

# Body-oriented therapy in the prevention of eating disorders

## A systematic review

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### ABSTRACT

#### Aim

Despite the growing significance of body-oriented therapy and the broad applicability of psychotherapeutic methods that focus on the body, there is a general scarcity of systematic reviews analyzing the effectiveness of this therapeutic approach in addressing body image problems in persons with anorexia or at risk of anorexia. The above constitutes a barrier for practitioners, theoreticians who investigate the mechanisms underpinning therapeutic interventions, as well as educators who implement health promotion programs. The aim of this article was to review research studies analyzing the effects of different body-oriented interventions on body image perception in persons suffering from or at risk of eating disorders such as anorexia.

#### Methods

The review was conducted according to the PRISMA guidelines. Digital databases (ProQuest, PsychINFO, PubMed, ScienceDirect, Scopus, Web of Science) were searched for randomized control trials (RCT). A total of 425 records, including 69 full-length research articles, were critically analyzed. Fifteen trials that met all inclusion criteria were ultimately included in the analysis.

#### Results

The review revealed that body-oriented therapeutic programs are more effective in reducing risk factors and reinforcing protective factors in comparison with the control groups, and that the inclusion of body-oriented therapy in standard therapeutic practice could substantially minimize the symptoms of eating disorders.

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**Conclusions**

Further research is needed to directly compare the effects of different types of interventions on risk factors and protective factors.

**Keywords:** body-oriented therapy, body image, eating disorders, anorexia, prevention

## Introduction

### Body-Oriented Psychotherapy

Physical exercise and body-oriented therapy are important attributes of health and well-being, both physical (explored by health and medical sciences) and psychological (explored by psychology and pedagogy). Somatic symptoms and experiences have been long considered an important part of psychotherapy, and the founders of psychoanalysis regarded somatic tension as a sign of psychological conflict (Freud, Kempnerówna, & Zaniewicki, 2017). At present, the popularity of body-oriented techniques, including mindfulness, yoga, and progressive muscle relaxation, stems from the awareness that body-mind integration plays a key role in wellness (Leitan & Murray, 2014). According to research, most patients with psychological issues also experience somatic symptoms (Katon, Sullivan, & Walker, 2001).

Body-oriented psychotherapy is highly effective. Despite the above, psychotherapeutic techniques that focus on the body are still disregarded in the scientific discourse (Röhricht, 2009). A clear definition of body-oriented psychotherapy has not been proposed to date. This is because body-oriented psychotherapy is a very diverse field (Young, 2008), despite the fact that the common theme is the connection between body and mind, and the assumption that attitudes towards the self and others are rooted not only in the mind, but also in the body (Röhricht, 2009). One of the few existing definitions of this therapeutic approach has been proposed by Michael Heller who argued that “body-oriented psychotherapy interventions” is an umbrella term for all psychotherapies that “explicitly use body techniques in order to enhance the developing dialogue between patient and psycho-therapist about what is being experienced as well as perceived [...]. In most schools of body psychotherapy, the body is considered a means of communication and exploration” (Heller, 2012).

Body-oriented therapeutic methods play an important role in the treatment of many psychological problems, but they are particularly useful in resolving psychosomatic issues, including eating disorders.

### Body Image in Eating Disorders

Eating disorders are severe psychological and somatic disorders that affect 4.95% of the female population and 2.24% of the male population (Duncan, Ziobrowski, & Nicol, 2017). Anorexia nervosa (AN) is the most prevalent eating disorder with

serious and often life-threatening somatic consequences (Fichter & Quadflieg, 2016), often accompanied by psychosocial dysfunctions (Zipfel, Giel, Bulik, Hay, & Schmidt, 2015). The main symptoms of AN include underweight, fear of weight gain, and body image disturbance (BID) (Carey & Preston, 2019). The characteristic features and the mechanisms underlying BID have not been fully explained to date, in particular in the context of sensory processing disorders and cognitive-affective disorders (Dakanalis et al., 2016). Anorexic individuals' perceptions of the physical self need to be explored to improve the quality of therapy.

The body image is a multi-dimensional construct with cognitive, affective, and behavioral components (Thompson, 2004). Dysfunctions involving one or several components can lead to the overestimation of the size of body features (Farrell, Lee, & Shafran, 2005), negative feelings and thoughts about the body (Rekkers, Scheffers, van Busschbach, & van Elburg, 2021; Troisi, 2020), body checking and body avoidance (Shafran, Fairburn, Robinson, & Lask, 2004). Research has demonstrated that BID is positively correlated with negative psychological well-being, including low self-esteem, depression, and anxiety (Cruz-Sáez, Pascual, Włodarczyk, & Echeburúa, 2020; Junne et al., 2019), higher risk of suicide (Naivar Sen, Gurleyik, & Psouni, 2020), and anhedonia (Wang et al., 2018), which often persist after recovery (Bachner-Melman, Zohar, & Ebstein, 2006). These dysfunctions are also predictors of an AN relapse (Carter, Blackmore, Sutandar-Pinnock, & Woodside, 2004), which is why the body-oriented approach should be prioritized in therapeutic interventions to support recovery (Glashouwer, van der Veer, Adipatria, Jong, & Vocks, 2019).

## **Therapeutic Programs and Prevention of Eating Disorders**

Cognitive-behavioral therapy is the most popular therapeutic intervention in the treatment of BID (Lewis-Smith, Diedrichs, & Halliwell, 2019). Cognitive-behavioral therapy involves efforts to change thinking patterns and behaviors such as body checking, and to restructure cognitive processes (Alleva, Sheeran, Webb, Martijn, & Miles, 2015). However, the efficacy of CBT is limited, and more than 25% of the patients continue to suffer from eating disorders after therapy (Omiwole, Richardson, Huniewicz, Dettmer, & Paslakis, 2019). Other popular intervention methods include psychological education and fitness training which promote a sense of self-worth through the acquisition of new competencies, recognition of one's strengths and potential, and modification of behaviors relating to body image (Alleva et al., 2015).

