

Perfectionism as a Paradoxical Factor in Sport and Exercise Performance: An Umbrella Review

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Abstract

Objective: Traditionally, perfectionism has been regarded as a commendable trait in the realm of sports and exercise. However, recent research has uncovered a paradoxical aspect of perfectionism in these domains. This umbrella review seeks to offer a comprehensive overview of the intricate role that perfectionism plays in sport and exercise performance.

Method: As an umbrella review, we systematically explored three widely used scientific databases—PubMed, Scopus, and ISI—to identify relevant systematic reviews and meta-analyses investigating the relationship between perfectionism and sports performance.

Results: After careful evaluation, eight studies met our inclusion criteria and were included in the study. These eight eligible studies comprised five systematic reviews and three systematic review and meta-analysis publications. These publications have explored the correlation between perfectionism and sports performance in teenager and adult populations, as well as professional and amateur athletes. Most of the original articles included in these studies had a cross-sectional design and some of them were longitudinal research. All reviewed articles reported a significant correlation between perfectionism and sports performance, regardless of gender and age. In general, the main consensus of these studies is a moderate to high positive correlation between perfectionistic strivings and sports performance, as well as a moderate to high negative correlation between perfectionistic concerns and sports performance.

Conclusion: In summary, perfectionism exhibits both positive and negative effects on athlete outcomes. Maladaptive perfectionism is linked to adverse consequences, while adaptive perfectionism can yield positive effects. Promisingly, psychological interventions such as mindfulness-based approaches and ACT-based interventions show potential in reducing perfectionism and enhancing athlete outcomes. Future research should delve deeper into the intricate relationship between perfectionism and athlete performance and continue to devise interventions that counteract the detrimental effects of perfectionistic tendencies.

Key words: *Exercise; Perfectionism; Personality Assessment; Sports Performance; Systematic Review*

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Perfectionism is a multifaceted characteristic of an individual's personality which is defined by the presence of excessively high standards coupled with an overly critical evaluation of oneself (1, 2). When evaluating perfectionism, researchers have identified two dimensions: perfectionistic concerns and perfectionistic strivings (3, 4). Perfectionistic strivings primarily involve constant pursuit of precise and exacting self-imposed rules. Individuals with perfectionistic strivings are driven to achieve these standards, often demonstrating dedication and discipline (5-8). While a certain level of self-criticism may be present, it is typically not as prominent as the drive for perfection. On the other hand, perfectionistic concerns revolve around perceived high standards imposed by others and the negative evaluation individuals fear they will receive from others. Those with perfectionistic concerns often experience ongoing dissatisfaction due to the persistent gap between their expectations and their actual performance (9-12). In essence, perfectionism encompasses both an intrinsic desire for excellence and an external apprehensiveness about meeting perceived standards.

This multidimensional nature of perfectionism further illustrates its complexity and the various ways in which it manifests within individuals (13-15). Another widely used dimensional perspective regarding perfectionism has been stated by Hewitt and Flett (16). They categorized it into three dimensions: self-oriented perfectionism (SOP), which encompasses setting and achieving personal goals flawlessly; socially prescribed perfectionism (SPP), described as the pursuit of perfection due to societal and external pressures, and other-oriented perfectionism (OOP), indicating a desire for others to meet one's own impeccable standards (16).

Numerous studies have explored the correlation between various dimensions of perfectionism and personal performance and psychological well-being. The relationship between perfectionism dimensions and psychological well-being is intricate and varies based on individual differences, coping mechanisms, and the context in which perfectionism manifests itself (17-21). While aspects of SOP may contribute to a sense of accomplishment and motivation, the potential negative impact of relentless self-criticism and fear of failure cannot be overlooked. SPP, with its external pressures, often shows a negative correlation with psychological well-being, contributing to heightened stress and anxiety. OOP, too, can be a double-edged sword, impacting well-being based on the ability to manage expectations and maintain healthy interpersonal relationships.

The relationship between perfectionism and performance is equally complex (22-24). SOP tends to be positively correlated with task performance, as individuals driven by personal standards often invest the necessary effort to achieve their goals. SPP, on the other hand, can either enhance or impede performance, depending on the alignment of external standards with internal goals. OOP

may positively impact performance if high standards motivate others to excel, but the potential for strained relationships and collaboration challenges may offset these gains.

