

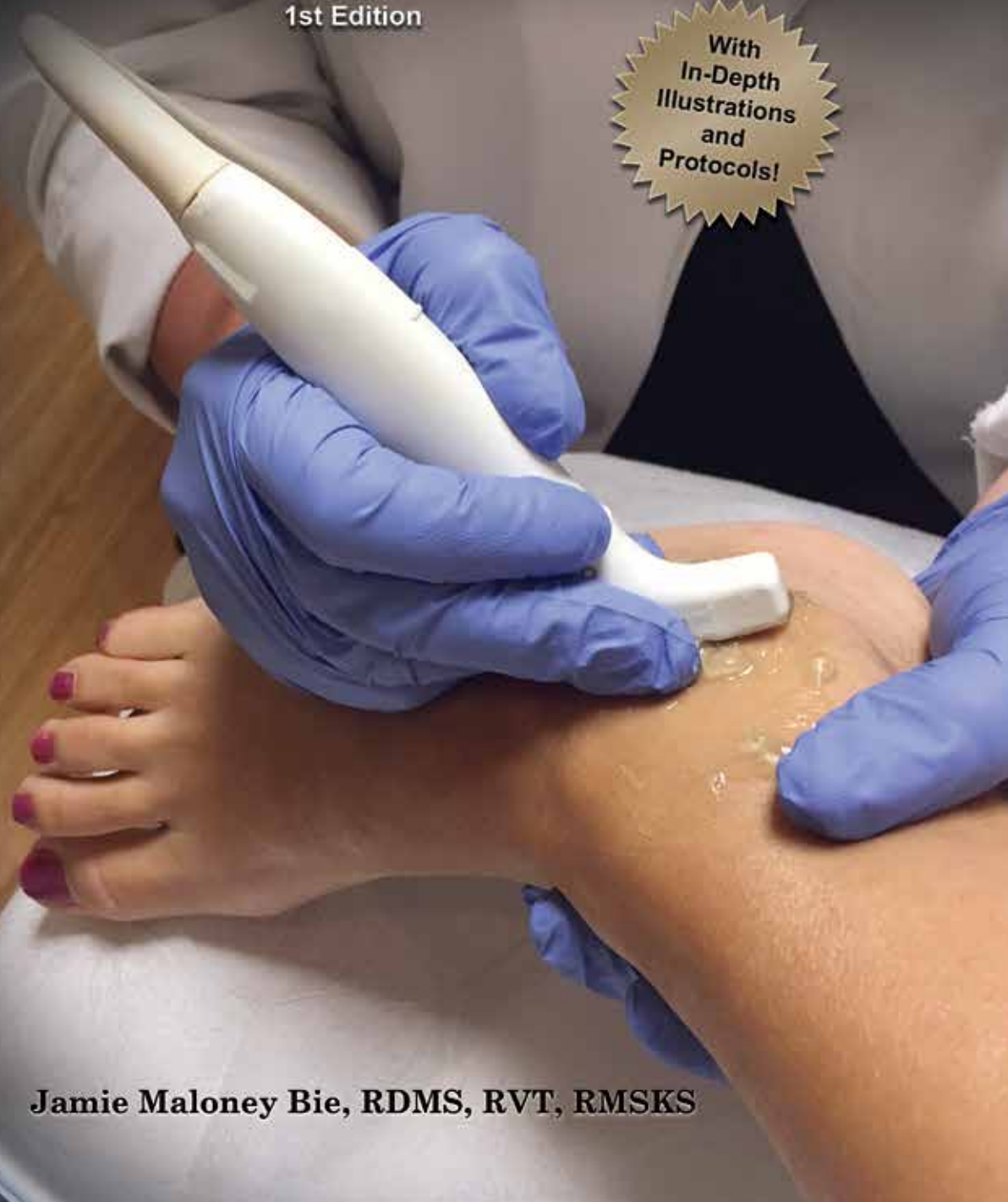


Musculoskeletal Ultrasound

*A Comprehensive Guide to
MSK Imaging and Interventional Techniques*

1st Edition

With
In-Depth
Illustrations
and
Protocols!



Jamie Maloney Bie, RDMS, RVT, RMSKS

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In gratitude,



Jamie Bie, RDMS, RVT, RMSKS

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Preface

Dear Colleague,

My interest in creating a MSK “How To” manual was ignited early in my exposure to MSK ultrasound. I quickly found that there was no educational material that covered MSK ultrasound in sufficient depth for a beginner to become proficient in musculoskeletal ultrasound. Being registered in multiple modalities, I am passionate about understanding the fundamental principles of each modality, a passion which I believe contributes greatly to developing critical thinking skills. After years of searching, I was unable to find a text that delivered what I needed – so, I decided to write my own.

Through my years of experience and teaching in the field, I have found that many facilities are interested in performing MSK ultrasound but do not have sonographers with the requisite skills. Since MSK ultrasound is a fairly new ultrasound specialty, most ultrasound programs do not include it in their curriculum. This lack of formal training compels sonographers to learn either on the job or from independent study. I was very fortunate to be mentored by Greg Wilde, MD, a MSK fellowship trained radiologist. Most sonographers do not have the luxury of working side-by-side with a physician experienced in MSK ultrasound.

