

Contents

Chapter 1: Basics of Electricity, Light and Sound	1
❖ Structure of an Atom	3
❖ Formation of Compounds	4
❖ Types of Electricity	5
❖ Static Electricity	5
❖ Capacitance	9
❖ Current Electricity	11
❖ Thermal and Chemical Effects of Currents	18
❖ Magnetic Effects of Electric Current	28
❖ Magnets and Earth Magnetism	37
❖ Electromagnetic Induction	44
❖ Electric Shock	59
❖ Physical Principles of Sound	67
Chapter 2: Inflammation and Repair	71
❖ Inflammation	71
❖ Acute Inflammation	72
❖ Pain	74
❖ The Role of a Physiotherapist and Physical Agents	75
Chapter 3: Low Frequency Currents	76
❖ Faradic Type Current	76
❖ Electrotherapeutic Currents	77
❖ Nerve Transmission	83
❖ Waveforms	86
❖ Current Modulation	90
❖ Indications for the Use of Low Frequency Currents	92
❖ Physiological Effects of Low Frequency Currents	93
❖ Treatment of Patient's Condition	94
❖ Proforma for Patient's Assessment	95
❖ Median Nerve Stimulation	99
❖ Ulnar Nerve Stimulation	101
❖ Radial Nerve Stimulation	104
❖ Erb's Paralysis	107
❖ Facial Nerve Stimulation	108
❖ Deltoid Inhibition	111
❖ Quadriceps Inhibition	112
❖ Lateral Popliteal Nerve Injury	113
❖ Faradism Under Pressure	115
❖ Faradic Foot Bath	116
❖ Strength Duration Curve	121
❖ Iontophoresis	125
❖ Transcutaneous Electrical Nerve Stimulation	127
❖ Microcurrent Electrical Neuromuscular Stimulation	131

Chapter 4: Medium Frequency Currents	133
❖ Rebox-Type Currents	133
❖ Russian Currents	133
❖ Interferential Therapy	134
❖ Treatment of Patient's Condition	137
❖ Proforma for Patient's Assessment	137
❖ Low Back Pain	141
❖ Periarthritis Shoulder	143
❖ Osteoarthritis Knee	144
❖ Absorption of Exudates	145
❖ Stress Incontinence	146
Chapter 5: High Frequency Currents	148
❖ Shortwave Diathermy	148
❖ Microwave Diathermy	165
❖ Longwave Diathermy	167
❖ Treatment of the Patient's Condition	167
❖ Proforma for Patient's Assessment	168
❖ Cervical Spondylosis	170
❖ Periarthritis Shoulder	172
❖ Low Backache	173
❖ Lumbar Spondylosis	176
❖ Shortwave Diathermy to Hip Joint	177
❖ Sciatica	178
❖ Osteoarthritis of Knee	179
❖ Secondary Osteoarthritis	180
❖ Ligament Injuries	181
❖ Plantar Fasciitis	185
❖ Salpingitis (Pelvic Inflammatory Disease)	187
Chapter 6: Radiation Therapy	189
❖ Infrared Radiations	189
❖ Dangers of Infrared Radiations	193
❖ Treatment of Patient's Condition	194
❖ Infrared Radiations Proforma for Patient's Assessment	194
❖ Low Backache	196
❖ Postimmobilization Stiffness	198
❖ Absorption of Exudates or Edema	199
❖ Production of Ultraviolet Radiations	201
❖ Techniques of Application	203
❖ Techniques of General Irradiation	204
❖ Physiological Effects of Ultraviolet Radiations	204
❖ Indications of Ultraviolet Irradiations	205
❖ Contraindications	207
❖ Treatment of Patient's Condition	207
❖ Proforma for Patient's Assessment	207
❖ Ulcers	209
❖ Acne Vulgaris	211
❖ Pressure Sores	212
❖ Psoriasis	212
❖ Rickets	214
❖ General Debilitating Condition	214
❖ Vitiligo	215

❖ Alopecia	215	
❖ Sensitizers	215	
Chapter 7: Laser Therapy		217
❖ Historical Aspects	217	
❖ Properties of Laser	218	
❖ Production of Laser	218	
❖ Types of Laser	219	
❖ Techniques of Application	220	
❖ Dosage Parameters	220	
❖ Interaction of Laser with Body Tissues	221	
❖ Physiological Effects and Therapeutic Uses of Lasers	221	
❖ Dangers and Contraindications	222	
❖ Treatment of Patient's Condition	222	
❖ Proforma for Patient's Assessment	222	
Chapter 8: Superficial Heating Modalities		228
❖ Paraffin Wax Bath Therapy	228	
❖ Proforma for Patient's Assessment	230	
❖ Hot Packs/Hydrocollator Packs	230	
❖ Electric Heating Pads	232	
❖ Whirlpool Bath	233	
❖ Contrast Bath	234	
❖ Heliotherapy	234	
❖ Sauna Bath	235	
Chapter 9: Ultrasonic Therapy		236
❖ Frequency of Ultrasound	237	
❖ Properties of Waves	237	
❖ Production of Ultrasound	238	
❖ Techniques and Methods of Application	243	
❖ Dosage	246	
❖ Physiological Effects of Ultrasound	248	
❖ Therapeutic Uses of Ultrasound	250	
❖ Dangers of Ultrasound	250	
❖ Contraindications	251	
❖ Phonophoresis	251	
❖ Combination Therapy	254	
❖ Treatment of Patient's Condition	256	
❖ Proforma for Patient's Assessment	256	
❖ Tennis Elbow (Lateral Epicondylitis)	258	
❖ Golfer's Elbow (Medial Epicondylitis)	259	
❖ Supraspinatus Tendinitis	259	
❖ De Quervain's Disease (Tenosynovitis)	260	
❖ Bicipital Tendinitis	260	
❖ Subdeltoid Bursitis	260	
❖ Subacromial Bursitis	261	
❖ Metatarsalgia	261	
Chapter 10: Cryotherapy		262
❖ Techniques of Application	262	
❖ Basic Principles	264	
❖ Physiological Effects and Therapeutic Uses of Cold Therapy	264	
❖ Dangers and Contraindications	265	

❖ Proforma for Patient's Assessment	266	
❖ Ankle Sprain	267	
❖ Muscle Contusion/Hematoma	268	
Chapter 11: Biofeedback		270
❖ Biofeedback Instrumentation	270	
❖ General Principles	272	
❖ Biofeedback in Rehabilitation	272	
❖ Use of Electromyogram Biofeedback for Neuromuscular Re-education	273	
❖ Limitations of Biofeedback	273	
❖ Uses of Biofeedback	274	
Chapter 12: Electromyography		275
❖ Types of Electromyography	276	
❖ Motor Unit Action Potential	276	
❖ Components of Electromyography	276	
❖ The Electromyographic Examination	281	
❖ Kinesiological Electromyography	284	
❖ Nerve Conduction Velocity	284	
❖ Clinical Implications of Electromyography	290	
<i>Glossary</i>		293
<i>Suggested Reading</i>		305
<i>Index</i>		307