Contents

Chapter-1

Introduction: 1-10

Chapter-2

Seasonal Variation of Average Ozone as Related to Natural Vitamin-D Molecule: 11-33
  2.1. Ozone Produced in the Atmosphere
  2.2. Ozone Depletion Effect
  2.3. Chloro Floro Carbons and Ozone Depletion
  2.4. Measurement of Average Ozone
  2.5. Average Ozone as Related to Vitamin-D
  2.6. Vitamin-D Level in Different Area

Chapter-3

The Role of Environmental Factors in Synthesis of Vitamin-D Molecule: 34-71
  3.1. Number of Factors Directly Affect the Availability of UV on Earth Surface
      3.1.1. Time of Day and Year
      3.1.2. Latitude and Altitude
      3.1.3. Solar Zenith Angle (Solar elevation)
  3.2. Variation of Global Energy with Time of Day and Year
  3.3. Action Spectrum for Formation of Vitamin-D
  3.4. Sun Exposure Time Production of Vitamin-D
  3.5. Measurement of UV-B Radiation Intensity and Calibration
  3.6. Calculation of Vitamin-D Synthesis

Chapter-4

Photobiology of Vitamin-D Molecule and Its Seasonal Variation: 72-104
  4.1. Chemical Structure of Vitamin-D Molecule
      4.1.1 Side Chain Modification
      4.1.2 Dihydro Derivatives
  4.2. Photobiology of Vitamin-D
  4.3. Metabolism of Vitamin-D
  4.4. Seasonal Variation of Vitamin-D Synthesis
      4.4.1. Age and sex
      4.4.2. Ageing and Immobility
      4.4.3. Dietary and Supplemental Vitamin-D
      4.4.4. Skin Pigmentation and Vegetarian Diet
4.5. Possible, Biological and Clinical Significance of Seasonal Variation in Vitamin-D
   4.5.1. 1,25-Dihydroxycholecalciferol and Calcium Absorption
   4.5.2. Parathyroid Hormone and Bone Mineral Density
   4.5.3. Metabolic Bone Diseases
   4.5.4. Behaviour
   4.5.5. Cellular Growth and Proliferation
   4.5.6. Immunoregulation

Chapter-5

Benefits and Requirements of Vitamin-D for Optimal Health: 105-123
   5.1. Pre- and Postnatal Vitamin-D Benefits
   5.2. Vitamin-D Benefits in Adulthood
   5.3. The Role of Vitamin-D in Health
   5.4. Optimal Level of Vitamin-D in Serum to Support Health
   5.5. Recommended Intake and Sources of Vitamin-D
      5.5.1. Recommended Intake of Vitamin-D
      5.5.2. Dietary Sources of Vitamin-D

Chapter-6

Conclusion: 124-132

References: 133-160