

INSTRUCTOR RESOURCE

Trail Guide to the Body, 6th edition

40-hour Curriculum

Created for **Books of Discovery** by:

Lurana Bain

Introduction

Whether you are a new or seasoned instructor, *Trail Guide to the Body (TGB)* and this curriculum offer you extensive support as you help your students develop both their knowledge of palpatory anatomy and their hands-on palpation skills.

New pedagogical features in the sixth edition of *TGB* include “essence of the chapter” explanations and pre-learning questions or activities strategically placed at the beginning of each chapter, to engage students before moving into the chapter content. These elements are designed with several purposes in mind:

- To focus learners on chapter topics
- To allow learners to recall and draw on their prior knowledge and experience with the topics
- To increase learners’ curiosity by helping them identify where they have gaps in their knowledge that they can fill by completing the chapter
- To jump-start learners’ critical thinking processes, encouraging them to apply what they know or observe to make informed predictions for how the chapter will answer the questions raised

All of these goals provide support for showing students **why** the content is critical to their academic and professional success. Instructors and practitioners know that the knowledge and ability to locate surface anatomy features, bony landmarks, muscles, and other structures of the region are vital to manual therapy professionals as they assess their patients. The skilled recognition of specific muscle actions as well as distinguishing between muscle actions is essential for determining imbalances or compensations when designing an effective treatment plan for each unique client situation.

Approaches for conveying the “why” to learners take many forms, varying with each instructor’s distinct background, experience, and expertise, as well as their unique groups of students. The creation of lesson plans and teaching strategies that emphasize the importance and relevance of content is what makes teaching such an interesting and dynamic endeavor! This curriculum is designed to help—offering a course structure utilizing the textbook content and recommendations for achieving the learning objectives. The pages that follow are filled with lists of terms and outlines for lectures. I have included methods, strategies, and activities that have been successful in my classroom and the classrooms of other seasoned instructors.

Musculoskeletal palpation was the first course I ever designed as an instructor. I used *Trail Guide to the Body* as the text to support the course fifteen years ago. In the decade and a half I have been using this text to teach palpatory anatomy to countless students, multiple supplemental materials have been developed (see more details in the class equipment section below) to support our success as instructors to motivate our students to be curious and learn about this marvelous masterpiece—the body—that we live in every day of our lives.

Today’s adult learning landscape is complex and wide-ranging. Just as the research surrounding manual therapies has increased over the last several decades, so has research in adult education. Our students deserve a course and educational content designed with them in mind. Course plans should meet them where they are and motivate them to reach the next level. Think about your terminology and your ability to understand a culturally diverse classroom. If you are not familiar with gender-neutral language or have not stepped back to examine your own biases and how your students may interpret them, consider starting down the path of reflecting on beliefs, reading culturally aware research, and engaging in conversations with colleagues.

Having students master the content is the goal, of course, but inspiring an inquisitive learner will lead to the student’s desire to do so. Adult students are motivated by an inclusive learning environment in which they see the relevance of the content and how it will be applied. Take the content and make it real. Guide the students to connect the dots and see how the information will be used in their future careers. Connect and engage with the material yourself in a way that is useful to all of you. Students will see your enthusiasm and it will be contagious!

Course Description

This suggested 40-hour course is designed sequentially to match the chapters of *Trail Guide to the Body, 6th Edition*. The contents of the textbook have been apportioned into units that may encompass one, two, or even multiple modules within the unit lesson plans, depending upon the length of the chapters spanning the unit. The content units can be plugged into an existing course curriculum, or this curriculum can be used in its entirety as a stand-alone course.

The textbook uses a “map and navigate” approach to the human body, highlighting palpatory anatomy and the musculoskeletal system. This course covers numerous anatomical structures, to help students develop knowledge and build palpation skills that

Unit #2: Chapter 2

Shoulder and Arm

Unit Learning Objectives

- Recognize the surface anatomy, including skin and fascial structures of the shoulder and arm.
- Palpate the bones and bony landmarks of the shoulder and arm and recognize the connections between them and soft tissues.
- Palpate shoulder and arm muscles from origin to insertion, feeling and describing their overall shape, edges, and fiber direction(s).
- Palpate the major shoulder and arm joint structures, including ligament and bursae.
- Palpate the shoulder and arm landmarks that identify the location of underlying nerves, blood vessels, and lymph nodes to be cautious of when practicing manual therapies.
- Describe the relationships between the topographical contours and underlying musculoskeletal structures, as well as the texture, thickness, and mobility of the skin and fascial structures in the shoulder and arm.
- Name and locate the bones, bony landmarks, and joints for the shoulder and arm and describe the connections between them and the soft tissues of the shoulder and arm.
- Name and locate the muscles of the shoulder and arm, including their specific origins and insertions.
- List and demonstrate the action(s) of each shoulder and arm muscle.
- Name and locate major joint structures of the shoulder and arm, including ligaments and bursae that are common sites of pain and injury in the region.
- Name and locate the major nerves, blood vessels, and lymph nodes in the shoulder and arm to be cautious of when practicing manual therapies.

