

# Orthorexia Nervosa: A Critical Review of an Emerging Disordered Eating Pattern

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## ABSTRACT

Orthorexia nervosa (ON) is an emerging and controversial eating behavior characterized by an unhealthy obsession with consuming only foods perceived as healthy or pure. Although not yet officially recognized in diagnostic manuals, ON has garnered growing attention from researchers, clinicians, and public health professionals due to its increasing prevalence, especially among health-conscious populations. This review aims to provide a comprehensive understanding of ON by examining its conceptual evolution, diagnostic challenges, associated risk factors, clinical manifestations, and treatment approaches. An in-depth search of peer-reviewed literature was conducted to synthesize current findings on the epidemiology, psychological and sociocultural determinants, and assessment tools used to identify ON. The review highlights the overlap between ON and other eating or obsessive-compulsive disorders, emphasizing the need for standardized diagnostic criteria and validated assessment instruments. Despite its focus on health, ON can lead to severe nutritional deficiencies, psychological distress, and social isolation. The findings underscore the importance of increased awareness among healthcare professionals and the development of targeted interventions. Further research is needed to establish ON as a distinct clinical entity and to inform effective prevention and treatment strategies.

**Keywords:** Diagnosis, Eating disorders, Healthy eating, Obsession, Orthorexia Nervosa

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## INTRODUCTION

### Background and Rationale

Orthorexia nervosa (ON) is an emerging term in the field of eating behavior disorders, defined by an excessive preoccupation with eating foods considered healthy, pure, or “clean.”<sup>[1]</sup> Unlike traditional eating disorders, which often revolve around body image or weight concerns, ON is primarily driven by the perceived health value of food. While striving for healthy eating is generally regarded as positive, in ON, this fixation becomes pathological, often resulting in psychological distress, social impairment, and even malnutrition.<sup>[1-3]</sup> Despite not being formally recognized in major diagnostic frameworks such as the diagnostic and statistical manual of mental disorders (DSM-5)<sup>[4]</sup> or the international classification of diseases (ICD-11),<sup>[5]</sup> ON has attracted growing attention from researchers and health professionals, particularly due to its rising prevalence in health-focused communities. The term “Orthorexia Nervosa” was first introduced in 1997 by Dr. Steven Bratman, a physician who observed patients developing an unhealthy obsession with consuming only “clean” or “pure” foods. Derived from the Greek *orthos* (meaning correct or right) and *orexis* (meaning appetite),<sup>[6]</sup> the term draws parallels with established eating disorders but distinguishes itself through its unique psychological motivation, achieving health rather than altering physical appearance. Over time, ON has evolved from a lay term into a subject of academic interest, prompting investigations into its psychological underpinnings and clinical relevance.

In today's society, there is an escalating emphasis on wellness, clean eating, and lifestyle optimization, amplified by digital platforms, influencers, and the fitness industry. While these trends have promoted health awareness, they have also contributed to a cultural climate where restrictive eating and food categorization are normalized. This health-centric obsession, when taken to an extreme, can manifest as ON, particularly among individuals who internalize these messages rigidly or pathologically.<sup>[7]</sup> The line

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between healthful behavior and disordered eating has become increasingly blurred. Given the sociocultural glorification of health and wellness, understanding ON is crucial in differentiating between healthy dietary practices and maladaptive, compulsive behaviors. Reviewing ON in today's context is especially relevant due to its subtle clinical presentation and its association with socially approved habits, which may delay recognition and intervention. Furthermore, the increasing use of unregulated dietary advice on social media platforms contributes to ON's spread, necessitating a deeper exploration of its diagnostic challenges, prevalence, and consequences.

### Epidemiology and Demographics

Prevalence estimates of ON vary significantly due to the absence of universally accepted diagnostic criteria and differences in

assessment tools. Studies suggest prevalence rates ranging from 6% to over 70%, depending on the population and measurement instruments used.<sup>[8-11]</sup> These discrepancies reflect the urgent need for standardized tools and definitions to achieve more accurate epidemiological insights.

