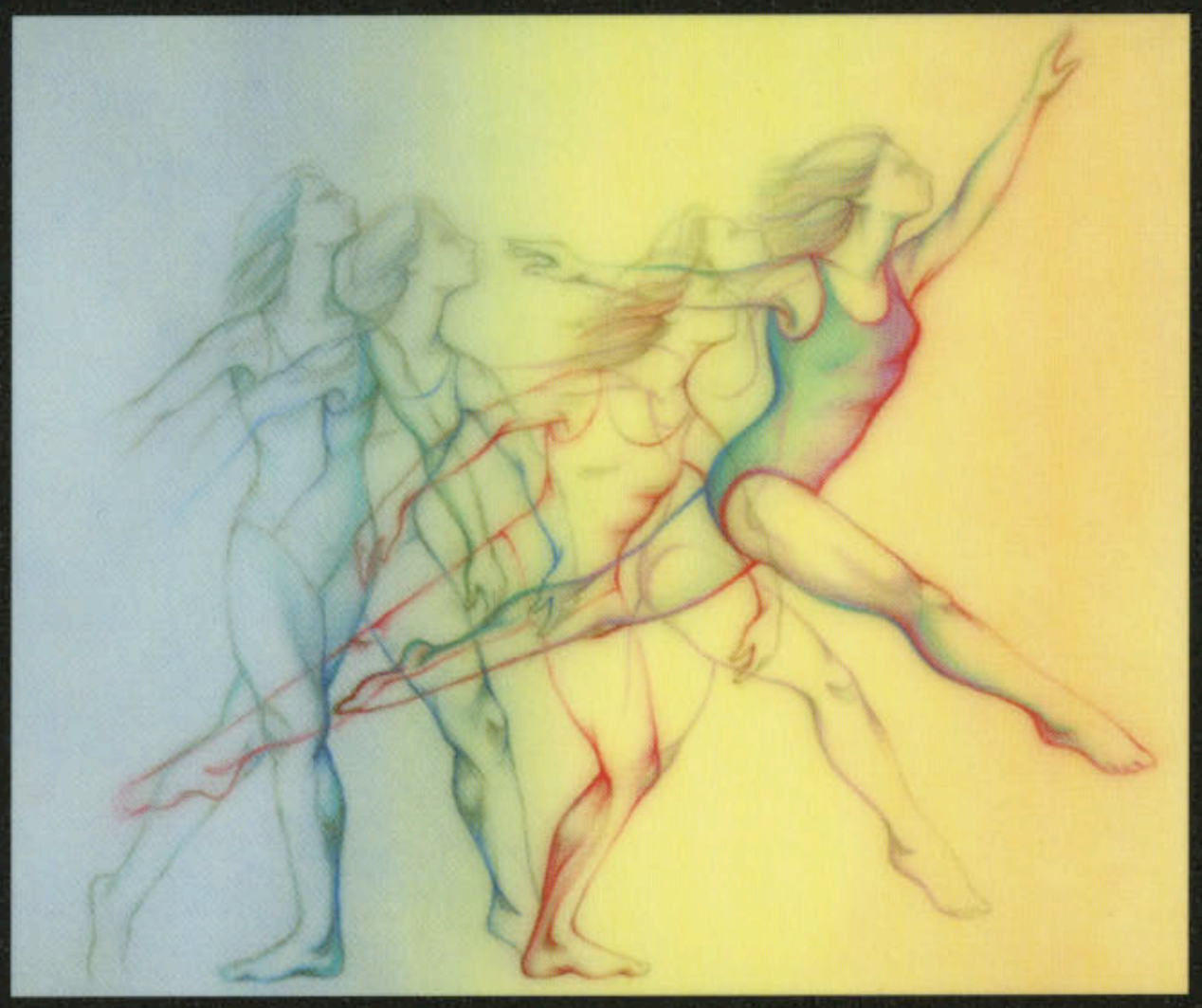
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ANATOMY OF *Movement*

