



## Modern Trends In World Traumatology And Orthopedics: Opportunities And Prospects

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**Abstract:** *The article addresses the main questions like:*

*1. Fundamental and theoretical research in the field of orthopedics and traumatology. 2. Experimental orthopedics and traumatology. 3. Clinical research in orthopedics and traumatology.*

**Keywords:** *modern medicine / orthopedics / traumatology / radiation diagnostics / bones / joints / new methods /*

### 1. Introduction

Modern medicine is making great strides in the treatment of various injuries and diseases of the musculoskeletal system. Science does not stand still, new developments and methods of therapy appear, but, unfortunately, patients are not always sufficiently informed about what options for solving their problems exist, and also where they can get qualified help. As a result, treatment is often limited to traditional methods, which are far from always effective.

Meanwhile, the use of the latest achievements of medical science in the treatment of injuries and diseases of the musculoskeletal system can significantly improve the quality of life of patients, abandon a number of conservative methods, speed up the rehabilitation period and reduce the time spent in the hospital.

Traumatology and orthopedics is a separate section of practical medicine, the purpose of which is to study the problems of the musculoskeletal system. The specialists working in this direction are based on the latest achievements of medicine.

In other words, this area of medicine is engaged in the study of pathologies that have arisen due to injuries, as well as deviations developing against the background of other diseases. Thanks to the latest developments, today the leading specialists in this area of healthcare use the most relevant methods for correcting various defects in bones and soft tissues.

New approaches are also used in the treatment of joint diseases. All these and many other topical issues of introducing modern trends in world traumatology and orthopedics have become the main topic of discussion.

Progressive in traumatology and orthopedics are also special modules that provide local delivery of drugs to implants. The development of such devices today in the world is actively underway, although they are not yet widely used, and what already exists is the so-called "smart instruments in the operating room".

Such devices provide the surgeon with real-time feedback and important data during operations. 3D printing technology, which has stepped far forward, also opens up great opportunities in the field of traumatology and orthopedics, for example, with their help, they create individual implants and prostheses that provide better compatibility.

Cellular technologies, the use of robotic surgery, the use of artificial intelligence, artificially grown organs and tissues - during the lecture, not only modern developments were discussed, but also their capabilities and areas of their application in traumatology and orthopedics



They are carried out with contemporary tools (arthroscopic meniscus resection, anterior cruciate ligament plasty, chondroplasty). the use of an arthroscope, a tool inserted into the joint through a tiny incision, to perform a minimally invasive manipulation. As a result, the operation causes less trauma and the recovery time is greatly shortened.

### **Clinical aspects of current radial diagnostics in traumatology and orthopaedics**

It is common knowledge that advancements in research techniques are what lead to advances in science. The development of diagnostic techniques undoubtedly contributed to the identification of novel patterns for the emergence and progression of the pathological process, the detection of earlier and more precise disease symptoms, and the clarification of more nuanced mechanisms underlying the action of therapeutic interventions. Modern imaging techniques like computed tomography, magnetic resonance imaging, photoemission and positron emission tomography, as well as interventional radiology, have been added to traditional radiology. Since radiation diagnostics has transcended anatomical conceptions and extensively reveals biochemical and functional problems in numerous organ systems, the breadth and precision of research that modern methods of radiation diagnosis are capable of cannot help but astound. Traumatology and orthopedics are one of the earliest and most closely related disciplines with radiodiagnosis, the development and improvement of which is impossible without the use of modern research methods. The development and improvement of diagnostic algorithms for diseases and injuries of the musculoskeletal system are based on an integrated approach to the choice of methods and methods of radiation examination, which consists in a combination of classical and modern, radiation and non-radiation diagnostic methods, which allows optimizing the diagnostic process in terms of patient safety and efficiency.

New techniques and methods for examining muscles using ultrasonography and computed tomography have been proposed. Criteria for assessing the state of muscles in the process of lengthening have been developed to predict the outcomes of surgical lengthening of the lower extremities. Adaptation-compensatory and recovery processes in the muscles of the thigh and lower leg after their lengthening are completed by the formation of new muscle-tendon ratios, approaching in their parameters to the corresponding age norms. In children aged 7-13 years, the recovery period takes less time than at the age of 14-17 years. A comprehensive assessment of the state of the muscles of the lower extremities in patients with achondroplasia before the start of the next stage of lengthening includes the determination of the muscle belly index (MIB), the coefficient of contractility (K1). Preservation of the muscle counter-reaction (contractility coefficient) within 60% and a decrease in density by no more than 10% is a good prognostic sign for restoring the function of the gluteal muscles and the hip joint.

The design of clinical studies in orthopedic traumatology is challenging in several respects. In this era of evidence-based medicine, the pressure is high to choose our treatments solely based on randomized controlled studies. This type of study, when well-constructed, makes it possible to discern the best treatment for a specific fracture in a given group of patients and in connection with a specific outcome. Randomized controlled trials require a lot of resources and are not designed to answer all research questions. Observational studies, such as case-control studies, prospective cohort studies, and cross-sectional studies, also have a role to play in improving scientific knowledge in orthopedic trauma.

### **References**

1. Ортопедия, травматология и протезирование. 2015. № 1 Корольков А. И., Голубева И. В., Бенгус Л. М., Мальцева В. Е., Погорелая А. В., Прохорова Е. А. (г. Харьков) DOI: <http://dx.doi.org/10.15674/0030-598720151125-126>
2. Conway D. J. et al. The institute for global orthopedics and traumatology: a model for academic collaboration in orthopedic surgery //Frontiers in Public Health. – 2017. – Т. 5. – С. 146.
3. <https://cyberleninka.ru/article/n/klinicheskie-aspekty-sovremennoy-luchevoj-dagnostiki-v-travmatologii-i-ortopedii>
4. БАЛАБЕКОВА М. К. и др. ТРАВМАТОЛОГИЯ И ОРТОПЕДИЯ.
5. <https://pubmed.ncbi.nlm.nih.gov/27881043/>
6. Rokkanen P. U. et al. Bioabsorbable fixation in orthopaedic surgery and traumatology //Biomaterials. – 2000. – Т. 21. – №. 24. – С. 2607-2613.