Athletes' performance has been the subject of various investigations regarding the impacts of perfectionism. Long considered a positive attribute within the realm of sports, recent studies have brought to light the nuanced and complex nature of its relationship with athletic performance (25-28). While the traditional perspective celebrated perfectionism as a driving force behind exceptional achievements, contemporary research suggests that its effects may vary, challenging the simplistic notion of an unequivocally positive correlation. This evolving understanding underscores the need for a more comprehensive exploration of the multifaceted dynamics between perfectionism and athletes' success in the competitive arena (29, 30). To summarize current evidence about the relationship between sports performance and perfectionism and have a clear and robust understanding of it, we used the umbrella review methodology in the present study.

Materials and Methods

As an umbrella review, we searched three popular scientific databases including PubMed, Scopus, and Web of Science (ISI) to find relevant systematic reviews and meta-analyses investigating the relationship between perfectionism and sports performance. We used appropriate search terms and limited the results to the systematic reviews and meta-analysis using databases' filters. Search terms included perfectionism, sports performance, exercise, athletic performance, sport. After that, we removed duplicate references and then screened the remaining papers based on their title and abstracts. All eligible articles were reviewed by the research team and relevant data was extracted using a predefined table.

Inclusion/Exclusion Criteria

All English systematic reviews and meta-analysis articles that explored the correlation between perfectionism and performance among the athlete population were eligible for inclusion in our study and data synthesis. There were no restrictions on publication date, country of origin, or publication source.

Assessing Risk of Bias

We utilized the ROBIS (Risk Of Bias In Systematic reviews) checklist to evaluate the quality of evidence obtained from eligible studies. This structured and comprehensive checklist is designed to evaluate the risk of bias in systematic reviews. By employing ROBIS checklist, researchers can systematically evaluate key domains such as study eligibility criteria, identification and selection of articles, data gathering, and risk of bias assessment. The checklist aids in enhancing the transparency and methodological rigor of systematic reviews, ensuring that synthesized evidence is of high quality.

Results

The systematic review aimed to comprehensively analyze the existing literature on correlation between perfectionism and sport performance. A total of 57 references were initially identified through rigorous searches across various databases and sources. After removing duplicates, 43 unique references remained. Following the title and abstract screening process, 24 articles were taken into account potentially relevant for

inclusion in the review. Subsequently, a thorough full-text review was conducted on these 24 identified studies. After careful evaluation, eight studies met our inclusion criteria and were included in the study (see Figure 1). Excluded studies involved study protocols and articles that did not investigate the relationship between perfectionism and athletic performance. These eight eligible studies included five systematic reviews (31-35) and three systematic review and meta-analysis studies (36-38).

