

Functional Movement Screen: Injury Risk and Programming

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Abstract

The Functional Movement Screen (FMS) is a systematic assessment of fundamental movement patterns used to predict injury risk and guide exercise programming. Research continues to examine its reliability, validity, and association with injury incidence across diverse populations, including athletes and older adults. Interventions aim to improve FMS scores and functional outcomes. The FMS is increasingly integrated into rehabilitation and occupational health settings.

Keywords

Functional Movement Screen; Movement Patterns; Injury Risk Prediction; Exercise Programming; Reliability; Validity; Rehabilitation; Athletic Performance; Older Adults; Occupational Health

Introduction

The Functional Movement Screen (FMS) is a widely adopted systematic process designed by clinicians and trainers to pinpoint asymmetries and limitations within fundamental movement patterns. These screenings are instrumental in predicting potential injury risk and in guiding the development of individualized exercise programs tailored to an individual's specific needs. The FMS comprises a set of seven distinct movements, each meticulously scored on a scale from 0 to 3, where superior scores are indicative of enhanced performance and greater movement competency [1].

Ongoing research continues to diligently explore the reliability of the Functional Movement Screen (FMS) across a variety of settings and varying levels of assessor experience. Studies are actively examining both inter-rater and intra-rater reliability to ensure the consistent application and accurate interpretation of the screening

results. The establishment of robust reliability is a critical factor for the FMS to serve as a dependable tool in both clinical practice and scientific research, thereby informing the development of standardized protocols and comprehensive training for its administration [2].

The association between Functional Movement Screen (FMS) scores and the subsequent incidence of injuries remains a paramount area of ongoing investigation. While a considerable number of studies have suggested a discernible link between suboptimal FMS scores and an elevated risk of injury, other research has found only weak or statistically insignificant correlations. This noted discrepancy underscores the inherent complexity of injury prediction and highlights the essential need to consider a multitude of factors that extend beyond basic movement patterns alone [3].

Interventions meticulously designed to facilitate improvements in Functional Movement Screen (FMS) scores constitute a critical and integral component of its practical application. Physiotherapists and trainers routinely employ targeted exercises and movement drills to address identified movement dysfunctions, with the overarching aim of enhancing mobility, stability, and overall motor control. The efficacy of these specific interventions in not only improving FMS scores but also subsequently reducing the incidence

of injury is an actively pursued and evolving area of research [4].

The Functional Movement Screen (FMS) is increasingly being integrated into comprehensive rehabilitation protocols, serving as a vital guide for the careful progression of patients following injury. By precisely identifying residual movement deficits, clinicians are empowered to tailor rehabilitation exercises to effectively address specific impairments, thereby facilitating a safer and more efficient return to sport or the resumption of daily activities. The strategic use of FMS in this therapeutic context aims to effectively bridge the critical gap between initial physical recovery and the attainment of full functional capacity [5].

Thorough exploration of the psychometric properties of the Functional Movement Screen (FMS) is an essential prerequisite for its broader acceptance and widespread application in diverse settings. This rigorous examination encompasses evaluating its validity, including construct, criterion, and content validity, as well as its reliability. Current and future research endeavors are focused on refining the FMS and its associated scoring system to enhance its diagnostic accuracy and clinical relevance across a spectrum of different populations [6].

The Functional Movement Screen (FMS) is currently undergoing extensive evaluation for its specific utility within various athletic populations, encompassing team sports, individual sports, and recreational athletes. A comprehensive understanding of how fundamental movement patterns may differ and how injury risks are influenced within these distinct groups is vital for the development of context-specific screening methodologies and targeted intervention strategies [7].

The impact of the natural aging process on functional movement patterns represents a growing area of scientific interest, with the Functional Movement Screen (FMS) being actively explored as a valuable tool to assess mobility and identify individuals at increased risk of falls among older adults. Current research is specifically examining how FMS scores may change with advancing age and whether targeted interventions can effectively improve movement quality and ultimately reduce the incidence of falls within this demographic [8].

The development of innovative assessment tools that can either complement or further refine the established Functional Movement Screen (FMS) is an ongoing and dynamic endeavor within the field. Researchers are actively investigating alternative functional assessments that may offer a more comprehensive and nuanced picture of an individual's movement capabilities and associated injury risk, with the ultimate goal of enabling more precise and effective inter-

ventions [9].

The Functional Movement Screen (FMS) is progressively being examined and utilized within the specific context of various occupational demands, with a particular focus on individuals employed in physically demanding professions. The primary objective is to ascertain whether movement dysfunctions identified by the FMS are indeed associated with work-related injuries or a reduction in overall work capacity, with the potential to inform critical pre-employment screening processes and robust injury prevention programs in occupational settings [10].