REVISED EDITION



Blandine Calais-Germain

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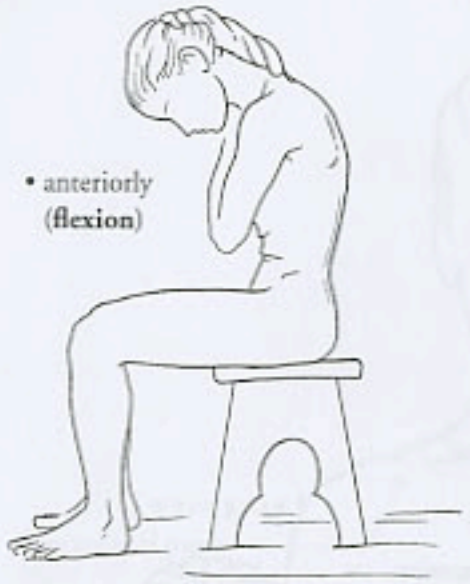
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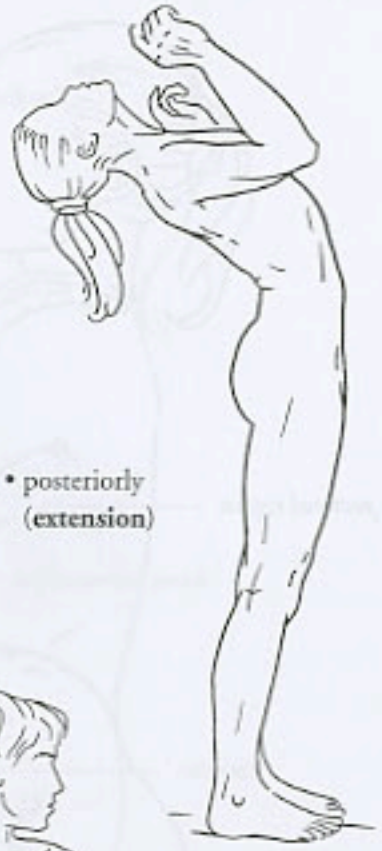
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Movements of the trunk

Thanks to the mobility of the vertebral column, the trunk can move in several directions, as seen on pages 8-10.



• anteriorly (**flexion**)



• posteriorly (**extension**)



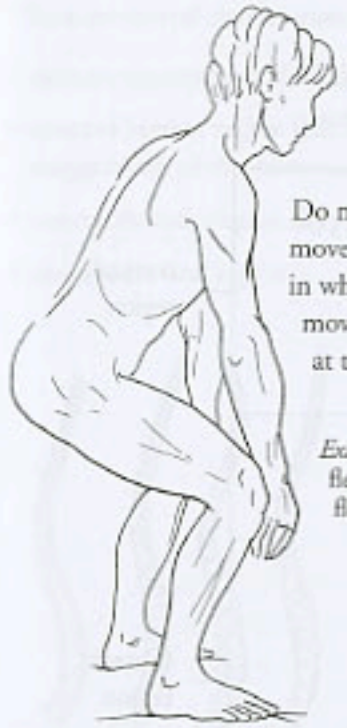
• on its own axis (**rotation**)

• laterally (**lateral flexion** or **sidebending**)



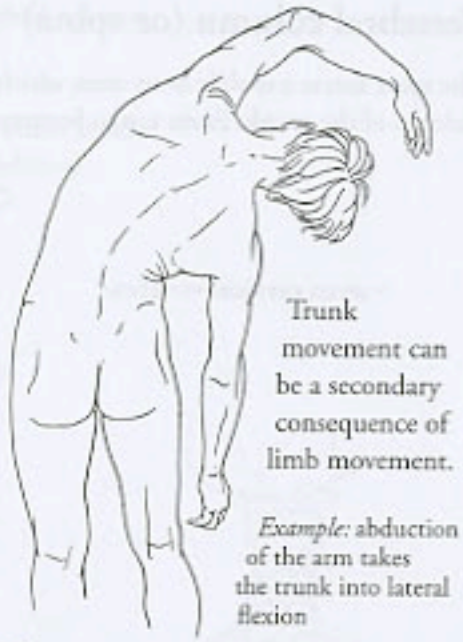
Range of movement varies depending on vertebral level due to several factors:

- shape of the vertebrae
- thickness of intervertebral discs (the thicker the disc, the greater the mobility)
- the thoracic vertebrae articulate with ribs, which limit their mobility (see p. 58-63).



