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
Basic Terminology continued

- **Dynamic Systems can be divided into:**
  - Kinetics and Kinematics

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Lippert, p93
Kinematics Terminology

- **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 (aka translatory motion)**
  - occurs in a straight line from one location to another
  - All the parts of the object move the same distance, in the same direction, and at the same time

- **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

- **Linear Motion (aka translatory motion)** 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

- Which type of motion is it? Are we seeing rectilinear, curvilinear or angular?

- [http://www.youtube.com/watch?v=32qZrt5wMVc](http://www.youtube.com/watch?v=32qZrt5wMVc)
- [http://www.youtube.com/watch?v=8_VsXcKBs8k&feature=related](http://www.youtube.com/watch?v=8_VsXcKBs8k&feature=related)
- [http://www.youtube.com/watch?v=wlUYuri_LuM](http://www.youtube.com/watch?v=wlUYuri_LuM)
- [http://www.youtube.com/watch?v=ivwTWaZd1f8&feature=related](http://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

- **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
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

Lippert, p4
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.
  - The scapula is ___________ to the ilium.

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)
Descriptive Terminology continued

- **Superior or Inferior?**
- The body of the sternum is ___________ to the xiphoid process, but ___________ to the manubrium.
- The patella is ________________ to the malleoli.
- The olecranon process is ________________ to the ulnar styloid process.

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

- **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