

BOOK REVIEW

MATEJ SUPEJ: BIOMECHANICS 1, student book,
Faculty of Sports, University of Ljubljana, 2011, 111 pages

It is important for a sports expert to have knowledge regarding natural sciences such as functional anatomy, physiology, biomechanics etc. in order to be able to meet the standards of high quality professional work. With the book *Biomechanics 1*, we now have the first Slovene university level textbook on the field of biomechanics in human kinesiology. It contains clear presentations of the basic topics of biomechanics enriched by the applied examples from sports. The author is Assistant Professor Dr. Matej Supej Ph.D., who, with his background in physics, is a prominent, internationally recognized researcher as well as a former competitor and later also a coach and a national demo team member in alpine skiing. Even if he is strongly engaged in scientific work, he has sustained a practical orientation and collaboration with top level sports and now also acts as a consultant and a lecturer at the national and international level.

The author of the textbook first presents the basics of kinematics, which does not question the sources of movements, but rather describes it using purely fundamental physical quantities. After specifying the shapes and complexities of objects, descriptions of constant movement and straight and curved accelerated movement are described using different types of throws. This is followed by the chapter on the dynamics of movement which describes the forces which cause changes in velocity and/or the direction of movement. The author informs the reader about the laws regarding the action of forces such as basic laws regarding movement, friction, the flow of fluids, etc.

Informative examples are given throughout the text including that of the flight path of a rotating ball when explaining the Magnus Effect; landing after a drop jump and using the example of a dancing couple when speaking about force impulse and the collision of two bodies; knee valgus torque in relation to the width of a ski; and many more. The author continuously builds up the content of the textbook, for example in the introductory explanations he creates a base for the understanding of Steiner's Law or understanding the role the eccentric take-off has in a successfully executed summer-sault in gymnastics. In the last part of the book, Dr. Supej presents topics from the fields of mechanical work, energy and power. Practical, illustrated examples of potential, kinetic and elastic energy (height of a jump, gigantic swing and bungee-jumping) are summarized with the Law of Preservation of Mechanical Energy.

The textbook, also accessible biomechanics on the web page <http://www.fsp.uni-lj.si/COBISS/Monografije/SupejBiomehanika1.pdf>, fills in the missing gap in the field of sports biomechanics. Because of its applied orientation, this textbook will be certainly useful as study material not only for students in sports science, but also for students and professionals from different fields such as medicine, ergonomics, sports technologies, orthopaedics, etc.

Dr. Supej, as your colleague and a researcher/lecturer in the field of kinesiology, I would like to thank you for your textbook, *Biomechanics 1* (Slovene title: *Biomehanika*

1). I also believe that I can, in the name of our many colleagues, say that Biomechanics 2 and 3 would also be more than welcome. We need such textbooks in order to be able to further a science-based sports practice in Slovenia and, at the same time, to be more effective and successful in our cross and interdisciplinary communication.

Nejc Šarabon, PhD

RECENZIJAKNJIGE

MATEJ SUPEJ: BIOMEHANIKA 1, učbenik,
Fakulteta za šport, Univerza v Ljubljani, 2011, 111 strani

Za kakovostno strokovno delo v športu je nujno dobro poznavanje nekaterih temeljnih naravoslovnih ved, kot so funkcionalna anatomija, fiziologija, biomehanika in druge. Z učbenikom *Biomehanika 1* smo dobili prvi slovenski visokošolski učbenik s področja biomehanike v kineziologiji. V njem so na jasn način predstavljene temeljne biomehanske vsebine in aplikativni primeri iz športa. Avtor doc. dr. Matej Supej, po svoji temeljni izobrazbi fizik, je odličen raziskovalec svetovnega kova, bil pa je tudi tekmovalec, demonstrator in trener v alpskem smučanju. Ob svojem poglobljanju v znanstveno-raziskovalna vprašanja nenehno ohranja uporabno naravnost in posledično ohranja stik z vrhunskim športom kot strokovni svetovalec in predavatelj doma in v svetu.

Učbenik najprej poda osnove kinematike, ki se ne sprašuje o izvorih gibanja, temveč gibanje kot takšno zgolj opiše s fizikalnimi količinami. Opredelitvi različnih oblik in kompleksnosti teles sledijo predstavitve enakomernega, pospešenega premočrtnega in ukrivljenih gibanj na primerih različnih vrst metov. Sledi poglavje o dinamiki, v katerem so predstavljene sile, ki povzročajo spremembe smeri oziroma hitrosti gibanja. Avtor učbenika bralca seznani s ključnimi zakonitostmi o delovanju sil, kot so osnovni zakoni o gibanju, trenju, obtakanju tekočine in drugi. Skozi tekst se vrstijo nazorni praktični primeri, kot so let rotirajoče žoge za ponazoritev Magnusovega efekta, globinski doskok in drsalni par za boljše razumevanje sunka sile, gibalne količine in trka teles; valgusni navor kolenskega sklepa v odvisnosti od širine smučke in številni drugi. Avtor vsebine vseskozi nadgrajuje, na primer s predhodnimi razlagami pripravi osnovo za razumevanje pomena Steinerjevega zakona ali pa pomena ekscentričnega odriva za kakovostno izvedbo prevrata prosto naprej v gimnastiki. V zadnjem delu učbenika doc. dr. Matej Supej predstavi vsebine s področja mehanskega dela, energije in moči. S primeri (skok v višino, veletoč, skok z elastiko) podkrepnjene razlage potencialne, kinetične in prožnostne energije zaključuje z izrekom ohranitvi mehanske energije.

Učbenik, dostopen tudi preko spletnega naslova <http://www.fsp.uni-lj.si/COBISS/Monografije/SupejBiomehanika1.pdf>, zapolnjuje vrzel na področju biomehanike športa in je zaradi svoje aplikativne usmerjenosti dobrodošlo učno gradivo ne le za študente športa, temveč tudi za mnoge druge študente in strokovnjake s področij fizikalne medicine, ergonomije, športne tehnologije, ortopedije idr. Matej, kot kolega in kineziolog, se ti zahvaljujem za *Biomehaniko 1* in menim, da lahko tudi v imenu mnogih drugih kolegov rečem: več kot dobrodošli bi bili tudi *Biomehanika 2* in *3*. Takšne učbenike potrebujemo, da bomo lahko še bolj učinkovito razvijali na znanosti temelječo športno stroko v Sloveniji in bili prepričljivi v komunikaciji s sebi sorodnimi strokami.

dr. Nejc Šarabon