Do not confuse these movements with those in which the trunk moves as a single unit at the hip joint.

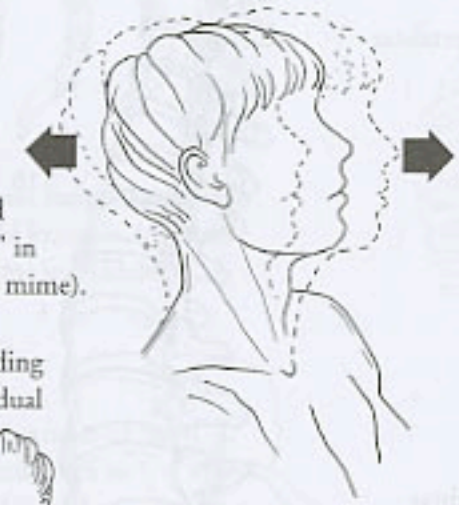
Example: hip flexion without flexion of trunk



Trunk movement can be a secondary consequence of limb movement.

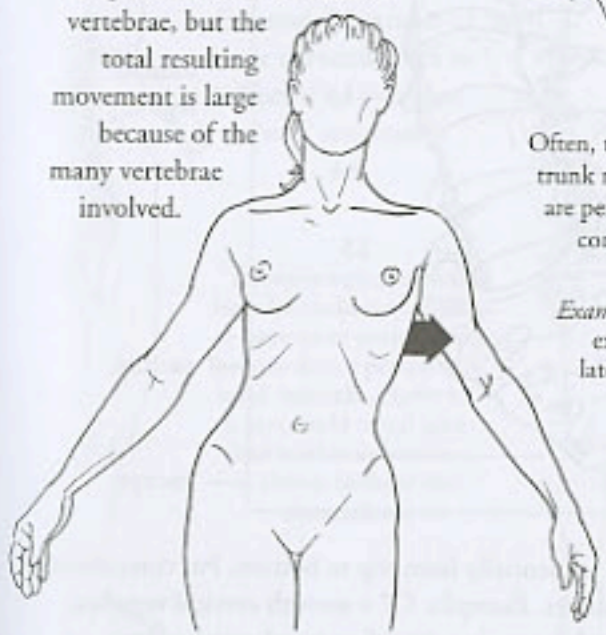
Example: abduction of the arm takes the trunk into lateral flexion

The trunk provides the base for translation movements (called "isolations" in dance or mime).



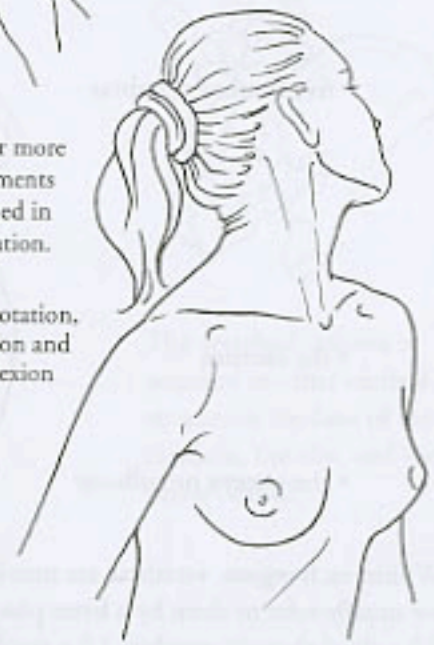
Example: front-to-back or side-to-side movements of the head and pelvis while using a hula-hoop

These involve minimal sliding displacements of individual vertebrae, but the total resulting movement is large because of the many vertebrae involved.



