

医用生物力学

YIYONG SHENGWU LIXUE

双月刊 1986年6月创刊 第35卷 第3期 2020年6月出版



[期刊基本参数] CN 31-1624/R * 1986 * b * A4 * 136 * zh+en * P * ¥25.00 * 2000 * 19 * 2020-06

主管

中华人民共和国教育部

主办

上海交通大学

承办

上海交通大学医学院附属

第九人民医院

出版

《医用生物力学》编辑部

编辑部

地址 上海市制造局路 639 号

邮编 200011

电话 (021) 53315397

传真 (021) 63137020

电子邮件

shengwulixue@163.com

网址

<http://www.medbiomechanics.com>

<http://www.mechanobiology.cn>

微博

<http://weibo.com/u/2040064195>

广告部 水汶

主编

戴尅戎

常务副主编

姜宗来

副主编

陈维毅 樊瑜波 龙勉

秦岭 郑诚功

编辑部主任

于志锋

E-mail: zfyu@outlook.com

责任编辑

徐绮

E-mail: 1534340082@qq.com

英文编辑

吴晓芸

编辑

《医用生物力学》编辑委员会

印刷

山西同方知网印刷有限公司

国内发行

上海市报刊发行局

国外总发行

中国国际图书贸易总公司

订购

全国各地邮局

邮发代号 4-633

定价

每期:25.00元 全年150.00元

国内统一连续出版物号

CN 31-1624/R

国际标准连续出版物号

ISSN 1004-7220

CODEN YSLIBU

©2020 年版权归《医用生物力学》编辑部所有

目次

专家论坛

机械通气在治疗新型冠状病毒肺炎中的生物力学问题 (265)

罗明志,倪凯,闻康,邓林红

论著

基于形态学和血流动力学的 B 型主动脉夹层病发机理分析 (271)

张薛欢,李振锋,许欢明,梅玉倩,赵天扬,鲍思达,熊江,陈端端

先天性心脏病相关性肺动脉高压血流动力学特异性研究 (276)

王丽平,刘金龙,张明杰,沈娟亚,全志荣,徐卓明

右冠状动脉起源于左冠状窦的血流动力学分析 (284)

丛梦杨,赵慧慧,许星明,代顺,陈传智,邱建峰,钱秀清,秦升学

基于 3D 打印和 CT 三维重构数值模拟上呼吸道气流状态的研究方法 (289)

喜扬洋,詹杰民,史剑波,林凯,胡文清,邓洁

基于计算流体动力学的新型电磁驱动搏动式灌注血泵泵头优化分析 (296)

赵圣功,葛斌,方旭晨,李刚,徐毅骁,魏凌轩

LASIK 手术对人眼角膜生物力学性能的影响 (304)

刘春生,赵科超,王晓君,陈维毅,贺瑞

壁冠状动脉周向应力体外加载装置的研制 (311)

丁皓,刘雨佳,张迎,刘浩宇,阚梦菲,庄逸,杨戈尔,吕杰

- 基于牙颌模型的正畸弓丝初始回复力口外测量技术 (319)
 仵健磊,刘云峰,张建兴,彭伟,陈晨
- 兔脊柱节段压缩的生物力学研究 (325)
 张玉文,郭媛,张绪树,韩世冰,陈维毅
- 流体剪切力下趋化因子 CXCL12 诱导 Jurkat T 细胞的钙响应机制 (331)
 胡兵,吴建华,凌颖琛,方颖
- 中央型腰椎管狭窄症患者间歇性跛行症状出现前后的足底压力分析 (338)
 魏伟,张扬,徐超,杨晓江,卢昌波,雷伟
- 全膝关节置换前后患者下肢肌骨模型步态模拟与分析 (347)
 刘佳耕,闫松华,曾纪洲,张宽
- 神经肌肉疲劳前后运动鞋对下肢落地冲击的生物力学影响 (356)
 王熙,杨洋,孙晓乐,张希妮,傅维杰
- 下肢力线与膝关节软骨下骨板杆结构和软骨退变的关系 (364)
 韩学全,谢凯,江旭,何子豪,杜静珂,吴海山,于志锋,严孟宁
- 服用非变性 II 型胶原蛋白对骨性关节炎患者膝关节活动度的影响 (372)
 陈佑,罗宇婷,王海燕,陈泽阳,李旭鸿,徐玉明

