

Contents

Foreword viii
Preface ix
Acknowledgments xi
Symbols and Abbreviations xii

Part I Basis of Strength Conditioning 1

Chapter 1 Basic Concepts of Training Theory 3

Adaptation As a Main Law of Training 3
Generalized Theories of Training 10
Training Effects 14
Summary 14

Chapter 2 Task-Specific Strength 17

Elements of Strength 18
Determining Factors: Comparison Across Tasks 22
Summary 45

Chapter 3 Athlete-Specific Strength 47

Muscle Force Potential (Peripheral) Factors 48
Neural (Central) Factors 60
Taxonomy of Strength 63
Summary 64

Part II Methods of Strength Conditioning . . . 67

Chapter 4 Training Intensity 69

Measurement Techniques 70
Exercising With Different Resistance 73
Training Intensity of Elite Athletes 77
Optimal Training Intensities From Comparative Research 80
Methods of Strength Training 80
Summary 86

Chapter 5	Timing in Strength Training	89
	Structural Units of Training	89
	Short-Term Planning	91
	Medium-Term Planning (Periodization)	97
	Summary	107
Chapter 6	Strength Exercises	109
	Classification	109
	Exercise Selection for Beginning Athletes	111
	Exercise Selection for Qualified Athletes	111
	Additional Types of Strength Exercises	123
	Experimental Methods of Strength Training	132
	Breathing During Strength Exercises	134
	Summary	135
Chapter 7	Injury Prevention	137
	Training Rules to Avoid Injury	137
	Biomechanical Properties of Intervertebral Discs	138
	Mechanical Load Affecting the Intervertebral Discs	140
	Injury Prevention to the Lumbar Region	144
	Summary	153
Chapter 8	Goal-Specific Strength Training	155
	Strength Performance	155
	Power Performance	156
	Muscle Mass	160
	Endurance Performance	162
	Injury Prevention	167
	Summary	169
Part III	Training for Specific Populations	171
Chapter 9	Strength Training for Women	173
	The Female Athlete's Need for Strength Training	174
	Benefits and Myths of Strength Training for Women	175
	Trainable Characteristics of Muscle	176
	Physiological Contrasts Between Women and Men	181
	Strength Training Guidelines for Women Athletes	184
	Incidence of Injury	185

Menstrual Cycle and Strength Training	185
The Female Athlete Triad	187
Summary	189

Chapter 10 Strength Training for Young Athletes 191

Safety and Strength Training for Young Athletes	192
When to Start	200
Benefits of Strength Training for Young Athletes	203
Myths of Strength Training for Children	205
Strength Training Guidelines for Young Athletes	206
Summary	213

Chapter 11 Strength Training for Senior Athletes 215

Age and Its Effects on Strength and Power	216
Training for Strength Gains	219
Training for Muscular Power	221
Nutrition, Aging, and Exercise Challenges	222
Recovery From Resistance Exercise	223
Strength Training and Bone Health	224
Strength Training Guidelines for Senior Athletes	224
Summary	226

Glossary 227

Suggested Readings 235

Index 239

About the Authors 251