Description

The Functional Movement Screen (FMS) has emerged as a systematic methodology for clinicians and trainers, meticulously designed to detect asymmetries and limitations inherent in fundamental human movement patterns. The primary utility of these screenings lies in their capacity to predict an individual's susceptibility to injury and to serve as a foundation for developing personalized exercise programs. The FMS protocol itself consists of seven distinct fundamental movements, each evaluated on a scale ranging from 0 to 3, with higher scores signifying superior performance and greater functional capacity [1].

Within the scientific community, research remains steadfastly committed to investigating the reliability of the Functional Movement Screen (FMS) across diverse environments and varying levels of professional experience among assessors. Studies meticulously examine both inter-rater reliability, assessing consistency between different examiners, and intra-rater reliability, evaluating consistency for a single examiner over time. The establishment of unwavering reliability is paramount to ensuring the FMS functions as a dependable instrument in both clinical applications and research endeavors, thereby contributing to the formulation of standardized protocols and effective training programs for its administration [2].

A significant focus of current research endeavors is the exploration of the relationship between Functional Movement Screen (FMS) scores and the subsequent occurrence of injuries. While numerous studies have indicated a correlation between poor FMS performance and an increased likelihood of injury, a subset of research has reported weak or statistically non-significant associations. This divergence in findings underscores the intricate nature of injury prediction and emphasizes the necessity of considering a multifactorial approach that extends beyond mere movement patterns [3].

Interventions specifically crafted to enhance Functional Move-

ment Screen (FMS) scores represent a crucial aspect of its practical implementation. Physiotherapists and trainers frequently employ targeted exercises and therapeutic strategies to address identified movement deficiencies, aiming to improve aspects such as mobility, stability, and motor control. The effectiveness of these targeted interventions in not only elevating FMS scores but also in subsequently mitigating injury risk is a vibrant and active field of ongoing research [4].

The Functional Movement Screen (FMS) is progressively being integrated into comprehensive rehabilitation frameworks, providing valuable guidance for the safe and effective progression of individuals recovering from injuries. By accurately identifying persistent movement deficits, clinicians can meticulously design rehabilitation exercises that specifically target and correct these impairments, thus facilitating a more secure and efficient return to athletic activities or everyday life. The application of the FMS in this rehabilitative context seeks to effectively bridge the gap between initial recovery stages and the achievement of complete functional restoration [5].

The meticulous examination of the psychometric characteristics of the Functional Movement Screen (FMS) is indispensable for its broad acceptance and consistent application across various disciplines. This involves a thorough assessment of its validity, encompassing construct, criterion, and content validity, alongside its reliability. Ongoing research efforts are dedicated to refining the FMS and its scoring methodology to augment its precision and clinical relevance within diverse populations [6].

The Functional Movement Screen (FMS) is currently undergoing extensive evaluation for its applicability and effectiveness across a spectrum of athletic populations, including those involved in team sports, individual sports, and recreational activities. Gaining a deep understanding of how fundamental movement patterns differ and how injury risks are specifically influenced within these distinct athletic groups is essential for the development of tailored screening protocols and specialized intervention strategies [7].

The influence of aging on the quality of functional movement patterns is an area of burgeoning research interest, with the Functional Movement Screen (FMS) being explored as a valuable tool for assessing mobility and identifying fall risks in the elderly population. Current investigations are centered on understanding how FMS performance may vary with age and whether targeted interventions can successfully enhance movement quality and consequently reduce the incidence of falls among older adults [8].

The development of novel assessment instruments that can ei-

ther augment or refine the capabilities of the Functional Movement Screen (FMS) is an ongoing pursuit within the scientific community. Researchers are actively exploring alternative functional assessments that may provide a more holistic and comprehensive evaluation of an individual's movement proficiency and injury risk profile, potentially leading to more precise and impactful interventions [9].

The Functional Movement Screen (FMS) is being increasingly investigated within the context of specific occupational demands, particularly for individuals engaged in physically demanding occupations. The primary goal is to determine if movement dysfunctions identified by the FMS are associated with an elevated risk of work-related injuries or diminished work capacity, which could inform the development of pre-employment screening protocols and effective injury prevention programs within occupational settings [10].

Conclusion

The Functional Movement Screen (FMS) is a systematic process used by professionals to identify movement asymmetries and limitations, aiding in injury risk prediction and personalized exercise programming. It involves seven distinct movements scored on a scale of 0-3. Research is ongoing to establish its reliability and predictive validity across different populations and settings. Studies explore the association between FMS scores and injury incidence, with mixed findings highlighting the complexity of injury prediction. Interventions aim to improve FMS scores and reduce injury risk. The FMS is also integrated into rehabilitation protocols to guide patient recovery and is being evaluated in various athletic and occupational contexts. Furthermore, its utility in assessing mobility and fall risk in older adults is under investigation, alongside the development of complementary assessment tools. Ongoing efforts focus on refining the FMS and its psychometric properties for enhanced clinical relevance.

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