Anorexia nervosa and exercise: ethical issues involving physical education professionals

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Abstract

Anorexia nervosa affects from 0.3% to 1% of young women. Excessive exercise is a problematic behavior that occurs in 40% to 80% of individuals with this eating disorder. Physical education professionals must observe multiple behaviors to make the suspicious of this disorder, be aware about the risks/benefits as well as the ethical issues of accepting to train people with anorexia nervosa because, even with few studies on this issue, there are favorable and contrary arguments regarding the indication of exercises. In any case, the basic principle is the same of what is applicable in any training practice under supervision: to promote health.
Key words: Physical education and training. Exercise. Sports. Anorexia nervosa. Body dysmorphic disorders.

Resumo

Anorexia nervosa e exercícios: questões éticas envolvendo profissionais de educação física

A anorexia nervosa acomete cerca de 0,3% a 1% de mulheres jovens. A prática de exercícios em excesso é um comportamento problemático que ocorre em 40% a 80% dos indivíduos diagnosticados com esse transtorno alimentar. Para que suspeitem da doença os profissionais de educação física devem conhecer os vários comportamentos que essas pessoas adotam quando praticam atividade física, estar atentos tanto quanto aos riscos/benefícios da prática como às questões éticas decorrentes de aceitar treinar indivíduos nesta situação, pois, apesar de existirem poucos estudos sobre essas questões, há argumentos contrários e favoráveis quanto à indicação de exercícios. Em todo caso, o princípio básico deve ser o mesmo que se aplica a qualquer indivíduo que esteja praticando exercícios sob supervisão: promover a saúde.
Palavras-chave: Educação física e treinamento. Exercício. Esportes. Anorexia nervosa. Transtornos dismórficos corporais.

Resumen

Anorexia nerviosa y ejercicios físicos: cuestiones éticas involucrando profesionales de educación física

La anorexia nerviosa afecta alrededor del 0,3% a 1 % de mujeres jóvenes. La práctica de ejercicios en exceso es un comportamiento problemático que ocurre en 40% a 80 % de los individuos diagnosticados con ese trastorno alimentario. Para que sospechen de la enfermedad los profesionales de educación física deben conocer los distintos comportamientos que esas personas adoptan cuando practican actividad física, estar atentos en cuanto a los riesgos/beneficios de la práctica así como a las cuestiones éticas derivadas por aceptar entrenar individuos en esta situación, puesto que, aunque existan pocos estudios a respecto de esas cuestiones, hay argumentos en contra y a favor de la indicación de ejercicios. De todos modos, el principio básico es el mismo que se aplica a cualquier individuo que practique ejercicios bajo supervisión: promover la salud.
Palabras-clave: Educación y entrenamiento físico. Ejercicio. Deportes. Anorexia nerviosa. Transtornos dismórficos corporales.

Research article

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Anorexia nervosa (AN) is a psychiatric illness with high mortality. It primarily affects young women and is characterized by intense fear of gaining weight, even though the person is with the weight/height ratio of less than 15% of expected. Its prevalence in the general population ranges from 0.3% to 1% [1].

It is estimated that 40% to 80% of affected by this pathology practice exercises with the goal of losing weight, which keeps the vicious circle of the disease, which may lead to (even permanent) physical injuries and even death [2]. Before the prevalence of AN, the age group that it most often occurs (adolescents and young adults) and its association with excessive physical activity, it is expected that the physical education teachers (PEF) might encounter individuals affected by the condition. Therefore, they must be able to identify it.

Although the pathology is well described in the literature, there is little discussion on assisted surveillance of physical activity in this specific group of patients, but we must mention the studies of the author Simona Giordano in her reflections on the theme [3,4]. Doctors can fail to reflect on some important questions regarding the practice of assisted exercises; they consider it sometimes part of the disease and prohibit it. In this sense, it is critical that, in the treatment of AN, many professionals are involved, especially the PEF.

The objective of this paper is to discuss ethical issues related to the practice of supervised exercises in patients with the diagnosis – or suspect – of anorexia nervosa.

AN diagnosis and practice of exercises in excess

Hyperactivity is one of the first signs of AN, appearing even before weight loss is noticeable by family or friends. Considering this fact, the PEF can be one of the first ones to notice, through practice exercises with peculiar pattern, which is not only dealing with a person who wants to improve their health or performance. The physical activity with the primary goal of weight loss may be important in the pathogenesis and maintenance of AN [5].

This characteristic – hyperactivity – is essential for early diagnosis. It is common that AN patients are diagnosed only when they meet all the criteria of the DSM IV or ICD 10 (table attached) [6,7]. Individuals who do not meet all the diagnostic criteria (the majority) are classified as having *partial forms*. These, however, are as serious as the classic form [8].

