power (exceeding 84 participants), the high attrition rate left us with 40 completed cases and thus the study was underpowered.

Data for our sample of completed cases were examined for missing values, normality, and multivariate outliers. According to Little's MCAR analyses, data were

missing completely at random, χ^2 (292) = 10.035, p = 1.00. Of the 40 completed cases, I identified a further 8 cases that did not complete any of the knowledge questions at Time 2 and 9 cases that did not complete any of the myth questions at Time 2. Therefore, the sample size for the analysis of knowledge and myths was 32 and 31, respectively. Mean scores for each of the main variables did not exceed a skewness value of >1.42 and/or kurtosis value > .98, indicating that the scores were normally distributed. Mahalanobis D was calculated to screen for multivariate outliers based on a threshold of <.001 (Tabachnick, Fidell & Ullman, 2007). No unusual combinations of the six main variable scores were identified and thus there were no multivariate outliers.

3.3 Descriptive Statistics

Demographic information was analyzed and summarized for the final sample (n = 40) and presented in Table 1. In addition, Table 3 presents the result for clinician's exercise attitudes and behaviors. However, our attrition rate was so high between the first and second survey, leaving the study underpowered thus we could not run additional analysis.

Table 3

Means and Standard Deviations of Clinicians Exercise Behaviours and Perceptions

Variable	M (SD)	Range	
		Min	Max
Amotivation	0.5 (0.18)	0	1.0
External Regulation	0.21 (.53)	0	2.25
Introjected Regulation	0.11 (0.13)	0	.25
Identified Regulation	1.98 (0.54)	0.5	3.0
Integrated Regulation	1.41 (0.76)	0	2.75
Intrinsic Regulation	2.00 (0.80)	0	3.0
Decisional Balance Pro	18.45 (4.40)	6.0	24.0
Decisional Balance Con	6.77 (2.66)	5.0	14.0
Leisure Activity	1.90 (0.55)	1.0	3.0
	%		
Mild Exercise		0	7.0
0 times per week	15.0		
1-3 times per week	55		
4-7 times per week	30		
Moderate Exercise		0	7.0
0 times per week	15		
1-3 times per week	50		
4-7 times per week	35		
Strenuous Exercise		0	6.0
0 times per week	37.5		
1-3 times per week	35		
4 -6 times per week	27.5		

Notes. N = 40; Leisure Activity: Amount of times per week participants “work up a sweat” during activity.

3.4 Main Findings

3.4.1 Knowledge

Means and standard deviations were calculated for the clinician's knowledge. Scores were calculated as a total of the items, as well as separately as multiple-choice score, and a score for the myth and facts section at both Time 1 and Time 2 (see Table 4). Paired sample *t*-tests revealed a significant difference between Time 1 and Time 2 for the total knowledge score and the multiple-choice scores. However, significant differences were not found for the myths and facts items between Time 1 and Time 2. Not only this, but the training had a large effect size on the clinician's DEX knowledge as noted in Table 4. Overall, this indicated that the SEES training effectively improved clinicians' overall knowledge about DEX after a two-day training, although this change was not reflected by the myths and facts items, but rather in the multiple-choice questions.

3.4.2 Self-efficacy

Similarly, the means and standard deviations were calculated for the clinician's overall self-efficacy and its facets (exploration, insight, actions skills and overall session management) at both Time 1 and Time 2 (see Table 4). Paired sample *t*-tests revealed a significant difference between Time 1 and Time 2 for the total self-efficacy score. Paired sample t-tests also demonstrated significant differences between Time 1 and Time 2 for the facets' of self-efficacy namely, action skills, insight skills, exploration skills, and overall session management. Thus, the clinicians reported better confidence in their ability to facilitate conversations with clients to elicit the information about DEX (exploration). They perceive improved abilities in helping clients understand their problems with DEX (insight) and promote changes in clients' exercise attitudes and

behaviours (action; Lent et al., 2003). Not only this but session management or the clinician's perceived ability to integrate these three domains of helping also improved (Lent et al., 2003).

Table 4
Changes in Dependent Variables Across Time Points

Variable	M (SD)					Cohen's *d*	95% Confidence Interval		N
	Pre	**Post**	***df***	***t***	***p***		**Lower**	**Upper**	
MC KQ	8.31 (1.23)	9.16 (.85) *	30	-4.09	< .001	-0.723	-1.11	-.33	32
Myth	6.39 (.80)	6.48(.89)	30	-0.59	< .557	-0.106	-.46	.25	31
Total KQ	14.68 (1.47)	15.65 (1.40)*	30	-4.40	< .001	-0.790	-1.20	-.38	31
Overall SE	4.72 (0.70)	7.63 (1.02)*	38	-22.99	<.001	-3.682	-4.56	-2.80	39
Action Skills SE	3.93 (1.26)	7.26 (1.19)*	39	-15.51	<.001	-2.452	-3.10	-1.86	40
Insight Skills SE	4.05 (0.97)	7.42 (1.02)*	39	-17.99	<.001	-2.844	-3.56	-2.17	40
Exploration Skills SE	4.46 (.97)	8.03 (.80)*	39	-20.38	<.001	-3.222	-4.02	-2.47	40
Session Mgmt SE	6.31 (1.33)	7.87 (1.74)*	38	-5.83	<.001	-0.934	-1.31	-.55	39

Notes. SE: Self-efficacy; MC; Multiple choice; KQ: Knowledge Questionnaire; Pre: Time 1; Post: Time 2; Myths: Number correct of myths and facts section; Mgmt: Management, * indicates significance

3.4.3 Satisfaction with SEES

Means, standard deviations, and min and max values were calculated for each of the four items about satisfaction with the SEES training. Overall, the SEES training was rated 4.48 on a 5-point scale, where 5 = *excellen*t. Specifically, participants agreed that they would recommend this training to a colleague, that the objectives of the SEES training were met, and the workshop was well-organized. Nearly half of all participants reported that the presentation's organization was either good (48.4%) or excellent (45.2%) with 6.5% rating it as satisfactory. Half of the participants (51.6%) agreed that the training did an excellent job meeting the objectives, with 32.5% rating this as good, and 5% as satisfactory. All participants (100%) agreed or strongly agreed that they would recommend the workshop to a colleague. Based on the open ended questions, specific components of the training that were highlighted by the participants as particularly enjoyable included: the use of case studies, the interactive nature of the presentations, the quality of the presenters themselves, and the practical information offered. Overall, both clinicians' knowledge and self-efficacy were improved by the SEES training, and participants were satisfied with the content and execution of the workshop itself.

3.5 Qualitative Interviews

3.5.1 Qualitative Data Analysis

Thematic analysis is commonly utilized in social science research and has been previously used in ED-specific research (Braun & Clarke, 2014; 2019; Hockin-Boyers & Warun, 2021; Quesnel et al., 2018). This method of data analysis focuses on examining, pinpointing, and discovering patterns and identifying themes within the data set (Braun &

Clarke, 2006). Thematic analysis is used when the existing body of knowledge on a topic is limited, as is the body of knowledge concerning exercise in ED treatment. Specifically, we conducted a reflexive thematic analysis meaning that our analysis centered around researcher subjectivity, and a natural and recursive coding process in which reflection and iterative engagement with the data were valued (Braun & Clark, 2019). NVivo 12 was used to organize and manage the data from the verbatim transcripts (QSR International Pty Ltd, 2020).

The six steps described by Braun and Clarke (2006;2019) to conduct a reflexive thematic analysis were followed. The first phase included reading all seven transcripts to familiarize myself with the data and to recognise any initial common patterns. In the second phase, I began coding by simplifying the data. Based on the order of the interview guide, I reviewed each transcript and complied data relevant to each question code. For example, I complied with the participant's responses to the question about the benefits of incorporating exercise into ED treatment. Initially, twelve codes were developed. This process helped to further my depth of understanding of the data set and find more possibilities for analysis (Braun & Clarke, 2006; 2019). In the third phase, transcripts were revisited, and the initial codes I created were reviewed with greater depth, which lead to seven of the codes having one to three subcodes/categories within them. For example, the category about the benefits of exercise which initially contained all the benefits mentioned by the clinicians was refined to determine the benefits across types of ED patients, or by weight or gender. Here, I kept track of the number of times each specific subcode was endorsed with quotes from the participants. In phase four, themes were formed. Specifically, the codes and subcodes were examined for over-arching

themes between them (Braun & Clarke, 2006; 2019). To do so, I reviewed the codes I had created, noting the relationship between them. Once the relationships were established, I then combined the codes into three overarching themes and within those, the subthemes. In phase five, I examined the emerging themes and evaluated how they were supported by the data and how they related to the research question. I reviewed the themes again to consolidate any remaining codes and streamline the data. Once I was satisfied with the revision process, phase six began. In phase six, I reviewed the theme's label and define the identified themes and finished by writing up the final report (Braun & Clarke, 2006; 2019).

3.6 Qualitative Results

Through the process of reflexive thematic analysis of verbatim transcripts, three overarching themes emerged from the data. Within two of these themes, several subthemes were identified, adding rich details to the participant's experiences with the training and treatment of exercise in the context of EDs. Quotes are used to support the themes and sub-themes and provide a deeper understanding of the clinician's experiences. With that, I denote the number of individuals who endorsed similar experiences or sentiments. The three themes include: 1) *The SEES Training Impact,* 2) *Bridging the Gap Through Staff and Community Support,* and 3) *On the Horizon*. The demographic information is available for the qualitative interview participants in Table 4.

3.6.1 The SEES Training Impact

A primary aim of the current study was to improve self-efficacy and understand how the SEES training could impact clinicians' practice. The theme "*The SEES Training*

Impact" speaks to these two aims and includes two subthemes, the first is "*Boosting Confidence"* which recounts the impact of the SEES training on clinician's ability to navigate exercise in the context of EDs, and how the training was able to promote confidence in their clinical practice. The second subtheme "*Enhancing the SEES Training Satisfaction"* outlined the clinician's opinion of the training, how it was successful and how it could be improved.

Boosting Confidence. After the SEES training, most clinicians indicated that they had no remaining hesitancies about addressing DEX with their clients (*n*=5). However, when incorporating exercise into treatment, clinicians did mention ongoing fears about their client's medical safety (*n*=2). As one participant stated, *"I do have my own deep fears around implementing it [exercise] too soon, when it comes to the refeeding or weight restoration or medical process"* (TH). Similarly, others highlighted fear about their client's nutritional needs (*n*=2), for example, "*if they [clients] start restricting and they [clients] aren't having the necessary fuel for participating in movement"* (BS).

The training offered participants greater confidence in addressing DEX with their clients (*n*=5). First, the clinicians voiced that it was useful to know the research evidence related to using exercise during ED treatment: "*I need the data to share with clients and to build my own confidence"* (KJ). Similarly, clinicians' confidence was also bolstered by learning evidence-based information (*n*=5), as reflected by OV who stated "*[the research] gave me more confidence, to have this scientific background or the foundation, it's actually concrete, scientific, evidence-based."* In addition, being provided the information by individuals who had expertise in the area helped increase confidence (*n*=2). As stated by one participant, "*because I think hearing people who deeply study it*

and feel passionate about it ... reminds me that it's okay to push it [talking about DEX] with my clients" (HM).

The gains in confidence experienced by clinicians translated expansion of their clinical practice (*n*=3). First, the provision of skills and scripts (*n*=3) to respond to the client's questions and issues around exercise was helpful. For example, BS commented "*in one of the ED movement groups we have talked about myths, but I wasn't fully prepared to debunk them and so specifically that process I brought right into group ... so it was very convenient and helpful."* Others highlighted that learning new skills to address DEX helped to "*increase my overall confidence about the language that I can use with clients and specific tools that I'm able to use, interventions"* (OV). As OV further specified, part of their confidence boost was related to the acquisition of more appropriate language about movement (*n*=4), such as "*it just really broadened, my vocabulary and overall confidence,"* which was further support by BS who mentioned, "*you guys talked about ways to have that conversation with clients and that was really helpful for me."* And further, elucidating for clinicians the "*difference between movement and exercise ...I never knew that there was a difference. Creating that language is just so helpful ... having that language for it is really helpful"* (TH).

***Enhancing the SEES Training*.** To better understand how the presentation of the SEES training was received by clinicians, we asked them about its delivery. First, all participants (*n*=7) agreed that the online format was useful and conducive to learning. Several participants (*n*=3) noted the quality of the visuals and use of a PowerPoint presentation "*a lot of diagrams were really well designed. I think some of the flowcharts may be"* (HM). Others commented on the benefit of the interactive nature of the

presentation (*n*=2) and the related case studies (*n*=3). As HM put it, "*the case studies were super helpful because I remember people getting more engaged ... typing stuff and answering. I felt like it was really helpful and interesting."* The practical nature of the information was well received (*n*=2) with KJ noting "*there was more practicality, which I think my clinicians need because they get lost in the weeds of the definitions and the research. And it's like, I need to know how to take this and apply it.*"

Notes of improvement were offered by the clinicians, such as reducing the session length to 1 hour from 2 hours (*n*=7). They suggested instead of "*two,* t*wo-hour presentations, possibly splitting it [the training] up into four one-hour sessions"* (TH). Others (*n*=2) proposed that "*it could have been beneficial too.... have printouts or something like sending a PDF of the slides would have been beneficial*" (BS).

Despite a few remaining hesitancies about addressing DEX with clients, the clinicians enjoyed the training. Through the delivery of research evidence by knowledgeable individuals in the field, clinician's felt greater confidence in their skills in addressing DEX. Specifically, equipping them with language, practical skills, and information about DEX fostered confidence. However, they recommended we shorten the training and provide them with the presentation materials beforehand.

3.6.2 Bridging the Gap Through Staff and Community Support

The theme "*Bridging the Gap Through Staff and Community Support*" highlights the initiatives that Alsana has taken to create an environment where DEX is a valued aspect of treatment. This theme helps to better understand the factors that inhibit and/or facilitate the management of DEX in ED treatment settings. The theme speaks to how

having a staff and community who recognize the importance of addressing DEX in ED treatment plays a fundamental part in bolstering clinicians' ability to address DEX in their clinical practice.

