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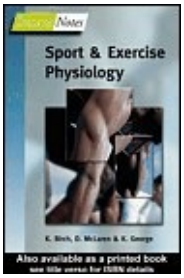
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ABBREVIATIONS

AACVPR

American Association of Cardiovascular and Pulmonary Rehabilitation

ACOG

American College of Obstetricians and Gynecologists

ADP

adenosine diphosphate

AHA

American Heart Association

ANS

autonomic nervous system

ATP

adenosine triphosphate

BMI

body mass index

cAMP

cyclic adenosine monophosphate

CHD

coronary heart disease

CK

creatine kinase

CNS

central nervous system

DEXA

dual-energy X-ray absorptiometry

DLW

doubly labeled water

DOMS

delayed-onset muscle soreness

ECG

electrocardiogram

$FEV_{1.0}$

forced expiratory volume in 1 second

FFM

fat-free mass

FG

fast glycolytic

FOG

fast oxidative-glycolytic

FVC

forced vital capacity

HCO_3^-

bicarbonate ion

HR

heart rate

IDDM

insulin-dependent diabetes mellitus

IGF-I

insulin-like growth factor I

LCT

long-chain triglyceride

LSD

long slow distance

MCT

medium-chain triglyceride

MET

metabolic equivalent

MLTPA

Minnesota Leisure Time Physical Activity Questionnaire

MRFIT

Multiple Risk Factor Intervention Trial

NIDDM

non-insulin-dependent diabetes mellitus

NIR

near infrared reactance

PAR-Q

Physical Activity Readiness Questionnaire

PASE

Physical Activity Scale for the Elderly

PCO_2

partial pressure of carbon dioxide

PO_2

partial pressure of oxygen

PCR

phosphocreatine/creatine phosphate

PDH

pyruvate dehydrogenase

PFK

phosphofructokinase

PNF

proprioceptive neuromuscular facilitation

PNS

peripheral nervous system

$\dot{Q}$

cardiac output

RER

respiratory exchange ratio

RM

repetition maximum

RMR

resting metabolic rate

ROM

range of motion

RPE

rating of perceived exertion

RQ

respiratory quotient

SCUBA

self-contained underwater breathing apparatus

SI

System International

SO

slow oxidative

SV

stroke volume

TEA

thermic effect of activity

TEF

thermic effect of food

TIA

transient ischemic attack

$\dot{V}CO_2$

volume of carbon dioxide produced

VE

volume expired

$\dot{V}E$

ventilatory volume

$\dot{V}O_2$

volume of oxygen consumed per minute

$\dot{V}O_{2max}$

maximum rate of oxygen consumed per minute

PREFACE

Sport and Exercise Science has become a hugely popular degree subject at university and college alike, and thankfully more and more health professionals utilize the scientific principles of exercise, training, sport and rehabilitation. With this in mind it seemed that a quick reference, or revision text in the physiology of exercise was sorely missing. We had the idea that a text of this nature would be applicable to undergraduate students studying Exercise Physiology as a major component of their degree, to students opting to study the elective as an option, and then of course to those professionals and interested parties who need a guide to the essentials of the subject. Hopefully this text will be used by all of these parties. We acknowledge that the title of the text is grammatically incorrect, and should in fact read the 'Physiology of Exercise.' After much debate and thought over this problem we decided to stay with 'Exercise Physiology,' mainly because it is the name given to most undergraduate modules of this nature. The Key Notes sections of this book should highlight the important revision areas within each topic of interest. The following sections provide the major detail of these topics, whilst also highlighting where topics interlink. We have attempted to keep this detail to the essential information, and to use easy diagrams to help underpin the knowledge. Students and interested parties alike should therefore become very familiar with the essential components of exercise physiology without having to read through huge tomes. We hope that once the essential information is grasped that the reader will be enthused to read further in what is (we think) a fascinating subject.

Karen Birch,
August 2004

Section A –
Fundamentals of Exercise Physiology