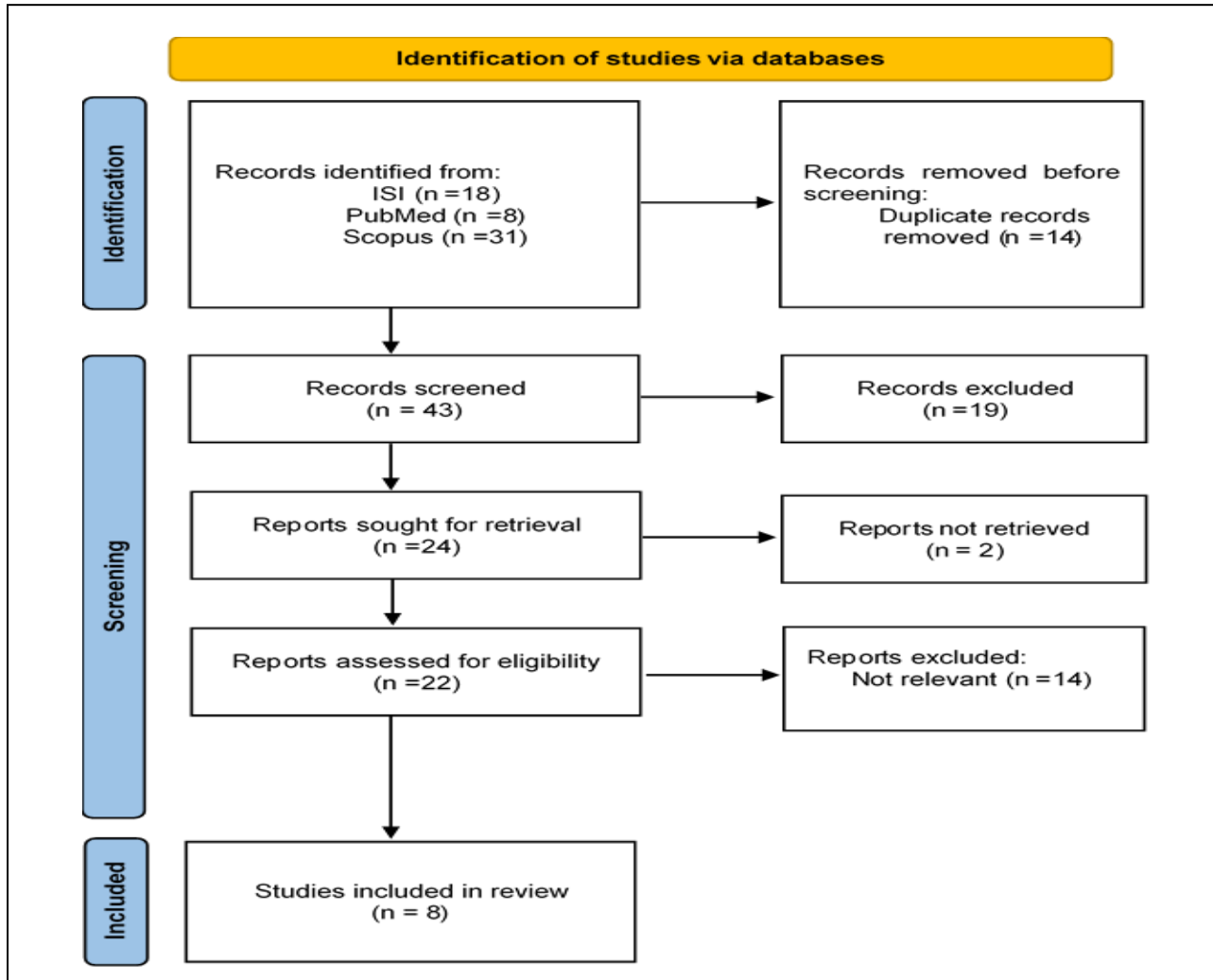


Figure 1. Flowchart Regarding Identification, Screening, and Assessing the Eligibility of Articles on Relationship between Perfectionism and Sport Performance.

Among the eight studies, four of them have focused directly on the relationship between perfectionism and different phenomena related to athletes' performance. Other four studies have investigated broader psychological constructs including perfectionism in terms of their relationships with athletes' performance. These papers have explored the correlation between perfectionism and sports performance in teenager and adult populations as well as professional and amateur athletes. Most of the original articles included in these

studies had a cross-sectional design and some of them were longitudinal research. The risk of bias was low in all studies, which indicates the appropriate quality of systematic reviews and meta-analyses in this field. To see details of included studies see Table 1. All reviewed articles reported a significant correlation between perfectionism and sports performance, regardless of gender and age. In general, the main consensus of these studies is a moderate to high positive correlation between perfectionistic strivings and sports performance, as well

as a moderate to high negative correlation between perfectionistic concerns and sports performance.

Table 1. Summary of Included Systematic Reviews on the Relationship between Perfectionism and Sport Performance.

Author (Year)	Aim	Number of Primary Studies	Relevant Outcomes to our Study	Risk of Bias
Yang (2023) (36)	Determining correlations between burnout in professional athletes and perfectionism	14	The findings indicated that sports devaluation was adversely influenced by self-oriented perfectionism, while physical or emotional exhaustion demonstrated a positive association with socially prescribed perfectionism	Low
Woods (2022) (37)	Determining the variables related to athletes burnout in team sports	59	Burnout exhibited an adverse correlation with self-oriented perfectionism and a positive relationship with socially-imposed perfectionism	Low
González-Hernández (2022) (31)	Determining the correlations among exercise addictions and perfectionism in athletes	22	The connection among perfectionism and exercise addictions involves personality traits acting as a risk factor, promoting development of addictive exercise behaviors. Furthermore, when combined with other traits like narcissism, the manifestation of addictive behaviors becomes more pronounced. Conversely, perfectionism also serves as a connecting element between eating disorder and exercise addictions, attributed to the compulsive nature shared by the factors	Low
Hill (2018) (38)	Determining the multidimensional perfectionism in sport	52	Perfectionistic concern is obviously maladaptive for athlete, while perfectionistic striving is ambiguous and complex	Low