Research indicates that certain populations are more vulnerable to developing ON, particularly those with a heightened focus on diet and health. Nutrition and dietetics students, healthcare workers, athletes, and yoga practitioners are frequently identified as high-risk groups. These individuals often possess detailed nutritional knowledge or are subject to professional and personal pressures to maintain an idealized image of health, making them susceptible to orthorexic behaviors.

Further research is needed to fully understand the influence of gender, age, and other sociodemographic variables on ON prevalence and expression.

### Objectives of the Study

- To explore the diagnostic criteria, risk factors, clinical implications, and management strategies associated with ON.
- To assess the psychological, sociocultural, and demographic factors contributing to ON.
- To examine the overlap between ON and other eating disorders.

## METHODOLOGY

### Literature Search Strategy

A comprehensive literature search was conducted to identify relevant peer-reviewed articles on ON. Electronic databases including PubMed, Scopus, PsycINFO, ScienceDirect, and Google Scholar were systematically searched for studies published between 2000 and 2025. The following search terms and Boolean combinations were used:

- "Orthorexia Nervosa"
- "Orthorexia AND eating disorders"
- "Healthy eating obsession"
- "Orthorexia AND diagnosis"
- "Orthorexia AND prevalence"
- "Orthorexia AND treatment"
- "Clean eating AND psychological effects"
- "Orthorexia AND social media."

Manual searches of reference lists from key articles were also performed to capture additional relevant studies not indexed in the primary databases.

### Inclusion and Exclusion Criteria

#### Inclusion criteria

- Articles published in peer-reviewed journals
- Studies published in English language
- Research involving human participants
- Studies focusing on definition, diagnosis, epidemiology, risk factors, psychological aspects, assessment tools, and treatment of ON
- Quantitative, qualitative, and mixed-method studies, as well as systematic reviews and meta-analyses.

#### Exclusion criteria

- Non-English publications
- Conference abstracts, dissertations, and editorials without empirical data
- Articles focused exclusively on other eating disorders without clear discussion of ON
- Studies lacking methodological rigor or sufficient detail to evaluate their relevance or quality.

### Data Extraction and Synthesis

Relevant data from the included studies were extracted and organized into thematic categories using a narrative synthesis approach. Key elements considered during data extraction included the authors and year of publication, study design and population characteristics, definitions and conceptual models of ON, diagnostic tools and criteria, prevalence rates and demographic patterns, psychological and sociocultural correlates, as well as proposed interventions and treatment strategies. The data were analyzed to identify recurring patterns, inconsistencies, and gaps across the literature. The findings were then synthesized to develop a comprehensive overview of the current understanding of ON, emphasizing emerging themes, controversial issues, and key implications for future research and clinical practice.

## Findings

### Conceptualization and diagnostic challenges

Through extensive literature review, it was found that a major challenge in addressing ON is its absence from major diagnostic manuals. This exclusion limits its recognition in clinical settings and makes it difficult to diagnose or treat effectively. Experts continue to debate whether ON should be classified as an eating disorder, a type of obsessive-compulsive disorder, or a completely separate psychological condition. The overlap with other disorders such as the obsessive focus on rules and rituals adds to the complexity of classifying ON.

### Diagnostic tools and assessment

Several assessment tools have been developed to measure orthorexia tendencies, but none are officially standardized or globally accepted.

- ORTO-15: One of the earliest and most widely used tools. It includes 15 items designed to assess the obsession with healthy eating.<sup>[12]</sup> However, it has been criticized for inconsistent scoring and low reliability across different populations.
- Bratman orthorexia test: Created by Bratman himself, this tool helps identify behaviors consistent with ON<sup>[13]</sup> but lacks validation through large-scale research.
- Eating habits questionnaire: A more recent tool that looks at knowledge, behaviors, and feelings related to healthy eating.<sup>[14]</sup>

All these tools face limitations regarding their scientific validity. Variations in scoring methods and lack of clear diagnostic cutoffs make it difficult to use these tools consistently across different settings. This highlights the urgent need for more robust, standardized diagnostic criteria to ensure accurate identification and support for individuals with ON.