Thus, PEF should aware of certain signs and behaviors that may signal the presence of AN:

- thin appearance or low weight at admission (initial examination) or obvious weight loss and/or muscle mass over time;
- even if they lose weight, the person says that they are eating well. Note that they do not ingest food or snacks before or after physical activity, even if colleagues or friends do. They can also refuse to drink water (there is the false assumption that drinking water makes people get fat);
- the student can weigh up again and again: before, during and after physical activity;
- a detailed observation (e.g. on treadmills or bikes) of how many calories they are losing;
- the time the workout is over and they tend to increase every day. They may attend, if they are in a gym, several classes with different teachers so they are not noticed. They prefer aerobic activities and demonstrate excessive concern with the belly, which they think it is prominent – which, in most cases, does not match reality;
- they change time physical activity if they are warned of excessive hours of training;
- use many clothes aiming to sweat more and thus lose weight or feel cooler than expected due to lack of body fat;
- repeatedly expressing that they are fat and need to solve this problem;
- excessive interest in exercises that burn more calories;
- Frequent visits to the bathroom in order to vomit, urinate (abuse of diuretics) and defecate (laxative abuse);
- repeated cramps, dizziness and syncope;
- excessive anxiety about missing a day at the gym or workout. Need to compensate their absence;
- before repeated injury and even with injury arising from the exercise, they keep practicing.

While they detail the main aspects of compulsive behavior linked to anorexia nervosa, the abovementioned items make clear that the boundary between normality and abusive behavior is tenuous in many cases. The ideal pattern of perfection socially disseminated associated with thinness, the idea that exercise is always beneficial and the fact that not all patients with AN are in extreme situation of low weight are factors that can cause the disease go unnoticed.

However, there is no consensus among researchers about what constitutes excessive exercise. There is not a consensus in terms of number of hours or days per week. The most acceptable, according to some authors, seems to be related to the definition of practice in excess, is not only the amount of hours in itself, but the mandatory nature of the physical activity and the feeling of guilt if it is not fulfilled [9-11].

In fact, this pattern proves to be very similar to drug addiction. In both situations there is loss of control that, in the case of AN, is manifested by adopting more intense and/or longer exercises in progressive scale. It is also evidenced for both the involvement of social and/or academic activities. Besides these aspects, they indicate the possibility of excessive practice of exercises to maintain activity even though there are persistent physical injury or disability due to malnutrition [12], which is a situation that expresses lack of control that affects both the chemically dependent and patients with AN.

For the physical education professional identifies a likely carrier of AN, it is necessary to observe not only the amount of hours that the individual practices physical activity under their supervision. They should be aware, especially the compulsive nature of the person, considering the maintenance of rigid and ritualistic training scheme and their manifestation of guilt when they cannot fully comply with the proposed.

Risks and benefits of physical activity in AN and ethical issues

Either refusing or accepting the supervision of the physical activities of an individual with AN they are decisions that bring ethical implications. These are related to the beneficence and non-malfeasance and the moral and legal issues. For PEF make a decision to accept or not a patient with AN in physical exercise or training in specific areas of competition program, I suggest that some techniques and ethical issues are taken into account, even if not all the answers are well established in the literature, namely:

- which are the complications of the disease for the individual?
- does exercise cause damage to those with AN?
- can exercise cause some benefit in this situation? If the exercise is beneficial, what type, frequency and duration are appropriate?
- if the patient has a mild or severe complication during exercise, which are the legal consequences? How should the PEF conduct before the imminent risk?
- if the patient practice exercises without supervision, will not they increase their risk for complications?
- would not it be more ethically correct to observe the physical practice than leaving the patient at the mercy of their disease?

In order to answer these questions, we must know that AN is associated with many complications. The most significant ones, with regard to the increased risk during exercise, are bradycardia, hypotension, arrhythmias, electrolyte abnormalities (most common in patients who purge) and osteoporosis [13-15]. The most severe forms of the disease have changes in heart rate, temperature, blood pressure and weight, which indicates the need for hospitalization (table attached) and – obviously – contraindicate the practice of exercises.

However, there are not enough studies in Brazil to assess the practice of exercise as a therapeutic intervention in patients with AN, especially in cases where the disease manifests itself in a milder form. There are evidences that physical activity recommended for healthy adults in the United States (USA) – 150 minutes/week of exercise and weight training twice/week – is unsuitable for individuals with AN [16] But there is no recommendation about which type of exercise is suitable for patients with AN; and no one knows the intensity in which they must be charged or their duration.

