



New Developments in Orthorexia Research: Use of Social Media, Healthy Orthorexia and Testimonials from Affected Individuals

Friederike Barthels

Abstract

Orthorexic eating behavior refers to the fixation on a subjectively healthy way of eating and is recently being discussed as another variant of the so far classified eating disorders. New developments in orthorexia research in the last few years include a unified definition of orthorexic eating behavior and findings on correlations with illness anxiety-related thoughts, autism spectrum behaviors, and social media use. In terms of new measurement tools, the most notable is the Teruel Orthorexia Scale, which not only claims to measure "orthorexia nervosa" but also "healthy orthorexia", which the authors define as a non-pathological way of healthy eating. Testimonials of individuals currently or previously affected by orthorexia also provide important insights into characteristic orthorexic symptoms. In summary, research is well on the way to better understand orthorexic eating behavior.

Keywords: orthorexia nervosa, orthorexia, orthorexic eating behavior, healthy orthorexia, eating disorders

Introduction

For about 25 years, a new variant of pathological eating behavior has been discussed: orthorexia – the fixation on healthy eating – could be useful to describe disordered eating behavior, next to anorexia nervosa, bulimia nervosa and binge-eating disorder. Steven Bratman coined the term from the Greek words "orthós" for "right, correct" and "órexis" for "appetite," and is thus the first descriptor of orthorexia [1, 2]. However, he was not the only one who, in the late 1990s, observed an intense and obsessive preoccupation with healthy eating. Diedrichsen [3] wrote in his book on nutritional psychology, which was already released in 1990, a short chapter on the topic "overvalued ideas in eating behavior". He stated that strongly emotionally emphasized attitudes toward nutrition as overvalued ideas could determine the thinking and the eating behavior of some individuals. As examples he gave people who fasted or were "raw food fanatics", not letting their diet be guided by rational considerations, but rather pursue their one-sided ideas on a healthy diet with "tenacious and stubborn doggedness".

In this context, it is interesting that corresponding eating behavior was observed and described independently of each other in the USA and in Germany. Thus, the basic concept of orthorexia is even somewhat older¹ and is not based on the sole observation of a US practitioner of complementary and alternative

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Corresponding Author

Dr. Friederike Barthels (Dipl.-Psych.)
Heinrich-Heine-Universität Düsseldorf
Abteilung Klinische Psychologie
Universitätsstr. 1, 40225 Düsseldorf
friederike.barthels@uni-duesseldorf.de

¹ It is often written that Steven Bratman observed the phenomenon for the first time in 1997, sometimes also his book from the year 2000 is taken as a reference point. This is true insofar as he was the one who gave the fixation on healthy eating a name for the first time. However, since Diedrichsen gave a similar description in a book as early as 1990, and the observation of individuals with corresponding behavior certainly took place even earlier, one can state that first observations of orthorexia already occurred earlier.



medicine. In this respect, orthorexic eating behavior is possibly not a recent trend in the fitness and nutrition movement [see also 4], but rather an emerging development in the field of (sub)clinical deviations in eating behavior. Complementary to the report published in 2015 in the ERNÄHRUNGS UMSCHAU [5], this article is intended to provide an overview of the more recent developments in orthorexia research.

Current State of Research

Unified Definition

In 2019, the Orthorexia Nervosa Task Force, an international consortium of orthorexia researchers, published a definition of orthorexic eating behavior. It was derived from descriptions of orthorexic eating behavior in publications published up to August 2018 [6]. According to this analysis, orthorexia is defined as a sorrowful preoccupation with healthy eating that leads to the affected individual's thoughts being strongly taken up by this topic, resulting in persistent worrying as well as in stereotypical behavior. Quantitatively, orthorexia is described as time-consuming, excessive and extreme. Regarding the quality, the terms compulsive, pathological, and unhealthy are used. Pure, proper, and safe are terms used to further describe the foods "allowed" within the pursued eating behavior.

Nosological Classification

Symptoms of orthorexic eating behavior include aspects characteristic of eating disorders (e.g., classification of foods into categories like "allowed" and "forbidden") as well as features observed in obsessive-compulsive disorders (e.g., the occurrence of anxiety and guilt when deviating from one's dietary rules). Therefore, a central question of recent years is into which nosological category orthorexic eating behavior could be classified.

