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Opinion

The ethics of exercise in eating disorders: Can an ethical principles approach guide the next generation of research and clinical practice?

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1. Introduction

Eating disorders (ED) are the most common psychiatric disorders afflicting young women[1] and contribute to great detriments in psychological, social, and physical health.[2,3] Unfortunately, ED treatments tend to be long lasting, intensive, and expensive.[4] Additionally, individuals with ED seeking treatment use healthcare services more frequently than non-ED individuals, thereby placing an added burden on the healthcare system.[5] The severe nature of ED, high cost of treatment, and added healthcare burden provide rational support for examining efficacious, easily disseminated, innovative, and cost-effective ED interventions that may improve treatment outcomes.

The multidimensional etiology of ED suggests that optimal interventions must also be multifaceted.[6,7] Therefore, it may be more effective to identify treatment strategies that impact both psychological and physiological processes and consequently impact the progression of multiple factors that contribute to the development and maintenance of ED. Accordingly, the comprehensive health benefits provided by exercise have led researchers to consider exercise as an ED treatment. It should be noted that exercise refers to a form of physical activity undertaken with intent to obtain a specific objective or desired outcome.[8] Thus, distinguishing whether that objective is to facilitate symptoms of an ED (i.e., compensatory exercise) or to obtain a health outcome (i.e., therapeutic exercise) is paramount in individuals with ED. Several literature reviews of studies that used exercise in ED treatment have concluded that therapeutic exercise is a safe[9] and potentially effective adjunct to ED treatment.[10–15] Moreover, a recent meta-analysis of studies that have examined exercise in the treatment of anorexia nervosa (i.e., underweight individuals for whom exercise has been previously restricted) found that nutritionally supported exercise resulted in no detrimental effects, distorted feelings about food and exercise were reduced, cardiovascular fitness improved, and there was no decrease in weight or other detrimental anthropometric outcomes.[9] However, there is an ethical concern that any form of exercise may cause harm in individuals with ED, which has led many clinicians and researchers to recommend avoiding exercise in ED at all costs. For example, 97% of clinicians surveyed in the US, Canada, Europe, Asia, Australia, and New Zealand reported they believe that exercise is related to ED.[16] Not surprisingly, a different study of how ED treatment centers approach physical activity found that exercise was generally considered harmful in ED, approximately one third of treatment centers did not assess exercise or physical activity, and that incorporating exercise into treatment was much less common in ED than treatment approaches for other mental health conditions.[17] This lack of clarity may be due to ambiguous clinical recommendations in treatment manuals to address physical activity attitudes while also restricting physical activity.[18] One possibility as to why therapeutic exercise has been overlooked in ED treatment may be the potential for unsupervised, compensatory exercise performed during times of severe nutritional deficiency to exacerbate ED pathology. This overly cautious view is not supported by the emerging literature on the therapeutic potential of exercise in ED treatment and further alienates individuals with ED from taking control of their own health. Moreover, it minimizes the role and will of individuals with ED in their recovery by ignoring the potential for exercise to be used as part of living a healthy lifestyle that matches socially determined norms. Simply stated, restricting all forms of exercise is an ethical issue because doing so eliminates autonomy, respect, empathy, and dignity[19] for individuals with ED by preventing them from partaking in socially acceptable healthy lifestyle behaviors and take control of their recovery. Clinical and research efforts guided by the ethical principles of *nonmaleficence, beneficence, respect for autonomy*, and *justice*[20] may be a better approach to empowering individuals with ED as they work toward recovery. Therefore, the purpose of this paper is to present an ethical perspective for clinicians and researchers to consider for the use of exercise as a potential treatment modality for ED. Allowing such a view may provide opportunity to re-evaluate previously misunderstood or ignored aspects of the

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relationships among exercise, mental health, and physical health of individuals with ED.

2. Exercise, ED, and ethics

The dominant view in ED research and clinical practice has been that exercise is associated with several severe negative consequences (e.g., earlier ED onset, lower body mass index, higher perfectionism, more severe ED symptoms, higher obsessionality and compulsivity, and elevated levels of negative affect).[21,22] Knowledge of such associations has informed clinical practices emphasizing the absolute restriction of exercise in attempt to avoid harm. However, much of the research examining exercise in ED has relied on bias sampling methods in retrospective, cross-sectional, or case history designs using unvalidated self-report measures that lack a clear, concise, and consistent definition of compensatory exercise.[10] Allowing such weak evidence to inform clinical practice raises important questions concerning the ethics of research and clinical approaches related to exercise in ED.

