

---

# Contents

## Part I Bone and Basics Sciences

<b>1 Anatomy of the Skeletal System</b> . . . . .	3
Rauf Yousaf	
<b>2 Physiology of Bone Formation, Remodeling, and Metabolism</b> . . . . .	29
Usha Kini and B.N. Nandeesh	
<b>3 Pathophysiology of Bone Metastases</b> . . . . .	59
Hans Van der Wall, Barry Elison, Clayton Frater, Warwick Bruce, and Stephen Clarke	
<b>4 Skeletal Tracer Kinetics: Science and Practice</b> . . . . .	85
Glen M. Blake, Michelle Frost, Amelia E.B. Moore, Muhammad Siddique, and Ignac Fogelman	
<b>5 Biochemical Markers in Bone Diseases</b> . . . . .	109
Geeta Hampson	

## Part II Bone and Conventional Radiology

<b>6 Basics of CT</b> . . . . .	135
Kathryn L. Adamson and Bruce R. Walmsley	
<b>7 Basic Principles of MRI</b> . . . . .	149
Philippa Tyler and Sajid Butt	
<b>8 Radiological Imaging in Metastatic Bone Disease and Myeloma: Current Status and Limitations</b> . . . . .	173
Zaid Viney	
<b>9 Radiological Imaging of Primary Benign and Malignant Bone Tumours</b> . . . . .	195
Sajid Hasan Butt, Thillainayagam Muthukumar, and Philippa Tyler	
<b>10 Radiological Imaging in Trauma and Sports Injuries: Current Status and Limitations</b> . . . . .	259
Hans Van der Wall, Robert Loneragan, Louise Wong, Ahmed M. Mayat, and John K. Pereira	

<b>11 Radiological Imaging in Arthritis: Current Status and Limitations</b> . . . . .	307
Hans Van der Wall, Robert Loneragan, Louise Wong, Les Barnsley, and Siri Kannangara	

### **Part III Radionuclide Bone Imaging: Science and Practice**

<b>12 Basic Principles of SPECT and PET Imaging</b> . . . . .	345
Lefteris Livieratos	
<b>13 Technical Challenges and Pitfalls in Hybrid Imaging</b> . . . . .	361
Lefteris Livieratos	
<b>14 Bone Scintigraphy: SPECT and PET Tracers</b> . . . . .	369
James R. Ballinger	
<b>15 Bone Scintigraphy: Patterns, Variants, Limitations and Artefacts</b> . . . . .	377
Malavika Nathan, Gopinath Gnanasegaran, Kathryn Adamson, and Ignac Fogelman	
<b>16 Soft Tissue Uptake in Radionuclide Bone Scintigraphy</b> . . . . .	409
Fahim Ul Hassan, Malavika Nathan, Gopinath Gnanasegaran, and Ignac Fogelman	

### **Part IV Bone Scintigraphy in Benign Bone Disease**

<b>17 Bone Scintigraphy in Metabolic Bone Disease</b> . . . . .	435
Gary J.R. Cook, Gopinath Gnanasegaran, and Sue C. Chua	
<b>18 Bone Scintigraphy in Arthritis</b> . . . . .	445
Hans Van der Wall, Michael Magee, Manuel Cusi, Warwick Bruce, and Siri Kannangara	
<b>19 Bone Scintigraphy in Trauma and Sport Injuries</b> . . . . .	481
Hans Van der Wall, Manuel Cusi, Barry Elison, Clayton Frater, and Warwick Bruce	
<b>20 SPECT and PET in the Assessment of Bone Infections</b> . . . . .	523
Christopher J. Palestro	
<b>21 Nuclear Medicine in the Assessment of Painful Joint Prostheses</b> . . . . .	561
Erik Vegt, Wim Schreurs, Martin Gotthardt, and Wim J.G. Oyen	
<b>22 Radionuclide Bone Imaging in Skeletal Tuberculosis</b> . . . . .	583
Rakesh Kumar, Varun Shandal, Shamim Ahmed Shamim, and Arun Malhotra	
<b>23 Hybrid Imaging in the Management of Complex Foot and Ankle Problems</b> . . . . .	597
Hosahalli K. Mohan, Sanjay Vijayanathan, and Ignac Fogelman	