A recent meta-analysis concluded that orthorexic symptoms are more strongly associated with eating disorders than with obsessive-compulsive disorders [7]. The findings also suggest that orthorexia differs from the previously described eating disorders and, accordingly, may represent an independent symptom complex. Another recent study, which was not included in this meta-analysis, also concluded that orthorexia is part of the eating disorder spectrum [8]. However, according to the authors, the significant correlations of orthorexic eating behaviors with the core symptomatology of other eating disorders (e.g., drive for thinness and body dissatisfaction) call into question the exclusive focus on "healthy eating" and suggest that orthorexia may represent a phenomenological subtype of restrictive eating disorders rather than a distinct disorder.

Further research, and particularly at the conceptual level a precise description and delineation of orthorexic behaviors is needed to gain clarity regarding its nosological classification.

Associations with Illness Anxiety-Related Thoughts and Behaviors from the Autism Spectrum

According to the case reports of Bratman and Knight [2], individuals with orthorexia also display illness anxiety as well as physical symptoms with no sufficient medical explanation. Recent studies

have provided empirical support for these observations. Orthorexic eating behavior appears to be associated with characteristic features of illness anxiety as well as dysfunctional cognitions that also occur in somatic symptom disorder [9]. In addition, individuals with high levels of orthorexia are more likely to exhibit physical symptoms such as fatigue or feelings of weakness [10]. However, whether these are a cause or consequence of orthorexic eating behaviors cannot be determined due to the study design.

Recent findings also point to the association of orthorexia and autism spectrum disorders: Orthorexic eating behavior seems to be associated, especially in women, with – albeit subclinical – behaviors from the autism spectrum, which are characterized by inflexibility and rituals as well as by an interest restricted to the field of nutrition [11].

Orthorexia and Social Media

The fact that eating behavior of young people in particular is influenced by the use of social media has been known for some time, which is why Turner and Lefevre [12] investigated the extent to which orthorexia is associated with the use of it. Increased scores of orthorexic eating behavior were found to be associated with more frequent Instagram use. Santarossa et al [13] found that the hashtag #orthorexia was frequently used in the context of #edrecovery, hence, eating disorder recovery. Since hashtags and posts with positive connotations also appeared in the context of #orthorexia, the authors concluded that it may be a supportive community for overcoming eating disorders and adopting healthier eating habits.

New Questionnaires

In recent years, orthorexia research has also generated several new questionnaires. Unfortunately, the still frequent use of psychometrically inappropriate assessment tools is a common problem [14], which may explain not only unrealistically high prevalence rates but also divergent findings in different studies. The ORTO-15, which has long been criticized for not capturing orthorexic eating behavior specifically enough [15], has been updated with the ORTO-R [16]. This questionnaire contains only six of the previous 15 items of the former version and is characterized by better psychometric properties [16]. Furthermore, the Orthorexia Nervosa Inventory was published [17]. This questionnaire consists of 24 items and measures orthorexic eating be-



haviors on three sub scales: behavior and preoccupation, physical and psychosocial impairment, and emotional distress. The psychometric properties are promising and a preliminary cut-off value has also been published. However, the authors emphasize that this questionnaire only assesses the risk for the presence of orthorexic eating behaviors. In addition, the Barcelona Orthorexia Scale was developed by means of a systematic survey of orthorexia researchers [18]. It currently comprises 64 items and still requires evaluation of its psychometric properties in future studies. Unfortunately, all these questionnaires are not yet available in German.

Despite the various new ways to measure orthorexia, many studies still use the ORTO-15 or the Bratman Orthorexia Test [1], which was never designed as an objective instrument to measure orthorexic eating behavior. Data from such studies, especially the sometimes unrealistically high prevalence rates, must be interpreted with great caution. According to current review articles [14, 19], the use of the already quite established questionnaires Eating Habits Questionnaire [20] and Düsseldorf Orthorexia Scale [21] is recommended, although further evaluations are also desirable.

A fairly recent prevalence estimate using the Düsseldorf Orthorexia Scale in a representative German sample showed that 6.9% of the respondents surveyed via telephone had elevated orthorexia scores [22]. It should be noted, however, that the Düsseldorf Orthorexia Scale only provides information on highly pronounced orthorexic eating behavior; the number of clinically relevant cases in which the extent of distress and impairment is assessed using additional criteria is certainly significantly lower.