Treatment programs targeting AN are expensive, and they lead to an improvement in the patient's health, but not to a full remission (Schmidt et al., 2016; Westmoreland, Krantz, & Mehler, 2016). This is because most therapeutic methods are not highly effective (Bulik, Berkman, Brownley, Sedway, & Lohr, 2007), relapse and chronic relapse rates are high (Berkman, Lohr, & Bulik, 2007; Keel, Dorer, Franko, Jackson, & Herzog, 2005), and many patients drop out of treatment (Fassino, Pierò, Tomba, & Abbate-Daga, 2009). For this reason, programs aiming to prevent eating disorders should be developed based on scientific

evidence. There are three types of eating disorder prevention programs: (1) universal psychological education programs, (2) universal prevention campaigns in the mass media, and (3) interactive selective prevention programs. Their efficacy in minimizing the risk of eating disorders has been estimated at 51% (Stice, Shaw, & Marti, 2007). Most programs aim to reduce risk factors, although research has demonstrated that the effectiveness of preventive measures can be significantly improved by modifying the theoretical framework and shifting the focus to protective factors, such as shaping a positive body image (Levine & Smolak, 2016; Piran, 2015). A meta-analysis of the effectiveness of eating disorder prevention programs revealed a significant reduction in the risk of disease (54–77%) (Stice, Onipede, & Marti, 2021).

### **Scientific Evidence and Research Aim**

Research has demonstrated that body-oriented therapy is an effective approach (Allmer, Ventegodt, Kandel, & Merrick, 2009) because it offers additional psychotherapeutic tools in areas where talk therapy is insufficient (Röhricht, 2009). There is numerous, but dispersed scientific evidence to indicate that body-oriented therapy is effective in resolving various psychological problems, including eating disorders. However, there is a general scarcity of systematic reviews analyzing the efficiency of body-oriented therapy in overcoming body image issues in patients suffering from or at risk of anorexia. The above constitutes a serious barrier for practitioners, theoreticians who investigate the mechanisms underpinning therapeutic interventions, as well as educators who implement health promotion programs. Therapeutic approaches whose positive impact has been empirically validated play an important role in therapeutic practice and should be a part of a professional therapist's toolkit. Solutions that are based on scientific evidence should be promoted by both theoreticians and practitioners. This article contributes to meeting these challenges.

The aim of this article was to review research studies analyzing the effects of different body-oriented interventions on body image perception in persons suffering from or at risk of eating disorders such as anorexia. Two research questions were formulated:

1. Which body-oriented therapeutic methods for AN prevention and treatment are based on scientific evidence?
2. How effective are body-oriented therapeutic methods in preventing and treating AN?

### **Method**

A systematic literature review requires transparent procedures for reporting the results of the search process. The PRISMA guidelines, which are most widely used to report systematic reviews (Moher, Liberati, Tetzlaff, & Altman, 2009),

rely on the following types of information in database search: keywords, number of identified records, number of excluded records, the applied inclusion/exclusion criteria, and the screening process.

### **Identification of Records**

Scientific studies were identified by screening ProQuest, PsychINFO, PubMed, ScienceDirect, Scopus, and Web of Science databases on 4 April 2022. The keywords relating to body image and eating disorders were combined with the keywords relating to body-oriented therapy and used in database search according to specific requirements. The resulting keywords were: “body image” AND (“eating disorders” OR “anorexia nervosa”) AND (“body-oriented therapy” OR “body-oriented psychotherapy” OR “body psychotherapy” OR “mind-body therapy” OR “body-mind therapy”). In addition, the reference lists in the identified review articles and of the European Body Psychotherapy Association were screened to include further studies.

### **Inclusion and Exclusion Criteria**

Studies that met the following criteria were included in the review: (1) randomized controlled clinical trials (RCT) with two factors, where the participants were randomly assigned to groups; (2) interventions with components based on body-oriented therapy; (3) interventions aiming to promote protective factors and/or reduce risk factors associated with eating disorders; (4) interventions focusing on body image/body perception; (5) studies involving at least one standardized psychological measure in the experimental group and the control group; (6) original peer-reviewed articles; (7) papers written in English or Polish. Potential effect measures included protective factors, such as body satisfaction, self-esteem, and self-compassion, as well as risk factors such as body dissatisfaction, thin-ideal internalization, and subclinical eating disorder traits. The reviewed articles were not screened for the place of treatment (outpatient clinic, hospital, out of hospital) or the measures applied in the control group. The inclusion criteria involved serious psychological or somatic disorders affecting eating behaviors.

## **Results**

### **Selection of Research Articles for Review**

The literature search yielded 421 publications in the indicated databases. Four papers were additionally identified based on reference lists. A total of 425 articles were identified, whereof 342 remained after duplicates were removed. During a preliminary screening of titles and abstracts, 273 publications that lacked

abstracts or where titles and abstracts did not meet the inclusion criteria were eliminated. Sixty-nine full-length research articles were critically evaluated, and 54 of those failed to meet all inclusion criteria. Subjectivity should be controlled during the selection of empirical research sources for a systematic review. The databases were searched by the author, and the procedure was performed twice to ensure objectivity. The first search was conducted to assess the scope of the literature available in the analyzed databases. In the second stage, the literature was explored in detail based on the specified inclusion/exclusion criteria, and specific records/articles were selected for analysis. Body-oriented therapy is a relatively new topic of scientific inquiry, and the number of peer-reviewed articles dedicated to this subject is limited. Finally, 15 RCTs that met all inclusion criteria were chosen for a systematic review. The PRISMA flowchart describing the selection process and reasons for exclusion is presented in Figure 1 (Moher et al., 2009).