<b>24 Wrist Registration: Conventional Radionuclide and SPECT/CT Imaging . . . . .</b>	<b>609</b>
Gopinath Gnanasegaran, Peter Jackson, Bo Povlsen, Sanjay Vijayanathan, and Ignac Fogelman	

## **Part V Bone Scintigraphy in Bone Metastases**

<b>25 Prostate Cancer: Role of Conventional Radionuclide and Hybrid Bone Imaging . . . . .</b>	<b>635</b>
Mohsen Beheshti and Werner Langsteiger	
<b>26 Breast Cancer: Role of Planar, SPECT and PET in Imaging Bone Metastases . . . . .</b>	<b>661</b>
Michael S. Hofman and Rodney J. Hicks	
<b>27 Lung, Thyroid, Renal Cancer, Myeloma and Neuroendocrine Cancers: Role of Planar, SPECT and PET in Imaging Bone Metastases. . . . .</b>	<b>691</b>
Sue S.C. Chua, Gopinath Gnanasegaran, and Gary J.R. Cook	
<b>28 Conventional Nuclear Medicine and Hybrid Imaging in Monitoring the Treatment of Skeletal Malignancy . . . . .</b>	<b>717</b>
Suat-Jin Lu, Gopinath Gnanasegaran, Ignac Fogelman, and Gary J.R. Cook	
<b>29 Potential Applications and Limitations of SPECT-CT in Classifying Bone Lesions in Patients with Cancer . . . . .</b>	<b>735</b>
Tara Barwick, Gopinath Gnanasegaran, and Ignac Fogelman	
<b>30 Primary Bone and Soft Tissue Tumours: Role of SPECT. . . . .</b>	<b>751</b>
Shalini A. Amukotuwa and Stephen M. Schlicht	
<b>31 Primary Bone and Soft Tissue Tumours: Role of 18FDG PET . . . . .</b>	<b>777</b>
Gary J.R. Cook, Gopinath Gnanasegaran, and Sue S.C. Chua	
<b>32 Radioisotopes in the Treatment of Bone Metastases . . . . .</b>	<b>787</b>
H. Bulstrode and J. Buscombe	
<b>33 Radionuclide Bone Marrow Imaging in Cancer Patients . . . . .</b>	<b>795</b>
Sandip Basu, Ayse Mavi, and Abass Alavi	

## **Part VI Paediatric Bone Scintigraphy**

<b>34 Pediatric Bone Scintigraphy: Variants and Limitations . . . . .</b>	<b>815</b>
Helen R. Nadel	
<b>35 Paediatric Bone Scintigraphy: Benign Bone Disease. . . . .</b>	<b>827</b>
Kevin London and Robert Howman-Giles	

<b>36 Paediatric Bone Scintigraphy: Bone Metastases</b> . . . . .	855
Robert Howman-Giles and Kevin London	
<b>37 Hybrid Bone Imaging in Pediatrics</b> . . . . .	879
Helen R. Nadel	
<b>Part VII Bone and Miscellaneous Scenarios</b>	
<b>38 Bone Densitometry: Science and Practice</b> . . . . .	893
Glen M. Blake and Ignac Fogelman	
<b>39 Radiosynovectomy: Science and Practice</b> . . . . .	915
Peter Schneider	
<b>40 Radiosynoviorthesis (Radiation Synovectomy) of Knee Joint</b> . . . . .	935
Gynter Mödder	
<b>41 Common Orthopaedic Presentations</b> . . . . .	953
Sujith Konan, Sugama Chicklore, and Fares S. Haddad	
<b>42 Radiological Imaging in Infection: Current Status and Limitations</b> . . . . .	983
Angus O'Connor	
<b>Index</b> . . . . .	1023

Radionuclide and Hybrid Bone Imaging

Fogelman, I.; Gnanasegaran, G.; van der Wall, H. (Eds.)

2012, XIV, 1046 p., Hardcover

ISBN: 978-3-642-02399-6