

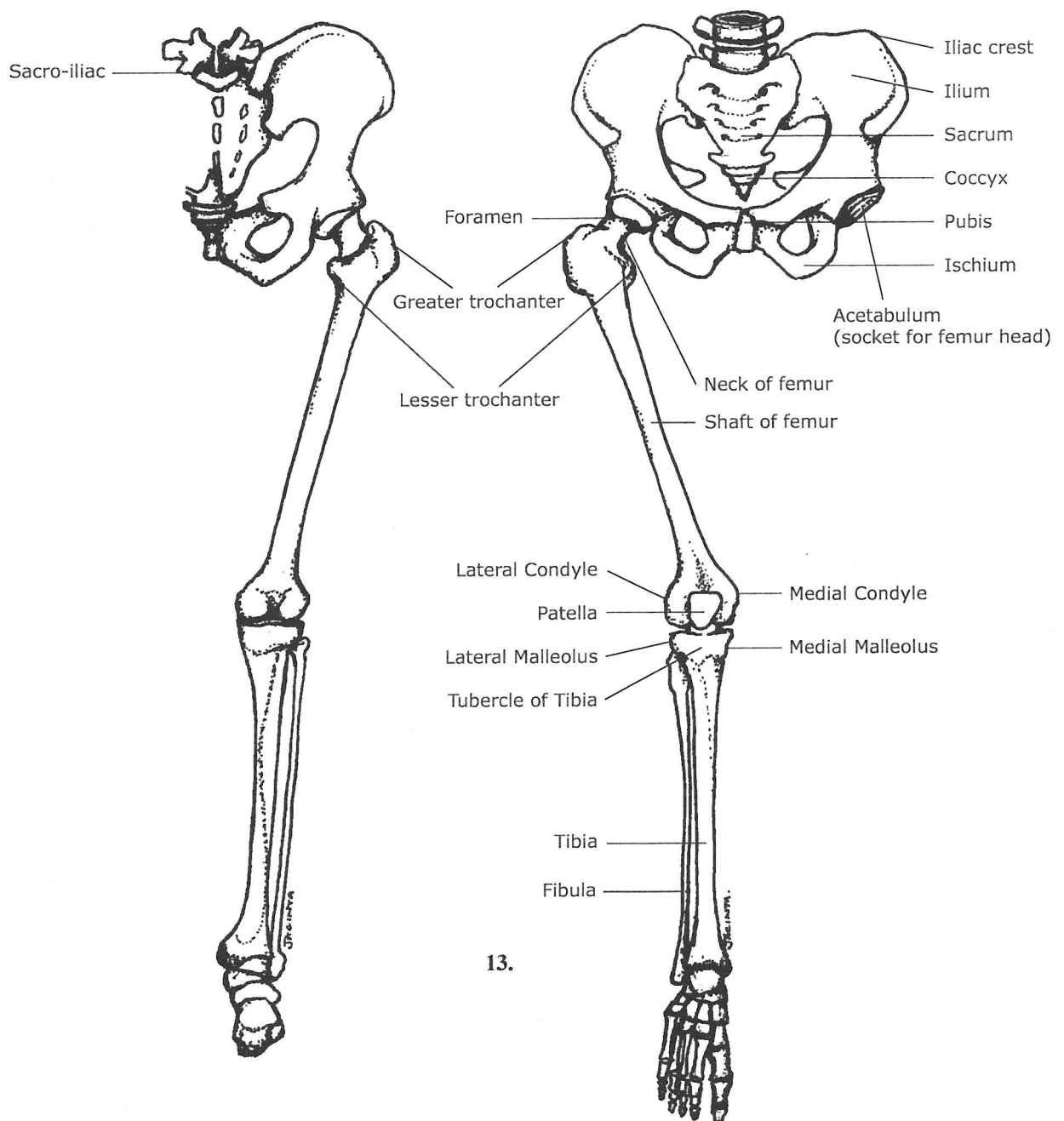
WEEK THREE: THE PELVIS AND HIP JOINT

The pelvic girdle consists of the two hip bones that join with each other at the interpubic joint. The pelvis is that bowl created from the two hip bones, the sacrum and the coccyx. It has an inlet above and an outlet below. The two hip bones, each with its propeller shape, together form a weight bearing area with the sacrum, directing the body weight to the thigh bones while giving consideration to the line of gravity which passes in front of the sacroiliac and behind the hip joints. The male and female pelvis differ in that the female cavity is rounder and wider in all dimensions. This larger pelvis can accommodate a developing fetus, especially as it transverses the birth canal in the pelvic outlet.

The pelvis acts as a single unit with co ordinated movement occurring between the lumbar spine and pelvic and hip joints as a result of muscular co ordination.

Movement of the pelvic girdle:

- rotation to the right and left;
- lateral tilt to the right and left;
- slight forward and backward movement.



The hip joint supports the pelvis, which in turn supports the upper part of the body. Motions at the hip may occur from movement of the pelvis on the femur, from movement of the femur on the pelvis, or from a combination of pelvic and femoral motion.

Movement of the hip joint:

- Hip flexion: movement of the femur forward on the pelvis.
- Hip horizontal flexion: forward movement in horizontal plane from abducted position.
- Hip extension: return from flexion.
- Hip horizontal extension: sideward movement in a horizontal plane from adducted position.
- Hip abduction: movement of femur to the side.
- Hip adduction: return from abduction to the original position.
- Hip rotation outward: movement of the femur outward.
- Hip rotation inward: return to original position.

Problems associated with the hip joint.

The anatomical fact that the hip connects the trunk/ pelvis area to the lower extremity accounts for the widespread effect a problem in the hip can produce. An incorrect stance, poor turnout, muscular imbalance or hip tightness all have consequences.