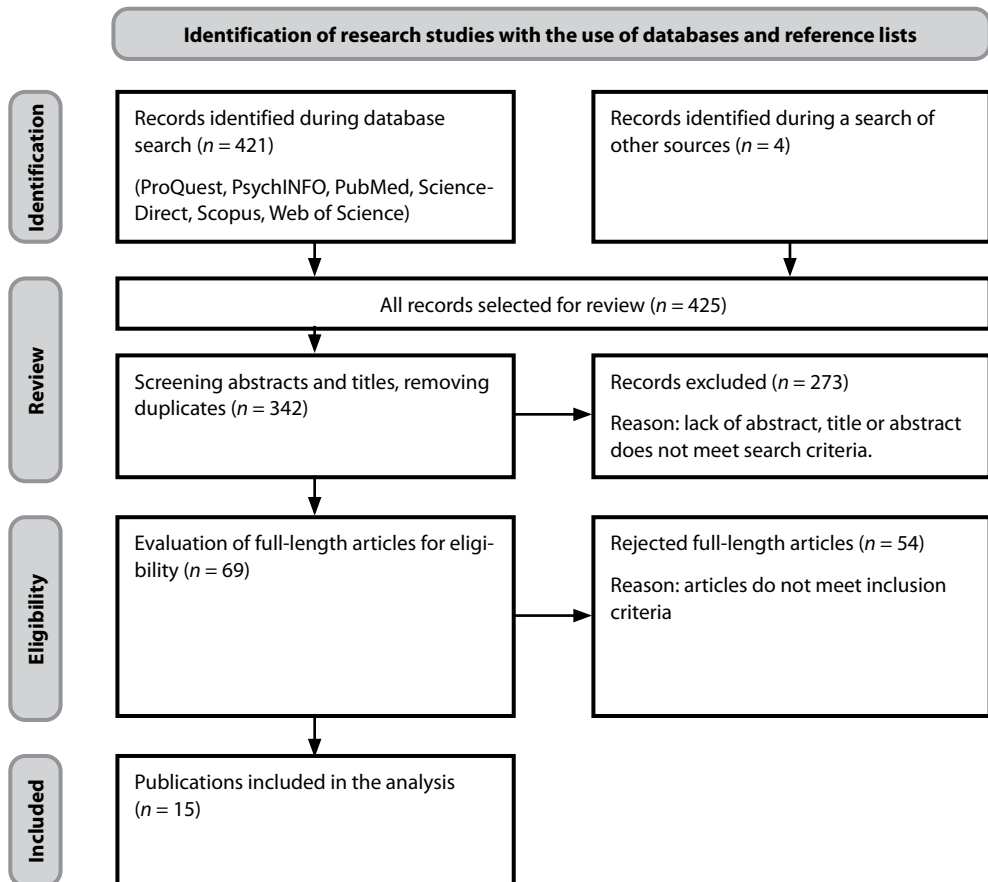


Figure 1. Flow of information through different stages of a systematic review (Moher et al., 2009).

## Description of Research Studies Selected for Review

Most of the reviewed studies focused on prevention programs targeting youths or young adults. Three studies evaluated universal prevention programs (items 1, 7, and 10 in Table 1); five studies explored selective prevention programs (items 3, 4, 12, 14, and 15 in Table 1); and seven studies analyzed indicated prevention programs (items 2, 5, 6, 8, 9, 11, and 13 in Table 1, pp. 186–188).

The evaluated studies differed significantly in sample size which ranged from 12 to 347 participants. Considerable variations were also noted in study duration and the content of preventive programs. Group programs comprised 1 to 72 sessions. All papers were published in the previous 24 years (1997–2021), and 60% were published in the last 10 years ( $n = 9$ ) (Table 1).

## Description of Interventions in the Reviewed Research Studies

Eight different intervention techniques were evaluated in 15 studies. A protocol based on mindfulness was applied in six studies (items 1, 3, 4, 7, 14, and 15 in Table 1), and a protocol based on yoga was used in two studies (items 8 and 12 in Table 1). In one study, yoga was implemented in addition to standard hospital care (item 5 in Table 1); one study examined Dance Movement Therapy in combination with the previous treatment (item 13 in Table 1); one study analyzed a multimodal treatment program based on the Feldenkrais method (item 9 in Table 1); one study explored cognitive-behavioral body image therapy and the Body Perception Treatment protocol (item 2 in Table 1); one study investigated a standard outpatient treatment program in combination with the Basic Body Awareness Therapy (item 6 in Table 1); one study analyzed relaxation techniques (item 11 in Table 1); and one study involved aerobic exercise (item 10 in Table 1).

## Description of Measurement Tools in the Reviewed Research Studies

Twenty-eight different measurement tools were used in the analyzed research studies.

Eating disorders were evaluated with eight different research tools (Table 1), where the Eating Disorder Inventory (EDI, EDI-2, EDI-3) ( $N = 7$ ) and the Eating Disorder Examination Questionnaire (EDE-Q) ( $N = 5$ ) were most frequently used.

The EDI consists of 64 items divided into eight subscales. Mean scores are not computed for the entire scale. The eight subscales measure behavioral and psychological factors in an eating disorder: (1) Drive for thinness, (2) Bulimia, (3) Body dissatisfaction, (4) Ineffectiveness, (5) Perfectionism, (6) Interpersonal distrust, (7) Interoceptive awareness, and (8) Maturity fears (Zechowski, 2008).

The Eating Disorder Examination Questionnaire (EDE-Q) is a 28-item self-reported questionnaire adapted from the semi-structured Eating Disorder Examination (EDE) interview, which has been designed to assess the range and severity of eating disorder symptoms. The EDE-Q consists of four subscales: (1) Restraint, (2) Eating concern, (3) Weight concern, and (4) Shape concern (Carey et al., 2019).