“Healthy Orthorexia”: The Healthy Sister of Orthorexia?

In 2018, Barrada and Roncero [23] published the Teruel Orthorexia Scale, which includes a fundamental innovation: In this questionnaire, health-conscious eating behaviors are mapped on the two facets "orthorexia nervosa" and "healthy orthorexia". The sub scale "orthorexia nervosa" captures the well-known concept of orthorexic eating behavior, which is in this study associated with restrained eating behavior, symptoms from the obsessive-compulsive spectrum, perfectionism, and low self-esteem. Furthermore, it is associated with negative consequences, such as psychological distress, social isolation, and feelings of guilt. In contrast, the other scale, healthy orthorexia, is not related to psychopathological measures, but describes a non-pathological interest in healthy eating behavior, which can be rather described as a lifestyle than a distress-causing behavior [23].

In further studies, the "orthorexia nervosa" sub scale was found to be associated with the motives of weight control and emotion regulation [24], as well as negative affect [25]. "Healthy orthorexia", on the other hand, is mainly related to the motive of health [24] and is associated with positive affect [25]. The authors concluded that orthorexia nervosa measured by the questionnaire represents a new variant of disordered eating behavior, which is associated with maladaptive behavior and at least equal attention to weight regulation, while "healthy orthorexia" may even serve as a protec-

tive factor [24, 25]. So far, the questionnaire has not yet been validated in German. With its 17 items and its psychometrically satisfying properties it promises to be a good addition to the existing assessment tools.

Conceptual Challenges

Defining and consequently measuring a non-pathological preoccupation with health-conscious eating behavior poses a challenge if this behavior should not merely be defined on the basis of the absence of distress. Possibly, the existence of such behavior would be an explanation for the sometimes very high prevalence rates of supposedly orthorexic eating behavior in other studies. In this respect, the construct of "Healthy Orthorexia" is an exciting approach, but it is questionable whether the term is appropriately chosen. After all, a healthy, perhaps even medically necessary, effort to lose weight is not called "healthy anorexia." Thus, future research will show whether this dichotomy of health-conscious eating behaviors is useful, whether it can be replicated in other studies, and whether another term might be more appropriate.

Testimonials from Affected Individuals

In addition to quantitative research into orthorexic eating behavior, qualitative studies also provide important insights and findings. In the following, the results of two publications will be summarized, in which on the one hand statements of individuals who currently classify themselves as orthorexic [26] and on the other hand the experiences of individuals recovered from orthorexia were examined [27].

When asked about the origins of their problematic eating behavior, two primary pathways emerged among the ten respondents who currently classify themselves as orthorexic [26]. In one pathway, the influence of contextual factors was emphasized, for example contradictory and therefore unsettling results when searching for information on healthy eating on the Internet. In the other, biopsychosocial factors were identified as crucial, such as perfectionism, pre-existing gastrointestinal problems, perceived pressure to eat healthily, or particular life events. Most of those affected individuals also reported having had problems with their eating behavior and/or with their mental health in the past.

The obsessive preoccupation with healthy eating was further characterized by the omission of certain foods, a negative influence on other areas of life, and attempts to lose weight,



which was primarily sought for health rather than aesthetic reasons. The majority of those affected were aware that the fixation on healthy eating had a negative impact on their lives. Many of those affected found it unfortunate that their environment did not recognize the problems in eating behavior until serious health issues arose. Although the majority were convinced that they could overcome orthorexia, many felt that orthorexic thoughts would accompany them for a long time.

