



Advances in Therapeutic Approach for Orthopaedic Surgery – A Review

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Abstract

Recent advancements in orthopaedics have revolutionized the management of musculoskeletal conditions and injuries. This review provides insights into the latest developments in orthopaedic treatment. Stem cell therapy and platelet-rich plasma (PRP) injections in Regenerative Medicine have emerged as promising approaches to enhance tissue regeneration and accelerate healing. Robotic-assisted surgery enables surgeons to perform more precise procedures, improving surgical outcomes. Personalized medicine, tailored to individual genetic and environmental factors, is gaining prominence in treatment planning. Remote patient monitoring and telemedicine offer opportunities to enhance patient care and optimize healthcare delivery. Additionally, the integration of artificial intelligence (AI) and machine learning (ML) in orthopaedics, particularly in diagnosis and treatment planning, is generating considerable interest. Overall, these advancements have led to enhanced treatment quality, reduced recovery

periods, and improved patient outcomes in orthopaedic surgery. **Keywords:** Orthopaedic Surgery, Regenerative Medicine, Minimally Invasive Techniques, Joint Replacement, Surgical Innovations

Introduction

Orthopaedic surgery plays a pivotal role in treating musculoskeletal disorders resulting from accidents, chronic diseases, and hereditary conditions. As the field evolves with technological advancements like robotic-assisted surgery and regenerative medicine, understanding patient needs, diagnostic methods, treatment options, and postoperative care becomes crucial for optimizing outcomes and shaping future practices.

In order to treat problems with the bones, muscles, joints, ligaments, and tendons as a result of accidents, chronic diseases, or other musculoskeletal disorders, a board-certified orthopedist or orthopaedic surgeon will perform surgery. Furthermore, hereditary impairments, aging-related musculoskeletal disorders, and spinal cord-related neurological disorders may all be addressed with orthopaedic surgery (Iwarup and O'Donnell, 2014). Orthopaedic surgery is an ever-changing field that has changed the way patients are cared for via a series of innovative techniques. Traditional surgical methods, with their focus on accuracy and biomechanical principles, have long served as the foundation of the specialty. Reducing surgical stress and speeding up postoperative recovery, minimally invasive methods became the norm in the late 20th century, as shown by (Mithany et al., 2023).

The future of orthopaedic surgery is being defined by technical advancements that have taken front stage in the last few decades.

Significance | This review discussed the new therapeutic approach in orthopaedic surgery.

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Editor Muhammad Asif, and accepted by the Editorial Board Apr 12, 2024 (received for review Jan 28, 2024)

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Please cite this article.

Adnan Essa Al Kilabi (2024). Advances in Therapeutic Approach for Orthopaedic Surgery – A Review, *Journal of Angiotherapy*, 8(4), 1-17, 9612