

Smartbody Teacher Training Anatomy - Need to Know

The anatomy course covers the basic anatomical terms and biomechanical principles that are useful for teaching pilates as well as reading books and articles about anatomy and physiology.

For the exam you will need to know:

1. all of the terminology listed at the bottom of this sheet
2. the basic function of all of the bones, muscles, ligaments and tendons listed below
3. how to analyze pilates exercises in terms of these bones and muscles
4. basic principles of muscle tone, strength, stability, mobility and how they apply to the exercises.
5. basic principles of gravity, forces, and torques and how they apply to each exercise.

Here is a more specific overview

I. General Terminology and principles:

1. planes of motion
 - a. medial
 - b. sagittal
 - c. frontal
 - d. transverse
2. motion of joints
 - a. flexion-extension
 - b. adduction-abduction
 - c. Lateral (external) and medial (internal) rotation
 - d. supination and pronation
 - e. Lateral (spinal) flexion
 - f. horizontal adduction and abduction
3. relative position
 - a. superior – inferior
 - b. posterior – anterior
 - c. medial – lateral
 - d. superficial - deep
 - e. proximal - distal
4. different kinds of joints
 - a. synovial
 - b. cartilaginous
 - c. fibrous
5. different joint geometries
 - a. ball and socket
 - b. ellipsoid and socket
 - c. saddle
 - d. hinge
 - e. glide
6. joint capsule
7. ligament
8. tendon
9. types of contractions
 - a. agonist and antagonist
 - b. concentric, eccentric, isometric contractions
 - c. bilateral and unilateral
10. Forces and Torques
 - a. the difference between force and torque
 - b. lever arm and its effects

- i. in the skeleton
 - ii. in the pilates exercises
- 11. muscles mobility, strength, tone
 - a. muscle strength
 - b. muscle tone
 - c. stiffness
 - d. range of motion
 - e. flexibility
 - f. mobility
- 12. Lordosis - kyphosis
- 13. Stability
 - a. cocontraction
 - b. dynamic stability
- 14. Learning and change
 - a. neuromuscular habits vs. physical change in muscle
 - b. What does Pilates teach?
- 15. Posture
 - a. What is posture?
 - b. What is the connection between posture and muscle tone?

II. Bones and ligaments

1. cervical spine (C1-C7)
2. atlas
3. axis
4. thoracic spine (T1-T12)
5. lumbar spine (L1-L5)
6. sacrum
7. coccyx
8. intervertebral disks
9. sternum
10. ribs
11. costal cartilage
12. hip bones #
13. ilium
14. iliac crest
15. ischium
16. pubis
17. clavicle
18. scapula
19. shoulder joint #
20. femur
21. hip joint #
22. fascia lata = IT band (iliotibial band)
23. meniscus
24. patella
25. fibula
26. tibia
27. humerus
28. radius
29. ulna
30. thoracolumbar fascia
31. abdominal aponeuroses

III. Muscles:

1. deep spinal extensors *
2. multifidus
3. intermediate spinal extensors *
4. diaphragm
5. sternocleidomastoid
6. pectoralis minor
7. serratus anterior
8. pectoralis major
9. transversus abdominis
10. internal obliques
11. external obliques
12. rectus abdominis
13. abdominal cavity
14. rhomboids
15. latissimus dorsi
16. trapezius
17. psoas major
18. quadratus lumborum
19. pelvic floor muscles*
20. rotator cuff muscles *
21. biceps brachii
22. triceps brachii
23. deltoid
24. deep hip muscles *
25. iliacus
26. iliopsoas
27. gluteus minimus
28. gluteus medius
29. quadriceps femoris
30. vasti group
31. rectus femoris
32. hamstrings *.#
33. hip adductors *
34. gluteus maximus
35. gastrocnemius
36. soleus

* refer to groups of muscles. You don't need to know the individual muscles in these groups by name. You do need to know roughly what the function of the muscles in these groups are.

refers to a bones or muscle or muscle group with a common term rather than a technical/Latin term. You don't need to know the technical or Latin term.