Another study interviewed eight individuals whose eating behaviors were retrospectively classified as orthorexic using Dunn and Bratman's [28] preliminary diagnostic criteria [27]. Thus, in this study, participants described their experiences from the perspective of a now recovered condition. In this study, external influencing factors were also described as very important, for example, it was stated that orthorexia began as a diet based on information from the internet or books. The overwhelming amount of information led the affected individuals to classify foods into dichotomous categories (e.g., good vs. bad) for simplification. On a psychological level, the experience was mainly characterized by compulsive behavior and negative affects (such as anxiety or depression). However, positive emotions were also described in some cases, e.g., when "great effects" were expected from a new diet. Difficulties in the interpersonal area of life were another significant factor. Many reported social withdrawal or the impairment of relationships with family and friends. In addition, behaviors and courses characteristic of the well-known eating disorders were documented in most of those affected. The majority of the affected individuals also experienced symptoms of anorexia nervosa before or during orthorexia. Some also experienced binge eating, sometimes followed by compensatory measures such as fasting or skipping meals. In addition, body shape and weight concerns were frequently reported. Furthermore, all former sufferers experienced a negative impact on their health, such as fatigue, difficulty sleeping, and gastrointestinal problems.

Conclusion

Since much of the orthorexia research to date has been based on findings from the general population, in which correlative relationships with various sociodemographic and psycho-

pathological aspects have been investigated, the results from surveys of currently or formerly affected individuals are particularly valuable. They once again emphasize the close relationship of orthorexia with the other eating disorders, as well as the negative consequences that might accompany a fixation on a health-conscious diet. Future research will show to what extent orthorexia is a distinct disorder, whether the concept of "Healthy Orthorexia" proves useful, and to what extent specific therapeutic methods are needed to help affected individuals overcome their problems in eating behavior.

Conflict of Interest

The author declares no conflict of interest.

Dr. Friederike Barthels (Dipl.-Psych.)

Heinrich-Heine-Universität Düsseldorf
Abteilung Klinische Psychologie
Universitätsstr. 1, 40225 Düsseldorf
friederike.barthels@uni-duesseldorf.de

References

1. Bratman S: Orthorexia vs. theories of healthy eating. *Eat Weight Disord* 2017; 22: 381–5. doi: 10.1007/s40519-017-0417-6.
2. Bratman S, Knight D: *Health food junkies: overcoming the obsession with healthful eating*. New York: Broadway Books; 2000.
3. Diedrichsen I: *Ernährungspsychologie*. Berlin: Springer-Verlag; 1990.
4. Strahler J: Orthorexia nervosa: Ein Trend im Ernährungsverhalten oder ein psychisches Krankheitsbild? *Aktuelle wissenschaftliche Erkenntnisse. Psychotherapeutenjournal* 2018; 1: 20–6.
5. Barthels F, Meyer F, Pietrowsky R: Orthorexic eating behavior. A new type of disordered eating. *Ernahrungs Umschau* 2015; 62(10): 156–61. doi: 10.4455/eu.2015.029.
6. Cena H, Barthels F, Cuzzolaro M, et al.: Definition and diagnostic criteria for orthorexia nervosa: a narrative review of the literature. *Eat Weight Disord* 2019; 24: 209–46. doi: 10.1007/s40519-018-0606-y.
7. Zagaria A, Vacca M, Cerolini S, Ballesio A, Lombardo C: Associations between orthorexia, disordered eating, and obsessive-compulsive symptoms: a systematic review and meta-analysis. *Int J Eat Disorder* 2022; 55: 295–312. doi: 10.1002/eat.23654.
8. Hessler-Kaufmann JB, Meule A, Greetfeld M, Schlegl S, Voderholzer U: Orthorexic tendencies in inpatients with mental disorders. *J Psychosom Res* 2021; 140: 110317. doi: 10.1016/j.jpsychores.2020.110317.
9. Barthels F, Horn S, Pietrowsky R: Orthorexic eating behaviour, illness anxiety and dysfunctional cognitions characteristic of somatic symptom disorders in a non-clinical sample. *Eat Weight Disord* 2021; 26: 2387–91. doi: 10.1007/s40519-020-01091-3.
10. Oberle CD, Klare DL, Patyk KC: Health beliefs, behaviors, and symptoms associated with orthorexia nervosa. *Eat Weight Disord* 2019; 24: 495–506. doi: 10.1007/s40519-019-00657-0.
11. Dell'Osso L, Cremone IM, Chiarantini I, et al.: Investigating orthorexia nervosa with the ORTO-R in a sample of university students with or without subthreshold autism spectrum: focus on dietary habits and sex differences. *Eat Weight Disord* 2022; doi: 10.21203/rs.3.rs-1198646/v1.