## Risk Factors and Etiology

### *Psychological traits*

Certain personality traits<sup>[15]</sup> are commonly found in individuals with orthorexic tendencies. These include:

- Perfectionism: A desire to eat the “right” food in the “right” way
- Anxiety: Worry about the health effects of certain foods
- Obsessive-compulsive tendencies: Rigid rules about food preparation and consumption, along with distress when these rules are broken.

Such traits may predispose individuals to adopt extremely restrictive eating habits as a means of gaining control or reducing anxiety.

### *Socio cultural and media influences*

Modern society often glorifies clean eating, detox diets, and fitness culture. Messages from health influencers, celebrity diets, and “wellness” marketing can lead individuals to believe that moral or personal worth is linked to their dietary choices.<sup>[16]</sup> This cultural idealization of “eating clean” can push vulnerable individuals toward orthorexic behavior, especially when combined with personal insecurities.

### *Role of internet and social media*

The internet and platforms such as Instagram, Facebook, Twitter, and YouTube serve as powerful sources of health and diet-related content. While some of this information can be educational, it often promotes unrealistic or extreme views on what is considered “healthy.”<sup>[16]</sup> Repeated exposure to curated images of “perfect” meals and fitness routines can increase feelings of guilt, inadequacy, or fear around food, thus fuelling ON-like behaviors. Social media also allows for the rapid spread of unverified nutrition advice, which can deepen individuals’ rigid beliefs around food purity.

## Clinical Manifestations and Health Impact

A core feature of orthorexia is an obsessive focus on the perceived quality rather than the quantity of food consumed.<sup>[17]</sup> This is often expressed through a persistent concern with the sourcing, preparation, and purity of food such as whether the produce is pesticide-free, dairy is hormone-free, or cooking methods preserve nutritional value.<sup>[18]</sup> Individuals frequently eliminate entire food groups considered “impure,” including those containing artificial additives, genetically modified ingredients, or elevated levels of fat, sugar, and salt as well as commonly consumed food such as meat, dairy, grains, cooked foods, and out-of-season produce.<sup>[1,17-20]</sup> Many also scrutinize packaging for potential contaminants such as plastic-derived chemicals and assess ingredient labels for purity and safety.<sup>[18]</sup>

These behaviors reflect inflexible dietary rules and a ritualistic approach to eating, wherein even minor deviations from self-imposed standards provoke intense feelings of fear, guilt, or shame often leading to further dietary restriction.<sup>[10,19]</sup> Over time, such patterns can result in significant nutritional deficiencies, including insufficient intake of proteins, fats, vitamins, and minerals, thereby increasing susceptibility to malnutrition, weight loss, weakened immune response, and bone-related conditions

such as osteoporosis.<sup>[1]</sup> Moreover, a strict preference for raw or unprocessed foods may heighten the risk of foodborne illnesses. Psychologically, the pervasive fear of consuming “impure” foods contributes to considerable anxiety and emotional distress, underscoring the complex and far-reaching impact of ON.<sup>[1]</sup>

Beyond physical health, the behavioral patterns characteristic of orthorexia also have profound psychosocial consequences. Individuals with orthorexia frequently withdraw socially, believing their strict diets require solitary, controlled settings. This often leads to feelings of moral superiority and avoidance of those with differing eating habits, causing tension in close relationships.<sup>[18]</sup> Such social isolation can result in loneliness, depression, and reduced overall well-being.<sup>[1]</sup> Table 1 presents a comparative overview of Orthorexia Nervosa (ON), Healthy Orthorexia (HO), and other related eating and psychiatric disorders, summarizing their core features, psychological traits, social impacts, and diagnostic considerations based on existing literature.