Class Equipment

- *Trail Guide to the Body, 6th Edition: Chapter 2*
- TGB PowerPoint Slides: Chapter 2
- *Trail Guide to the Body, Student Workbook, 6th Edition*
- *Trail Guide to the Body Palpation Videos*
- Sturdy tables for palpation demonstration and practice lab time
- Draping materials/sports bras/tank tops
- *Suggested: Human skeleton model*
- *Suggested: Human shoulder and arm muscle model or charts*

Terminology List

Bony landmarks

Angle
Border
Cavity
Condyle
Crest
Epicondyle
Fossa
Groove
Line
Notch
Process
Ridge
Spine
Trochlea
Tubercle
Tuberosity

Bones or bone parts

Acromioclavicular (A/C) joint
Acromion
Capitulum
Cervical vertebrae
Clavicle
Furcula
Glenoid
Humerus
Infraglenoid
Infraspinous
Lumbar vertebrae
Occiput
Olecranon
Ribs
Scapula
Scapulae
Sternoclavicular (S/C) joint
Sternum
Subscapular
Superior Nuchal Line
Supraglenoid
Supraspinous
Thoracic vertebrae

Muscles or terms related to muscles

Agonist
Antagonist
Biceps Brachii
Coracobrachialis
Deltoid
Infraspinatus
Latissimus Dorsi
Levator Scapula
Pectoralis major
Pectoralis minor
Rhomboid major
Rhomboid minor
Serratus Anterior
Sternalis
Subclavius
Subscapularis
Supraspinatus
Synergist
Tendon
Teres major
Teres minor
Trapezius
Triceps Brachii

Other terms

Acromioclavicular ligament

Articular capsule

Axilla

Axillary lymph nodes

Basilic vein

Brachial artery

Brachial plexus

Brachial veins

Capsular ligament

Coracoacromial ligament

Coracoclavicular ligament

Coracohumeral ligament

Glenohumeral ligament - inferior, middle
and superior

Glenoid cavity

Glenoid labrum

Medial antecubital cutaneous nerve

Median nerve

Sternoclavicular ligament

Subacromial bursa

Synovial membrane

Ulnar nerve

Introduction to the Unit

Assigning the chapter to be read before it is presented in class gives students the opportunity to have an introduction to the terms and concepts and provides time to formulate and pose questions that help students to internalize learning opportunities during class time. Students who can see the application of the material will have higher levels of motivation to learn. Facilitating a short pre-lecture discussion utilizing the beginning of the chapter questions (p. 45) introduces learners to the purpose and relevancy of the content.

MODULE 1:

Lecture: Surface Anatomy and Bony Landmarks of the Shoulder and Arm (pp. 46-60)

Utilize the learning resources and class equipment as appropriate for the lecture. Including but not limited to: TGB PowerPoint, skeleton model, and skeleton charts.

- Surface features visible on shoulder and arm area (pp. 46-47)
 - Anterior view
 - Lateral view
 - Posterior view
 - Indicate differences in orientation of surface anatomy found in different human bodies. For example, individual differences in prominence of spinous processes and ability to view through skin.
- Bones of the shoulder and arm (p. 48)
 - Clavicle
 - Humerus
 - Scapula
 - Take time to look at each bone individually and explain its articulation locations and names of joints.
 - Highlight movements at each joint and activities of daily living (ADLs) common for the joint and/or common injuries surrounding the joint.
- Bony landmarks of the bones of the shoulder and arm (pp. 49-50)
 - Scapula - highlight each feature as needed
 - Humerus - highlight each feature as needed
 - Clavicle - highlight each feature as needed
 - Explain common bone feature terms (see Unit 2 bony landmark terminology list)
 - Categorize landmarks between palpable and not palpable
- Time to “Hit the Trail”—demonstration/lab time (pp. 51-60)
 - Trail 1—Along the Edges
 - Trail 2—In the Trenches
 - Trail 3—Springboard Ledge
 - Trail 4—Two Hills and a Valley
 - Utilize the text to guide the demonstration/lab time for students to locate structures along the trails.

