

CONTENTS

ACKNOWLEDGMENTS AND THANKS	10
FOREWORD	12
INTRODUCTION	14
 PART I – THEORY	 16
 CHAPTER 1 – THE LOCOMOTOR APPARATUS	 16
1.1 Presentation	17
1.1.1 The Active Part of the Locomotor Apparatus: Muscles, Tendons, and Ligaments	18
1.1.2 The Passive Part of the Locomotor Apparatus: Bones and Joints	19
1.2 Muscle Action	21
1.3 Role of the Individual Muscles	22
1.4 Articular Features of Muscles	23
1.5 Muscular Tissue Features	24
1.6 Elements of Biomechanics: Levers	25
1.6.1 Thoughts on Organic Levers	28
 CHAPTER 2 – ENERGY SYSTEMS	 29
2.1 Presentation	30
2.2 Anaerobic Alactacid System	32
2.3 Anaerobic Lactacid System	33
2.4 Aerobic System	35
2.5 Energy System Interactions	37
2.6 VO ₂ max and the Anaerobic Threshold	38
2.7 Oxygen Debt and EPOC	39

CHAPTER 3 – MUSCULAR CONTRACTION	42
3.1 Presentation	43
3.2 Muscular Contraction	45
3.3 Types of Muscle Fibers	46
3.4 Types of Muscular Contraction	48
 CHAPTER 4 – TRAINING THEORY	 49
4.1 Organic Systems	50
4.2 Training: Presentation	52
4.3 Training Program	54
4.4 Training Theory	55
4.5 Training Parameters	56
4.6 Exercises	58
4.6.1 Complex exercises	58
4.6.2 Competition exercises	60
 CHAPTER 5 – FUNCTIONAL TRAINING	 62
5.1 Kinetic and Kinematic Chains	63
5.2 The Meaning of Functional	64
5.3 The Action-Function Principle	65
5.4 Pebbles Into a Pond	66
5.5 Objectives	68
5.5.1 What are the Benefits of Functional Training?	68
5.6 Motivations	70
5.7 Functional Training and Pre-athleticism	71
5.8 Functional Training: Other Factors to Develop	72

5.8.1	Training Recruitment	72
5.8.1.1	Training Recruitment in Adults	73
5.8.2	Strengthening Pivot Muscles	74
5.8.3	Reinforcing the Weak Links in the Kinematic Chains	75
5.8.4	Breaking the Pattern	75
CHAPTER 6 – HIP EXTENSOR CHAIN		77
6.1	Presentation	78
6.2	Action and Function of the Lower Body	80
6.3	Articular Reality: Long-limbed and Short-limbed Subjects	82
6.3.1	Consequences	83
6.4	Back Ache, the Iliopsoas, and Evolution	85
CHAPTER 7 – ABDOMINAL FASCIA		87
7.1	Presentation	88
7.2	Core	90
7.3	Pelvic Floor	90
7.4	Action of the Abdominal Fascia	91
7.5	Function of the Abdominal Fascia	93
7.6	The Centrifuge Principle	95
CHAPTER 8 – SCAPULOHUMERAL GIRDLE		96
8.1	Presentation	97
8.2	Action of the Scapulohumeral Girdle	98
8.3	Function of the Scapulohumeral Girdle	101
8.4	Grip Types	102

TRAINING WITH BODYWEIGHT FOR STRENGTH AND MOBILITY

CHAPTER 9 – TIBIAL-TARSAL JOINT AND FOOT 104

9.1 Presentation 105

9.2 Walking 106

9.3 Running 107

9.4 Foot Movements 108

PART II – PRACTICE..... 109

CHAPTER 10 – BODY-WEIGHT EXERCISES 109

10.1 Origins 110

10.2 Presentation 111

 10.2.1 Load types 111

10.3 Training Rules 112

10.4 Lower-body Exercises 114

10.5 Core Training 167

10.6 Upper-body Exercises 206

**PART III – OBJECTIVES, METHODS,
AND TRAINING PROGRAMS 238**

CHAPTER 11 – STRENGTH 238

11.1 The Functional Choice 239

11.2 Strength Training 240

11.3 Strength-training Programs 241

CONTENTS

CHAPTER 12 – HYPERTROPHY	244
12.1 Hypertrophy Training	245
12.2 Cosmetic and Functional Hypertrophy	247
12.3 Functional Hypertrophy-training Programs	248
 CHAPTER 13 – SLIMMING	 251
13.1 Slimming Training	252
13.2 Lipolytic Paths	253
13.3 Circuit Training	254
13.3.1 Circuit Training	254
13.3.2 Cardio-fit Training	257
13.3.3 Peripheral Heart Action (PHA) Training	261
13.3.4 Blitz Circuits	264
13.3.5 Timed Circuits	267
13.3.6 Boot Camps	269
 ETHICS AND CONCLUSIONS	 272