## Treatment and Management Approaches

At present, ON lacks a standardized treatment protocol, primarily due to the absence of a formally recognized clinical definition. Nevertheless, research supports the use of a multidisciplinary approach as the most effective strategy.<sup>[19]</sup> This typically involves collaboration among dietitians, psychologists, and medical professionals to address both the physical and psychological dimensions of the disorder.<sup>[19,30]</sup> Key components of treatment often include psychoeducation, cognitive-behavioral therapy (CBT), nutritional counseling, exposure and response prevention (ERP), mindfulness-based practices, and so on.<sup>[1,18]</sup>

Psychoeducation plays a central role in treatment by helping individuals understand the nature of orthorexia and the impact of their eating behaviors on physical and mental health.<sup>[1]</sup> Educating individuals using scientifically supported nutritional information can help them challenge unrealistic or harmful food beliefs. Given that these beliefs are often deeply rooted, psychoeducation should be delivered with empathy and sensitivity, as it may initially trigger emotional discomfort or resistance.<sup>[18]</sup> When approached with care, it can support the development of a healthier and more flexible mindset toward food.

CBT is a widely recognized, evidence-based treatment that helps individuals change harmful thoughts and behaviors in a structured way. In the case of ON, CBT encourages individuals to slowly reintroduce avoided foods as a means of challenging extreme beliefs about food purity and health. Instead of directly confronting distorted thoughts, CBT often begins by changing behaviors, which then leads to shifts in thinking.<sup>[31]</sup> Through this process, individuals learn to recognize and adjust rigid and unhealthy thoughts about food, nutrition, and body image. They also develop coping strategies to manage anxiety and emotional discomfort when deviating from their usual eating patterns.<sup>[1]</sup> This fosters a more balanced and less fear-driven approach to eating.

Although no official clinical guidelines exist specifically for ON, nutritional counseling strategies are frequently adapted from those used for anorexia nervosa, due to similar restrictive eating patterns. Nutritional counseling plays a key role in recovery by aiming to restore healthy body weight, address nutritional deficiencies, and encourage more balanced eating behaviors.<sup>[30]</sup> Establishing a well-balanced diet serves as a

**Table 1:** Comparison of ON with HO and other eating disorders

Aspect	Healthy orthorexia (HO)	Orthorexia Nervosa (ON)	Obsessive-compulsive disorder (OCD)	Anorexia Nervosa (AN)	ARFID	References
Core focus	Wellness, disease prevention	Food purity, health obsession	Intrusive thoughts and compulsions	Weight and body image	Sensory sensitivity, fear of choking	[21-25]
Behavioral Traits	Flexible, balanced eating	Rigid, compulsive food rules	Repetitive, distress-relieving rituals	Severe restriction to lose weight	Restriction due to sensory/aversive fears	[21,26-29]
Emotional Response	Emotionally stable, no guilt	Guilt and anxiety when rules broken	Anxiety from obsessions, relief from rituals	Guilt and fear of weight gain	Anxiety around eating	[22,24,27,29]
Social impact	No impairment	Social withdrawal	Social life disrupted by compulsions	Isolation around food/body image	Difficulty eating socially	[21,22,25,27,28]
Health consequences	Positive outcomes	Nutritional deficiencies, stress	Variable impact	Severe malnutrition, amenorrhea	Nutrient deficiencies, weight loss	[21,24,25]
Associated traits	Health-driven, autonomous	Perfectionism, anxiety, OCD traits	Anxiety, perfectionism, intrusive thoughts	Control, fear, perfectionism	Sensory processing issues, fear-based	[12,19,21,22,25]
Insight into behaviour	Realistic and rational	Ego-syntonic, health-justified	Ego-dystonic, seen as irrational	Insight often poor or distorted	Varies (some insight)	[18,20,27,29]
Overlap with ON	Shared interest in healthy eating	Core construct	Shared rituals and obsessions	Shared traits like rigidity, control	Shared restrictive eating, different drivers	[18-21]
Diagnostic criteria	No official diagnosis	Not recognized in DSM-5/ICD-11	Recognized in DSM-5	Recognized in DSM-5	Recognized in DSM-5	[21,25,27,28]
Assessment tool	Teruel orthorexia scale (TOS)	TOS, ORTO-15 (limited)	Y-BOCS	EDE, DSM criteria	PARDI-ARFID, clinical tools	[26-29]

foundation for treatment, helping to reverse the effects of malnutrition. In cases of significant weight loss or medical instability, hospitalization may be necessary to ensure proper nutritional rehabilitation under medical supervision.<sup>[19]</sup> Providing accurate, evidence-based dietary education helps reduce food-related anxieties and challenges rigid dietary rules.<sup>[30]</sup> Supporting the individual's motivation and readiness to change is also crucial for long-term recovery.

