I. Introduction to Physiology: The Cell and General Physiology

1. Functional Organization of the Human Body and Control of the "Internal Environment"

2. The Cell and Its Functions

3. Genetic Control of Protein Synthesis, cell function, and cell reproduction

II. Membrane Physiology, Nerve, and Muscle

4. Transport of Substances Through Cell Membranes

5. Membrane Potentials and Action Potentials

6. Contraction of Skeletal Muscle

7. Excitation of Skeletal Muscle: Neuromuscular Transmission and Excitation-Contraction Coupling

8. Excitation and Contraction of Smooth Muscle

III. The Heart

9. Cardiac Muscle; The Heart as a Pump and Function of the Heart Valves

10. Rhythmical Excitation of the Heart

11. The Normal Electrocardiogram

12. Electrocardiographic Interpretation of Cardiac Muscle and Coronary Blood Flow Abnormalities: Vectorial Analysis

13.Cardiac Arrhythmias and Their Electrocardiographic Interpretation

IV. The Circulation

14. Overview of the Circulation; Biophysics of Pressure, Flow, and Resistance

15. Vascular Distensibility and Functions of the Arterial and Venous Systems

16. The Microcirculation and Lymphatic System: Capillary Fluid Exchange, Interstitial Fluid, and Lymph Flow

17. Local and Humoral Control of Tissue Blood Flow

18. Nervous Regulation of the Circulation and Rapid Control of Arterial Pressure

19. Role of the Kidneys in Long-Term Control of Arterial Pressure and in Hypertension: The Integrated System for Aterial Pressure Regulation

20. Cardiac Output, Venous Return, and Their Regulation

21. Muscle Blood Flow and Cardiac Output During Exercise; the Coronary Circulation and Ischemic Heart Disease

65. Secretory Functions of the Alimentary Tract

66. Digestion and Absorption in the Gastrointestinal Tract

67. Physiology of Gastrointestinal Disorders

XIII. Metabolism and Temperature Regulation

68. Metabolism of Carbohydrates and Formation of Adenosine Triphosphate

69. Lipid Metabolism

70. Protein Metabolism

71. The Liver as an Organ

72. Dietary Balances; Regulation of Feeding; Obesity and Starvation; Vitamins and Minerals

73. Energetics and Metabolic Rate

74. Body Temperature Regulation and Fever

XIV. Endocrinology and Reproduction

75. Introduction to Endocrinology

76. Pituitary Hormones and Their Control by the Hypopthalamus

77. Thyroid Metabolic Hormones

78. Adenocortical Hormones

79. Insulin, Glucagon, and Diabetes Mellitus

80. Parathyroid Hormone, Calcitonin, Calcium and Phosphate Metabolism, Vitamin D, Bone, and Teeth

81. Reproductive and Hormonal Functions of the Male (and Function of the Pineal Gland)

82. Female Physiology Before Pregnancy and Female Hormones

83. Pregnancy and Lactation

84. Fetal and Neonatal Physiology

XV. Sports Physiology

85. Sports Physiology