



LUND UNIVERSITY

Exercise and Sports for Health Promotion, Disease, and Disability

Laskowski, Edward R.; Lexell, Jan

Published in:
PM&R

DOI:
[10.1016/j.pmrj.2012.09.586](https://doi.org/10.1016/j.pmrj.2012.09.586)

2012

[Link to publication](#)

Citation for published version (APA):

Laskowski, E. R., & Lexell, J. (2012). Exercise and Sports for Health Promotion, Disease, and Disability. *PM&R*, 4(11), 795-796. <https://doi.org/10.1016/j.pmrj.2012.09.586>

Total number of authors:
2

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Supplement: Exercise and Sports for Health Promotion, Disease, and Disability

INTRODUCTION

Edward R. Laskowski, MD

Co-Director, Mayo Clinic Sports Medicine Center; Professor, Department of Physical
Medicine and Rehabilitation, Mayo Clinic, Rochester, Minnesota

Jan Lexell, MD, PhD

Department of Health Sciences, Lund University, Lund; Department of Rehabilitation
Medicine, Skåne University Hospital, Lund, Sweden

We are honored to present this issue on Exercise and Sports for Health Promotion, Disease, and Disability on behalf of *PM&R*, *The Journal of Injury, Function, and Rehabilitation*, and the American Academy of Physical Medicine and Rehabilitation.

If there was a pill that provided the myriad benefits of exercise, it would likely be the best selling medication ever to be developed! Multiple studies have shown that regular physical activity and exercise can reduce the risk of cancers, including breast and colon cancers; reduce the risk of developing Alzheimer dementia; reduce the incidence of heart disease and high blood pressure; lower the risk of stroke and developing type II diabetes; aid in weight loss and weight maintenance; and decrease depression as effectively as antidepressant medication or behavioral therapy. Conversely, a low level of physical activity can expose an individual to a greater risk of dying than even the risk from smoking, hypertension, high cholesterol, or obesity. It is better to have cardiorespiratory fitness and be overweight, than unfit with a lower percentage of body fat.

Introduction of exercise into the workplace has been shown to reduce health care costs, missed work, and hospitalization. Despite these findings, however, a significant majority of adults in the United States and other parts of the world do not meet the minimum physical activity requirements for health and fitness. When examining direct measures, physical inactivity has been found to be the leading cause of death in the United States.¹

Despite this impressive data, many physicians do not “walk the talk” when it comes to their own physical activity and also with respect to counseling patients. A recent study showed that 40% of primary care physicians in the United States and about 40% of United States medical students do not meet the 2008 Centers For Disease Control Physical Activity Guidelines.² In addition, physically inactive doctors have been shown to be less likely to provide exercise counseling to their patients, and they present themselves as less credible role models. One study reported that only 34% of adults in the United States report having received exercise counseling at their last medical visit.³ The physiatrist is ideally suited to be the perfect prescriber of exercise, but traditionally has focused on therapeutic exercise for disease, injury, and disability. There is a great need for physicians with the motivation, desire, and skills to prescribe exercise for “wellness,” health maintenance, cardioprotection, weight loss, injury “protection,” and optimal musculoskeletal and cardiovascular fitness, as well as for injury and disease treatment and management. The physiatrist has the training and knowledge base to be this physician. We hope that this volume can provide essential information regarding exercise and sports in the context of health promotion as well as in disease treatment and disability.

The initial articles of this supplement introduce basic principles of exercise physiology and principles regarding the main forms of exercise prescribed by the physiatrist or other medical professionals. Basic exercise physiology is discussed in the context of understanding the human body’s response to an acute bout of exercise, with endurance exercise used as an example of this response. Long-term adaptations induced by endurance exercise in some physiological systems are also addressed. Exercise science has advanced greatly over the years, but there is still a large amount of “tradition” which may interfere with the correct application of exercise techniques. Strength training, flexibility and stability training are reviewed with respect to evidence-based recommendations regarding the prescription of each. Physiatrists are uniquely qualified to be the optimal providers of an exercise prescription for healthy individuals as well as those with medical conditions, and the essentials of appropriate exercise prescription are addressed. The benefits of exercise extend beyond the musculoskeletal and

cardiovascular systems, and the psychosocial benefits of exercise are examined in detail. The loss of a sports skill or ability secondary to injury can be devastating to some patients, and indications for referral for specialized consultation to assist with psychodynamic evaluation, behavioral modification, exercise addiction, eating disorders, and other psychologic distress are discussed. Additionally, motivating individuals to exercise and addressing barriers to exercise are discussed with the goal of enhancing exercise compliance and sustainability, both of which are major problems that can interfere with long term exercise success.