At Alsana's treatment center, value is placed on the role of exercise for ED clients. Several clinicians (*n*=4) reflected that working in an environment where all staff viewed DEX as a focal point of treatment "*helped my confidence in knowing that other staff members were going to be in alignment, that we were all on the same page"* (CE). The clinicians (*n*=4) spoke to the value of having a top-down approach for creating space for DEX to take a central role in ED treatment: *"We have a tremendous amount of trainings and interventions and stuff like that dedicated to movement, I feel like there's a lot of readily accessible stuff for m*e" (OV). Many (*n*=4) spoke about the worth of their initial training at Alsana focusing on DEX such as CE who said, "*I made sure to include movement trainings in onboarding nurse orientation, scheduling, things like that."* Others mentioned the access to resources (*n*=6) offered by the treatment center as a factor that contributed to fostering an environment where DEX was a focal part of treatment: "*At Alsana, we have a pool of resources ... along with research articles"* (KJ).

Beyond training and resources, the clinicians spoke about the importance of having access to clinicians and staff to consult about DEX: "*I use my lead dietitian a lot because she is in charge of movement at my location. If I have more questions, then I go to Brian, who's the director of movement here*" (BS). Knowing that staff and other clinicians were all working from a similar stance regarding DEX facilitated a collaborative approach to helping clients with DEX as reflected by CS and others (*n*=4): "*I'm a big fan of pairing people up, ... to be able to say hey if we're doing it [managing*

DEX] together, then you can kind be around conversations. That's a way to learn and absorb and … to implement more kind of cross disciplinary sessions".

Alsana has been able to foster a program-wide mentality that emphasizes the value of addressing DEX in treatment. Clinicians feel they have a greater ability to address DEX as they feel supported by a community of staff who are lie-minded and available for consult. Their access to resources such as information and movement dedicated staff reinforces this sense of community. Together, through cross-disciplinary collaboration, the clinicians are able to implement, and uptake the management of DEX more effectively.

3.6.3 On the Horizon

Similarly, the theme "*On the Horizon*" delineates the factors that facilitate or hinder the incorporation of DEX in EDs. Specifically, this theme speaks to the clinicians' understanding and stance on DEX in EDs and how they transpired. Two subthemes emerged, labeled "*Attitudes: From the Ground Up*" and "*Moving Forward"*.

Attitudes: From the Ground Up. All clinicians expressed a favorable view of addressing DEX in ED treatment, as reflected by OV: *"exercise is a wonderful thing that everyone should be able to enjoy. It's something that's robbed with most eating disorders. So even though it's really challenging to redefine the rigidity or redefine their relationship with it [exercise] I think that's key for them.*" Unsurprisingly, the SEES training itself did not change clinicians' valuing of exercise in their clients' lives (*n*=7). Rather, the training instilled a deeper understanding of the role that exercise plays in EDs. According to TH, "*this training just really deepened and offered more, more important points like the relapse point, that exercise is a really big predictor of relapse, and the*

difference between movement and exercise, we hadn't really been taught that before." The clinicians (*n*=4) did express an appreciation for Alsana's initiative in delivering information to the clinicians about DEX, as noted by CS: "*I always really appreciate kind of a deeper dive into the movement component or exercise component. Because it's something that we see and interact with and are involved in with our clients all every day, multiple times a day*".

Many of the clinicians (*n*=2) expressed that overall, "*When I started in this field, it was still like exercise was still a little bit taboo*" (KJ). Often clinicians' opinions of exercise in EDs arose from the discomfort they experienced when working in clinical settings where abstinence from exercise was recommended. As reflected by CE, "*I have worked at places where it was a very strict no movement at all type of approach. And I did find that to be not very helpful".* However, through experiences with clients (*n*=3), they came to develop a favorable view of addressing DEX during treatment. As described by TH, "*I've heard conflicting things and really my own observation and seeing how well people did when they were able to incorporate a little bit of movement and almost like make peace with it. I think that kind of formed my thoughts."* Others (*n*=3) engaged in their education or had a personal understanding of exercise such as TH who stated, *"I've always really valued it [exercise] and valued the mental health benefits."* Others (*n*=2) had background knowledge of exercise which shaped their view of exercise in clinical practise: "*before March of this year ... I really didn't have any [training in EDs]. I did have a lot of training around psychology and exercise, but not with eating disorders. I started first off by learning more about eating disorders and using my experience with therapy and psychology and exercise, and then slowly implementing that into what I was*

learning about eating disorders" (BS). Clinicians (*n*=4) also acknowledged the impact of having a program that valued exercise as a fundamental component shaping their view of exercise in ED treatment. OV highlighted "*honestly, Alsana kind of formed from it [opinion of exercise in EDs], being in groups from supervision from trainings. Uh, it really kind of opened me up to how critical movement is because again, prior to this I really just did not understand eating disorders or just had a very superficial or even oftentimes inaccurate understanding of it."*

As noted, clinicians' attitudes were shaped in part by their experiences of exercise benefitting their clients. In the context of their current work, they were able to speak to these experiences more specifically. Another benefit commonly outlined by many of the clinicians (*n*=6) was the impact on overall ED treatment. For example, "*it [DEX] can be reframed and really used in a positive, grounding way ... I think just helps set people up for success"* (CS). Further, the clinicians (*n*=7) found immense benefit in processing and "renormalizing" an individual's relationship with exercise. As outlined by CE, "*the biggest benefit is, at least from my perspective, is that movement can be really life giving. And so to be able to sit with a client and process their relationship with movement but I think it helps if they're actually participating in an activity. But to be able to discuss with them what's coming up and figure out what they want their relationship with movement to look like so that they can engage in movement that's life giving to them once they like are in recovery."* Another benefit of addressing DEX in treatment noted by a small number of clinicians (*n*=2) was the reduction in secrecy: "*if exercises is a no go, completely off limits, people will probably not be 100% honest in how much they're engaging in*

movement whereas if there's an open conversation about how movement is important then people are more likely to report how much they're moving" (TH).

The clinicians (*n*=6) also pointed to the transdiagnostic face of DEX and how all clients can benefit from addressing DEX across gender, weight status, and ED diagnosis. For example, CS stated, *"I see benefit across the board. No one more than the other."* And CE also concurred, "*I really do see benefit for both men and women, not really men versus women but just more like people ... I'm thinking of military or athletes."* CS explained that the benefits that an individual can experience by addressing exercise during their ED treatment are more complex than being based on diagnosis, gender, or weight. Rather each individual's hardships when it comes to their relationship with movement may better predict how addressing this during treatment could benefit them as reflected in the statement "*there's a little more nuance to it [the benefits of exercise] and more conversation around what's their intention with movement."*

Moving Forward. Although recognizing and addressing DEX is central to Alsana's ED treatment program, the same cannot be said for all ED programs. In the larger ED community, we do not see program-wide support for the incorporation of exercise into ED treatment. As such, some clinicians (*n*=3) warned that implementing DEX training and programming may be hindered by *"a lot of hesitancy to involve exercise and movement into eating disorders because the go-to idea is that most clients, if not all clients, over-exercise. And so, I know that's like the old way of thinking, and we're slowly transitioning out of that way of thinking. I guess the barrier would be trying to find new data to prove that it can be beneficial"* (BS).

Beyond this initial hurdle, other barriers to incorporating exercise into ED treatment were identified by participants. A small number of clinicians suggested that not having staff "buy-in" (*n*=4), or the space to do activities (*n*=2) could be limiting factors. To overcome these potential barriers, some clinicians (*n*=4) encouraged training across interdisciplinary teams as it could promote collaboration and confidence: "*I feel like we here, where I work, we work really closely with medical teams and our dietitians to decide, first of all, if someone's appropriate for movement. If our medical staff and our dietitians decide that someone's appropriate for movement, then I'm like, great, I'm not afraid, because they are fully adequate, fully equipped to make that choice, and I trust them completely"* (TH).

In terms of specifically implementing the SEES guideline into clinical practice, a few clinicians (*n*=3) highlighted the difficulties that can arise between levels of care (inpatient, outpatient, etc.) when there is less supervision of clients and their use of exercise. As explained by TH, *"I think outpatient levels of care, or lower levels of care when there's less staff available it's scarier because you don't know how honest someone is being you know."* Relatedly, ensuring clients' medical safety between levels of care could also require specific attention (*n*= 5): "*I think that at the residential level of care because our clients are more medically unstable. Generally, there is a little bit more carefulness or, like more than more of a tendency to be careful around movement*" (CS).

Clinicians spoke to the unique mentality that Alsana addressed DEX within their treatment center. The clinicians match these ideologies as a result of having background knowledge of exercise and EDs, having experienced clients benefiting from exercise

being addressed during treatment and/or from “onboard” training they receive from Alsana upon hiring. They acknowledged the value of Alsana supporting training such as SEES from their clinic work. However, they reflected that this was not the case throughout the ED field. Despite a progression from this mentality over time, they suggested that greater training and the dissemination of information about the benefits of addressing DEX in treatment could help overcome barriers. Although hurdles such as spacing for activity, ensuring medical safety, and managing clients at different levels of treatment, remained for implementing guidelines such as SEES throughout the ED field.

3.7 Summary

Overall, the clinicians described how the SEES training was able to boost their confidence by providing them with skills and language to address DEX with their clients. The particular emphasis during the training on offering evidence-based information and research further bolstered their confidence. Clinicians appreciated the use of practically relevant information, case studies, and the use of interactive elements throughout the training. In the future, the training might be tailored to one-hour presentations and provide trainees with a copy of the presentation beforehand.

Alsana has taken a top-down approach to recognizing and addressing DEX in ED treatment. By having staff dedicated to the movement component of EDs and the availability of resources, Alsana has created an environment where clinicians can collaborate and consult with other staff to comprehensively address DEX with their clients. The culture around DEX that Alsana has fostered in its treatment facilities is unique. Clinicians acknowledged these gaps in the field that remain pervasive which

would appear to be due to a lack of training on DEX and its crucial role in ED treatment and recovery (Bergmeier et al., 2021; Quesnel et al.,2018). To move the field forward, clinicians supported program-wide and field-wide trainings to shift the understanding of the role of DEX and how to safely incorporate exercise into ED treatment.

Chapter 4

4 Discussion

Eating disorder treatment is notoriously unsuccessful, with only about 50% of clients fully remitting from their disorder (Hoek et al., 2016). A factor that may contribute to the low success of treatment is DEX, which is highly prevalent among those with EDs (Dalle Grave et al., 2008; Shroff et al., 2006). Although most clinicians recognize DEX as an important factor in ED treatment, they lack the skills and confidence to address it with their clients (Bratland-Sanda et al., 2009; Hallward et al., 2021; Hechler et al., 2005). Without effective training for addressing DEX, a major barrier exists to delivering related evidence-based treatments (Kazdin et al., 2017). The current study aimed to expand upon the SEES guideline to develop and implement training to help clinicians improve their clinical management of DEX for clients in ED treatment. I utilized a mixed-method approach drawing on both quantitative and qualitative data to evaluate these guidelines and address this aim. Specifically, I assessed the SEES training's impact on clinicians' knowledge and perceived self-efficacy in their clinical decision-making around DEX. I also conducted semi-structured interviews to better understand the factors that inhibit and/or facilitate the management of DEX in ED treatment and collected feedback at a follow-up time point to assess their experience with the SEES training.

As hypothesized, the SEES training resulted in significantly greater knowledge about DEX and self-efficacy around addressing it with their ED clients among the clinicians. Further, after the training, clinicians felt more confident using the SEES guideline in their clinical practice. Long-standing calls have been made (Moola et al.,

2013; Vancampfort et al., 2014) for the development of a guideline to help clinicians manage exercise in EDs treatment. Despite initiatives such as the LEAP program (Hay et al., 2018) few treatment facilities appear to be using any type of clinical guideline in their current programming (Bratland-Sanda et al., 2009). The SEES training may present a missing link to this issue as it offers the ability to not only fill the research to practise gap but do so by providing clinicians with research evidence and resources to support them in addressing DEX in ED treatment, increasing their knowledge about DEX, and bolstering their perceived competence and confidence in addressing DEX.

Given the dearth of information available to train clinicians on skills to address DEX, it is unsurprising that the SEES training had large effects on both clinician self-efficacy and knowledge about DEX. In the interviews, the clinicians indicated they felt their confidence improved because of the practical nature of the training content, such as the provision of clinical skills and practicing their application in case studies and role-play. Alsana provides its clinicians with access to resources (i.e., research and treatment manuals) which is beneficial, however passive learning does not necessarily lead to the uptake of evidence-based interventions (Fixsen et al., 2005). Rather, the use of active learning, or processes that use action and reflection are particularly useful for training individuals to use clinical skills (Beidas & Kendall, 2010). Indeed, active learning leads to higher adherence and use of taught skills post-training, consistently translating to greater use in practice (Beidas & Kendall, 2010). Thus, the benefits of clinician self-efficacy may not only have been related to our delivery of practical skills but specifically to how we provided the clinicians the opportunity to practice these skills through role-play and case studies during the training.

Our interviews with clinicians resulted in three distinct themes that I labeled: *The SEES Training, Staff and Community, and On the Horizon.*". Previous research (Quesnel et al., 2018), outlined a persistent negative perception of exercise in ED treatment. Although the theme *On the Horizon* acknowledged that this attitude may still exist, in our study, we found that clinician's support the continued progression toward formally incorporating exercise into ED treatment and suggest it be executed through access to trainings such as the SEES. This same trend has been reflected in the larger field of exercise and EDs. Indeed, unlike the conclusion of previous reviews on exercise and EDS which highlighted the need for the development of guidelines (Vancampfort et al, 2014; Moola et al., 2013) newly synthesized literature (Hallward et al., 2021; Martenstyn et al., 2022; Noetel et al., 2017) supports the initiatives at Alsana, and highlights that the movement is now to incorporate exercise into ED treatment.

The growing support for exercise to be part of treatment has begun to overtake the prevailing notion that abstinence from exercise should be encouraged during treatment. Rather, a new barrier seems to have presented itself, that of understanding "how" to incorporate exercise into treatment rather than "if" it should be. Alsana's approach to DEX presents a successful model which could guide the field forward. As noted in the theme *Staff and Community*, there is immense value in taking a program-wide, collaborative, interdisciplinary, and supportive approach to facilitate clinician's ability to address exercise in ED. Despite Alsana's initiatives, our results showed that their remained room for clinician's to have more knowledge and self-efficacy in addressing DEX. Thus, highlighting the need for trainings such as SEES not only for Alsana but in the larger ED field.