综述

- 肺内液黏度和表面张力测量的临床意义与测量方法 (378)
 刘远洋,陈正龙,宋元林,黄湘岳,张春元,胡兆燕
- 骨骼肌通过力学刺激对骨重建的影响 (385)
 许明明,于志锋
- 角度基台生物力学影响的研究现状 (391)
 王雨琪,田克斌,吴世莲

信息

- 致读者 (318)

《医用生物力学》杂志由中华人民共和国教育部主管、上海交通大学主办,所发表之图文、版权(含翻译权)均归《医用生物力学》编辑部(出版人)所有。未经出版人书面许可,不得对本刊内容进行任何目的和形式的转载、转播及复制,包括转换成用于资料信息处理设施的机械、电子语言。

本刊实行通讯作者负责制,每篇论文均由 2~3 位同行评委(peer reviewer)独立审稿。发表的图文中所表达的任何内容与观点,均属作者个人的见解与意见,并不反映和代表《医用生物力学》编辑部的立场和观点。有关所发表文章的任何问题,均由作者负责解释,出版人不承担任何与之相关的责任。

本刊是中国科技核心期刊,已被北京大学图书馆《中文核心期刊要目总览》、《中国科学引文数据库》、荷兰《文摘与引文数据库》等国内外多家知名数据库收录。

本杂志采用无酸纸(acid-free)印刷。

JOURNAL OF MEDICAL BIOMECHANICS

Published Bimonthly

Founded in June, 1986

Volume 35 Number 3, Jun. 2020

[Journal Basic Information] CN 31-1624/R * 1986 * b * A4 * 136 * zh+en * P * ¥25.00 * 2000 * 19 * 2020-06

Supervised by

Ministry of Education of
People's Republic of China

Sponsored by

Shanghai Jiao Tong University

Organized by

Shanghai Ninth People's Hospital,
Shanghai Jiao Tong University
School of Medicine

Published by

Editorial Office of
Journal of Medical Biomechanics

Editorial Office

No. 639 Zhizaoju Rd.,
Shanghai 200011, China

Tel: + 86 21 53315397

Fax: + 86 21 63137020

E-mail: shengwulixue@163.com

Website:

<http://www.medbiomechanics.com>

<http://www.mechanobiology.cn>

Microblog:

<http://weibo.com/u/2040064195>

Advertising division: SHUI Wen

Editor-in-Chief

DAI Kerong

Executive Vice Editor-in-Chief

JIANG Zonglai

Associate Editors-in-Chief

CHEN Weiyi CHENG Chengkung

FAN Yubo LONG Mian

QIN Ling

Editorial Director

YU Zhifeng

E-mail: zfyu@outlook.com

Executive Editor

XU Qi

E-mail: 1534340082@qq.com

English Editor

WU Xiaoyun

Edited by

Editorial Board of

Journal of Medical Biomechanics

Printed by

Shanxi Tongfang Knowledge Network
Printing Co., Ltd.

Overseas Distributor

China International Book

Trading Cooperation

China Standard Serial Numbering

ISSN 1004-7220

CN 31-1624/R

CODEN YSLIBU

Subscription

Yearly Subscription Rates: 150.00 RMB

Single Issue: 25.00 RMB

Copyright © 2020 by the Editorial

Board of *Journal of Medical Biomechanics*

Contents

Expert Forum

Biomechanical Issues of Mechanical Ventilation in Covid-19 Therapy (265)

LUO Mingzhi, NI Kai, WEN Kang, DENG Linhong

Original Articles

Pathogenesis Analysis of Type-B Aortic Dissection Based on Morphological
and Hemodynamic Parameters (271)

ZHANG Xuehuan, LI Zhenfeng, XU Huanming, MEI Yuqian, ZHAO Tianyang,

BAO Sida, XIONG Jiang, CHEN Duanduan

Hemodynamic Characteristics of Pulmonary Arterial Hypertension Related
to Congenital Heart Disease (276)

WANG Liping, LIU Jinlong, ZHANG Mingjie, SHEN Juanya, TONG Zhirong,

XU Zhuoming

Hemodynamic Analysis on Anomalous Origin of the Right Coronary Artery
from the Left Coronary Artery Sinus (284)

CONG Mengyang, ZHAO Huihui, XU Xingming, DAI Shun, CHEN Chuanzhi,

QIU Jianfeng, QIAN Xiuqing, QIN Shengxue

Research Method for Numerical Simulation on Upper Respiratory Tract
Airway State Based on 3D Printing and CT Reconstruction (289)