Table 1

*Description of research studies included in the systematic review*

Item	Authors	Population	Intervention	Control group	Assessment methods	Results
1.	Albertson, Neff, Dill-Shackleford, 2014	Adult women ( $N = 228$ ): experimental group ( $N = 98$ ), control group ( $N = 130$ )	One 20-minute mindfulness podcast per day over a period of 3 weeks	Waiting list	BSQ, BAS, SCS	<ul style="list-style-type: none"> <li>↑ self-compassion</li> <li>↑ body appreciation</li> <li>↑ self-esteem and self-efficacy</li> <li>↓ body dissatisfaction</li> <li>↓ shame</li> <li>↓ self-esteem based on body image</li> </ul>
2.	Artomi et al., 2021	Patients with eating disorders ( $N = 182$ ): experimental group ( $N = 91$ ), control group ( $N = 91$ )	A therapeutic and rehabilitation program involving a 60-minute Cognitive-Behavioral Body Image group therapy session per week + participation in the Body Perception Treatment protocol	A therapeutic and rehabilitation program involving a 60-minute Cognitive-Behavioral Body Image group therapy session per week (observations of body sensations, breathing control)	SCL-90, EDI-3, BUT	<ul style="list-style-type: none"> <li>↑ general psychological well-being</li> <li>↓ body-related anxiety</li> </ul>
3.	Atkinson, Wade, 2015	Adolescent girls ( $N = 347$ ): experimental group 1 ( $N = 138$ ), experimental group 2 ( $N = 108$ ), control group ( $N = 97$ )	The Body Project developed by Stice, including the key features of mindfulness and acceptance-based therapy, in particular with regard to body image. Some exercises were adapted from the MBCT	Standard school class	EDE-Q, DEBQ-R, SATAQ-3, PANAS-X	<ul style="list-style-type: none"> <li>↓ preoccupation with body weight and shape</li> <li>↓ symptoms leading to eating disorders</li> </ul>



continuation of Table 1

Item	Authors	Population	Intervention	Control group	Assessment methods	Results
4.	Atkinson, Wade, 2016	Adolescent girls (N = 50): experimental group 1 (N = 17), experimental group 2 (N = 16), control group (N = 17)	The Body Project developed by Stice et al., including the key features of mindfulness and acceptance-based therapy, in particular with regard to body image. Some exercises were adapted from the MBCT	Standard school class	EDE-Q, DEBQ-R, SATAQ-3, PANAS-X	↓ preoccupation with body weight and shape ↓ symptoms leading to eating disorders ↓ social anxiety
5.	Carei, Fyfe-Johnson, Breuner, Brown, 2010	Patients with eating disorders (N = 53): experimental group (N = 26), control group (N = 27)	Standard hospital care + yoga twice a week for 8 weeks	Standard hospital care	EDE, BMI, BDI, STAI Food Pre-occupation Questionnaire	↓ behaviors associated with eating disorders ↓ fear of eating after a yoga session
6.	Catalan-Matamoros, Helvik-Skjaerven, Labajos-Manzanares, Martínez-de-Salazar-Arboleas, Sánchez-Guerrero, 2011	Female patients with eating disorders in an outpatient clinic (N = 28): experimental group (N = 14), control group (N = 14)	Standard outpatient treatment + 12 Basic Body Awareness Therapy sessions over a period of 7 weeks (the program involved simple exercises to improve postural balance and coordination by grounding the body and freeing the breathing)	Standard outpatient treatment	EDI-2 IA, BAT, EAT-40	↓ body dissatisfaction ↓ negative perception of body size

continuation of Table 1

Item	Authors	Population	Intervention	Control group	Assessment methods	Results
7.	Johnson, Burke, Brinkman, Wade, 2016	School students ( $N = 308$ ): experimental group ( $N = 132$ ), control group ( $N = 176$ )	8 mindfulness sessions over a period of 8 weeks	Standard school class	EDE-Q, DASS-21, SCS	no significant improvement in any parameter after the intervention or at the end of the observation period
8.	Karlsen, Vrabel, Bratland-Sanda, Ulleberg, Benum, 2018	Persons with diagnosed BN or EDNOS ( $N = 38$ ): experimental group ( $N = 18$ ), control group ( $N = 12$ )	Yoga sessions twice a week over a period of 11 weeks	Group sessions involving nutrition advice, physical exercise, and ED	EDE, EDI-2	↑ general psychological well-being
9.	Laumer, Bauer, Fichter, Milz, 1997	Patients of an eating disorder clinic ( $N = 30$ ): experimental group ( $N = 15$ ), control group ( $N = 15$ )	9 Awareness Through Movement therapeutic sessions based on the Feldenkrais method over a period of 5 weeks + a multimodal therapy program in a psychosomatic clinic	Multimodal therapeutic program in a psychosomatic clinic	BCS, BPSS, FKB, EMI-B, ANIS, EDI	↑ satisfaction with body areas that are particularly problematic in eating disorders (e.g. hips/thighs, buttocks) ↑ experiencing movement and body acceptance ↑ positive attitudes towards own body and health ↑ mature behavior and taking responsibility ↓ regression to dependent behavior from childhood
10.	Maurer et al., 2020	Healthy subjects ( $N = 26$ ): experimental group ( $N = 16$ ), control group ( $N = 10$ )	Aerobic exercise 3 times a week over a period of 6 months	No regular aerobic exercise, evaluation only	FKKS, PANAS, WPT, HPT, PTol	↑ physical fitness ↑ mood ↑ pain threshold ↑ positive body image

continuation of Table 1

Item	Authors	Population	Intervention	Control group	Assessment methods	Results
11.	McComb, Clopton, 2003	Bulimic women (N = 12): experimental group (N = 6), control group (N = 6)	8 weekly 90-minute group therapy sessions involving exercise, relaxation techniques, and autogenic training	No therapy, evaluation only	EDI-BD, EDI-DT, STAI, CSEI	↓ anxiety
12.	Mitchell, Mazzeo, Rausch, Cooke, 2007	Women with a distorted body image (N = 93): experimental group 1 (N = 33), experimental group 2 (N = 30), control group (N = 30)	6 weekly 45-minute sessions: dissonance-based interventions or yoga and meditation	No therapy, evaluation only	EDDS, BES, EDI-BD, EDI-DT, STAI	no significant differences between the yoga group and the control group; significant reduction in eating disorders, drive for thinness, body dissatisfaction, and anxiety in the dissonance group relative to the yoga group and the control group
13.	Savidaki, Demirtoka, Rodríguez-Jiménez, 2020	Female patients with eating disorders (N = 14): experimental group (N = 7), control group (N = 7)	Dance Movement Therapy + previous therapy	Previous therapy	TAS-20, MBSRQ	↑ positive body image ↑ body awareness ↑ building a healthy body image ↓ preoccupation with body image ↑ self-esteem and self-efficacy ↓ anxiety ↓ stress