Indeed, our training was well-received as reflected in the theme *Enhancing the SEES Training* and did improve knowledge and SE with a large effect size. Not only this, but all facets of self-efficacy improved namely, exploration, insight, action, and overall session management. Each type of self-efficacy may have been impacted through different aspects of the training. Specifically, the benefits across action-oriented aspects of self-efficacy such as their skills in helping a client change their DEX behaviour (action) could be related to the opportunity to practise the skills we taught the clinicians within the training. Other facets of clinical self-efficacy such as insight skills may have been targeted through the delivery of evidence based information from individuals who were experts in the field. All in all the SEES training was designed to answer previous research's calls to enhance clinicians' knowledge and enhance understanding of exercise and EDs and close the research practise gap (Bergmier et al., 2020; Quesnel et al., 2018;2020).

It is important to interpret these findings in the context of the treatment center where these participants worked. Alsana as an ED treatment center places importance on addressing the client's engagement and relationship with exercise during treatment. The overarching value communicated to clinicians around addressing DEX in their treatment centers fosters and reinforces this same value amongst their clinicians. The policies and initiatives in place at Alsana (e.g., dedicated DEX personnel and resources) facilitate an environment where managing DEX is viewed as an important part of treatment. Moreover, clinicians' direct experiences of clients benefiting from engaging in safe exercise during treatment have reinforced their positive view of incorporating exercise into treatment. Despite this climate being cultivated in these centers, clinicians

acknowledged that not all programs hold this same ideology though recognizing that this seems to be changing. Clinicians recommended training and the promotion of information to other clinicians to encourage a more open mindset.

Indeed, outside of Alsana exercise remains a neglected aspect of ED treatment in most clinical settings (Bratland-Sanda et al., 2009; Hechler et al., 2005; Quesnel et al., 2018). However, studies have continued to offer positive results when exercise is incorporated into ED treatment in research contexts (Cook et al., 2016; Hallward et al., 2021; Martenstyn et al., 2022; Moola et al., 2013; Ng et al., 2013; Vancampfort et al., 2014). Subsequently, recommendations have been made for exercise to be incorporated into ED treatment (Hallward et al., 2021). A gap between research's positive results and clinicians' feeling toward addressing and managing DEX currently exists (Quesnel et al., 2018). Clinicians voice a lack of knowledge around addressing and managing DEX which facilitates their fears and hesitancy in approaching this area of treatment with clients (Quesnel et al., 2018). As result, exercise remains a neglected aspect of ED treatment. An avenue by which to rectify this practise and knowledge gap is through Web-Centered Training, similar to the SEES training implemented in the current study (Shidhaye, Lund, & Chisholm, 2015).

Although we did not use a purely Web-Centered Training as we delivered the training in real time, we used the internet to train and supervise therapists, teaching them new skills and practical information in an online format (Fairburn & Wilson, 2013). In delivering the SEES training online, we offered training that is lower in cost and more scalable than traditional training. Our training offered the ability to train geographically dispersed trainees, while utilizing websites (www.safeexerciseateverystage.com) to

access materials. With that, it provided trainees with the ability to review and reference the training materials long term as we permitted Alsana to record and disseminate the training to future staff. Lastly, it offered the opportunity to conduct quizzes and garner feedback helping prevent clinician “drift” and enhance the sustainability of the clinical skills (Fairburn & Cooper, 2011; Fairburn & Wilson, 2013; Waller, 2009). Aligned with our positive results, in EDs, internet-based methods have been successfully used to train clinicians in using cognitive behavioural therapy (Fairburn & Patel, 2014) and interpersonal psychotherapy (Wilfey, 2015). To the author's knowledge, the SEES training was the first and only of its kind to utilize similar principles to a web-based training in this area. More importantly, the SEES training’s online modality was viewed positively by the participants. Ultimately, it offered a successful avenue by which to close the research to practise gap present in DEX in EDs.

Aligned with our initiative, most studies investigating clinical trainings have utilized a pre-post design and assessed knowledge and/or self-efficacy with self-reported measures developed specifically for the study (Frank et al., 2020). Online training is not unfamiliar in psychology, reviews of literature confirm that online training can improve knowledge and skills in comparable ways to in-person training (Frank et al., 2020). That being said, other studies (Ruzek et al., 2014) found that when more complex skills are being taught, in-person delivery may have increased benefits. Further reviews (Frank et al., 2020) have found that an element of online training that may benefit the long-term uptake of evidence-based intervention is the provision of support post-training. For example, Beidas et al. 2012 conducted a trial comparing three modalities of clinician training on implementing cognitive behavioural therapy for anxiety. A key ingredient that

predicted higher therapist adherence and skills at three-month follow-up was the number of trainee consultation hours after the training.

Although the SEES training itself did not provide clinicians with consultation after the training, a unique aspect of Alsana's treatment is the initiatives they have taken to facilitate the management of DEX in their treatment centers. The clinicians reported that they felt supported in managing DEX in their clinical practise as Alsana has staff specifically dedicated to training and helping other clinicians manage DEX with clients. This "top-down" approach facilitates a community of clinicians who described being "all on the same page" about addressing DEX. As such, the clinicians may have access to a person they can consult after training. In turn, this may bolster their newly learned skills and promote long-term adherence (Beidas et al., 2012). Utilizing evidence-based treatments can be difficult for clinicians. Successful long-term uptake and adherence involve an intersecting web of influential variables such as the system the clinician works in (external policy and incentives), the facility (management and support), and the team (knowledge and skills) they work with (Damschroder, 2009). At Alsana, several of the factors important to the long-term uptake of clinical skills surrounding DEX are present. Policies around managing DEX exist. Clinicians reported that the facility, their management, and their clinical supports all view DEX as an important aspect of treatment. As such the clinicians collaboratively approach DEX and support each other in its management. Together, the coalesces of these factors may explain our clinician's report of having a sense of community support in managing DEX.

Unlike Alsana, most treatment centers have yet to promote such an integrated perspective when it comes to exercise and EDs. Previous studies have noted that a

foundational barrier in moving the field of exercise and EDs forwards are the negative attitudes about exercise held by key members of staff (Quesnel et al., 2018). In the current sample, this was mentioned as a barrier to implementing similar programming around DEX at other treatment centers. However, as previous research has mentioned, this historic ideology is unfounded by research and may not benefit clients in the long term (Cook & Leingner, 2017; Davies, 2015). This mentality fails to appreciate newer conceptualizations of DEX proposing that one's dysfunction with exercise expands beyond the context of vigorous exercise and manifests into the movement of everyday life (i.e., doing laundry, and chores; Dittmer et al., 2018). Adopting an abstinence-based approach and limiting exercise, does not limit the client's obsessional thinking about exercise (Bratland-Sanda et al., 2019). In failing to address DEX during treatment due to dogmatic attitudes about exercise's role in EDs we may be neglecting a core feature of ED development, maintenance, and pathology.

Indeed, in more recent endeavors to conceptualize mental health disorders the Hierarchical Taxonomy of Psychopathology (HiTop) (Kotov et al., 2017) has been proposed. HiTop is an international consortium aiming to develop a quantitative system of mental health nosology using data from various factor-analytic studies (Kotov et al., 2017). The HiTop model works in a "bottom-up" fashion examining how symptoms such as DEX appear in a spectrum of disorders (Forbush et al., 2018). Part of the HiTop initiative is to develop amenable measurements to match the novel conceptualization (Sellbom et al., 2022). As part of this initiative, researchers have found that exercise is one of six core factors transdiagnostically valuable to EDs. In fact, efforts to develop measurements of the transdiagnostic factors in EDs have given way to a preliminary scale

describing six main constructs; body image and weight concerns, restricting and purging, cognitive restraint, binging, excessive exercise, and muscle building (Sellbom et al., 2022). Consistent with these findings and that of other researchers (Calogero & Pedrotty, 2004; Martin et al., 2020; Quesnel et al., 2018), our clinicians spoke to the important role that DEX plays across EDs, gender, weight status, and the importance of tailoring the management of DEX to everyone's unique relationship with exercise, considering their history and exercise goals (Quesnel et al., 2020). Although the HiTop model is in its preliminary stages, the value that DEX plays transdiagnostically serves to highlight the importance of DEX as a symptom of EDs, and the need to help clinicians better understand and address it across EDs and individuals.

Despite the growing value of DEX across EDs, barriers remain to moving the field of exercise and EDs forwards. All the interviewed clinicians in our sample felt confident in using the SEES guideline and implementing it in treatment without remaining hesitancies. However, they express lingering fears about managing exercise in EDs. Unsurprisingly, this centered around ensuring their client's medical safety when engaging in activity. This fear represents a common barrier among EDs clinicians as it facilitates the hesitancy to address DEX in ED treatment (Quesnel et al., 2018). DEX is a uniquely complex aspect of ED treatment as it involves both behavioural and psychopathological manifestations. To adequately ensure a client is "safe" to engage in activity aspects of both mental and physical health must be considered (Dobinson et al., 2019; Quesnel et al., 2020). This complexity highlights the importance of having a multidisciplinary team to address DEX in clinical contexts (Bergmeier et al., 2021; Quesnel et al., 2018). Although most treatment programs function in a multidisciplinary

fashion, with dietetics, psychology, and medicine represented, generally clinicians do not have an exercise background (Bergmeier et al., 2021). Not only this, but most treatment centers do not include an exercise professional (Bergmeier et al., 2021; Soundy et al., 2016). Exercise professionals continue to be an underrepresented part of an ED team, particularly those with an understanding of DEX and how to appropriately manage exercise in EDs (Bergmeier et al., 2021; Soundy et al., 2016). Yet, having an exercise professional on staff may mitigate the client's risk of engaging in unsafe exercise by helping determine appropriate and safe levels of activity and provide an otherwise missing depth of knowledge about exercise physiology on the treatment team (Bergmeier et al., 2021). Further, they could help address other barriers mentioned by our sample, such as finding spaces to do activities. Our clinicians also mentioned concerns about managing DEX in clients at different levels of care, the exercise physiologist could act as a liaison between clients and clinicians. That being said, exercise professionals do not receive training about DEX and EDs (Bergmeier et al., 2021). Thus, they require training before working with EDs presenting a potential next step in tailoring and implementing SEES trainings (Bergmeier et al., 2021; Soundy et al., 2016).

The value of a collaborative multidisciplinary team was reflected by our participants. The clinicians spoke to the confidence it brought them to have others with a similar mentality around exercise to consult and provide them with support in decision making around their client's exercise engagement. They voiced that to move forwards in the field "buy-in" from clinicians would be needed and suggested that the larger dissemination of the SEES training could be useful. Indeed, gaining knowledge may dissuade the widespread negative perception of exercise's role in EDs, while promoting

the idea that safe engagement is not only possible but beneficial to treatment and prognosis (Bergmeier et al., 2021).

4.1 Strengths and Limitations

There are several limitations of the current study that warrant consideration. One important limitation to mention is the positive attitude regarding exercise and EDs that existed amongst the clinicians assessed in this study. The clinical approach to DEX within Alsana's treatment centers is unique, and uncommon among many other centers (Bratland-Sanda et al., 2009; Hechler et al., 2005). Thus, the underlying interest and desire to learn how to address DEX in clients may have skewed the positive results of our study and limited its generalizability to other clinicians. Unfortunately, our levels of attrition were high, with over half of our sample failing to adequately complete the second survey, which left the study underpowered. The SEES training was mandatory for staff, although participation in the study was voluntary, which may have accounted for the high level of dropouts. In addition, burnout due to recurrent engagement with online forums during Covid-19 may have further contributed to the attrition rates. Replication of the study with a larger sample of multidisciplinary clinicians could further help validate our results.

Like many psychological training initiatives, our study implemented a pre-post design without a control group (Frank et al., 2020). Despite the large effects the SEES training had on our main outcomes, we did not implement a comparison group limiting the validity of our results. To strengthen the validity of our results, future research could incorporate a comparison training group. For example, we could compare a group of

clinicians engaging in self-directed learning of the SEES guideline/ training, while a second group completes the live, online SEES training.

An important aspect of implementing clinical training is assessing clinicians' adherence over time (Kazdin et al., 2017). In our study design, we assessed clinicians' self-efficacy and knowledge within ten days of the second training, limiting our understanding of how it impacted these outcomes across time. Our study could have been strengthened by not only assessing these two outcomes across a longer period but also by assessing their adherence to the newly learned skills. The study's main outcome variables were measured with questionnaires that were either modified (CASES) or developed (Knowledge Questionnaire) for the study. Although useful, their novelty may limit their psychometric properties. We may have encountered a ceiling effect with the outcome of the Knowledge Questionnaire. Further, the CASES was modified for our study, limiting our ability to compare levels of self-efficacy to other studies utilizing it to assess clinicians' training outcomes. To strengthen the validity of both the questionnaires, further piloting, and refining may have been beneficial to validate their psychometric properties. In addition, piloting these questionnaires may have provided us with the opportunity to refine the questionnaires further.

In terms of the qualitative component of the study, the results again captured the opinion of a sample who had positive regard for implementing exercise in ED treatment, which limits the transferability/generalizability of the findings. Not only this but the interviews were conducted by two research assistants. Although they each followed the same interview guide and received the same instructions, there may have been unavoidable differences between each of the research assistants' interview processes.

Despite these limitations, our study included several strengths. To the best of my knowledge, this was the first study investigating how training about DEX could impact clinicians' knowledge and self-efficacy using evidence-based clinical training to address an under-serviced area of ED treatment. The mixed-methods approach offered a depth and breadth of information not otherwise available by using a singular method.