ERP helps individuals with orthorexia confront feared foods and eating situations while resisting compulsive behaviors such as label-checking or rigid meal planning. It involves gradually exposing the individual to anxiety-provoking foods in a structured hierarchy, such as eating unplanned meals or reintroducing avoided items.<sup>[32]</sup> This reduces food-related anxiety, challenges perfectionistic beliefs, and encourages greater eating flexibility.<sup>[18,32]</sup> Meal tracking can support this process by monitoring emotional responses and behavioral progress rather than nutritional content.<sup>[32]</sup>

Mindfulness-based therapy is a promising approach for ON. It helps individuals observe obsessive thoughts and food-related anxiety without reacting impulsively, by fostering present-moment awareness and non-judgmental acceptance, it reduces emotional reactivity and promotes a deeper understanding of the triggers behind disordered eating.<sup>[1]</sup>

In addition, relaxation techniques such as deep breathing and progressive muscle relaxation can support individuals in managing anxiety before and after meals, as well as overall stress related to health concerns.<sup>[18]</sup>

Family and social support play a valuable role in the recovery process for individuals with ON. Involving family members can help reduce feelings of isolation and address any unhealthy relationship dynamics that may contribute to the disorder.<sup>[1]</sup> Family therapy encourages better understanding and communication,

creating a supportive environment for change. In addition, peer support groups offer individuals a sense of connection, empathy, and shared coping strategies. Together, these forms of support can significantly enhance emotional well-being and improve treatment outcomes.<sup>[1]</sup>

Overall, the effective management of ON relies on a collaborative, individualized approach that addresses both the cognitive and behavioral aspects of the disorder. While no standardized treatment guidelines currently exist, integrating psychoeducation, therapy, nutritional support, and social involvement offer a practical pathway to recovery. As clinical understanding of orthorexia continues to evolve, developing more targeted and evidence-based interventions will be essential to better support those struggling with this complex condition.

## CONCLUSION

ON is an emerging psychological and nutritional concern that presents with distinct characteristics, including an intense preoccupation with healthy eating, often at the cost of physical, psychological, and social well-being. Although it is not yet formally recognized in standard diagnostic classifications such as the DSM-5 or ICD-11, its increasing prevalence, particularly among health-conscious individuals, demands serious academic, clinical, and public health attention.

A major limitation in the current understanding and management of ON is the lack of standardized diagnostic criteria and validated assessment tools, which hinders accurate identification, prevalence estimation, and effective treatment planning. Existing research highlights the significant role of psychological and sociocultural influences, including perfectionism, anxiety, identity formation, and exposure to health-promoting content through digital media.



Given the potential for ON to lead to malnutrition, psychological distress, and social isolation, there is an urgent need for routine screening in high-risk populations such as nutrition students, healthcare professionals, athletes, and social media users engaged with wellness culture. Raising awareness among healthcare providers, and incorporating ON into broader clinical and public health initiatives, is essential to facilitate early detection and intervention.

Recommendations for future research:

- Development and validation of universal diagnostic criteria and psychometric tools
- Longitudinal studies to understand the progression and outcomes of ON
- Research exploring the impact of social media and digital wellness culture on orthorexic behaviors
- Clinical trials assessing the effectiveness of cognitive-behavioral and multidisciplinary interventions
- Greater exploration of cross-cultural differences and gender-related manifestations of ON.

Thus, addressing ON requires a multidimensional approach that bridges psychology, nutrition, public health, and clinical practice to improve recognition, treatment, and prevention of this increasingly prevalent disorder.

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## CONFLICTS OF INTEREST

Authors declare no conflicts of interest.

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