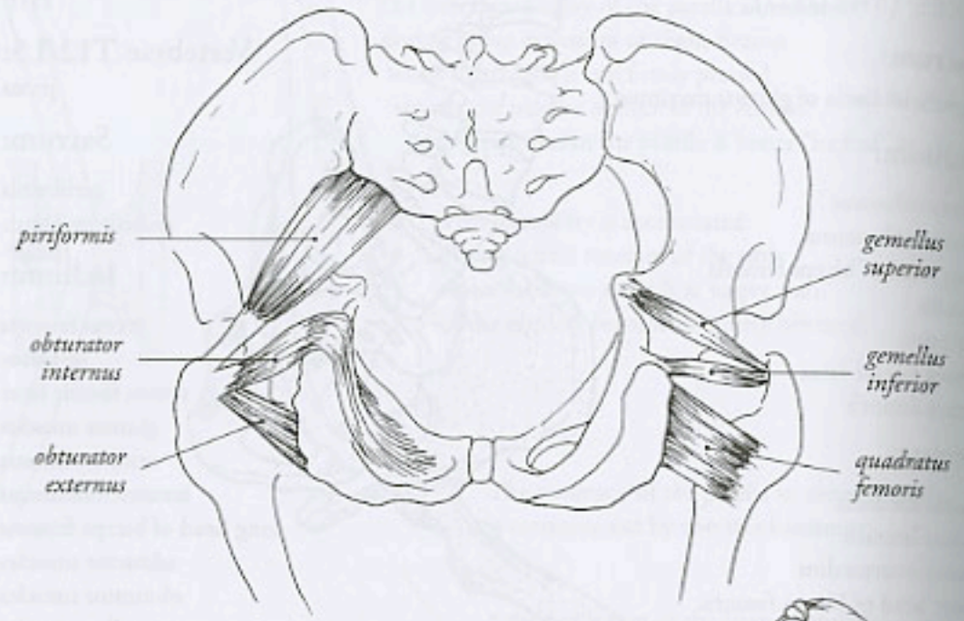
Often, two or more trunk movements are performed in combination.

Example: rotation, extension and lateral flexion



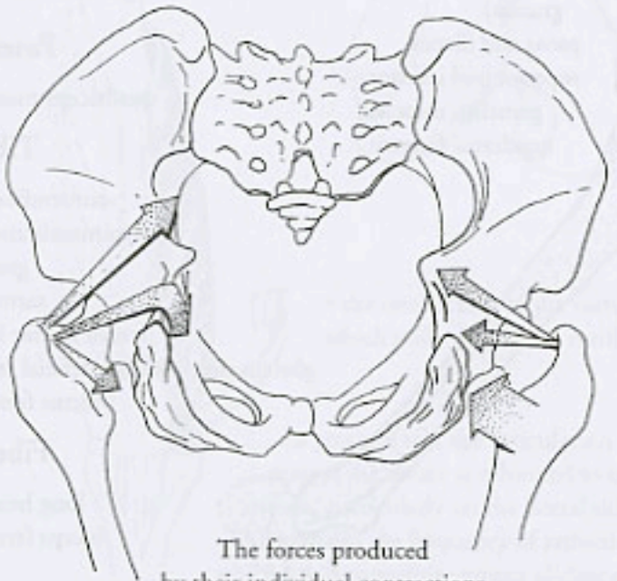
Muscles of the hip

A group of six deep hip muscles are shown in this inferior view of the pelvis.