The second section of articles discusses the role of exercise and health promotion. As the American College of Sports Medicine's "Exercise is Medicine" program promotes, exercise advice specifically prescribed by a physician is more often heeded. The exercise prescription for optimization of cardiovascular health and fitness, including essential components, is discussed in detail, as are unique exercise considerations in pediatric and senior populations. The United States is currently in the throes of an epidemic of obesity and inactivity affecting both young and old, with significant impact on our nation's health care expenditures, workforce, and on the morbidity and mortality of our population. Many of the harmful effects of obesity and inactivity are related to musculoskeletal conditions that a physiatrist is especially equipped to address. The role of exercise during pregnancy usually stimulates discussion and differing opinions, and the available evidence is addressed to provide recommendations for exercise during pregnancy for both the seasoned and new exerciser. Adaptive equipment advances combined with elite level disability specific conditioning and training has led to remarkable advances in the performance of Paralympic athletes regardless of their disability. A novel approach for closing the gap between inpatient and outpatient rehabilitation and the usage of community-based exercise facilities by people with disabilities is presented and discussed. Finally, the effect of exercise as a preventive tool in sports injury prevention is addressed by using the model of ACL injury prevention as a template for the prescription of a preventive exercise program.

The last section of articles focus on the role of exercise in the context of specific diseases and disabilities. Cardiovascular disease remains the primary cause of mortality in the United States, and physiatrists may not be as familiar with the principles of aerobic exercise prescription in this population. Exercise has a proven role in both the prevention and rehabilitation for patients with coronary artery disease, heart failure and post heart transplant, and current strategies regarding the incorporation of exercise to optimize cardiovascular benefit are discussed. Cancer and osteoporosis are discussed, including appropriate caveats and precautions in the exercise prescription. The role, indications, as well as the efficacy and incorporation of exercise treatment in the context of myofascial pain syndrome are addressed. Evidence linking exercise and sport participation to physical and psychological well-being among people with spinal cord injury is reviewed, and recommendations for using exercise and sport to promote health and well-being among people living with spinal cord injury are discussed in detail. The evidence of cardiorespiratory fitness and muscle resistance training after stroke on improving physical function, activity, participation, life satisfaction and mood are reviewed, and barriers performing exercise are discussed. The current state of the basic science and clinical literature regarding exercise for brain injury rehabilitation is presented, and important factors related to the timing of exercise after mild traumatic brain injury, balancing potentially favorable and detrimental effects on recovery, are discussed. Finally, the reader is treated to a powerful editorial which advocates the physiatrist as being ideally positioned to provide an essential role in the dissemination and teaching of a national exercise curriculum for undergraduate medical students.

This exceptional collection of articles has been accomplished through much hard work by an outstanding group of nationally and internationally recognized experts in the field of exercise intervention in health, disease and disability. We consider it a great honor to have worked with each one of our esteemed colleagues, and we find the exceptional information presented to be a valuable resource for the physiatrist as well as for any medical professional interested in exercise prescription. Rarely has extensive, evidence-based information regarding exercise science and exercise application in health, disease and disability been consolidated in such a concise, user friendly format. We hope that

you find that this volume will enhance your patient care and aid in the accurate prescription of exercise for your patients. We hope it will also serve as a stimulus to promote more widespread physician counseling on the beneficial effects and appropriate incorporation of exercise for the promotion of overall fitness, disease treatment and modification, and injury prevention. With a unified effort by physiatrists and other physicians and health professionals involved in exercise prescription, we can make an impact on the health of the global population.

1. Blair SN, Physical Inactivity: The Biggest Public Health Problem of the 21st Century; Br J Sports Med 2009; 43:1-2
2. Lobelo F, Duperly J, Frank E Physical activity habits of doctors and medical students influence their counseling practices. Br J Sports Med 2009;43(2):88-92
3. Wee CC, McCarthy EP, Davis RB, et al. Physical Counseling about Exercise. JAMA 1999; 282:1583-8.