de Souza (2018) (32)	Determining performance and psychological factors associated with burnout in adult athletes	15	Positive correlations were reported between perfectionism and burnout	Low
Clancy (2016) (33)	Exploring motivation in competitive sports	63	Perseverance for perfection is linked to positive motivational perspectives and self-serving attributions, potentially resulting in enhanced performance. Motivation can serve as an intermediary factor between coping and perfectionism. Controlled non-positive responses to imperfection may be advantageous. Among elite individuals, those with adaptive perfectionism exhibit higher scores on mastery approach goal and smaller scores on fear of failure compared to their counterparts	Low
Harwood (2015) (34)	Determining the intra-subject correlates of motivational climate perception	104	Perception of an ego or performance-oriented environment showed a positive correlation with perfectionism	Low
Gotwals (2012) (35)	Exploring perfectionistic strivings in sport	31	The results indicate that perfectionistic aspirations in athletes are mostly beneficial, occasionally neutral, and seldom detrimental	Low

Discussion

In this umbrella review, we investigated current literature regarding the relationship between perfectionism and different aspects of athletes' performances. Recently, Hill *et al.* conducted a meta-analysis focusing on various dimensions of perfectionism in the context of sports (38). The review delves into studies exploring the connections among perfectionistic concerns and strivings, and various motivations, well-being or emotions, and performance criteria. Their results proved that perfectionistic striving exhibited small to moderate correlation with both adaptive and maladaptive motivations, well-being or emotions, as well as enhanced performance. On the other hand, perfectionistic concern demonstrated a small to moderate correlation with maladaptive motivations and well-being or emotions, remaining unassociated

with performance outcomes. Upon controlling for interplay among two perfectionism dimensions, residual perfectionistic strivings indicated a less problematic nature, while residual perfectionistic concerns hinted at being more troublesome compared to their unresidualized equivalents. Preliminary indications also suggested that age, gender, instrument, and sport types might moderate some of the observed relationships. In summary, evidence emphasizes that perfectionistic concern is unequivocally maladaptive for athletes, whereas the impact of perfectionistic strivings is intricate and less straightforward. In an older systematic review, Gotwals *et al.* explored if perfectionistic strivings have adaptive/maladaptive role in sport (35). According to their findings, when considering bivariate correlations, the evidence proportion linking perfectionistic strivings to adaptive traits in sports

slightly outweighed the evidence linking this dimension to maladaptive traits. However, by examining partial correlation (i.e., correlation adjusted for overlaps with perfectionistic concern), a significant part of evidence linked perfectionistic striving with adaptive traits, with only a minority associating it with maladaptive traits. In both scenarios, a substantial amount of findings failed to link perfectionistic striving to either maladaptive or adaptive traits. Overall, these results imply that among athletes, perfectionistic strivings are predominantly associated with adaptability, occasionally with neutrality, and rarely with maladaptation.

Athletes' burnout is one of the carefully studied constructs in the light of perfectionism. In a recent meta-analytic research, Yang and colleagues have comprehensively reviewed the relationships between perfectionism and burnout in the athletic population (36). Their findings indicated that self-oriented perfectionism negatively influenced sports devaluation (SD), while socially prescribed perfectionism showed a positive impact on physical or emotional exhaustion and SD. In another systematic review, Woods *et al.* investigated factors related to athletes' burnout in team sports. In line with Yang *et al.* (37), they found that socially prescribed perfectionism has positive correlation with athletes burnout. This pattern of relationship is also confirmed by de Souza *et al.* (32).