12. Turner PG, Lefevre CE: Instagram use is linked to increased symptoms of orthorexia nervosa. *Eat Weight Disord* 2017; 22: 277–84. doi: 10.1007/s40519-017-0364-2.
13. Santarossa S, Lacasse J, Larocque J, Woodruff SJ: #Orthorexia on Instagram: a descriptive study exploring the online conversation and community using the Netlytic software. *Eat Weight Disord* 2019; 24: 283–90. doi: 10.1007/s40519-018-0594-y.
14. Opitz M-C, Newman E, Mellado ASAV, Robertson M, Sharpe H: The psychometric properties of orthorexia nervosa assessment scales: a systematic review and reliability generalization. *Appetite* 2020; 104797. doi: 10.1016/j.appet.2020.104797.
15. Missbach B, Hinterbuchinger B, Dreiseitl V, Zellhofer S, Kurz C, König J: When eating right, is measured wrong! A validation and critical examination of the ORTO-15 questionnaire in German. *PloS One* 2015; 10. doi: 10.1371/journal.pone.0135772.
16. Rogoza R, Donini LM: Introducing ORTO-R: a revision of ORTO-15. *Eat Weight Disord* 2020; doi: 10.1007/s40519-020-00924-5.
17. Oberle CD, De Nadai AS, Madrid AL: Orthorexia Nervosa Inventory (ONI): development and validation of a new measure of orthorexic symptomatology. *Eat Weight Disord* 2021; 26: 609–22. doi: 10.1007/s40519-020-00896-6.
18. Bauer SM, Fusté A, Andrés A, Saldaña C: The Barcelona Orthorexia Scale (BOS): development process using the Delphi method. *Eat Weight Disord* 2019; 24: 247–55. doi: 10.1007/s40519-018-0556-4.
19. Meule A, Holzzapfel C, Brandl B, et al.: Measuring orthorexia nervosa: a comparison of four self-report questionnaires. *Appetite* 2020; 146: 104512. doi: 10.1016/j.appet.2019.104512.
20. Gleaves DH, Graham EC, Ambwani S: Measuring “orthorexia”: development of the Eating Habits Questionnaire. *Int J Educ Psychol Assess* 2013; 12: 1–18.
21. Barthels F, Meyer F, Pietrowsky R: Die Düsseldorfer Orthorexie Skala - Konstruktion und Evaluation eines Fragebogens zur Erfassung orthorektischen Ernährungsverhaltens. *Z Klin Psychol Psychother* 2015; 44: 97–105. doi: 10.1026/1616-3443/a000310.
22. Luck-Sikorski C, Jung F, Schlosser K, Riedel-Heller SG: Is orthorexic behavior common in the general public? A large representative study in Germany. *Eat Weight Disord* 2019; 24: 267–73. doi: 10.1007/s40519-018-0502-5.
23. Barrada JR, Roncero M: Bidimensional Structure of the Orthorexia: development and initial validation of a new instrument. *Anales de Psicología/Annals of Psychology* 2018; 34: 283–91. doi: 10.6018/analesps.34.2.299671.
24. Depa J, Barrada JR, Roncero M: Are the motives for food choices different in orthorexia nervosa and healthy orthorexia? *Nutrients* 2019; 11: 697. doi: doi.org/10.3390/nu11030697.
25. Barthels F, Barrada JR, Roncero M: Orthorexia nervosa and healthy orthorexia as new eating styles. *PLoS One* 2019; 14: e0219609. doi: 10.1371/journal.pone.0219609.
26. Valente M, Brenner R, Cesuroglu T, Bunders-Aelen J, Syurina EV: “And it snowballed from there”: the development of orthorexia nervosa from the perspective of people who self-diagnose. *Appetite* 2020; 155: 104840. doi: 10.1016/j.appet.2020.104840.
27. McGovern L, Gaffney M, Trimble T: The experience of orthorexia from the perspective of recovered orthorexics. *Eat Weight Disord* 2021; 26: 1375–88. doi: 10.1007/s40519-020-00928-1.
28. Dunn TM, Bratman S: On orthorexia nervosa: a review of the literature and proposed diagnostic criteria. *Eat Behav* 2016; 21: 11–7. doi: 10.1016/j.eatbeh.2015.12.006.