Palpation Lab Introduction

This module is intended to help students learn the surface anatomy and bony features of the shoulder and arm. Palpation lab practice helps students integrate content and experience the individual variation in human anatomy. As this is the first unit of palpation, creating a lab environment that is organized and structured for learning is going to set the stage for effective lab time for the entire course. Learning happens best in an environment where the instructor guides the learning, encourages curiosity, and stays on time with the plan. Equally important is for the instructor to allow relevant opportunities to expand on the lesson and have fun, while always modeling professional behavior by maintaining appropriate and respectful boundaries.

Palpation Lab Practice: Two options for demonstration/lab time are (1) an instructor palpation demonstration followed by students working in pairs or triads utilizing the text (p. 47 and pp. 52-60) to guide their palpatory lab time or (2) an instructor conducting a palpation demonstration concurrent with student pairs or triads following the instructor's lead. Factors in deciding which model is appropriate for class may include class size, class cohesiveness, ability of students to follow directions, motivation level of students, amount of time allotted for lab practice, knowledge of content prior to lab time, and/or prior experience with palpation and touch.

Have students pair up with a partner or in a triad; one student will be the model and the other student will be the practitioner. If using triads, the third person is the observer and will read the directions to the practitioner. Start on p. 47 and follow the directions to explore the skin and fascia of the first model. Exploration of skin and fascia needs adequate time. Do not rush this process. Asking critical questions regarding movement of tissue, thickness of tissue, elasticity of tissue, and temperature of tissue provides the opportunity for students to dedicate time to thinking and feeling about what is beneath their hands and fingers. When completed, move to the Trail palpation directions on pp. 52-60. Continue to provide time for exploration and questions. If students are not asking questions, guide them with questions for consideration of what they are feeling including variation between left and right sides or between student partners. When the first practitioner has worked through all four Trails, the practitioner becomes the model (or the observer, if using triads). The above is repeated until all students have had a chance to palpate and feel palpation as a model.

If the course is going to use a palpation or reflection journal as part of the course, the first lab is an excellent time to introduce how the journal will function throughout the course as well as appropriate terminology and content for the journal. A journal or writing assignment as a formative assessment, even if checked infrequently or informally, will check for knowledge transfer.

End-of-Module Activities

Student Designed Lab Quiz: This can be used as a graded or ungraded formative assessment after students have had ample time for initial palpitation and practice. Have students pair up with a partner or in a triad. For a partnership, one student will be the model and the other student will be the practitioner. The model will write down three to six palpable bony landmarks from the unit. If using triads, the third person is the observer and will select three to six palpable bony landmarks from the unit. The practitioner will

attempt to locate the bony landmarks selected without referencing resources or getting help from a classmate. After locating all selected landmarks, the partners/triad will switch/rotate and new palpable bony landmarks will be selected by the partner or observer.

Labeling worksheet: Use a blank humerus, clavicle, and scapula worksheet. Students can work independently or with a partner in class. This exercise can be used as an introductory activity or as a formative assessment after palpation but should not take the place of palpatory activities. Have students label the blank worksheets using the text pp. 49-50 for reference of landmarks to label. Students create their own leader lines with labels to find the exact location of landmarks on the bone. If this activity is used as a formative assessment, it can be collected to evaluate students' learning. *Note: Worksheets can be created from images found on BOD Image Library, TGB 6th Ed, Chapter 2, Bones of Shoulder & Arm.*

Outside of Class Activities

Journal writing: Reflection is one of the most effective learning activities for adult students. Creating a palpation journal gives the learner the opportunity to document learning and progress. Using a separate notebook, have students create three to five entries per week documenting palpation and observation. Depending on students' other coursework, this can include palpation practice in class, observation and palpation in a technique class, technique homework, or clinic and/or observations in the real-world. For example, they may notice the prominence of and sharp curvature of the clavicle in someone they are having a conversation with.

Instructors may choose to use this journal to direct discussion in class, to collect periodically to offer comments and suggestions for critical reflection, or the journal can be a resource for a final paper reflecting on observations and growth of knowledge. If the journal is graded, the grade should be based on awareness and complete observations, not on ability to accurately palpate or name a certain structure.

Student workbook: Complete pp. 25-29 (or portions of pages as appropriate) or digital workbook pp. 25-29.

MODULE 2:

Lecture: Muscles of the Shoulder and Arm (pp. 61-99)

Utilize the learning resources and class equipment as appropriate for the lecture, including but not limited to: TGB PowerPoint, skeleton model, muscle model, skeleton and muscle charts. Present and group muscles as appropriate for class length and for an effective learning environment. Presenting too many muscles at one time before providing lab time can be overwhelming to students. Yet incorporating a lab after presenting each muscle may not be conducive to effective time management. If utilizing the *Student Workbook*, instructors may decide to group muscles. These groupings are included below.