The hip is basically stable because it is a ball and socket joint, and strong ligaments surround it. These ligaments are not like an elastic band and do not stretch very much after puberty. The muscles surrounding the hip are adductors (inner thigh), gluteals (buttocks), abductors (outer thigh), hamstring (back of thigh), and internal and external rotators (that turn the thigh bone – the femur). These rotators control the movements of the head of the femur in the socket smoothly. If motion in the hip area is not smooth, controlled and balanced, subsequent injuries will eventually produce snapping, pain and weakness.

Specific problems around the hip area occur in the various dance styles. The act of standing correctly on one or both legs requires correct muscle control. A correct stance is achieved when all muscles in the hip area act together. The gluteals keep the pelvis and trunk directly over the legs. The adductors maintain the turnout and the legs close to the centreline of the body's balance. The flexors keep the knees gently pulled up and straight. The hamstrings keep the lower back stable as the spine is dropped straight down.

The biggest fault in using the turnout is in trying to turn out from the feet rather than initiating it from the lower extremity of the hip. The limit of the turnout should be determined by the natural turnout in the hip. There are anatomical differences in all dances and the amount of bony rotation and hip ligament tightness will vary from person to person. If a hip joint is tight with a 30 degree turnout, but the dancer achieves a 60 degree turnout using the foot, the additional range has been obtained at the cost of twisting the knee. Twisting the knee repeatedly will only cause strain and knee damage.

Conditions which produce a limited turnout are back lordosis, gluteal bursitis, internal derangement of the knee, patellar tendonitis, and cartilage softening.

Lack of full extension may be caused by lumbar lordosis, hyperextended knees, and weakness or tightness in the adductor muscles. The inner thigh muscles are critical to stabilise the pelvis and achieve movements in second position. If muscles are weak other muscles will be injured trying to compensate for the adductor function. Tight adductors will make the outer thigh muscles (the abductors) overwork in trying to turn the lower extremity outward. This imbalance will lead to tendonitis and strain of the outer hip muscle.