This text is designed as a pictorial step-by-step protocol guide so as to clearly depict each step the sonographer should take in order to accurately identify and document pertinent MSK structures. Because a thorough knowledge of anatomy and structural origin and attachment is critical in being able to identify MSK structures, each section begins with an anatomy review which includes the origin and insertion point of muscles. Protocols are presented with paired ultrasound images: one annotated image outlining anatomical structures and the other a corresponding non-annotated image. These paired images provide an easy method of learning to recognize structures. In hopes of shortening the learning curve, I have included “CheckPoints” which are tips and techniques of image optimization that I have learned over the years.

I hope that you find this text to be a valuable guide in your ultrasound practice.

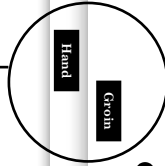
Best wishes for your success,



Jamie Bie, RDMS, RVT, RMSKS

Section Markers

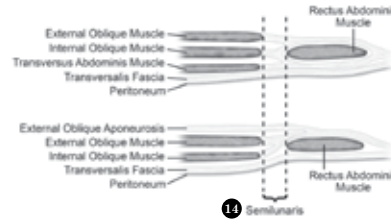
Quickly flip through the text to find sections using the vertical section markers.



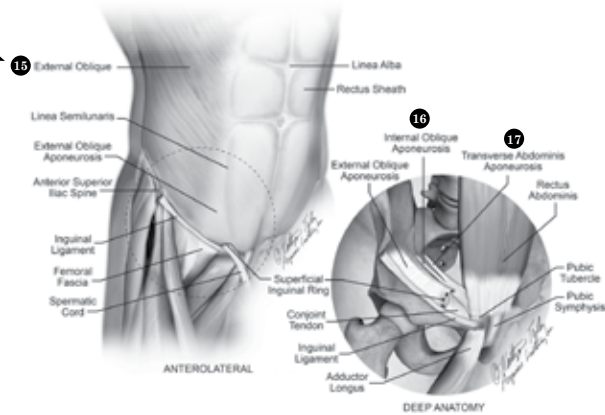
Anatomy Reviews

Providing an essential resource, each section begins with a review of pertinent anatomy and corresponding illustration of important landmarks referenced in the scanning protocols.

- 14 Spigelian Fascia
 - An aponeurotic band of variable width called the linea semilunaris through which a hernia can occur that lies between the obliques muscles laterally and the rectus abdominis muscles medially
 - Extends from the costal cartilage of the ninth rib to the pubic tubercle of the pubis



- 15 External Oblique Muscle
 - *Origin:* Ribs 5-12
 - *Insertion:* Linea alba of the abdomen, iliac crest of the ilium, and the pubis
 - *Action:* Compresses the abdominal wall and laterally rotates the trunk
- 16 Internal Oblique Muscle
 - *Origin:* Inguinal ligament and the iliac crest of the ilium
 - *Insertion:* Linea alba of the abdomen and ribs 10-12
 - *Action:* Compresses the abdominal wall and laterally rotates the trunk
- 17 Transversus Abdominis Muscle
 - *Origin:* Thoracolumbar fascia, inguinal ligament, iliac crest of the ilium, and costal cartilages 7th-12th ribs
 - *Insertion:* Linea alba and the pubic crest of pubis
 - *Action:* Compresses the abdominal wall



Additional Online Material



Log on to www.pegasuslectures.com with your personal code for interactive questions which reinforce key concepts in each section.


Step by Step Protocol

Each protocol section offers a detailed narrative of the scanning protocol (left, gray column) with the corresponding ultrasound image (right column) for easy visualization of concepts.


Medial Collateral Ligament

The elbow should remain slightly externally rotated and flexed.

1. The ligament can be visualized deep to the common flexor tendon extending from the medial epicondyle to the coronoid process of the proximal ulna.




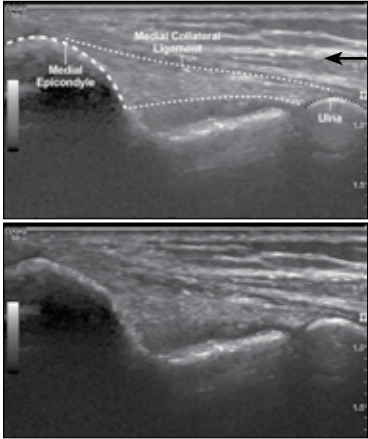
Upper Extremity Supine Position
Transducer Below the Antecubital Fossa



Anterior Bundle Medial Collateral Ligament – LONG AXIS
Anterior to Posterior

2. Image the anterior bundle of the medial collateral ligament in the long axis from anterior to posterior.

 *The ligament should appear as a compact hyperechoic fibrillar band.*



Anterior Bundle Medial Collateral Ligament – LONG AXIS

Transducer Overlays

Each protocol includes a photograph of proper body position with a transducer overlay, noted notch position, and direction in which to scan.

Ultrasound Overlays

Ultrasound images are shown in pairs with one image showing important structures outlined and annotated for ease of identification and the other image focusing on the ultrasound image without annotation.



CheckPoints

Found throughout the protocol sections, CheckPoints provide valuable tips and techniques for image optimization.