4.2 Future Directions

Although the SEES training benefitted the clinicians and thus may serve to partially answer this call, an ongoing investigation of its effectiveness is necessary. In our study, we determined that the training's active learning components such as role-playing, and case study applications were beneficial to the clinician's learning. However, to streamline and create a potent and effective training, it may be beneficial to conduct research inquiring into the "key ingredients" of the training. For example, future research could aim to receive more detailed feedback from participants about the specific aspects of the training they found beneficial. In addition, we could trial different versions of the training to assess its impact on short and long-term adherence. In a similar vein, the SEES training has yet to be delivered by anyone other than the founders of the SEES guideline itself (DQ and MC). There is a widespread need for education and training in this area of ED treatment, promoting a need for the training to be scalable. A train-the-trainer model (Fairburn, 2014) offers an avenue to scale mental health training by educating trainees to teach other members of their community. In applying this model to the SEES training, we could access widespread audiences and ultimately improve clinicians' knowledge and understanding of the topic. To expand in this fashion, it will be

necessary to develop standard scripts and training to ensure standardization, presenting another avenue for future endeavors.

Although satisfaction with the SEES training was high, clinicians voiced the need for shorter periods of training (i.e., one hour). Breaking up the training times may ensure adequate attention to help facilitate learning. Although research suggests that self-directed learning may not be as effective as active training (Frank et al., 2020), our sample expressed an interest in being provided with the materials before the training. Research shows that support and booster sessions in the following training improves adherence to evidence-based protocols three months after training (Frank et al., 2020). In the current study, we did not offer booster sessions nor assess learning outcomes long term. In future works, providing clinicians with ongoing support may be beneficial to the long-term uptake of the newly learned skills.

4.3 Conclusion

The two-day SEES training was successful in improving clinician knowledge and self-efficacy in their clinical decision-making about DEX. The clinicians were satisfied with the training overall and provided encouraging feedback about the quality of the training. The training improved their confidence by offering evidence-based information and providing them with practical clinical skills. Having a community that collectively values addressing DEX in treatment is a vital component of building an environment where DEX is addressed with adequate intervention. Despite Alsana facilitating an environment where safe exercise engagement during ED treatment is viewed positively amongst the staff in their treatment programs, the larger the ED field has not yet reached

this point. Scaling the SEES training may offer an avenue by which to combat the negative perception of incorporating exercise into ED treatment by offering updated information and practical skills to clinicians. Simultaneously, it helps promote the idea that engaging in exercise can not only be safe, but beneficial to those with EDs in the short and long term. Exercise is a complex aspect of EDs, but with continued refinement and dissemination of the SEES training, we may be able to help clinicians build confidence in addressing DEX, ultimately helping clients restore lifelong, fulfilling relationships with movement.

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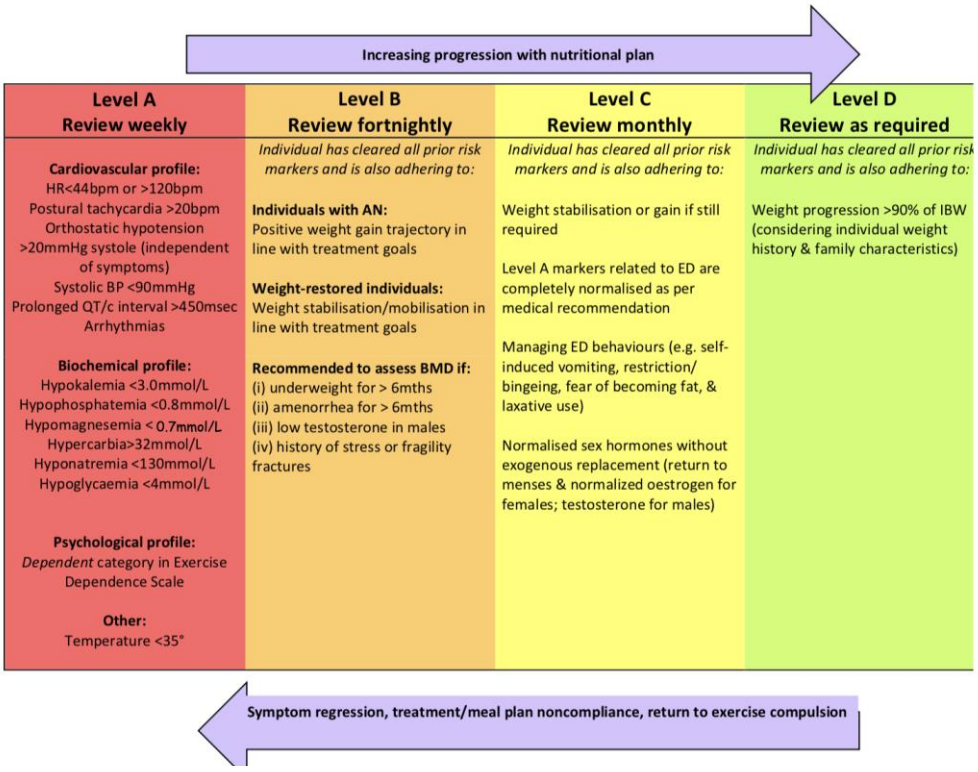
Appendices

Appendix A: The SEES Guideline



Exercise Components:	SEES Recommendations: Level A	Level B	Level C	Level D
Intensity	Max Talk Test level: 2 METS: <3	Max Talk Test level: 5 METS: 3-5	Max Talk Test level: 8 METS: 6-8	Individualised
Duration	30min max	30min max	60min max (30min max cardio; 30min max resistance)	Individualised
Stretching	Static (without orthostatic compromise)	Dynamic warm up; static cool down		
Cardiovascular/ respiratory exercise	Nil	Low impact; social/games focus (excluding return to sport) (e.g. gentle Yoga and Pilates, table tennis, walking, swimming)	Moderate impact (excluding return to sport) (e.g. cardio classes, jogging)	High impact; return to sport (e.g. rugby, football, martial arts, basketball, hockey); individualised; or may return to previously dysfunctional cardio exercise
Resistance exercise	Nil	Social, functional body weight (e.g. circuit)	All resistance exercise (e.g. weight lifting, weights classes)	All resistance exercise; may return to previously dysfunctional resistance exercises
Setting	Indoor or outdoor			
Supervision	Medical supervision required	Medical OR friend/family	Flexible (social partner encouraged)	Flexible, progressing to unsupervised
Education	Identify unhealthy exercise beliefs Nutrition support Ambulation assessment & injury prevention in daily living tasks (e.g. correct bending technique) Breathing & body awareness tasks Introduction to intuitive movement Assessment of exercise habits prior to treatment & long-term exercise goals Physiological education Consider suggestions in *Facilitating the implementation of SEES* section	Continue relevant/outstanding interventions and: Further challenge unhealthy exercise beliefs Continue exploring & practicing intuitive movement	Continue relevant/outstanding interventions and: Increase exercise intensity in conjunction with body awareness Set future exercise goals	Continue relevant/outstanding interventions and: Address remaining unhealthy aspects of exercise relationship, renormalising & increasing autonomy Develop future exercise plan in accordance with treatment plan & activity goals including focus on relapse prevention

Appendix B: Ethics Approval

Western Research

Date: 10 August 2021

To: Dr. Rachel Calogero

Project ID: 118845

Study Title: Evaluating the impact of a safe exercise training workshop on knowledge and self-efficacy to manage dysfunctional exercise among eating disorders clinicians at Alsana eating disorders center

Short Title: Alsana Safe Exercise Training Evaluation

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 03/Sept/2021

Date Approval Issued: 10/Aug/2021 11:21

REB Approval Expiry Date: 10/Aug/2022

Dear Dr. Rachel Calogero

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

Documents Approved:

Document Name	Document Type	Document Date	Document Version
DefriefingFormSEES&AlsanaJuly30SENDDX	Debriefing document	30/Jul/2021	2
DemoAug3FINAL	Online Survey	03/Aug/2021	2
Decisional BalanceAug3FINAL	Online Survey	03/Aug/2021	2
GodinPAAug3FINAL	Online Survey	03/Aug/2021	2
InterviewGuideaug3FINAL	Interview Guide	03/Aug/2021	2
DefriefingFormSEES&AlsanaAug3FINAL	Debriefing document	03/Aug/2021	2
DebriefingInterviewsAug3FINAL	Debriefing document	03/Aug/2021	2
ContactEmailAlsanaTIME2Aug3FINAL	Recruitment Materials	03/Aug/2021	2
ContactEmailAlsanaTIME1Aug3FINAL	Recruitment Materials	03/Aug/2021	2
CASESAug3FINAL	Online Survey	03/Aug/2021	2
ConsentAugust3FINAL	Implied Consent/Assent	03/Aug/2021	3
SatisfactionSurveyAug3FINAL	Online Survey	03/Aug/2021	2
ExerciseBeliefs	Online Survey		
KQAug3FINAL	Online Survey	03/Aug/2021	2
SemiStructuredIConsentAugust9FINAL	Written Consent/Assent	09/Aug/2021	3
ContactLetterInterviewsAug9FINALdocx	Recruitment Materials	09/Aug/2021	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris , Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix C: Contact Letter: Initial Email

As a clinician who will be undertaking the Safe Exercise at Every Stage training as part of the Alsana team, I am writing to invite you to participate in a research study that is exploring the role of exercise in the treatment and management of eating disorders (EDs). This study is being led by researchers in the Department of Psychology at Western University.

The main purpose of this research is to gain a better understanding of the impact and effectiveness of the Safe Exercise at Every Stage (SEES) training both via survey and interview. Given your expertise in this field, we would like to explore your perceptions, opinions, and beliefs about the SEES training for the assessment and management of dysfunctional exercise in EDs treatment settings. Based on the outcomes of this research, we hope to identify how to best improve the program and help facilitate the uptake of dysfunctional exercise management programs in the eating disorder field.

To do this, we will be asking you to complete an online survey before and after your scheduled SEES training. Following this, we will be conducting semi-structured interviews with a subsample of the Alsana staff. Participants will be compensated by being entered into a draw for one of two 35$ Amazon gift cards for consenting to the first survey and one of two 60$ gift cards for consenting to the second survey. Lastly, those who are randomly selected and consent to participate the interview portion of the study, will receive a 10$ gift card.

We understand everyone has limited time and we truly appreciate your consideration of this request.

To participate, **click on the link below** to access the survey, or copy and paste the URL below into your internet browser. You will first be asked to read through the consent form and provide your consent. Once consent is provided, you will continue onto a 30-minute survey about your current understanding of dysfunctional exercise in eating disorders.

https://uwo.eu.qualtrics.com/jfe/form/SV_1RFyS1S4amHoggS

Please feel free to contact me with any questions about the study or more information at [redacted]
Sincerely,
Danika Quesnel, MSc, CSEP-CPT
Dr. Marita Cooper, Ph.D.
Dr. Rachel Calogero, Ph.D.

Appendix D: Contact Letter: Semi-Structured Interviews

Dear XXXXX,

Greetings! As a clinician who undertook the Safe Exercise at Every Stage training as part of the Alsana team, and expressed interest in being part of the semi-structured interview portion of the study being conducted related to the training, I am writing now to obtain your consent to participate in a semi-structured interview with a member of our research team and to begin scheduling that interview.

In this portion of the study, a member of our research team that was not involved in the safe exercise training workshop will conduct a semi-structured interview with you that will take about 1 hour of your time. During the interview, you will be asked a set of questions about your perceptions, opinions, beliefs, and experiences concerning the safe training workshop and the role of exercise in the treatment and management of eating disorders more broadly. Each interview will be audio and video-recorded, and you will be asked to review your transcript of the interview once it has been transcribed, which will take about 30 minutes. Based on the outcomes of this research, we hope to identify how to best improve the safe exercise training curriculum and help facilitate the uptake of dysfunctional exercise management programs in the eating disorder field. You will be compensated with an Amazon gift card of 10$ for your participation.

We understand everyone has limited time, we truly appreciate your consideration of this request and hope you are still willing and able to participate. If you would like to continue, please print and sign the Letter of Consent attached below and return it to us via email [redacted]. Please also let us know in your email when you might be available to schedule the interview within the next two to three weeks.

Please feel free to contact me with any questions about the study or for more information at [redacted]

Looking forward to hearing from you,

Danika Quesnel, MSc, CSEP-CPT
Dr. Marita Cooper, Ph.D.
Dr. Rachel Calogero, Ph.D.

Appendix E: Demographics

1. How old are you (in years)?

2. How would you describe your gender identity?
'Cisgender' means that your assigned sex at birth (e.g., female) matches your gender identity (e.g., woman). 'Transgender' means that your assigned sex at birth (e.g., male) does not match your gender identity (e.g., woman).
☐ Women (Cis-gender)
☐ Women (Transgender)
☐ Man (Cis-gender)
☐ Man (Transgender)
☐ Nonbinary
☐ Prefer not to say
☐ Self-identify:

3. How would you describe your race/ethnicity?
☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Native Hawaiian /pacific islander
☐ White
☐ Latino
☐ More than one race
☐ Not reported here _____

4. How would you describe your education level?
☐ Associate's degree
☐ Bachelor's Level
☐ Master's level degree
☐ Doctor (Ph.D.) or Doctorate Degree
☐ Other diploma

5. How many years have you worked in the field of eating disorders?

6. In your work, what percentage of your time do you spend working directly with clients with an eating disorder?

7. What is your specialty in the eating disorder field?
☐ Nurse
☐ Psychologist
☐ Dietician

☐ Registered Clinical Counselor
☐ Direct care
☐ Administration
Other Therapist _____

8. In what setting do you conduct work in eating disorders?
☐ Private clinical
☐ Residential
☐ Academic
☐ Medical center
☐ Partial hospitalization
☐ Intensive outpatient
☐ Private practice
- allow multiple answers

9. Do you have a personal history of eating disorders?
☐Yes, self
☐Yes, loved one
☐Yes, self and loved one
☐ No
☐ Prefer not to answer

10. If a therapist, what is your therapeutic orientation?
☐ Psychodynamic
☐ Cognitive Behavioral
☐ Interpersonal
☐ Eclectic/integrative
☐ Other _____

11. Please answer the following questions and rank them from not at all important to extremely important (1-5).

A. Do you think engaging in safe and managed exercise should be implemented as a therapeutic modality in eating disorder treatment?

B. Do you think exercise education should be implemented as a therapeutic modality in eating disorder treatment?

C. Do you think with support exercise can be managed (e.g., regulated) in eating disorder treatment?

Appendix F: Godin Leisure-Time Physical Activity Questionnaire

During a typical **7-Day period** (a week), how many times on average do you engage in the following types of exercise for **more than 15 minutes** during your free time (write on each line the appropriate number).