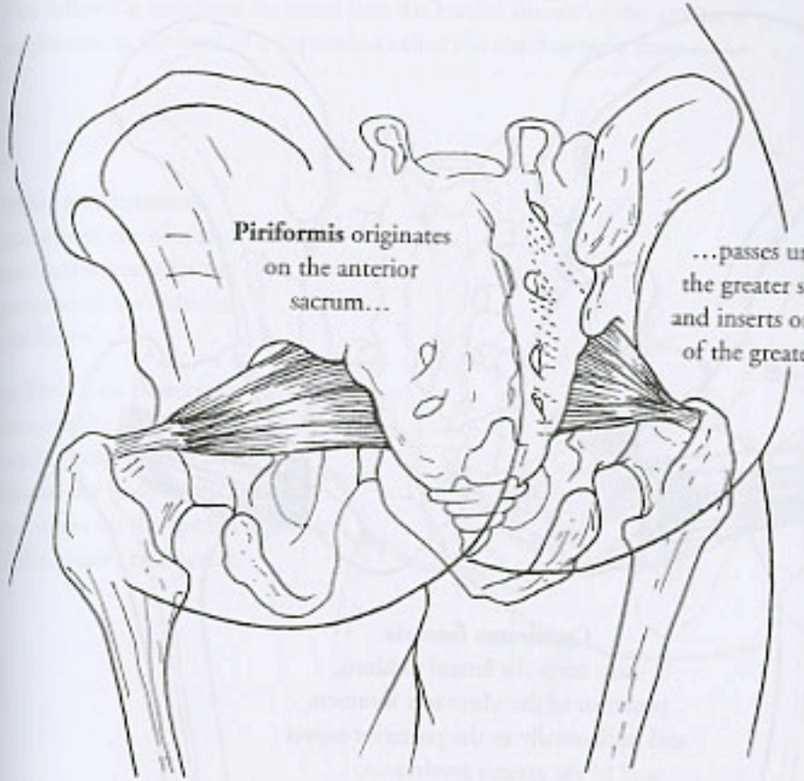


They all insert on or near the greater trochanter of the femur and function in lateral rotation of the thigh.





The forces produced by their individual contractions are illustrated above.



Piriformis originates on the anterior sacrum…

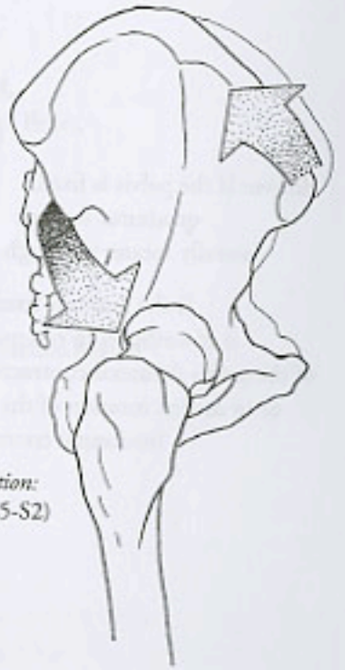
…passes under the greater sciatic notch, and inserts on the top of the greater trochanter.

Actions: If the sacrum is fixed, piriformis laterally rotates, abducts, and flexes the femur.



If the femur is fixed, it contributes to extension of the pelvis (bilateral contraction)…

…or to medial rotation of the pelvis (unilateral contraction).



Innervation: sacral plexus (L5-S2)

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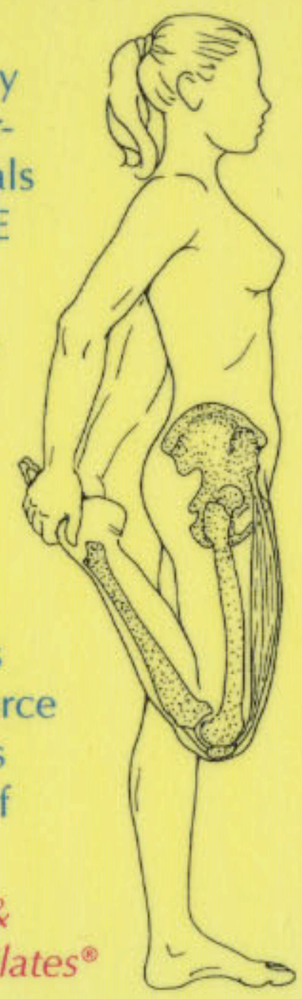
—American Council on Exercise, Recommended Reading List

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Blandine Calais-Germain is the celebrated author of *Anatomy of Movement, Anatomy of Movement: Exercises, The Female Pelvis: Anatomy and Exercises,* and *Anatomy of Breathing.* Her lifelong involvement with dance, both as performer and teacher, led to an interest in other physical disciplines and to more formal study of the complex and integrated movements of the body. She studied physiotherapy at the French School of Orthopedics and Massage in Paris, and subsequently developed an innovative method for teaching the physical structures of anatomy in relation to movement, which she teaches at workshops in France to students from all over the world.

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