Considering different ethical viewpoints may help to shift research efforts beyond simple associations and help to provide a better understanding of motives for exercise, the functional relationship of exercise in ED, and the needs of individuals with ED with regards to if and how exercise can be managed. This paper will attempt to provide context to past, present, and future directions in exercise in ED research by applying the ethical principles approach outlined by Coughlin.[20] Such an approach may also reveal that the current understanding of exercise in ED is inadequate for meeting the needs of individuals with ED. Therefore, applying an ethical principles approach to research and the clinical management or therapeutic use of exercise in ED is an idea worth exploring.

3. Deductivist approach

Ethical approaches to healthcare can be separated into deductivist and non-deductivist theories of moral reasoning.[20] Deductivist reasoning follows a top-down approach whereby observations inform healthcare decision making through a process of justifying a judgment or belief by bringing it under one principle. The ultimate principle for healthcare professionals is to *do no harm* to individuals receiving treatment. This principle is often balanced with a utilitarian view that posits the rightness of an act or policy is determined by the greatest collective good. Thus, deductivist reasoning emphasizes avoiding harm for the majority of individuals afflicted with an illness or condition.

Certainly safety is the most important factor when considering research and clinical approaches regarding the therapeutic potential of exercise in ED treatment. This reasoning is reflective of common research aims directed at identifying detrimental associations among exercise and ED and subsequent clinical approaches focused on the absolute restriction of all forms of exercise for individuals with ED. For example, initial depictions of hospitalized individuals with anorexia nervosa included observations of patterns of exercise that were described as "obsessive hyperactivity". These observations suggested that exercise is possibly a factor in the development and maintenance of ED.[23] Such observations have guided the belief that exercise should be avoided for all individuals with or at-risk for ED. Consequentially, exercise in ED research has been heavily influenced by preconceived assumptions based on biased observations of hospitalized individuals with severe anorexia nervosa who may not be representative of all individuals with ED. This example of deductivist reasoning may overlook that exercise is a heterogeneous set of behaviors guided by various complex motivations and with dynamic physiological and psychological health consequences.

4. Non-deductivist approach

Alternatively, non-deductivist reasoning emphasizes a bottom-up approach in which multiple principles are used when making healthcare decisions. Such an approach posits that common morality relies upon shared beliefs rather than deduction. Therefore, an ethical framework for understanding healthcare approaches must include multiple principles that keep the needs of the individual as the central focus and account for professional and socially approved norms. Coughlin[20] argues that the principles of *nonmaleficence, beneficence, respect for autonomy*, and *justice* are preeminent when making healthcare decisions. Applying each of these principles may offer insights into how research may advance understanding of the functional relationship of exercise in ED and how to intervene with appropriate therapeutic strategies.

The principle of *nonmaleficence* emphasizes that harm must be avoided, but does not preclude balancing an intervention's potential harm and benefit. Perhaps this, more than any other consideration, has influenced the research and clinical practice related to exercise in ED. This approach has largely guided standard treatment approaches for managing exercise in ED by recommending the restriction of all forms of exercise out of an abundance of caution to do no harm. Certainly an appropriate overemphasis on avoiding harm is prudent, but it is not a justification for overlooking potential benefits. Put another way, ignoring or not investigating potentially effective therapies because of possible risks may violate this principle. Applying the principle of nonmaleficence by balancing risks and investigating potential benefits has guided a growing body of evidence suggesting that closely monitored, nutritionally supported therapeutic exercise is safe[9] and may convey multiple benefits in some individuals with ED.[24]

The principle of *beneficence* emphasizes maximizing benefit while simultaneously minimizing potential harm and underscores that professionals have a moral obligation to learn new techniques that may improve their ability to help others. Therefore, the common practice of restricting exercise for fear of the aforementioned negative consequences may be viewed as failing to provide help for individuals in dire need of intervention. Thus, a more prudent ethical approach may be to elucidate why individuals engage in exercise, create reasonable strategies for the management of exercise in ED, and identify for whom therapeutic exercise may be reintroduced as a way to empowered individuals with multiple strategies for healthy living.[24] To

be clear, applying this principle assumes that therapeutic exercise is not indicated for all individuals with ED, but directs clinical and research efforts to examine if exercise can be managed in some individuals with ED.

The principle of *respect for autonomy* emphasizes self-determination, individual freedom, and freedom from constraint and accounts for the mental capacities required for understanding health behavior decision making. Therefore, research should strive to identify clinically meaningful benchmarks for nutritional status and psychological factors required for individuals with ED to understand the effect of compensatory exercise; permanence or reversibility of exercise induced physiological damage; and potential mediating factors that may explain the functional relationship of exercise with ED and thereby offer targets for interventions to change this relationship from an unhealthy compensatory behavior to that of one focused on engaging in appropriate amounts, intensities, and frequencies of exercise for the purpose of maintaining health. By doing so autonomy may be encouraged by empowering individuals to make their own positive health behavior decisions, control the compensatory nature of compulsive exercise, and holistically intervene on the psychological and physiological aspects of ED recovery.