A) STRENUOUS EXERCISE
(Heart Beats Rapidly)
For example: running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long-distance bicycling

B) MODERATE EXERCISE
(Not Exhausting)
For example: fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing

C) MILD EXERCISE
(Minimal Effort)
For example: yoga, archery, fishing from the riverbank, bowling, horseshoes, golf, snowmobiling, easy walking

During a typical **7-Day period** (a week), in your leisure time, how often do you engage in any regular activity **long enough to work up a sweat** (heart beats rapidly)?

A) Often (5-7 times a week)

B) Sometimes (2-4 times a week)

C) Never/Rarely (0-1 times a week)

Appendix G: Decisional Balance

This section looks at the positive and negative aspects of exercise. Read the following items and indicate how important each statement is with respect to your decision to exercise or not to exercise in your leisure time. Please answer using the following questions using the scale provided below:

5 = Not important

4 = A little bit important

3 = Somewhat important

2 = Quite important

1 = Extremely important

If you disagree with a statement and are unsure how to answer it, the statement is probably not important to you.

1. I would have more energy for my family and friends if I exercised regularly.
2. I would feel embarrassed if people saw me exercising.
3. I would feel less stressed if I exercised regularly.
4. Exercise prevents me from spending time with my friends.
5. Exercising puts me in a better mood for the rest of the day.
6. I feel uncomfortable or embarrassed in exercise clothes.
7. I would feel more comfortable with my body if exercised regularly.
8. There is too much I would have to learn to exercise.
9. Regular exercise would help me have a more positive outlook on life.
10. Exercise puts an extra burden on my significant other.

Appendix H: Exercise Belief Questionnaire

EXERCISE REGULATIONS QUESTIONNAIRE (BREQ-3)

WHY DO YOU ENGAGE IN EXERCISE?

We are interested in the reasons underlying peoples' decisions to engage or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise. Your responses will be held in confidence and only used for our research purposes.

		Not true for me		Sometimes true for me		Very true for me
1	It's important to me to exercise regularly	0	1	2	3	4
2	I don't see why I should have to exercise	0	1	2	3	4
3	I exercise because it's fun	0	1	2	3	4
4	I feel guilty when I don't exercise	0	1	2	3	4
5	I exercise because it is consistent with my life goals	0	1	2	3	4
6	I exercise because other people say I should	0	1	2	3	4
7	I value the benefits of exercise	0	1	2	3	4
8	I can't see why I should bother exercising	0	1	2	3	4
9	I enjoy my exercise sessions	0	1	2	3	4
10	I feel ashamed when I miss an exercise session	0	1	2	3	4
11	I consider exercise part of my identity	0	1	2	3	4
12	I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
13	I think it is important to make the effort to exercise regularly	0	1	2	3	4
14	I don't see the point in exercising	0	1	2	3	4
15	I find exercise a pleasurable activity	0	1	2	3	4
16	I feel like a failure when I haven't exercised in a while	0	1	2	3	4
17	I consider exercise a fundamental part of who I am	0	1	2	3	4
18	I exercise because others will not be pleased with me if I don't	0	1	2	3	4
19	I get restless if I don't exercise regularly	0	1	2	3	4
20	I think exercising is a waste of time	0	1	2	3	4

		Not true for me		Sometimes true for me		Very true for me
21	I get pleasure and satisfaction from participating in exercise	0	1	2	3	4
22	I would feel bad about myself if I was not making time to exercise	0	1	2	3	4
23	I consider exercise consistent with my values	0	1	2	3	4
24	I feel under pressure from my friends/family to exercise	0	1	2	3	4

Thank you for taking part in our research

Appendix I: Knowledge Questionnaire

This section includes a series of multiple-choice questions about the material covered in the training on dysfunctional exercise. For each question below, please select the best answer from the options provided.

1. What factor would you say is most important in understanding the *quality* of a client's relationship with exercise?

a) Minutes of activity per week
b) Type of activity (running, weight lifting, etc.)
c) How compulsive the individual is about engaging in activity
d) What setting (indoor/outdoor) the individual exercises in

2. How is physical activity and exercise different?

a) Only physical activity is enjoyable activity, and only exercise is goal-oriented and planned.
b) **Physical activity involves any body movement that raises your heart rate beyond resting, while exercise is planned movement that is planned, structured, regular and intentional movement.**
c) Physical activity and exercise are the same thing other than exercise is undertaken to facilitate a fitness goal.
d) Exercise is related to being fitter and encompasses cardiovascular, resistance training, and stretching while physical activity involves sports and leisure activity.

3. How does dysfunctional exercise tend to behaviourally manifest in clients with eating disorders?

a) Vigorous movement, marked increase in daily movement and/ or hyperactivity
b) Anorexia Athletica
c) Body building, overexercise, running addiction
d) Intense engagement in exercise regimes

4. What type of thinking patterns typically manifest for an individual with dysfunctional exercise in eating disorder treatment?

a) Intense shame and guilt if exercise is missed
b) Only wanting to do more running

c) Vigorous movement
d) Exercising to feel cleaner

5. Why does the body increase energy expenditure levels in response to starvation?

a) It is more efficient
b) The thinner you are, the fitter you are
c) It is an evolutionary survival mechanism to forage for food
d) The body doesn't increase energy expenditure

6. Which of the following are risk factors for dysfunctional exercise in individuals with eating disorders?

a) Being higher in perfectionism
b) All or nothing thinking around exercise
c) Being an athlete
d) All of the above

7. What is an ideal way of determining an appropriate exercise intensity for individuals with eating disorders?

a) **Metabolic equivalent**
b) Counting the amount of calories burned during an exercise session
c) Sit to stand test
d) The Borgen test

8. Which of the following is <u>not</u> a long-term risk of continued engagement in dysfunctional exercise engagement for individuals with eating disorders?

a) Decreased bone density
b) Fertility issues
c) Excessive muscle mass
d) Risk of relapse

9. Which of the following is a physical health risk related to engagement in cardiovascular exercise when an individual is physically compromised with an eating disorder?

a) Cardiovascular arrest
b) Hypothalamic amenorrhea
c) Impairing bone density
d) All of these are physical health risks in this context

10. Which of the following is <u>*not*</u> a quality of mindful activity?

a) **Thinking about how many calories you are burning while you exercise**
b) Being attuned with your thinking
c) Involving self-care
d) Rejuvenation

11. What is the central difference between primary (as a first presenting pathology) and secondary (secondary to the first presenting pathology) dysfunctional exercise?

a) **Primary exercise dependence is in the absence of an eating disorder or other mental health diagnosis while secondary exercise dependence can be due to another condition**
b) Primary exercise dependence is in males, while secondary exercise dependence is in females
c) Primary exercise dependence is in runners, while secondary exercise dependence involves excessive weightlifting exercise
d) Primary exercise dependence includes exercise, while secondary exercise dependence includes physical activity

For each statement below, please indicate whether it reflects a myth or fact related to exercise attitudes and behavior.

12. Exercise can regulate your mood. **(Fact)**

13. Doing laundry does not count as physical activity. **(Myth)**

14. Being starved perpetuates dysfunctional exercise. **(Fact)**

15. Engagement in dysfunctional exercise after treatment is one of the top predictors of relapse. **(Fact)**

16. Yoga is always a safe activity for individuals with an eating disorder. **(Myth)**

17. Safe exercise should be determined on the basis of a client's BMI. **(Myth)**

18. If an individual being assessed for an eating disorder does not disclose any problems with their exercise engagement, they don't have any issues with dysfunctional exercise. **(Myth)**

Appendix J: Counselor Activity Self-Efficacy Scales for Dysfunctional Exercise

The following questionnaire consists of two parts. Each part asks about your beliefs about your ability to perform various counselor behaviors or to deal with particular issues in counseling in the context of dysfunctional exercise. I am looking for your honest candid responses that reflect your beliefs about your current capabilities rather than how you would like to be seen or how you might look in the future. There are no right and wrong answers to the following questions.

Please indicate your response from no confidence to complete confidence in the following scale.

Part I

Instructions. Please indicate how confident you are in your ability to use each of the following helping skills effectively in the context of dysfunctional exercise over the next week in counseling most clients with eating disorders.

Items will be ranked on a Likert scale from 0 to 9 indicating no confidence, some confidence, and complete confidence

1. **Attending** (orienting yourself physically toward the client).

2. **Listening** (capture and understand the messages about dysfunctional exercise that clients communicate).

3. **Restatements** (repeat or rephrase what the client has said about dysfunctional exercise in a way that is succinct, concrete, and clear).

4. **Open questions** (ask questions that help clients to clarify or explore their thoughts or feelings about dysfunctional exercise).

5. **Reflection of feelings** (repeat or rephrase the client's statement about dysfunctional exercise with an emphasis on his or her feelings).

6. **Self-disclosure for exploration** (reveal personal information about your history, credentials, or feelings in regard to dysfunctional exercise).

7. **Intentional silence** (use silence to allow clients to get in touch with their thoughts or feelings about dysfunctional exercise).

8. **Challenges** (point out discrepancies, contraindications, defence, or irrational beliefs about dysfunctional exercise of which the client is unaware or that he or she is willing or unable to change).

9. **Interpretations** (statements that go beyond what the client has overtly stated and that give the client a new way of seeing his or her behavior, thoughts, or feelings about dysfunctional exercise).

10. **Self-disclosure for insight** (disclose past experiences in which you gained some personal insight about exercise or dysfunctional exercise).

11. **Immediacy** (disclose immediate feelings you have about the client, the therapeutic relationship, or yourself in relation to the client and their experiences with dysfunctional exercise).

12. **Information giving (**teach or provide the client with data, opinions, facts, resources or answers to questions about dysfunctional exercise).

13. **Direct guidance** (give the client suggestions, directives, or advice about dysfunctional exercise that imply action for the clients to take).

14. **Role play and behavioral rehearsal** (assist the client to role play or rehearse behaviors around dysfunctional exercise in session).

15. **Homework** (developing prescribed therapeutic assignments for clients to try out between second sessions to address dysfunctional exercise).

Part II

I**nstructions**. Please indicate how confident you are in your abilities to do each of the following tasks affectively over the next week in counseling most clients.

How confident are you that you could do these specific tasks effectively with <u>most</u> clients in the next week?

1. Keep the session on track and focused on their dysfunctional exercise behaviours and thoughts.

2. Respond with the best helping skills regarding dysfunctional exercise, depending on what your client needs at a given moment.

3. Help your client explore his or her thoughts, feelings, and actions around dysfunctional exercise.

4. Help your client to talk about his or her concerns about dysfunctional exercise at a “deep” level.

5. Know what to do or say next after your client talks about dysfunctional exercise.

6. Help your client to set realistic counseling goals around dysfunctional exercise.

7. Help your client understand his or her thoughts, feelings, and actions in engaging or stopping dysfunctional exercise.

8. Build a clear conceptualisation of your client and his or her issues around dysfunctional exercise.

9. Remain aware of your intentions (i.e. the purpose of your intervention) to manage and address dysfunctional exercise during sessions.

10. Help your client decide what actions to take regarding his or her problems with dysfunctional exercise

Appendix K: Satisfaction Survey

Please answer the following questions about the Safe Exercise at Every Stage training

I would recommend this training to a colleague. (Strongly Disagree – Strongly Agree)

Please answer the following questions about the Safe Exercise at Every Stage training

How well was the workshop organized? (Very Poor to Excellent)

Were the objectives of the workshop met? (Very Poor to Excellent)

Overall, how would you rate this workshop overall (Very Poor to Excellent)

What did you enjoy about the workshop? (Open-ended)

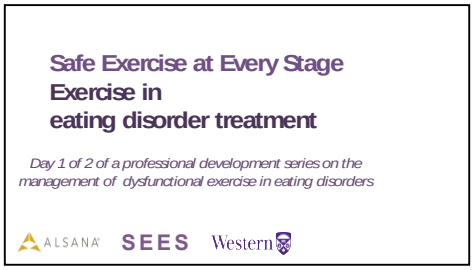
What could have been improved upon in the workshop? (Open-ended)

Do you have any additional comments to share about the workshop? (Open-ended)

Appendix L: SEES Training Slides

Day 1

5/7/22



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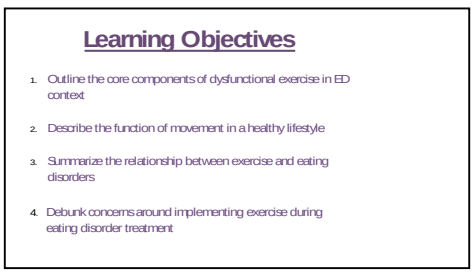

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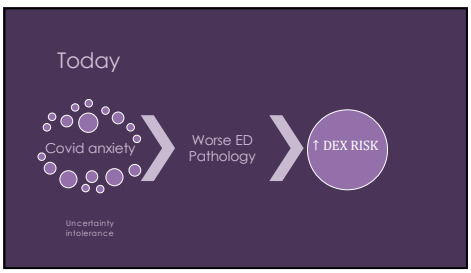

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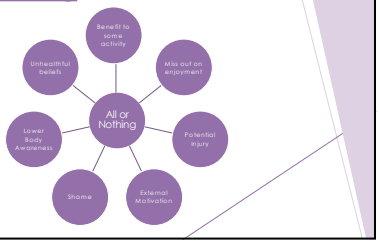
All or Nothing



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Exercise Myths

Myths	Facts
"No pain, no gain"	
"No-one ever regretted going to the gym"	
"You cannot be fat and fit"	
"If you don't hurt after a workout then you did not work hard enough"	
"If I miss a workout, I should make up for it next time"	
"Exercising is for burning off calories"	
"Exercise can change my body shape, give me a "insert fad body part here"	
"X" is the best or worst type/duration/time for exercise"	

14

Exercise Myths

Myths	Facts
"No pain, no gain"	So many gains for mental and physical health.
"No-one ever regretted going to the gym"	Of course people have.
"You cannot be fat and fit"	Fit is not a size.
"If you don't hurt after a workout then you did not work hard enough"	While soreness or stiffness may be expected after some exercise, this is not a requirement.
"If I miss a workout, I should make up for it next time"	Exercise is not a tally to be kept.
"Exercising is for burning off calories"	Exercise and food not related.
"Exercise can change my body shape, give me a "insert fad body part here"	Spot training is not effective.
"X" is the best or worst type/duration/time for exercise"	There is no one-size-fits-all for exercise.