continuation of Table 1

Item	Authors	Population	Intervention	Control group	Assessment methods	Results
14.	Toole, Craighead, 2016	Women with a distorted body image ( $N = 80$ ): experimental group ( $N = 40$ ), control group ( $N = 40$ )	Daily 25-minute meditation for 1 week	No meditation, evaluation only	BSQ, BAS, SCS	↑ positive body image
15.	Wade, George, Atkinson, 2009	Female university students ( $N = 100$ ): experimental group ( $N = 20$ ), control group 1 ( $N = 20$ ), control group 2 ( $N = 20$ ), control group 3 ( $N = 20$ ), control group 4 ( $N = 20$ )	One 5-minute mindfulness session	(1) evaluation only, (2) ruminative attention control, (3) cognitive dissonance, (4) distraction	EDI-BD	↑ appearance satisfaction

Legend. Measurement methods: ANIS = Anorexia Nervosa Inventory for Self-Rating; BAS = Body Appreciation Scale; BAT = Body Attitude Test; BES = Body Esteem Scale; BDI = Beck Depression Inventory; BMI = Body Mass Index; BPSS = Body Parts Satisfaction Scale; BSQ = Body Shape Questionnaire; BUT = Body Uneasiness Test; CSEI = Coopersmith Self-Esteem Inventory; DASS-21 = Depression Anxiety Stress Scale; DEBQ-R = Dutch Eating Behavior Questionnaire – Restraint; EAT-40 = Eating Attitude Test-40; EDDS = Eating Disorder Diagnostic Scale; EDE-Q = Eating Disorder Examination Questionnaire; EDI, EDI-2, EDI-3 = Eating Disorder Inventory; EDI-2 IA Eating Disorder Inventory – Interoceptive Awareness; EDI-BD = Eating Disorder Inventory III – Body Dissatisfaction; EDI-DT = Eating Disorder Inventory III – Drive for Thinness; EMI-B = Emotionalitätsinventar; FKE = Fragebogen zum Körperleben; HPT-WPT = warmth and heat pain thresholds; MBSRQ = Multidimensional Body-Self Relations Questionnaire; PANAS = Positive and Negative Affect Schedule; PANAS-X = Positive and Negative Affect Schedule – Expanded; PTol = pain tolerance; SATAQ-3 = Socio-cultural Attitudes Toward Appearance Scale; SCL-90 = Symptom Checklist-90; SCS = Self-compassion Scale; STAI = Spielberger's State-Trait Anxiety Inventory; TAS-20 = Toronto Alexithymia Scale.

In the analyzed studies, BID was evaluated with the use of 12 different tools (Table 1). The Eating Disorder Inventory – Body Dissatisfaction (EDI-BD) subscale was most widely used ( $N = 3$ ). The EDI-BD consists of 10 items for assessing dissatisfaction with the shape and size of body parts that are particularly important for patients with an eating disorder (stomach, hips, thighs, buttocks) (Castellano et al., 2021).

The associated emotional and mood disorders were evaluated with 10 different research tools (Table 1). The Spielberger State-Trait Anxiety Inventory (STAI) ( $N = 3$ ) was most frequently used in the analyzed studies. This tool consists of two subscales that evaluate a person's state anxiety (X-1) and trait anxiety (X-2). Each subscale contains 20 separate questions (Julian, 2011).

Two research tools were also used to measure the intensity of sensory input: heat pain threshold and warmth perception threshold (HPT-WPT), and pain tolerance detection threshold (PTol).

### **Effectiveness of Body-Oriented Therapeutic Methods in the Analyzed Research Studies**

In the group of the analyzed papers, 87% (13 out of 15) demonstrated a considerable reduction in at least one risk factor associated with an eating disorder or an improvement in at least one protective factor.

**Personality traits and behaviors correlated with eating disorders.** The evaluated studies reported changes in the participants' psychological state relative to their personality traits. The most frequently described changes involved a reduction in dysfunctional eating behaviors, improvement in self-esteem and self-efficacy, and a decrease in anxiety and stress levels. These change trends are presented in detail in Table 1.

**Body image – body acceptance.** The most frequently reported changes concerned a healthy body image, manifested by improved body awareness and body acceptance. The analyzed studies demonstrated that body-oriented therapy is effective in reducing body dissatisfaction and body image preoccupation. These change trends are presented in detail in Table 1.

## **Discussion**

### **General Conclusions**

The aim of the present review was to evaluate the effectiveness of body-oriented therapeutic methods in treating eating disorders, reducing risk factors and enhancing protective factors. Universal prevention programs, selective prevention

programs, and indicated prevention programs were considered in the analysis, and their efficacy was compared with the control groups.

The evaluated interventions featured a body image component which influences therapeutic efficacy and the risk of relapse in patients with eating disorders. The analyzed studies involved the following therapeutic methods and protocols: mindfulness, yoga, Dance Movement Therapy, Feldenkrais method, Body Perception Treatment protocol, Basic Body Awareness Therapy, relaxation techniques, and aerobic exercise.

The review demonstrated that body-oriented therapy was effective in reducing risk factors (negative body image and negative affect) and promoting protective factors (body appreciation) relative to the control groups. The reviewed studies indicate that the incorporation of body-oriented methods into standard therapeutic programs (cognitive-behavioral therapy and/or pharmacotherapy) or the use of body-oriented therapy as a stand-alone therapeutic or preventive method can substantially reduce symptoms of eating disorders. However, further research is needed to explore the underlying mechanisms.

## **Limitations**

Different body-oriented techniques have been proposed to date, and this type of intervention is relatively new in the prevention and treatment of eating disorders. Therefore, this preliminary review involved a limited number of research studies, and the results should be interpreted with caution.