Daves et al [17], in a national study conducted in the UK, assessed through interviews that the 66 care units which reported demanding patients with AN had consensus, protocol or form for guidance of supervised physical activity program for patients who were hospitalized. Forty-three (65%) answered the questionnaire prepared by the authors. Of these, 22 (51%) reported having written documentation guiding the exercise and only four (9%) defined in writing what would be the "unhealthy practice" of exercise.

Some criteria were cited for the individual to be released for the exercise in some of the institutions, for example, be with BMI> 14 kg/m^2; absence of significant medical complications; maintenance of weight gain and practice the exercises only under supervision. However, the most important finding of this study was that there was no consensus among the various centers on the criteria used to practice exercises and the type of intervention performed, indicating the lack of specific knowledge on the subject.

Calogero et al [18] established exercise program for hospitalized patients, with 60 minutes four times a week, including strength exercises, posture, yoga, use of balls, aerobic activity and leisure games sessions. Women with AN who practiced this physical activity gained weight 33% above in comparison to the ones who did not. Despite including a higher number of patients with AN than other studies in this specific area, time of follow-up was short, making it difficult to consolidate the results.

There is, however, some evidence that the caloric requirements for weight gain in patients with AN who do moderate exercise are not different from those who do not. However, data are insufficient to indicate the practice of exercise as part of treatment [19]. Despite the absence of specific recommendations in this area, AN patients who exercise excessively will hardly cease engaging in physical activity when they are clinically improved. Prohibiting the exercise has been as a proved innocuous measure and enforce this type of restriction may worsen the patient-physician relationship [20].

Important fact to consider is that patients with eating disorders (TA) tend to be isolated and exercise may facilitate social relationships, improve self-esteem, body image and mood [21]. For Giordano [3], there are also ethical reasons to allow patients with TA practicing supervised physical activities: 1) preserve the patient's autonomy while respecting their individual choices; 2) minimize the damage in the short term: i.e., protect against more serious consequences that could result from lack of supervision; 3) minimize long-term harm: preventing the feeling of loss of autonomy and control; 4) promote self-control and responsibility.

There are ethical reasons to allow people with AN practice exercise, but there is no moral obligation of PEF observing function [22]. There are several technical and ethical reasons that may be filed by professionals not to accept these individuals as participants in physical activities. The most significant is the mention that PEF has no training for this. The practice of sports and classes at gyms are designed or prepared for people who are not at obvious risk with practice. In the case of patients with AN, the physical exercise can contribute to the worsening of the disease either by weight loss or injury resulting from stress, a situation that would put PEF in an ethically delicate position.

There among PEF those who are qualified and trained to work with special situations such as the elderly or pregnant women. However, these are different situations, since the specificity of the condition is not hidden. In such cases, the PEF is aware of the potential risks and they can guide appropriate activities. For these groups there are clear benefits of planned exercise, which cannot yet be said for the AN.

The refusal of the physical education professional in working with individuals with AN can be performed, even if they know the diagnosis. They might argue that because of the compulsive nature of exercise practiced by people with this disease, risks such as the greater loss of muscle mass and weight are magnified. This process may lead to amenorrhea and complications such as osteopenia and osteoporosis, which, in turn, can provide fractures [15]. They might not agree to work with anorectic by arguing that their work may cause harm to the individual, rather than the expected benefit.

The two leading causes of death in anorexia are suicide and heart problems. The imminent risk of fatal cardiac arrhythmia has to be taken into account. Most children and adolescents admitted to emergency rooms with complications of AN do due to cardiac abnormalities [23]. Before this, the professional may refuse supervision because they need to rely on technical support (cardioversion device) and training to deal with emergencies.

The PEF is providing a service such as doctor, lawyer or psychologist and they may not feel able to accomplish it. This is a right and an undeniable duty of professional. Morally, explaining the reasons for rejection is required. Direct that individual to seek expert medical help is of utmost importance. If the individual is a minor, it is the obligation of the PEF to communicate their legal guardians. In this situation, the adolescent or child may be told that their parents will be triggered depending on each case. Documenting the facts in the medical record is essential because it will legally be supported if some later problem occurs. If legal guardians do not appear to have knowledge of the facts and if there is suspicion of imminent risk of death, it is up to the professional to trigger the Tutelary Council.

While there is a medical certificate stating that the minor or even an adult with AN can practice physical activity, PEF should review this release over time. They need to be aware of the fact that in a few days or weeks the person's condition can be deteriorated and the doctor may have not been warned or their parents had not noticed it. In this case, it is up to the professional acting for the health of the individual, warning them or their family from potential damage related to physical activity in such conditions.