The final principle of *justice* states that there is a societal obligation to provide fairness to all individuals. Accordingly, it is not fair or just to exclude all individuals with ED from exercise while also encouraging it for health purposes for virtually all other members of society. Denying opportunities to manage health behaviors fails to ethically consider the myriad of considerations that contribute to why an individual engages in exercise. Exercise and physical activity are omnipresent in modern society. Therefore, research should account for the principle of justice by identifying how to cope in situations where physical activity is required for daily living and avoid triggers that may allow for compensatory exercise.

5. Future directions

Using a principles-based ethical framework to reexamine the multifaceted associations among exercise and ED is an idea worthy of research, discussion, and debate. This represents a new approach that holds great promise for advancing understanding of exercise and health in a specific population. In short, exercise in ED research has advanced tremendously since the initial observations that informed the preponderance of research to date and provided the bedrock of clinical approaches to managing exercise through restriction. Recent research efforts have utilized better assessment tools and have uncovered a more dynamic understanding of the cognitive, attitudinal, behavioral, and physiological aspects of exercise in ED. Therefore, it is unethical to continue simply saying there is a detrimental association among exercise an ED (i.e., deductivist approach). A more prudent ethical approach may be to ask why is there an association and what can we learn that can inform clinical approaches to managing exercise in ED (i.e., non-deductivist and principles approach). Powers and Thompson[25] have provided a dynamic approach for how to balance exercise. Their work includes strategies for how this is possible for all individuals, regardless of where they are along the ED continuum. While this book may be useful for most individuals with or without ED, a specific set of guidelines for ED treatment that reflect the ethical approach outlined above is needed. A comprehensive set of guidelines for the management and therapeutic use of exercise in ED treatment (Table 1) has recently been published and may provide a practical, reasonable, and conceptual model that can be empirically tested; guide the examination or re-examination of the associations of exercise and ED; and account for an ethical principles-based approach to investigating a multitude of factors pertinent to exercise in ED.[24] Specifically, these guidelines may help clarify if managed exercise is possible (e.g., *nonmaleficence*); if there is a therapeutic potential of exercise (e.g., *beneficence*); methods to empower individuals with ED to cope with exercise and physical activity in a risky environment (e.g., *autonomy*); and provide individuals with a connection to the larger healthy community while facilitating independence in their recovery (e.g., *justice*).

Table 1
Protocols for the therapeutic use of exercise in eating disorders treatment.

No.	Therapeutic exercise protocol recommendations
1	Adopt a team approach with experts from a variety of relevant disciplines.
2	Continuously monitor medical status and safety concerns.
3	Screen for exercise related psychopathology.
4	Create a written contract of how and when exercise will be used in treatment.
5	Include a psycho-educational component.
6	Focus on positive reinforcement.
7	Create a graded program.
8	Start with mild intensity and build slowly.
9	Tailor the mode of exercise to the needs of the individual.
10	Include a nutritional component to account for physiological needs before, during, and after exercise.
11	Debrief after each exercise session.

6. Conclusion

It is clear that many individuals with ED use compensatory exercise in a pathological manor[22] and more research is needed to further clarify the role of exercise as a potential causal and maintenance variable in ED.[26] However, an emerging body of evidence suggests that therapeutic exercise may impart substantial benefits relevant to ED treatment outcomes. Several recent reviews of the literature[9–15] have provided a rationale to support further investigation into all aspects of the exercise–ED relationship and presented protocols that may guide the clinical use of exercise in ED treatment.[24] We encourage ED researchers and clinicians to consider the aforementioned guidelines[24] and practical recommendations presented by Powers and Thompson[25] when considering the ethical balance of therapeutic exercise in ED treatment. Thus, therapeutic exercise may be beneficial for some individuals when delivered in an appropriate manner as part of a comprehensive ED treatment program. Applying a principles-based ethical framework may shift the focus of treatment onto individuals with ED; empower the clinician and patient alike with respect, empathy, and dignity; and further highlight the interaction of exercise and health

within societal norms related to ED attitudes and behaviors. Future research and clinical work is needed to continue to elucidate mechanisms for why these benefits occur in ED.

Authors' contributions

Both authors conceived of this opinion and contributed to the conceptualization of this manuscript; BC wrote content on eating disorders, treatment, and suggestions for future directions; LL contributed content specific to ethics and how to apply exercise science principles in a specific population. Both authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

Competing interests

The authors declare that they have no competing interests.

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