Body-oriented psychotherapy involves various approaches and protocols whose efficacy is difficult to compare. As a result, the offered therapies cannot be easily standardized. The compared intervention programs differ in content, duration, population size, and research tools for measuring the same parameters. Many of these interventions are also implemented and conducted in a different manner, which has significant implications for the form of the applied therapeutic programs. In addition, scientific evidence supporting the efficacy of the analyzed interventions was provided by individual studies which have not been replicated. It should also be noted that the efficacy of the assessed therapies was evaluated after the intervention, and it was not validated by long-term observations. A larger number of high-quality research studies are needed to better understand the way in which body-oriented therapeutic methods can be effectively used in the prevention and treatment of eating disorders.

## **Directions for Further Research**

According to Röhricht (Röhricht, 2009), the effectiveness of popular therapeutic methods should be supported by empirical evidence, regardless of the practitioners' preferences. Further research is needed to expand our understanding of body-oriented therapy and to implement this approach in a clinical setting on par with recognized modalities such as psychodynamic psychotherapy and cognitive-behavioral therapy.

In the future, the influence of specific interventions on risk factors and protective factors should be directly compared. In addition, the rising popularity of integrated therapies (such as CBT + body-oriented therapy) suggests that future studies should evaluate the efficacy of these types of programs. Such studies should assess the long-term efficacy of integrated therapy programs. Most importantly, research on body-oriented therapy should rely on knowledge from both social and medical sciences because studies based on research concepts and tools that are derived from a single scientific discipline disregard the methodological contributions made by other disciplines.

## Conclusions

This literature review provides evidence for the efficacy of body-oriented therapeutic methods in the prevention and treatment of eating disorders. Only limited conclusions can be drawn due to a general scarcity of published studies, but the reviewed papers suggest that body-oriented therapeutic programs can reduce risk factors and enhance protective factors in the treatment of eating disorders. Further research is needed to identify interventions that are most effective for treating specific patient groups, and to describe the mechanisms underlying the efficacy of these therapies.

## References

- Albertson, E., Neff, K., & Dill-Shackleford, K. (2015). Self-Compassion and Body Dissatisfaction in Women: A Randomized Controlled Trial of a Brief Meditation Intervention. *Mindfulness*, *6*, 444–454. DOI: 10.1007/s12671-014-0277-3.
- Alleva, J. M., Sheeran, P., Webb, T. L., Martijn, C., & Miles, E. (2015). A Meta-Analytic Review of Stand-Alone Interventions to Improve Body Image. *PLoS One*, *10*(9), e0139177. DOI: 10.1371/journal.pone.0139177.
- Allmer, C., Ventegodt, S., Kandel, I., & Merrick, J. (2009). Positive effects, side effects, and adverse events of clinical holistic medicine. A review of Gerda Boyesen's nonpharmaceutical mind-body medicine (biodynamic body-psychotherapy) at two centers in the United Kingdom and Germany. *International Journal of Adolescent Medicine and Health*, *21*(3), 281–297. DOI: 10.1515/ijamh.2009.21.3.281.
- Artoni, P., Chierici, M. L., Arnone, F., Cigarini, C., Bernardis, E. de, Galeazzi, G. M., ... Pingani, L. (2021). Body perception treatment, a possible way to treat body image disturbance in eating disorders: A case-control efficacy study. *Eating and Weight Disorders*, *26*(2), 499–514. DOI: 10.1007/s40519-020-00875-x.
- Atkinson, M. J., & Wade, T. D. (2015). Mindfulness-based prevention for eating disorders: A school-based cluster randomized controlled study. *International Journal of Eating Disorders*, *48*(7), 1024–1037. DOI: 10.1002/eat.22416.

- Atkinson, M. J., & Wade, T. D. (2016). Does mindfulness have potential in eating disorders prevention? A preliminary controlled trial with young adult women. *Early Intervention in Psychiatry, 10*(3), 234–245. DOI: 10.1111/eip.12160.
- Bachner-Melman, R., Zohar, A. H., & Ebstein, R. P. (2006). An examination of cognitive versus behavioral components of recovery from anorexia nervosa. *The Journal of Nervous and Mental Disease, 194*(9), 697–703. DOI: 10.1097/01.nmd.0000235795.51683.99.
- Berkman, N. D., Lohr, K. N., & Bulik, C. M. (2007). Outcomes of eating disorders: A systematic review of the literature. *International Journal of Eating Disorders, 40*(4), 293–309. DOI: 10.1002/eat.20369.
- Bulik, C. M., Berkman, N. D., Brownley, K. A., Sedway, J. A., & Lohr, K. N. (2007). Anorexia nervosa treatment: A systematic review of randomized controlled trials. *International Journal of Eating Disorders, 40*(4), 310–320. DOI: 10.1002/eat.20367.
- Carei, T. R., Fyfe-Johnson, A. L., Breuner, C. C., & Brown, M. A. (2010). Randomized controlled clinical trial of yoga in the treatment of eating disorders. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine, 46*(4), 346–351. DOI: 10.1016/j.jadohealth.2009.08.007.
- Carey, M., Kupeli, N., Knight, R., Troop, N. A., Jenkinson, P. M., & Preston, C. (2019). Eating Disorder Examination Questionnaire (EDE-Q): Norms and psychometric properties in U.K. Females and males. *Psychological Assessment, 31*(7), 839–850. DOI: 10.1037/pas0000703.
- Carey, M., & Preston, C. (2019). Investigating the Components of Body Image Disturbance Within Eating Disorders. *Frontiers in Psychiatry, 10*, 635. DOI: 10.3389/fpsyt.2019.00635.
- Carter, J. C., Blackmore, E., Sutandar-Pinnock, K., & Woodside, D. B. (2004). Relapse in anorexia nervosa: A survival analysis. *Psychological Medicine, 34*(4), 671–679. DOI: 10.1017/S0033291703001168.
- Castellano, S., Rizzotto, A., Neri, S., Currenti, W., Guerrera, C. S., Pirrone, C., ... Di Corrado, D. (2021). The Relationship between Body Dissatisfaction and Eating Disorder Symptoms in Young Women Aspiring Fashion Models: The Mediating Role of Stress. *European Journal of Investigation in Health, Psychology and Education, 11*(2), 607–615. DOI: 10.3390/ejihpe11020043.
- Catalan-Matamoros, D., Helvik-Skjaerven, L., Labajos-Manzanares, M. T., Martínez-de-Salazar-Arboleas, A., & Sánchez-Guerrero, E. (2011). A pilot study on the effect of Basic Body Awareness Therapy in patients with eating disorders: A randomized controlled trial. *Clinical Rehabilitation, 25*(7), 617–626. DOI: 10.1177/0269215510394223.
- Cruz-Sáez, S., Pascual, A., Włodarczyk, A., & Echeburúa, E. (2020). The effect of body dissatisfaction on disordered eating: The mediating role of self-esteem and negative affect in male and female adolescents. *Journal of Health Psychology, 25*(8), 1098–1108. DOI: 10.1177/1359105317748734.
- Dakanalis, A., Gaudio, S., Serino, S., Clerici, M., Carrà, G., & Riva, G. (2016). Body-image distortion in anorexia nervosa. *Nature Reviews Disease Primers, 2*(1), 1–2. DOI: 10.1038/nrdp.2016.26.



