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# Book review

## THE ROLE OF MATHEMATICS ON HUMAN STRUCTURE

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This book gives a detailed presentation of calculation of some parts of human structure. It contains twelve independent separate articles united by an idea of using mathematical methods in order to make medical treatment more precise. The author started his investigations with philanthropic motivation to try to help to the handicapped persons who had undergone not precise enough orthopedic treatment in some cases in India. He believes that the reason of bad treatment could be the lack of mathematical precision. Therefore, the aim of the book, according to the words of the author, is to help researchers, physicians and medical surgeons to calculate physiological movements on the basis of degree of freedom and replacement of bones properly to avoid shortening and extension of limbs and other parts of human structure. From historical aspect, the author is inspired by works of Leonardo da Vinci and René Descartes. First two articles in the book are dedicated to them, and in most of other articles Leonardo da Vinci's words serve as an inspiration.

Besides Preface and Index, the book contains following chapters

1. Leonardo da Vinci – the anatomist of great ability.
2. Physiological concepts of René Descartes.
3. Mathematical explanation of Descartes' concept of Pineal Gland and its modern view.
4. Mechanism of movements of Heart – on Mathematical concepts.
5. Cervical deformations – its causes and its deductions on Mathematical basis.
6. Mechanism of Skeletal Shoulder-joint – analyzed by Mathematical process.
7. Vertebrae and its efficiencies – expressed in Mathematical procedure.
8. Pelvis – distribution of Forces through it by Mathematical deductions.
9. Human femur and Mathematical examination.
10. Structure of Femoral Condyles distributing weight to the lower part of the Leg.
11. Structure of Bone Lamellae and distribution of Forces on the Hip-joint.
12. Role of Ligaments on the movements of Femur in comparison with Hip and its Mathematical examination.

Each of the chapter is equipped with its own references.

From the point of view of applied mathematics, this book can attract interest. The topics (related to human anatomy) are an important field for useful applications of mathematics. The book can fill the gap in existing mathematical literature and can serve as a useful auxiliary text-book for students of applied mathematics to understand importance of exact approaches to medical treatments based on mathematics. The book contains many figures and graphs, which can help in understanding of human structure and applications of mathematical techniques.

From the point of view of orthopedic surgery, this book presents the knowledge most of surgeons should be familiar with, in order to perform his/her job correctly. Luckily, most of them are. Indeed, the topics presented in the book are already a part of biomechanics, which is a highly developed scientific discipline and a part of curriculum of each medical school. Moreover, new high-precision, computer-guided surgical navigation or image-guided surgery, techniques that are used today in many world centers, can successfully overcome problems pointed out in the book.

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