- Overview and shoulder actions (pp. 61-66)
 - Using the figures from the text, discuss ADLs incorporating the movements of the shoulder and arm as well as possible compensation patterns that may be observed.
- Muscle Group #1 (pp. 67-73)

- Deltoid—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Trapezius—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Latissimus dorsi—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Teres major—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Muscle Group #2 (pp. 74-81)
 - Rotator Cuff muscles—Introduction of the group
 - Supraspinatus—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Infraspinatus—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Teres minor—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Subscapularis—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Insertion tendon locations.
 - Palpation video may be viewed in class or assigned as homework.
- Muscle Group #3 (pp. 82-94)
 - Rhomboid major and rhomboid minor—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
 - Levator scapula—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
 - Serratus anterior—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
 - Pectoralis major—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
 - Pectoralis minor—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
 - Subclavius—Introduction, pronunciation, etymology, action, origin, insertion, innervation, how to palpate.
- Muscle Group #4 (pp. 95-99)

- Biceps brachii—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Triceps brachii—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework
- Coracobrachialis—Introduction, pronunciation, etymology, action, origin, insertion, innervation, common movements, how to palpate.
 - Palpation video may be viewed in class or assigned as homework

Palpation Lab Introduction

This module is intended to help students learn the muscles of the shoulder and arm. Similar to the previous module, this is the first unit of palpation: muscle palpation. Although locating bony landmarks is important, effective muscle palpation is vital to success as a manual therapist. Creating a lab environment that is organized and structured for learning will set the stage for effective lab time for the entire course. Learning happens best in an environment where the instructor guides the learning, encourages curiosity, and stays on time with the plan. Equally important is for the instructor to allow relevant opportunities to expand on the lesson and have fun while always modeling professional behavior by maintaining appropriate and respectful boundaries.

Palpation Lab Practice: Incorporate palpation lab practice for each muscle, grouped accordingly, as suggested at the beginning of this module. Two options for demonstration/lab time are (1) an instructor conducting a palpation demonstration followed by students working in pairs or triads utilizing the text. Students use the text coinciding with each muscle in the chapter denoted by a , , or  to guide their palpation lab time or (2) an instructor conducts the palpation demonstration concurrent with the student pairs or triads following the instructor's lead. Factors in deciding which model is appropriate for class may include class size, class cohesiveness, ability of students to follow directions, motivation level of students, amount of time allotted for lab practice, knowledge of content prior to lab time, and/or prior experience with palpation and touch.

Have students pair up with a partner or in a triad; one student will be the model and the other student will be the practitioner. If using triads, the third person is the observer and will read the directions to the practitioner. Using the palpation guide provided in the text with each muscle, students will position their partner and palpate the muscle. Students need to have time to explore and ask questions. When the first practitioner has finished with the muscle assigned for lab practice time, the practitioner becomes the model (or the observer, if using triads). The above is repeated until all students have had a chance to palpate and feel palpation as a model.

End-of-Module Activities

Muscle Pictionary: See Muscle Pictionary located in BOD online instructor TGB classroom activities.

Great Big World: See Great Big World located in BOD online instructor TGB classroom activities.

What Am I Doing?: Can be used as an activity or a formative assessment. The instructor stands at front of the classroom and performs selected movements. Students then identify, either verbally or on paper, the anatomical movement being performed, as well as one or two primary movers (muscles) for demonstrated movement (i.e., shoulder flexion/anterior deltoid/pec major). An advanced version of this could incorporate identification of antagonist.

Outside of Class Activities

Journal writing: Assignments can be given along each learning segment or at the end of the module. Directions for this are found in Unit 2, Module 1. Adding muscle palpation to the journal assignment can include palpation observation pertaining to students' other coursework, such as palpation practice in this class, in a technique class, technique homework, or clinic and/or observations in the real-world. For example, students may find that they are able to differentiate the anterior, middle, and posterior portions of the deltoid when they have their hand on a friend's shoulder and the friend reaches for something.

Student workbook: Complete pp. 30-46 (or portions of pages as appropriate) or digital workbook pp. 30-46. This is a large amount of learning and practice. To reinforce learning, assign the workbook pages as the content is presented instead of all at one time. If utilizing the muscle groups recommended above, the pages below are congruent to the lecture outline.

Topic	Student Workbook <i>(print or digital)</i>
Overview and shoulder actions	pp. 30-38
Muscle Group #1	pp. 3-40
Muscle Group #2	pp. 41-42
Muscle Group #3	pp. 43-44
Muscle Group #4	pp. 45-46