- Duncan, A. E., Ziobrowski, H. N., & Nicol, G. (2017). The Prevalence of Past 12-Month and Lifetime DSM-IV Eating Disorders by BMI Category in US Men and Women. *European Eating Disorders Review: The Journal of the Eating Disorders Association*, 25(3), 165–171. DOI: 10.1002/erv.2503.
- Farrell, C., Lee, M., & Shafran, R. (2005). Assessment of body size estimation: a review. *European Eating Disorders Review*, 13(2), 75–88. DOI: 10.1002/erv.622.
- Fassino, S., Pierò, A., Tomba, E., & Abbate-Daga, G. (2009). Factors associated with drop-out from treatment for eating disorders: A comprehensive literature review. *BMC Psychiatry*, 9, 67. DOI: 10.1186/1471-244X-9-67.
- Fichter, M. M., & Quadflieg, N. (2016). Mortality in eating disorders – results of a large prospective clinical longitudinal study. *The International Journal of Eating Disorders*, 49(4), 391–401. DOI: 10.1002/eat.22501.
- Freud, S., Kempnerówna, S., & Zaniewicki, W. (2017). *Wstęp do psychoanalizy* (wyd. popr. i uzup. na podst. wyd. 1, dodruk). *Biblioteka Europejska [Introduction to Psychoanalysis. European Library]*. Kęty: Wydawnictwo Marek Derewiecki.
- Glashouwer, K. A., van der Veer, R. M. L., Adipatria, F., Jong, P. J. de, & Vocks, S. (2019). The role of body image disturbance in the onset, maintenance, and relapse of anorexia nervosa: A systematic review. *Clinical Psychology Review*, 74, 101771. DOI: 10.1016/j.cpr.2019.101771.
- Heller, M. (2012). *Basic concepts and methods in body psychotherapy: A textbook*. New York, London: W.W. Norton.
- Johnson, C., Burke, C., Brinkman, S., & Wade, T. (2016). Effectiveness of a school-based mindfulness program for transdiagnostic prevention in young adolescents. *Behaviour Research and Therapy*, 81, 1–11. DOI: 10.1016/j.brat.2016.03.002.
- Julian, L. J. (2011). Measures of anxiety: State-Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), and Hospital Anxiety and Depression Scale-Anxiety (HADS-A). *Arthritis Care & Research*, 63 Suppl 11, 467–72. DOI: 10.1002/acr.20561.
- Junne, F., Wild, B., Resmark, G., Giel, K. E., Teufel, M., Martus, P., ... Zipfel, S. (2019). The importance of body image disturbances for the outcome of outpatient psychotherapy in patients with anorexia nervosa: Results of the ANTOP-study. *European Eating Disorders Review: The Journal of the Eating Disorders Association*, 27(1), 49–58. DOI: 10.1002/erv.2623.
- Karlsen, K. E., Vrabel, K., Bratland-Sanda, S., Ulleberg, P., & Benum, K. (2018). Effect of Yoga in the Treatment of Eating Disorders: A Single-blinded Randomized Controlled Trial with 6-Months Follow-up. *International Journal of Yoga*, 11(2), 166–169. DOI: 10.4103/ijoy.IJOY\_3\_17.
- Katon, W., Sullivan, M., & Walker, E. (2001). Medical symptoms without identified pathology: Relationship to psychiatric disorders, childhood and adult trauma, and personality traits. *Annals of Internal Medicine*, 134(9 Pt 2), 917–925. DOI: 10.7326/0003-4819-134-9\_Part\_2-200105011-00017.
- Keel, P. K., Dorer, D. J., Franko, D. L., Jackson, S. C., & Herzog, D. B. (2005). Postremission predictors of relapse in women with eating disorders. *The American Journal of Psychiatry*, 162(12), 2263–2268. DOI: 10.1176/appi.ajp.162.12.2263.