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Dysfunctional Exercise

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Terminology

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Dysfunctional Exercise Research Background

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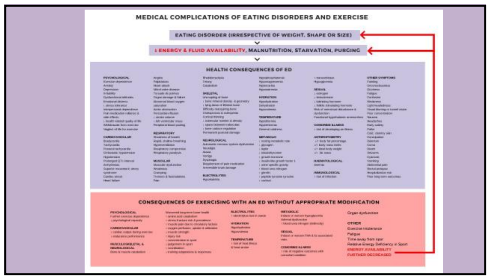

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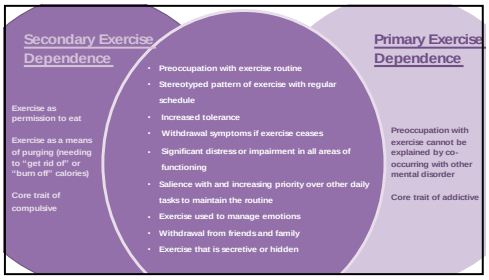

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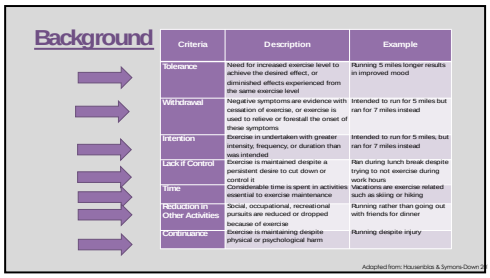

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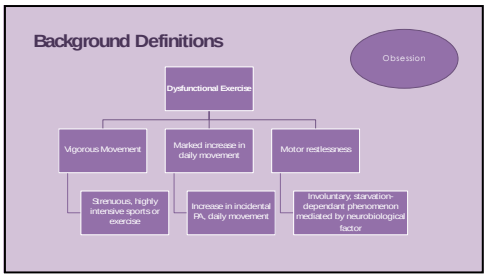

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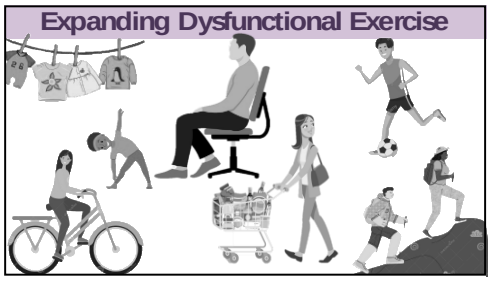

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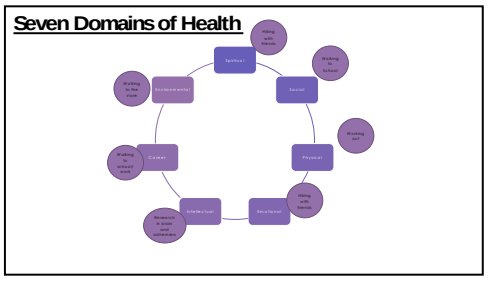

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CASE STUDY

Marcia is currently receiving outpatient treatment for anorexia nervosa. She is doing well in treatment overall, with steady weight gain and her menstrual cycle has recently returned after two years. During your initial appointment Marcia noted "I hate exercising, being stuck indoors at the gym has never been my thing!" Marcia's bloodwork was within normal ranges and she has not exhibited vital sign instability for over two months.

When discussing her weekend, Marcia mentioned that she has been enjoying hiking with her dog. She is very dedicated to her outdoors activities, making sure she tracks her hikes so she can show her friend on Strava. She makes sure to bring a snack (one 100kcal protein bar) and usually walks ~15km over 4 hrs. After her hikes, she enjoys going to the farmers market, ensuring she parks on the opposite side of the carpark to reach her weekend step goals. Marcia stated "I mean everyone uses step counters these days to be healthier, I think it's normal to feel guilty... Like it's a waste if you don't hit your goals."

What aspects of Marcia's story tells us she is engaging in dysfunctional exercise?
Please go to the following link to submit your answer:
www.menti.com/ptkhvpqub

7194 7526

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"There is a fear of overdoing it… taking exercise to an extreme"

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EXERCISE PARADOX

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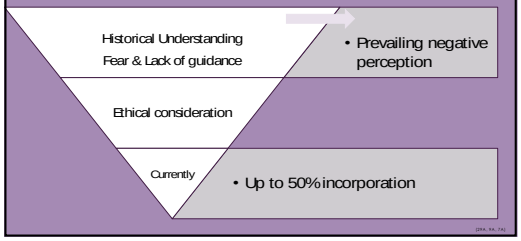
Isn't abstinence best?



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What are some of your concerns in managing exercise with clients?
www.menti.com/j1jhq2v8vs
5451 3337

33

Therapeutic Exercise Research Background

Psychology	Physical Health	ED Symptoms
• Body image • Self-esteem • Anxiety • Depression • Quality of life • Body esteem • Sleep • Perceived stress	• Skeletal health • Musculature • Cardiovascular health • Body composition	• Drive for thinness • Shape & weight concerns • Eating restraint • Long-term Prognosis

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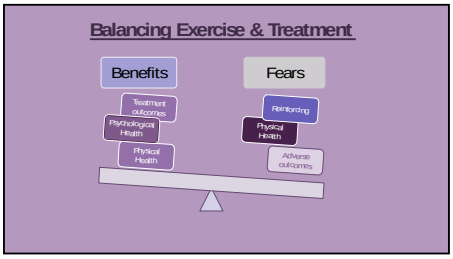

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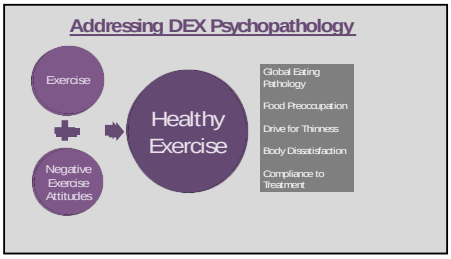

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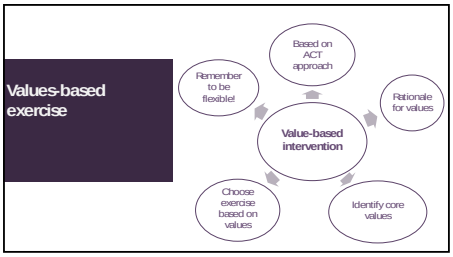

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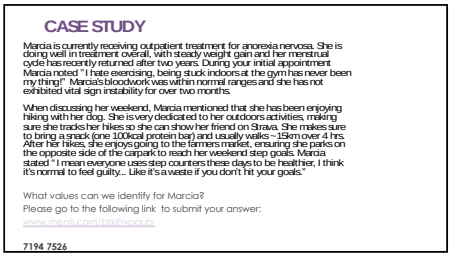

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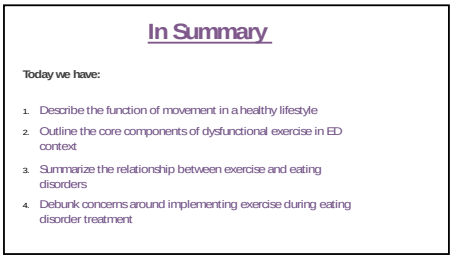

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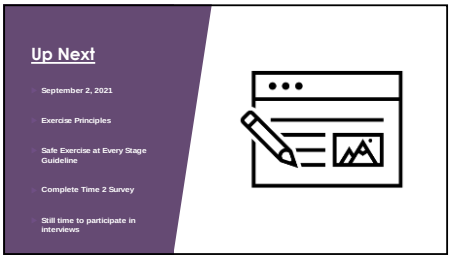

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5/7/22


Western
ALSANA
SEES
Thank you!
Thoughts and/or questions?
W: safeexerciseateverystage.com
E: contactseesteam@gmail.com
Danika Quesnel
MSc, CSEP-CPT
Graduate Student
Western University
Marita Cooper, PhD
Postdoctoral Fellow
Children's Hospital of
Philadelphia

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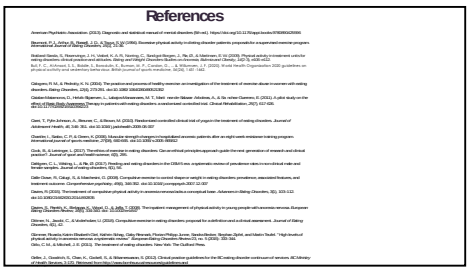
References

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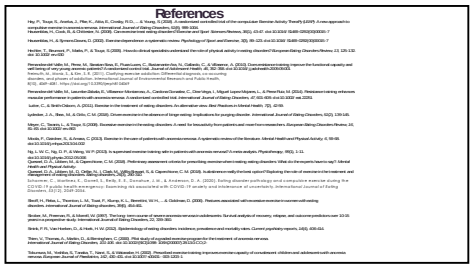
References

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Day 2

5/7/22

Safe Exercise at Every Stage

Bringing function to dysfunctional exercise in eating disorder treatment

Part 2 of 2 of a professional development series on the management of exercise in eating disorders

ALSANA SEES Western

1

Presenters

Marita Cooper, Ph.D.

Danika Quesnel MSc
CSEP-CPT

2

House Keeping

- We will be recording the workshop
- Please mute yourself if you are not talking
- Survey 2 and interviews
- Mentimeter

3

Learning Objectives

1. Summarize goals of psychological and therapeutic exercise interventions in eating disorder treatment
2. Demonstrate practical interventions to help clients develop a healthy relationship with exercise

4

RECAP

DEX IS NOT....

- Any single type of exercise
- Evaluated by frequency/duration alone
- Exercise during eating disorder treatment (necessarily)

DEX IS....

- Characterized by rigidity, compulsivity, affect regulation, weight and shape reasons
- Impairing to psychosocial wellbeing and/or physical health

5

RECAP

Call For Change

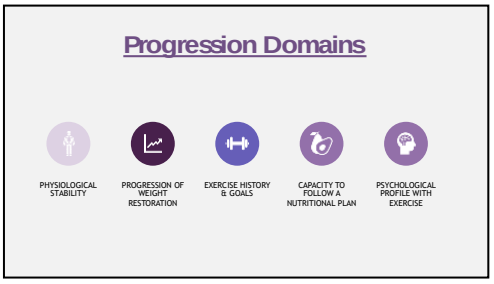
"There is not much of an official role with it [exercise] …but that's changing. I think we're at a very unique moment in the history of treating eating disorders, where things are starting to change" (University Researcher #2)

"No one is going spend the rest of their life in a hospital. And we want physical activity… to be something that they can sustain for life" (University Researcher #4)

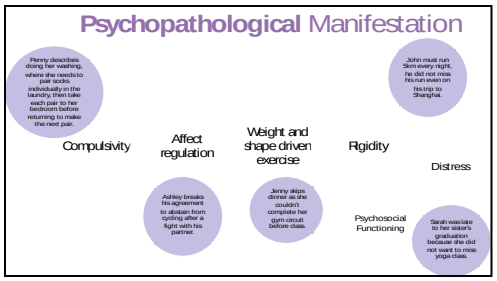
6


Where do we start?

8


Progression Domains
PHYSIOLOGICAL STABILITY
PROGRESSION OF WEIGHT RESTORATION
EXERCISE HISTORY & GOALS
CAPACITY TO FOLLOW A NUTRITIONAL PLAN
PSYCHOLOGICAL PROFILE WITH EXERCISE

9


Psychopathological Manifestation
Penny describes doing her washing, where she needs to pair socks individually in the laundry, then take each pair to her bedroom before returning to make the next pair.
John must run 5km every night, he did not miss his run even on his trip to Shanghai.
Compulsivity
Affect regulation
Weight and shape driven exercise
Rigidity
Distress
Ashley breaks his agreement to abstain from cycling after a fight with his partner.
Jenny skips dinner as she couldn't complete her gym circuit before class.
Psychosocial Functioning
Sarah was late to her sister's graduation because she did not want to miss yoga class.

11


Determining Exercise Levels
Who feels comfortable doing this?
www.menti.com/jmhzoixru4

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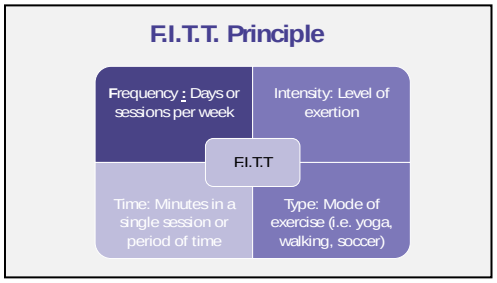
F.I.T.T. Principle
Frequency : Days or sessions per week
Intensity: Level of exertion
F.I.T.T
Time: Minutes in a single session or period of time
Type: Mode of exercise (i.e. yoga, walking, soccer)

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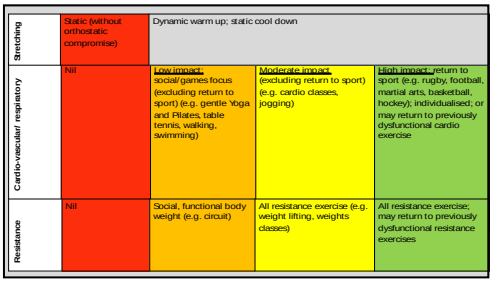

Stretching
Static (without orthostatic compromise)
Dynamic warm up; static cool down
Cardio-vascular/ respiratory
Nil
Low impact: social/ games focus (excluding return to sport) (e.g. gentle Yoga and Pilates, table tennis, walking, swimming)
Moderate impact: (excluding return to sport) (e.g. cardio classes, jogging)
High impact: return to sport (e.g. rugby, football, martial arts, basketball, hockey); individualised; or may return to previously dysfunctional cardio exercise
Resistance
Nil
Social, functional body weight (e.g. circuit)
All resistance exercise (e.g. weight lifting, weights classes)
All resistance exercise; may return to previously dysfunctional resistance exercises

14

Compendium of Physical Activity

15

Exercise Intensity & Talk Test

Intensity Measures				
Description of Intensity	Rating	Talk Test	MET value*	Example
Maximal	10	Cannot talk, gasping for breath	8+	Sprinting
High	7-9			
Moderate	4-6	Normal talking and breathing	3 - 5.9	Heated stretch
Low	1-3		1.1 - 2.9	

16

Too Great a Change?