Another interesting subject that has been investigated in terms of its relationship with perfectionism among athletes is exercise addiction. González-Hernández *et al.* reviewed the correlation between perfectionism and exercise addictions (31). Examination conducted in this systematic review validates association between perfectionism and exercise addictions, wherein the personality traits function as risk factors, prompting development of addictive behaviors. Moreover, the coexistence of perfectionism with other personality traits, like narcissism, amplifies manifestation of addictive behaviors (39, 40). Conversely, perfectionism emerged as a connecting factor among eating disorders and exercise addictions, attributable to compulsive nature of these disorders (41-43). The findings hold significance as they offer insights for future investigation aimed at uncovering explanatory models for exercise addictions.

However, we did not find any interventional systematic review with focus on perfectionism among athletes in our main searching, exploring effects of psychological intervention on sport performance. In a comprehensive review, Reinebo *et al.* investigated the influences such interventions on athletic performances (44). They combined findings from 25 studies to form five meta-analyses, identifying resemblances in the comparators, intervention types, and trial designs. Their findings emerged in three meta-analyses, indicating that psychological skill training, mindfulness- and acceptance-based approaches, and imagery exhibited superior performance over controls, yielding moderate

effects. However, upon conducting sensitivity analyses by excluding non-randomized experiments and subjective outcomes, overall estimate of effect sizes lost significance in all syntheses.

Limitation

The main limitation of this research is that we rely on the overall findings of included reviews and didn't consider original studies. It may affect the accuracy of our findings. We also did not synthesize our findings qualitatively.

Future Direction

Based on reviewing the current literature, we have some suggestions for future studies. Future research must try to establish causal relationship between perfectionism and athlete outcomes. Experimental designs and intervention studies could help determine whether modifying perfectionistic tendencies directly influences performance, allowing for more targeted interventions. Conducting longitudinal studies would provide a deeper understanding of how perfectionism evolves over time and its impact on athlete performance. Tracking athletes' perfectionistic tendencies throughout their careers can reveal patterns and variations that may contribute to a more nuanced understanding. Investigating the role of perfectionism across various sports and athlete populations can provide insights into potential sport-specific factors. Exploring how cultural, gender, and age-related differences influence the relationship between perfectionism and performance could lead to tailored interventions for different groups. Identifying and investigating potential moderating factors that influence the impact of perfectionism on athlete outcomes are recommended. These may include coaching styles, team dynamics, or external pressures. Understanding these moderating factors can help refine interventions to be more effective in specific contexts.

It is necessary to develop and test holistic intervention approaches that address both maladaptive and adaptive aspects of perfectionism. This could involve combining psychological strategies with physical training regimens to create a more integrated approach to athlete development and well-being. It is recommended to Implement educational programs aimed at coaches, athletes, and sports organizations to increase awareness and understanding of perfectionism. Creating a supportive environment that acknowledges the complexities of perfectionism and provides resources for coping can contribute to overall athlete well-being. Rigorously validating the effectiveness of interventions identified in the current study, such as mindfulness-based approaches and ACT-based interventions, is of import. Replication studies and larger-scale trials can provide stronger evidence for the practical application of these strategies. And finally, we encourage collaboration between sports psychologists, coaches, and medical professionals to adopt a multidisciplinary approach. Integrating expertise from various fields can

lead to more comprehensive interventions that consider both psychological and physiological aspects of athlete performance.

Conclusion

In conclusion, research on perfectionism in sports has highlighted the complex relationship between perfectionistic tendencies and athlete outcomes. Maladaptive perfectionism, characterized by excessive concerns over mistakes and fear of failure, has consistently been linked to negative psychological, physical, and interpersonal consequences. On the other side, adaptive perfectionism, marked by high standards and goal-oriented behavior, has been connected to positive outcomes like increased self-efficacy and subjective well-being. While perfectionistic concerns have been shown to be detrimental to motivation, well-being, and performance, the impacts of perfectionistic striving are complicated. Perfectionistic striving can have both positive and negative effects on athlete performance, depending on individual and contextual factors. It is important to consider the multidimensional nature of perfectionism and tailor interventions based on individual needs. Future research must investigate explanatory processes and examine interventions to mitigate burnout fueled by perfectionistic concerns. Moreover, more research is needed to fully understand the effectiveness of different types and modalities of interventions for perfectionism in sports.

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Conflict of Interest

None.

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