Kinesiology Terminology
Basic Terminology

- **Kinesiology = The study of movement**

This definition is so broad. What other fields of study come together to create kinesiology?

Yes!! And it relates them all to HUMAN MOVEMENT.

Lippert, p3
Basic Terminology continued

- **Mechanics** =
  - The study of forces and the motions that they produce

- **Biomechanics** =
  - Mechanical principles applied to the human body
  - What forces act on the human body?
  - What are the results of those forces?

Lippert, p93
Basic Terminology continued

- Biomechanical systems can be considered:
  - Static or dynamic

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Lippert, p93
Kinematics can be divided into:
- Osteokinematics and arthrokinematics

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Lippert, p93
Figure 8-1. Mechanics/biomechanics relationship flowchart.
Kinematics Terminology continued

- **Linear Motion**
  - Rectilinear Motion *(straight)*
  - Curvilinear Motion *(curved)*

- **Angular Motion** *(circular)*
Kinematics Terminology continued

- **Linear Motion (aka translatory motion)**
  - All the parts of the object move the same distance, in the same direction, and at the same time
  - can be broken down into 2 categories:
    - *Rectilinear motion* = movement that occurs in a straight line
    - *Curvilinear motion* = movement in a curved path that isn’t necessarily circular

Lippert, p6 & Mansfield, p2
Kinematics Terminology continued

- **Angular motion (aka rotary motion)**
  - Movement of an object around a fixed point
  - All the parts of the object move through the same angle, in the same direction, and at the same time, but they do not move the same distance.

Lippert, p6 & Mansfield, p2
Kinematics Terminology continued

- Which type of motion is it? Are we seeing rectilinear, curvilinear or angular?
- [https://www.youtube.com/watch?v=32qZrt5wMVc](https://www.youtube.com/watch?v=32qZrt5wMVc)
- [https://www.youtube.com/watch?v=8_VsXcKBSSk&feature=related](https://www.youtube.com/watch?v=8_VsXcKBSSk&feature=related)
- [https://www.youtube.com/watch?v=wlUYuri_LuM](https://www.youtube.com/watch?v=wlUYuri_LuM)
- [https://www.youtube.com/watch?v=ivwTWaZd1f8&feature=related](https://www.youtube.com/watch?v=ivwTWaZd1f8&feature=related)
Descriptive Terminology

The Anatomic Position:

The human body:
- Standing in an upright position
- Eyes facing forward
- Feet parallel and close together
- Arms at the sides of the body
- Palms facing forward

Lippert, p4
Descriptive Terminology continued

- **Midline**
  - Of the body
  - Of a body part
Descriptive Terminology continued

- **Medial and Lateral**
  - **Medial** = a location or position toward the midline
  - **Lateral** = a location or position farther from the midline

Lippert, p4
Descriptive Terminology continued

- **Medial or Lateral??**
- The ulna is on the ___________ side of the forearm
- The radius is ______________ to the ulna
- The fibula is ______________ to the tibia
- The SC joint is ___________ to the AC joint

Lippert, p4
Descriptive Terminology continued

- **Anterior and Posterior**
  - **Anterior** = refers to the front of the body or to a position closer to the front (synonymous with ventral)
  - **Posterior** = refers to the back of the body or to a position more toward the back (synonymous with dorsal)

Lippert, p4
Descriptive Terminology continued

- **Anterior or Posterior?**
- The sternum is _______________ on the chest wall and the scapula is ____________________
- The patella is ________________ to the popliteal fossa
- The gluteal fold is ______________ to the pubic symphysis
Descriptive Terminology continued

- Dorsal or Ventral
- Volar
Descriptive Terminology continued

- **Proximal and Distal**
  - **Proximal** = toward the trunk
  - **Distal** = away from the trunk

Lippert, p5
Descriptive Terminology continued

- **Proximal or Distal?**
- The humeral head is located on the ______________ end of the humerus.
- The elbow is ______________ to the wrist, but ______________ to the shoulder.
- The ankle is ______________ to the knee.

Lippert, p5
Descriptive Terminology continued

- **Superior and Inferior**
  - **Superior** = the location of a body part that is above another (or to refer to the upper surface of an organ or a structure)
  - **Inferior** = indicates that a body part is below another (or refers to the lower surface of an organ or a structure)

Lippert, p5
Descriptive Terminology continued

- **Superior or Inferior?**
  - The sternum is __________ to the umbilicus, but __________ to the chin.
  - The knee is _______________ to the ankle.
  - The elbow is _______________ to the wrist.

Lippert, p5
Descriptive Terminology continued

- **Cephalad and Caudal**
  - Cephalad = a position or structure close to the head
  - Caudal = a position or structure closer to the feet

Lippert, p5
Descriptive Terminology continued

- **Superficial and Deep**
- Descriptions used to refer to relative depth of a structure.
- For example, when describing the layers of the abdominal muscles, the external oblique is deep to the rectus abdominis but superficial to the internal oblique.

Lippert, p5
Descriptive Terminology continued

- **Supine** = When a person is lying on his back with his legs extended.
- **Prone** = When a person is lying on his stomach.

Lippert, p5
Descriptive Terminology continued

- **Sidelying** = when a person is lying on his side.
Descriptive Terminology continued

- **Hooklying** = when a person is lying on his back with his hips and knees flexed, so that his feet are on the surface of the bed or table.
Descriptive Terminology continued

- **Short Sitting** = when a person is sitting with his hips and knees flexed to approximately 90 degrees.
Descriptive Terminology continued

- **Long Sitting** = when a person is sitting with his hips flexed to approximately 90 degrees and the knees extended.
Descriptive Terminology continued

- **Quadruped** = the position consisting of being on four points (knees and hands)
Descriptive Terminology continued

- **Bilateral and Unilateral**
  - **Bilateral** = refers to two, or both, sides.
    - Bilateral above knee amputation means both the right and left legs were amputated
    - Bilateral quad sets means both quads were working (typically at the same time)
  - **Unilateral** = refers to one side.

Lippert, p5
Descriptive Terminology continued

- **Ipsilateral and Contralateral**
  - **Ipsilateral** = refers to the same side of the body
    - Sometimes I see someone who has hurt their leg use a crutch on the ipsilateral side of the injury. This is incorrect.
  - **Contralateral** = refers to the opposite side of the body
    - A person with a stroke in the right hemisphere of the brain may have contralateral paralysis (meaning paralysis of the left arm and leg)

Lippert, p5
References