- **Advise:** ALWAYS advise the client of their evidence-based risk category and corresponding safe exercise recommendation
- **Harm Minimize:** Work with the client/family/treating team with a harm minimization approach.

17

Big Picture Skills

18

Clinical Skills

EXERCISE ≠ REWARD

Reward & Punishment

19

Clinical Skills

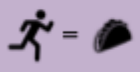
Personal Bias & Hesitancy

Fears?

Personal History?

Bias?

Current View?



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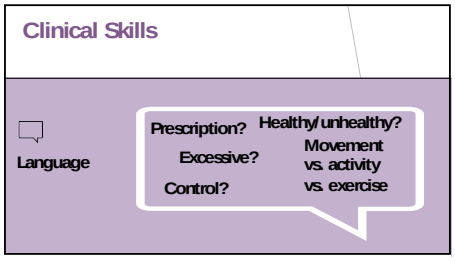

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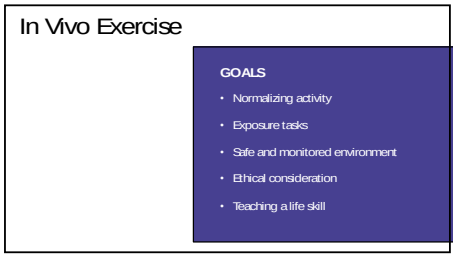

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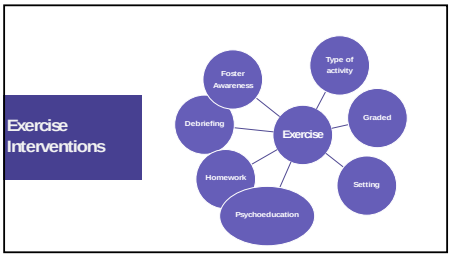

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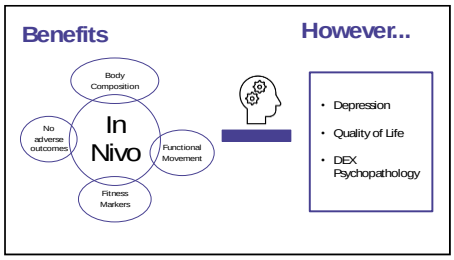

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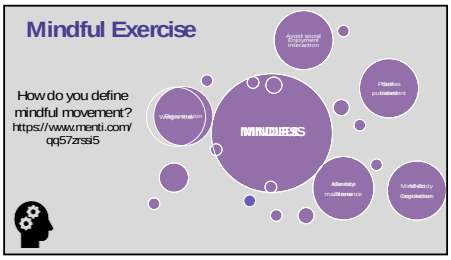

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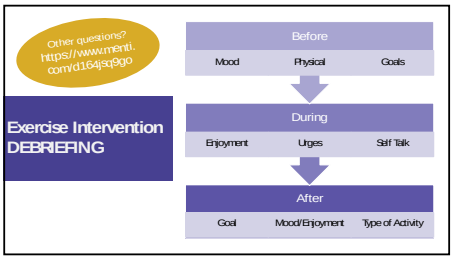

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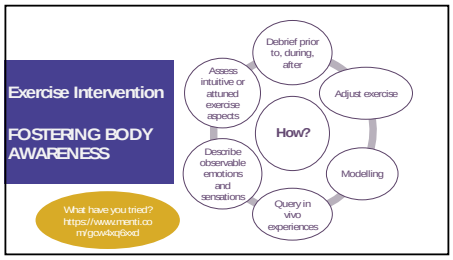

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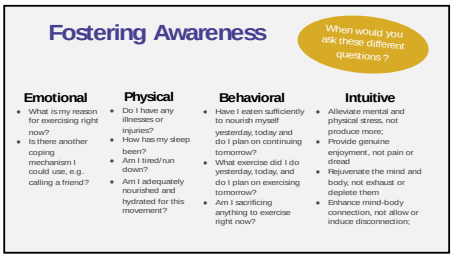

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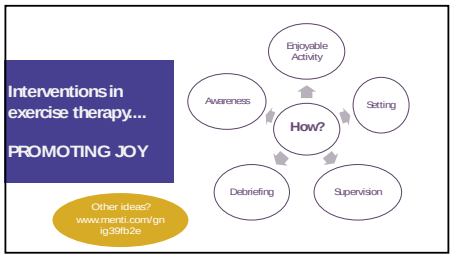

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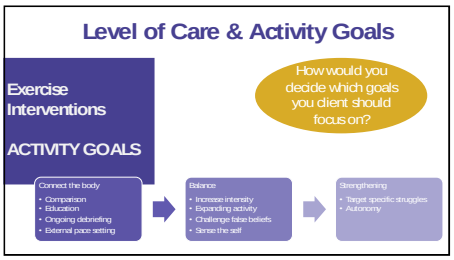

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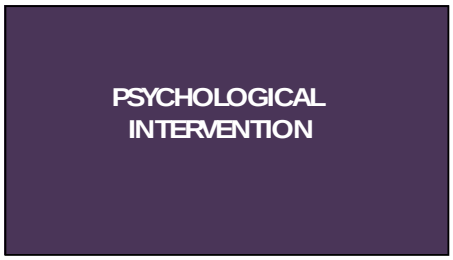


37

Psychological Intervention

WHY?

- Underlying relationship with exercise
- Generalizing skills
- Educating behavior change

38

Benefits

78 Outpatients

LEAP=34
CBT-A= 34

1st phase
End of therapy
Mid therapy
3 months
6 months

Improvement over time
No sig difference between groups

CBT
Emotional coping
Promote healthy exercise
Psych
Present relapse
Education
Skills

39

Psychological Intervention

With or without exercise
Exposure & response prevention
Cognitive restructuring
Awareness to the body
Psychotherapy
Homework
Valued based intervention
Emotion regulation techniques
Psychoeducation

40

Topics of Psychoeducation

What would be beneficial for different levels of illness severity?

Relevant topics
Healthy exercise
Rest and relaxation
Balance exercise, rest nutrition
Negative & compulsive attitudes and thoughts
Exercise as a symptom

41

Mood Intolerance

Why?

Cope
Inability to cope with adverse mood states
Engage
Engagement in DBX
Neutralize & Reduce
• Reducing cognitive awareness
• Neutralizing the mood state
Habit
• Becomes habitual method of affect regulation
• Primary or only means of emotion regulation
Perhaps less in BN

42

Psychological Intervention....

HABIT REVERSAL

Psychoeducation
Identify changeable behaviors
Monitoring
• environmental
• affective
• cognitive
Select intervention
Implement & evaluate

- Awareness
- Competing responses
- Stimulus control
- Urge exposure

43

Case study

- Interventions
  - High risk triggers- post-work at the gym alone, eating "cheat" foods, and fight with partner
  - Listened to 45 minute podcast for the gym to increase awareness
  - Ride bike to and from work – would not go to gym in addition to cycling
  - Increased conflict resolution skills
  - Planning Saturday breakfast at a cafe with partner (using mindfulness skills)
- Outcomes
  - Able to easily stop weight training
  - Gradually reduced cycling sessions to a safer duration
  - Demonstrated increased assertiveness in r/ship and began couples therapy

45

PSYCHOLOGICAL & IN VIVO INTERVENTION

48

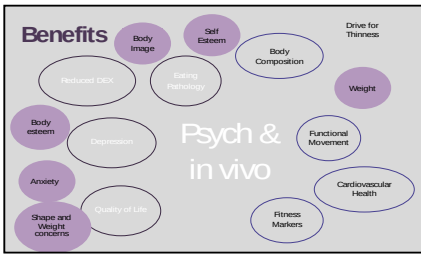
Psychological Intervention & In Vivo Exercise

WHY?

- Experience
- Practice
- Process

49

Benefits



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Psych & In Vivo

FINAL CASE STUDY

Misha is a day patient with UFED, she has cycled through treatment for over five years. Her vitals are stable, and she regained her cycle in the last 4 months, it has been regular for two months. However, despite being stable, her weight remains below her target weight. Her relationship with exercise has been complex, yet she has never had a program or therapist try and work on her relationship with exercise. Although Misha did run a lot in the past, Mischa doesn't exercise now. She does hot yoga 4 times a week and goes for long walks outdoors. She loves to bring friends with her to yoga classes and finds it easy to change schedule to go to a different class. Mischa is looking into becoming a yoga instructor, she also wants to start running again, however, she is scared that she will relapse into a dysfunctional relationship with exercise. Misha also finds herself thinking about how she can make sure to get her steps in for the day.

52

Case Study: Selecting Interventions

- 1. What severity level is this individuals?
- 2. What exercise intervention may be useful? What are the goals?
- 3. What psychological intervention could company this?
- 4. What considerations are important for adequate execution?

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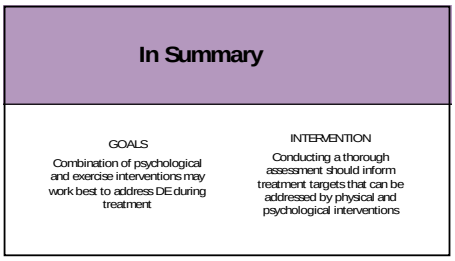

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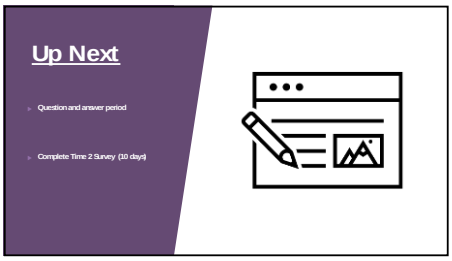

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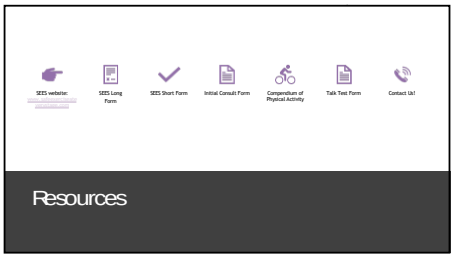

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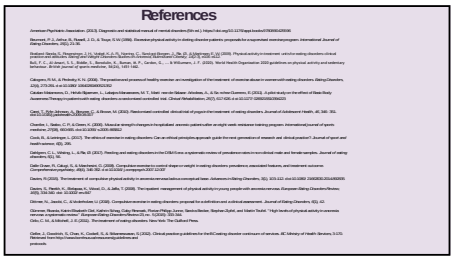

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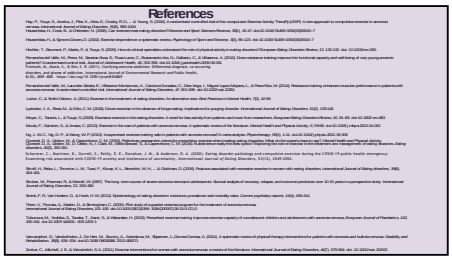

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Appendix M: Quantitative Consent

LETTER OF INFORMATION AND INFORMED CONSENT

1. Invitation to Participate

You are invited to participate in a research study that will be conducted under the direction of Dr. Rachel Calogero and Danika Quesnel from the Department of Psychology at Western University, and Dr. Marita Cooper from the Children's Hospital of Philadelphia.

2. Purpose of this Letter

The purpose of this letter is to provide you with information to allow you to make an informed decision regarding participation in this research.

3. Purpose of the study

Our primary aim will be to assess clinicians' knowledge and self-efficacy in regard to managing dysfunctional exercise before and after participation in the safe exercise training workshop delivered by Alsana. The secondary aim is to conduct brief interviews with a randomly selected sample of participants who completed the training to obtain more information about their experience in the training and with treating dysfunctional exercise in the context of eating disorders more broadly.

4. Inclusion Criteria

Participants will be clinical team members employed with Alsana who treat patients with eating disorders and who participated in the Alsana safe exercise training workshop.

5. Exclusion Criteria

Participants will be excluded from the study if they do not meet the criteria listed above.

6. Study Procedures

Part 1. Quantitative Survey

After providing consent to participate, participants will complete two online surveys asking them about their knowledge of dysfunctional exercise in eating disorders and how to manage it. One survey will be completed prior to the safe exercise training workshop and one immediately following the safe exercise training workshop. The surveys will each take approximately 30 minutes to complete.

Part 2. Semi-structured Interviews

A member of the research team will randomly select among those participants who gave consent for the semi-structured interview portion of the study to be invited for an interview. Selected participants will be contacted by a member of the research team (Danika Quesnel) to schedule an interview. A member of the research team who was not part of the training workshop will conduct the interviews, which will be in the form of a 1-hour semi-structured interview and take place via Zoom. These interviews will be video- and audio-recorded. During the interview, participants will be asked a set of questions to explore their perceptions, opinions, beliefs, and experiences concerning the role of exercise in the treatment and management of eating disorders. Once the data has been collected and transcribed, participants will be asked to review their interview transcripts and access them through Western's OneDrive to ensure accuracy, which will take approximately 30 minutes.

7. Potential Risks and Harms

If you consent to participate, none of the questions in the two surveys or the semi-structured interviews expose participants to subject matter that is not readily available in their clinical work or discussed in newspapers, television, magazines, radio, surfing the web, or online social media networks.

8. Possible Benefits

You may not directly benefit from participating in this study, but the knowledge gained from this study may help to identify best practices for addressing dysfunctional exercise in eating disorder treatment as well as help to inform the delivery of the Safe Exercise at Every Stage guidelines.

9. Compensation

Participants will be compensated by being entered into a draw for one of two $35 Amazon gift cards upon consenting to participate in the survey prior to the safe exercise training workshop. After the training, participants will be asked to complete a second survey. Upon consenting to participate in the second survey, participants will be entered into a draw for one of two $60 Amazon gift cards. Finally, each participant randomly selected to participate in the interview portion of the study will receive a $10 gift card for Amazon upon consenting to participate. All participants will be notified and delivered the gift card via email should they win the draw.