Thus, faced with so many uncertainties and questions, which would be ideal? As in any area that deals with the health, the best results are always obtained from the work in group: that the PEF had direct access to physicians, psychologists and parents and everyone, together, could assess the situation and propose the best strategy, obviously also telling the person with AN. Thus, it is possible to find answers and adopt behaviors that promote well-being and autonomy of the individual, restoring health and safeguarding their life.

Final considerations

For these reasons, it is relevant that the PEF discuss whether to accept or not that people with AN practice exercises or sports under supervision. The issue becomes even more crucial because individuals in this situation tend to use physical activity as a weight loss mechanism and thus perpetuating a cycle that exacerbates the disease.

It is likely that hundreds or thousands of people affected by AN attend gyms and sports training, without taking the proper precautions. Thus, the physical education teachers must be able to identify signs and behaviors that may suggest the presence of serious pathology such as this.

The lack of data in the literature on the role of exercise causing benefit in the treatment of pathology creates a dilemma. There is no single, definitive answer. Before this, it is important to promote interdisciplinary discussion to reflect on the complexity of the situation and find the best alternative for all the involved ones. By taking the attitude of accepting or not that people with AN practice physical activities, the PEF must be aware that they take risks and consequences as much as refusing to accept supervision. This decision, therefore, must be backed by knowledge on the subject and interdisciplinary discussion, aiming to promote health and well-being of patients with anorexia nervosa.

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Annex

Chart. Diagnostic criteria for anorexia nervosa according to DSM-IV and ICD-10	
DSM-IV	CID-10
A. Refusal to maintain body weight at a level equal to or above the minimum standard appropriate to the age and height (e.g., weight loss leading to maintenance of body weight less than 85% of expected; or failure to make weight gain expected during the period of growth, leading to body weight less than 85% of expected).	A. There is weight loss or, in children, lack of weight gain and body weight is maintained on at least 15% lower than expected.
B. Intense fear of gaining weight or becoming fat, even though being underweight.	B. Weight loss is self-induced by avoidance of "fattening foods".
C. Disturbance in the way of experiencing the weight, size or body shapes; excessive influence of body weight or shape on the way to self-assess; denying the severity of underweight.	C. There is distortion in body image in the form of a specific psychopathology of a fear of getting fat.
D. With regard specifically to women, in the absence of at least three consecutive menstrual cycles, when it is expected the opposite (primary or secondary amenorrhea). It is considered that a woman has amenorrhea if her periods occur only after the use of hormones, e.g. estrogen administered.	D. An endocrine disorder involving the hypothalamic-pituitary-gonadal axis is manifested in women as amenorrhea and in men as loss of sexual interest and power (an apparent exception is the persistence of vaginal bleeds in anorexic women who are receiving hormone replacement therapy, most commonly taken as a contraceptive pill).
Types: - Restrictive: no episode of bingeing or purging practices (self-induced vomiting, use of laxatives, diuretics, enemas). - Purging: There are episodes of compulsive eating and/or purging.	Comments: if the beginning is pre-pubertal, the sequence of events of puberty is delayed or even stopped (growth ceases; in the girls, the breasts do not develop and there is a primary amenorrhea; in boys the genitals remain juvenile). With recovery, puberty is often completed normally, but the menarche is late; the following aspects confirm the diagnosis, but they are not essential elements: self-induced vomiting, self-induced purging, excessive exercise and use of anorectics and/or diuretics.

Table. Indications for hospitalization in adolescents with anorexia nervosa

Criterion	Society for Adolescent Medicine (EUA, 2003) [24]	American Academy of Pediatrics (EUA, 2003) [25]	American Psychiatric Association (EUA, 2006) [26]
Weight	≤ 75 % of the ideal for the height	≤ 75 % of the ideal for the height	≤ 85 % of the healthy body weight Acute loss with refusal to eat
Heart rate	< 50 bpm during days	< 50 bpm during days	40 bpm
TA (mmHg)	< 45 bpm during nights	< 45 bpm during nights	
Orthostatic changes	< 80/50	Systolic < 90	
↑ FC			< 80/50
↓ TA			
Temperature	> 20	> 20	
Electrolites	> 10	> 10	> 20
	< 36°C	< 35.6°C	>20
	Hypokalemia	K< 3.2 mEq/L	< 36.1°C
General	Hypophosphatemia	Cl < 88 mEq/L	Hypophosphatemia
	Hyponatremia		Hypomagnesemia
	Failure in outpatient treatment	Failure in outpatient treatment	Failure in outpatient treatment

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