- Laumer, U., Bauer, M., Fichter, M., & Milz, H. (1997). Therapeutic effects of the Feldenkrais method (awareness through movement) in eating disorders. *PPmP Psychotherapie Psychosomatik Medizinische Psychologie*, *47*(5), 170–180.
- Leitan, N. D., & Murray, G. (2014). The mind-body relationship in psychotherapy: grounded cognition as an explanatory framework. *Frontiers in Psychology*, *5*. DOI: 10.3389/fpsyg.2014.00472.
- Levine, M. P., & Smolak, L. (2016). The role of protective factors in the prevention of negative body image and disordered eating. *Eating Disorders*, *24*(1), 39–46. DOI: 10.1080/10640266.2015.1113826.
- Lewis-Smith, H., Diedrichs, P. C., & Halliwell, E. (2019). Cognitive-behavioral roots of body image therapy and prevention. *Body Image*, *31*, 309–320. DOI: 10.1016/j.bodyim.2019.08.009.
- Maurer, A., Deckert, S., Levenig, C., Schörkmaier, T., Stangier, C., Attenberger, U., ... Boecker, H. (2020). Body Image Relates to Exercise-Induced Antinociception and Mood Changes in Young Adults: A Randomized Longitudinal Exercise Intervention. *International Journal of Environmental Research and Public Health*, *17*(18). DOI: 10.3390/ijerph17186801.
- McComb, J. J., & Clopton, J. R. (2003). The effects of movement, relaxation, and education on the stress levels of women with subclinical levels of bulimia. *Eating Behaviors*, *4*(1), 79–88. DOI: 10.1016/S1471-0153(02)00094-6.
- Mitchell, K. S., Mazzeo, S. E., Rausch, S. M., & Cooke, K. L. (2007). Innovative interventions for disordered eating: Evaluating dissonance-based and yoga interventions. *International Journal of Eating Disorders*, *40*(2), 120–128. DOI: 10.1002/eat.20282.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, *6*(7), e1000097. DOI: 10.1371/journal.pmed.1000097.
- Naivar Sen, C. K., Gurleyik, D., & Psouni, E. (2020). The Role of Physical Activity on Parental Rejection and Body Image Perceptions. *International Journal of Environmental Research and Public Health*, *17*(7). DOI: 10.3390/ijerph17072176.
- Omiwole, M., Richardson, C., Huniewicz, P., Dettmer, E., & Paslakis, G. (2019). Review of Mindfulness-Related Interventions to Modify Eating Behaviors in Adolescents. *Nutrients*, *11*(12). DOI: 10.3390/nu11122917.
- Piran, N. (2015). New possibilities in the prevention of eating disorders: The introduction of positive body image measures. *Body Image*, *14*, 146–157. DOI: 10.1016/j.bodyim.2015.03.008.
- Rekkers, M. E., Scheffers, M., van Busschbach, J. T., & van Elburg, A. A. (2021). Measuring body satisfaction in women with eating disorders and healthy women: Appearance-related and functional components in the Body Cathexis Scale (Dutch version). *Eating and Weight Disorders: EWD*, *26*(8), 2665–2672. DOI: 10.1007/s40519-021-01120-9.
- Röhrich, F. (2009). Body oriented psychotherapy. The state of the art in empirical research and evidence-based practice: A clinical perspective. *Body, Movement and Dance in Psychotherapy*, *4*(2), 135–156. DOI: 10.1080/17432970902857263.

- Savidaki, M., Demirtoka, S., & Rodríguez-Jiménez, R.-M. (2020). Re-inhabiting one's body: A pilot study on the effects of dance movement therapy on body image and alexithymia in eating disorders. *Journal of Eating Disorders*, 8, 22. DOI: 10.1186/s40337-020-00296-2.
- Schmidt, U., Adan, R., Böhm, I., Campbell, I. C., Dingemans, A., Ehrlich, S., ... Zipfel, S. (2016). Eating disorders: the big issue. *The Lancet Psychiatry*, 3(4), 313–315. DOI: 10.1016/S2215-0366(16)00081-X.
- Shafran, R., Fairburn, C. G., Robinson, P., & Lask, B. (2004). Body checking and its avoidance in eating disorders. *International Journal of Eating Disorders*, 35(1), 93–101. DOI: 10.1002/eat.10228.
- Stice, E., Onipede, Z. A., & Marti, C. N. (2021). A meta-analytic review of trials that tested whether eating disorder prevention programs prevent eating disorder onset. *Clinical Psychology Review*, 87, 102046. DOI: 10.1016/j.cpr.2021.102046.
- Stice, E., Shaw, H., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology*, 3, 207–231. DOI: 10.1146/annurev.clinpsy.3.022806.091447.
- Thompson, J. (2004). The (mis)measurement of body image: ten strategies to improve assessment for applied and research purposes. *Body Image*, 1(1), 7–14. DOI: 10.1016/S1740-1445(03)00004-4.
- Toole, A. M., & Craighead, L. W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body Image*, 19, 104–112. DOI: 10.1016/j.bodyim.2016.09.001.
- Troisi, A. (2020). Body Image and Body Dissatisfaction. In A. Troisi (Ed.), *Bariatric Psychology and Psychiatry* (pp. 33–39). Cham: Springer International Publishing. DOI: 10.1007/978-3-030-44834-9\_4.
- Wade, T., George, W. M., & Atkinson, M. (2009). A randomized controlled trial of brief interventions for body dissatisfaction. *Journal of Consulting and Clinical Psychology*, 77(5), 845–854. DOI: 10.1037/a0016879.
- Wang, K., Liang, R., Ma, Z.-L., Chen, J., Cheung, E. F. C., Roalf, D. R., ... Chan, R. C. K. (2018). Body image attitude among Chinese college students. *PsyCh Journal*, 7(1), 31–40. DOI: 10.1002/pchj.200.
- Westmoreland, P., Krantz, M. J., & Mehler, P. S. (2016). Medical Complications of Anorexia Nervosa and Bulimia. *The American Journal of Medicine*, 129(1), 30–37. DOI: 10.1016/j.amjmed.2015.06.031.
- Young, C. (2008). The history and development of Body-Psychotherapy: The American legacy of Reich. *Body, Movement and Dance in Psychotherapy*, 3(1), 5–18. DOI: 10.1080/17432970701717783.
- Zipfel, S., Giel, K. E., Bulik, C. M., Hay, P., & Schmidt, U. (2015). Anorexia nervosa: aetiology, assessment, and treatment. *The Lancet Psychiatry*, 2(12), 1099–1111. DOI: 10.1016/S2215-0366(15)00356-9.
- Żechowski, C. (2008). Polska wersja kwestionariusza zaburzeń odżywiania (EDI) – adaptacja i normalizacja [Polish version of Eating Disorder Inventory – Adaptation and normalization]. *Psychiatria Polska [Polish Psychiatric]*, 42(2), 179–193.