10. Voluntary Participation

Your participation in this study is voluntary, and you may decide not to participate at any time. If you decide to end your participation and exit the survey, any data you have already submitted will be retained. If you wish to withdraw your data for

any reason, you may do so by providing us with your unique ID code (described below). However, data cannot be withdrawn once the thesis and/or paper has been submitted for publication. During the study you are free to omit any question you wish not to answer, without penalty or loss of compensation.

You do not waive any legal rights by consenting to this study. Please email Danika Quesnel [redacted] you wish to withdraw your participation or data.

11. Confidentiality

All of your responses will remain confidential. All responses within the surveys are coded with each participants' unique self-generated ID code, which cannot be used to directly identify responses by anyone outside of the research team. Participants will be given instructions on how to generate their unique ID codes at the beginning of the first survey. The purpose of this unique ID code is to maintain confidentiality, to match your responses across the two time points for the study, and to allow you to withdraw your data if desired. A separate master list with each participants' name, email, and unique ID code will be stored separately from participants' responses in an encrypted, password protected document, and used only to track completion rates, identify available consenting participants for random selection for the interview portion of the study, and for compensation purposes for the interview portion. Only the members of the research team will have access to the master list. The master list will be destroyed upon completion of the project.

Your responses will be used for research purposes only. In reports of this study, only aggregated group data will be presented. Your survey responses will be collected confidentially through a secure online survey platform called Qualtrics. Qualtrics uses encryption technology and restricted access authorizations to protect all data collected. In addition, Western's Qualtrics server is in Ireland, where privacy standards are maintained under the European Union safe harbor framework. The data will then be exported from Qualtrics and securely stored on Western University's server.

If you choose to participate in the semi-structured interviews, the interview documents will be identified by a pseudonym and kept in a password-protected computer stored in the secure laboratory of the Primary Investigator (Dr. Rachel Calogero). Only the Primary Investigator and designated members of the research team will have access to the digital audio/video files and transcripts. You will be contacted via email and asked to review the transcripts, which can be accessed through a link via Western's OneDrive, a secure platform. Findings from this study will contribute to the Master's Thesis of one of the co-investigators, Danika Quesnel, and may be shared through conference presentations, articles for publication, and other media outlets. Participants will not be identified by name in any published reports of the completed study. An

electronic or hard copy version of the research outcomes will be available to you upon request.

In line with current best practices in research, anonymized data from this study will be made available to other researchers in the future, however the data will contain no information that could be tracked back to individual participants. Open science initiatives allow for researchers from different universities to share their data upon completion of studies, in an effort to stimulate further use and exploration of existing data sets. Anonymized data will be uploaded to an online forum in the form of a computer software file after the removal of any potentially identifying information.

All electronic documents will be kept on a secure university network. The data will be kept for 7 years in accordance with Western University policy. Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

12. Contacts for Further Information

If you would like to receive any further information regarding this research or your participation in the study, you may contact Danika Quesnel [redacted]. You may also contact the principal investigator, Rachel Calogero [redacted]

For any questions regarding the conduct of the study, or your rights as a research participant, you may contact the Office of Research Ethics at Western University, [redacted] free at [redacted] email [redacted]

13. Publication

If the results of the study are published, only aggregated data will be used that does not identify you personally. If you would like to receive a copy of any potential study results, please contact Danika Quesnel ([redacted]. **You may print this form for your records.**

Informed Consent

I have read the Letter of Information, have had the nature of the study explained to me, and all questions have been answered to my satisfaction. I agree to participate.

I understand that by clicking ‘I agree’ below, I am indicating my consent to participate.

- I agree to participate in the first survey and be contacted via email to participate in the one-month follow-up survey AND the interview portion of the study.
- I agree to participate in the survey portion of the study ONLY.

I do not agree to participate in either survey. I will exit the survey now

Appendix N: Time 2 Email Survey

Dear SEES & Alsana Training Participants,

Thank you for completing the Safe Exercise at Every Stage training as part of the Alsana team and completing the pre-training. Here is the link for the post-training, it will be shorter than the first!

Please note that the post-training close on September 13, 2021. With that, please only complete this survey if you have done the pre-training

As a reminder, by participating in the survey you will be entered into a draw for one of two 60$ Amazon gift cards. We truly appreciate your time and contribution to this research project.
To complete the last survey, **click on the link below**, or copy and paste the URL below into your internet browser.

https://uwo.eu.qualtrics.com/jfe/form/SV_50lfdrGdheEEEpo

Please feel free to contact me with any questions about the study or more information at [redacted]

Sincerely,

Danika Quesnel, MSc, CSEP-CPT
Dr. Marita Cooper, Ph.D.
Dr. Rachel Calogero, Ph.D.

Appendix O: Qualitative Consent Form

SEMI-STRUCTURED INTERVIEW LETTER OF INFORMATION AND INFORMED CONSENT

1. Invitation to Participate

You are invited to participate in a research study that will be conducted under the direction of Dr. Rachel Calogero and Danika Quesnel from the Department of Psychology at Western University, and Dr. Marita Cooper from the Children's Hospital of Philadelphia.

2. Purpose of this Letter

The purpose of this letter is to provide you with information to allow you to make an informed decision regarding participation in this research.

3. Purpose of the study

The primary aim is to conduct brief interviews with a select sample of participants who completed the safe exercise training at Alsana to obtain more information about their experience in the training and with treating dysfunctional exercise in the context of eating disorders more broadly.

4. Inclusion Criteria

Participants will be clinical team members employed with Alsana who treat patients with eating disorders and who participated in the Alsana safe exercise training workshop.

5. Exclusion Criteria

Participants will be excluded from the study if they do not meet the criteria listed above.

6. Study Procedures

<u>Semi Structured Interviews</u>

In the survey completed by participants prior to the Safe Exercise in Every Stage training, they will have endorsed their interest in being randomly selected to be part of the semi-structured portion of the study. This portion of the study will be in the form of a 1-hour semi-structured interview, which will occur via Zoom. Participants will have been contacted by a member of the research team (Danika Quesnel) to schedule an interview. Upon scheduling your interview, participants will be sent a Zoom link by a member of the research team who was not involved

in the training workshop and who will be conducting your interview. During the interview, participants will be asked a set of questions to explore their perceptions, opinions, and beliefs concerning the role of exercise in the treatment and management of eating disorders and the safe exercise training. The interviews will be video and audio-recorded through Zoom. Once the data has been collected and transcribed, participants will be asked to review their interview transcripts to ensure their accuracy. We will contact participants via email with a link to their transcribed interview stored on Western's OneDrive, which will take approximately 30 minutes. We will then ask participants to alert us that they have completed your review of the transcript and return it to us within two weeks again using Western's OneDrive.

7. Potential Risks and Harms

If you consent to participate, none of the questions in the semi-structured interviews expose participants to subject matter that is not readily available in their clinical work or discussed in newspapers, television, magazines, radio, surfing the web, or online social media networks.

8. Possible Benefits

You may not directly benefit from participating in this study, but the knowledge gained from this study may help to identify best practices for addressing dysfunctional exercise in eating disorder treatment as well as help to inform the delivery of the Safe Exercise at Every Stage guideline.

9. Compensation

Each participant in the study will receive a 10$ gift card for Amazon delivered via email upon consenting to participate in the interview. You will be delivered this gift card via email.

10. Voluntary Participation

Your participation in this study is voluntary, and you may decide not to participate at any time. If you decide to withdraw from participating, you will still be compensated and any data you have already submitted will be retained. If you wish to withdraw your data for any reason, you may do so. However, data cannot be withdrawn once the thesis and/or paper has been submitted for publication. During the study you are free to omit any question you wish not to answer, without penalty or loss of compensation.

You do not waive any legal rights by consenting to this study. Please email Danika Quesnel [redacted] if you wish to withdraw your participation or data.

11. Confidentiality

All your responses to the interview questions will remain confidential. All responses within the semi structured interviews will be coded with a pseudonym,

which cannot be used to directly identify you by anyone outside of the research team. No employee of Alsana will have access to any of the non-coded interview responses. Once you consent to the study, a master file will be created that will link your pseudonym to your name and email address which will only be accessed by members of the research team for compensation and to send transcripts for review. This master list will be stored in a password-protected and encrypted document, and separately from your survey responses.

Your semi structured interview documents will be identified using a pseudonym and kept in a password-protected computer stored in the secure laboratory of the Primary Investigator (Dr. Rachel Calogero). Both the audio and visual portions of interviews will be recorded via Zoom. The interviews will be saved in a secure Western university network. Only the Primary Investigator and members of the research team will have access to the digital audio/video files and transcripts. If you should want a copy of the recording, we can deliver it through Western's One drive. You will be contacted via email and asked to review the transcripts which will be accessed through a link via Western's OneDrive, a secure platform. Findings from this study will be published in a Master's Thesis by Danika Quesnel and may be shared through conference presentations, articles for publication, and other media outlets. Participants will not be identified by name in any published reports of the completed study, rather their pseudonym will be used to represent any quotes used in publication. An electronic or hard copy version of the research outcomes will be available to you upon request.

In line with current best practices in research, coded data from this study will be made available to other researchers in the future, however, the data will contain no information that could be traced back to individual participants. Open science initiatives allow for researchers from different universities to share their data upon completion of studies, in an effort to stimulate further use and exploration of existing data sets. Anonymized data will be uploaded to an online forum in the form of a computer software file after the removal of any potentially identifying information.

All electronic documents will be kept on a secure university network. The data will be kept for 7 years in accordance with Western University policy. Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

12. Contacts for Further Information

If you would like to receive any further information regarding this research or your participation in the study, you may contact Danika Quesnel [redacted]
You may also contact the principal investigator, Rachel Calogero
[redacted]

For any questions regarding the conduct of the study, or your rights as a research participant, you may contact the Office of Research Ethics at Western University, 519-661-3036, or toll free at 1-844-720-9816, or email ethics@uwo.ca.

13. Publication

If the results of the study are published, only aggregated data will be used that does not identify you personally. We may also use quotes from your interview session represented by only your pseudonym. If you would like to receive a copy of any potential study results, please contact Danika Quesnel.

You may print this form for your records.

Informed Consent

I have read the Letter of Information, have had the nature of the study explained to me, and all questions have been answered to my satisfaction. I agree to participate.

I agree that the researchers may use my responses as direct quotes in publications of these data that will be identified with my pseudonym only.

- Yes
- No

Participant's Printed Name _____

Participant's Signature _____

My signature means that I have explained the study to the participant named above. I have answered all questions.

Researcher's Printed Name _____

Researcher's Signature _____

Date _____

Please print this form and print your name, sign your name, and email the form to Danika Quesnel.

Appendix P: Semi-Structed Interview Guide

1) What benefits do you perceive about implementing exercise as an adjunctive intervention during eating disorder treatment?

Probe: a) If so, are there specific benefits for those with Anorexia Nervosa (AN)? Bulimia Nervosa (BN)? Other specified Feeding or Eating Disorder (OSFED) b) for men vs women with eating disorders c) for those of higher or lower weigh

2) Do you have any remaining hesitancies about implementing exercise as an adjunctive intervention during eating disorder treatment?

3) How, if at all, will your clinical work with clients change following the Safe Exercise at Every Stage training?

4) In your opinion, what barriers exist for others in the eating disorder field to implement exercise interventions during eating disorder treatment?

a) Are there any specific barriers for using exercise in treatment at different levels of care? What are these? b) How do we overcome these barriers and encourage clinicians to implement Safe Exercise at Every Stage?

5) Since the Safe Exercise at Every Stage training how has your view of the value of exercise in your client's lives changed?

6) How did the Safe Exercise at Every Stage Training affect your confidence in managing dysfunctional exercise during eating disorder treatment?

Probe: a) What did you find specifically helpful in improving your confidence? If not, what do you think was missing to support the confidence of clinicians in this field?

7) What issues do you foresee in the long-term implementation of the Safe Exercise at Every Stage training in your clinical setting?

Probe: a) What specific benefits and/or challenges do you see about implementing Safe Exercise at Every Stage training in your workplace when compared with other settings/treatment environments b) With clients at different levels of care

8) What improvements or modifications to the training do you suggest or would like to see?

9) How did you form your practice and knowledge of working with exercise during eating disorders treatment prior to the Safe Exercise at Every Stage training?

10) For you as a clinician working in eating disorders, how has your previous training in eating disorders shaped your view of dysfunctional exercise in your practice?

11) Do you know what resources you would consult to access information about dysfunctional exercise in eating disorders?

Probe: Do you feel comfortable using the Safe Exercise at Every Stage guideline as a resource?

12) How do we encourage and facilitate other clinicians to implement the Safe Exercise at Every Stage guideline in their workplaces?

13) Regarding the format of Safe Exercise at Every Stage training what do you think worked well or didn’t work for you?

a) How was learning in the online format? b) How was the didactic portion vs case studies?

Curriculum Vitae

Name: Danika A. Quesnel

Post-secondary Education and Degrees:

Western University
London, Ontario, Canada
2020 - M.sc.

The University of British Columbia
Kelowna, British Columbia, Canada
2014-2016 M.Sc.

The University of British Columbia
London, Ontario, Canada
2010-2014 B.Hk.

Honours and Awards:

Graduate Research Award Fund
Western University
2021

Social Science and Humanities Research Council (SSHRC)
Master's Award
2021

Ontario Women's Health Scholar Award
Western University
2021

Mitac's Accelerate International Grant

Western University
2021

Pursue your Passion Award
University of British Columbia
2016

Graduate Student Travel Grant
University of British Columbia
2016

Related Work Experience

Teaching Assistant
The University of Western Ontario
2020 -2022

Clinical Research Coordinator
The Center for Obesity Research and Excellence
University of British Columbia
2017-2019

Teaching Assistant
The University of British Columbia
2013-2016

Research Assistant
Physical Activity and Health Behaviour Lab
University of British Columbia
2013-2016

Publications:

Quesnel, D.A, Cooper, M., Fernandez-del-Valle, M., Dobinson, A., Calogero, R. (Revise and Resubmit). Medical contraindications to exercise in eating disorders. *The Journal of Eating Disorders.*

Quesnel, D. A., Hefner, T., Fernandez-del-Valle, M., & McComb, J. (2022). Menstrual dysfunction in youth female athletes and their management in the context of models of energy deficiency. *The Health & Fitness Journal of Canada, 15*(1), 3-17. https://doi.org/10.14288/hfjc.v15i1.361

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