XI Yangyang, ZHAN Jiemin, SHI Jianbo, LIN Kai, HU Wenqing, DENG Jie

Optimum Analysis on Pump Head of a Novel Pulse Blood Pump Driven
by Electromagnetism Based on Computational Fluid Dynamics (296)

ZHAO Shenggong, GE Bin, FANG Xuchen, LI Gang, XU Yixiao, WEI Lingxuan

Effects of LASIK on Biomechanical Properties of Human Cornea (304)

LIU Chunsheng, ZHAO Kechao, WANG Xiaojun, CHEN Weiyi, HE Rui

Development of an *in vitro* Loading Device for Circumferential Stress of
Mural Coronary Arteries (311)

DING Hao, LIU Yujia, ZHANG Ying, LIU Haoyu, KAN Mengfei, ZHUANG Yi,

YANG Geer, LÜ Jie

The Extra-Oral Measuring Technique of Initial Restoring Force Produced
by Orthodontic Archwire Based on Dental Model (319)

WU Jianlei, LIU Yunfeng, ZHANG Jianxing, PENG Wei, CHEN Chen

- Biomechanical Study on Segmental Compression of Rabbit Spine (325)
ZHANG Yuwen, GUO Yuan, ZHANG Xushu, HAN Shibing, CHEN Weiyi
- Chemokine CXCL12-Induced Calcium Response of Jurkat T Cells under Fluid Shear Stress (331)
HU Bing, WU Jianhua, LING Yinchen, FANG Ying
- Analysis of Plantar Pressure before and after Occurrence of Neurogenic Intermittent Claudication in Patients with Central Lumbar Spinal Stenosis (338)
WEI Wei, ZHANG Yang, XU Chao, YANG Xiaojiang, LU Changbo, LEI Wei
- Gait Simulation and Analysis of Lower Limb Musculoskeletal Model before and after Total Knee Arthroplasty (347)
LIU Jiageng, YAN Songhua, ZENG Jizhou, ZHANG Kuan
- Biomechanical Effects of Shoe Cushioning on Lower Extremities during Drop Landing before and after Neuromuscular Fatigue (356)
WANG Xi, YANG Yang, SUN Xiaole, ZHANG Xini, FU Weijie
- Relationship of Subchondral Plate-Rod Structure and Cartilage Degeneration with Lower Limb Alignment (364)
HAN Xuequan, XIE Kai, JIANG Xu, HE Zihao, DU Jingke, WU Haishan, YU Zhifeng, YAN Mengning
- Influences of Oral Udenatured Collagen Type II on Knee Joint Range of Motion in Patients with Knee Osteoarthritis (372)
CHEN You, LUO Yuting, WANG Haiyan, CHEN Zeyang, LI Xuhong, XU Yuming

Review Articles

- Clinical Significance and Method of Measuring Lung Fluid Viscosity and Surface Tension (378)
LIU Yuanyang, CHEN Zhenglong, SONG Yuanlin, HUANG Xiangyue, ZHANG Chunyuan, HU Zhaoyan
- Effects of Skeletal Muscle on Bone Remodeling through Mechanical Stimulation (385)
XU Mingming, YU Zhifeng
- The Biomechanical Influence of Angled Abutment in Dental Implants: A Review (391)
WANG Yuqi, TIAN Kebin, WU Shiliang

News and Announcement

(318)

The *Journal of Medical Biomechanics* (JMB) is sponsored by Shanghai Jiao Tong University and supervised by Ministry of Education of People's Republic of China. The copyright is reserved by Editorial Office of *Journal of Medical Biomechanics*. No contents are allowed to be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the written permission from the publisher.

All manuscripts are reviewed by two or three independent expert reviewers. The information presented in the papers and the opinions expressed therein are those of the individual authors and not necessarily reflect the views of the Editorial Board of *Journal of Medical Biomechanics*. The publisher assumes no liability for any materials published in the journal. All statements are the responsibilities of the authors, particularly the corresponding author (s).

JMB is the source journal for Chinese Scientific and Technical Papers and Citations, and is selected in the *Guide to the Core Journals of China* by Peking University Library. It has been included in certain famous databases such as China Science Citation Database (CSCD) and Scopus.

This journal is printed on acid-free papers.