

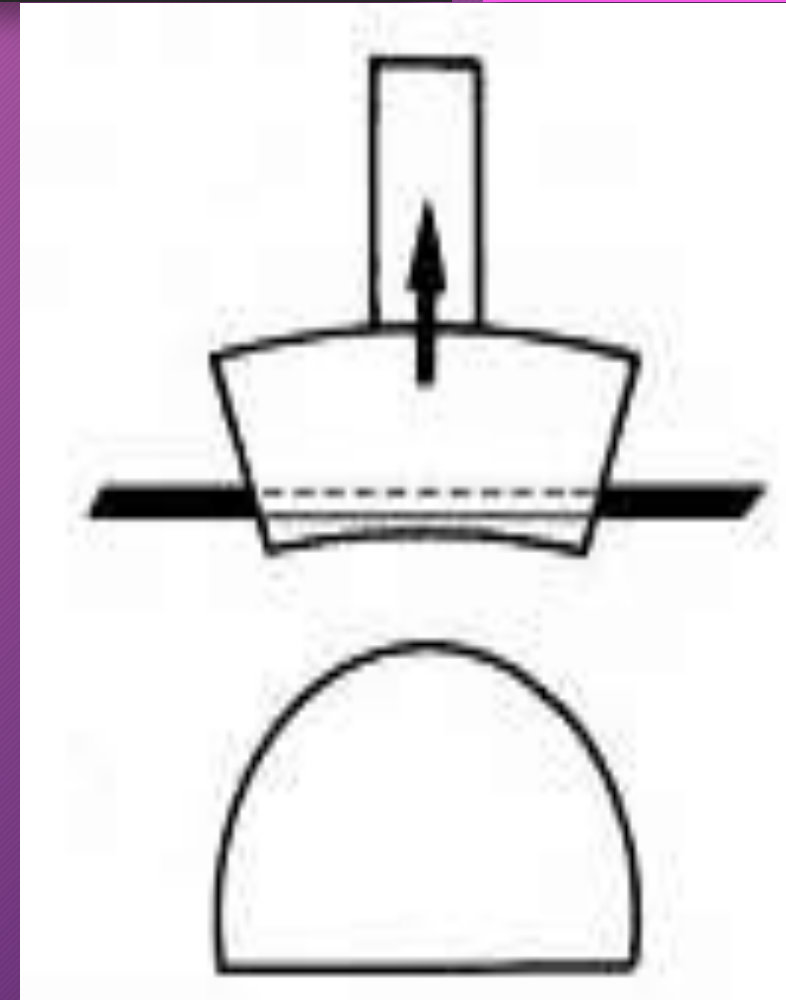
Stretch-traction mobilization

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Stretch-traction mobilization

Grade III

- A series of sustained Grade III stretch traction mobilizations recommended for joint hypomobility.
- Apply stretch-traction mobilization at a right angle to the treatment plane.
- The orientation of the treatment plane in a vertebral segment is determined by the orientation of the caudal surface of the cranial vertebra in the disc joint.



- ❖ In stretch traction techniques where the caudal vertebra is stabilized,
 - the spacial orientation of the treatment plane changes each time the cranial vertebra assumes a new three-dimensional position.
 - This is often the case with cervical and thoracic traction techniques.
 - Whether the cranial vertebra is pre-positioned in the actual resting position or at the point of restriction, the spacial orientation of the treatment plane follows

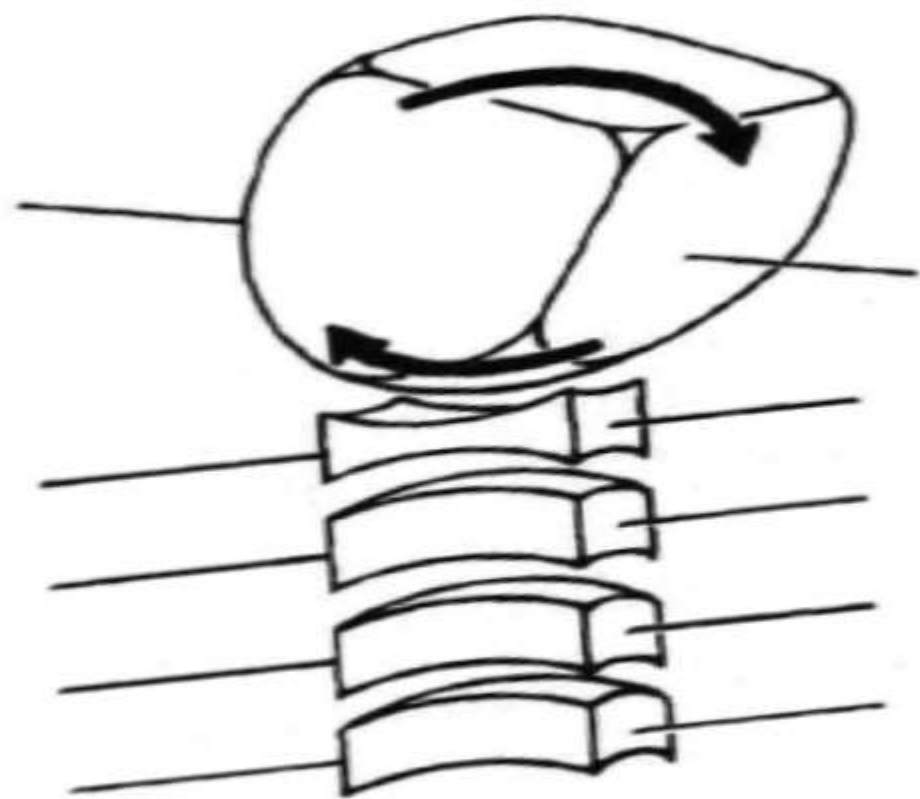


Figure 2.8a
CONVEX RULE → **OPPOSITE**
 The occiput moves according
 to the convex rule in
 relationship to the atlas.

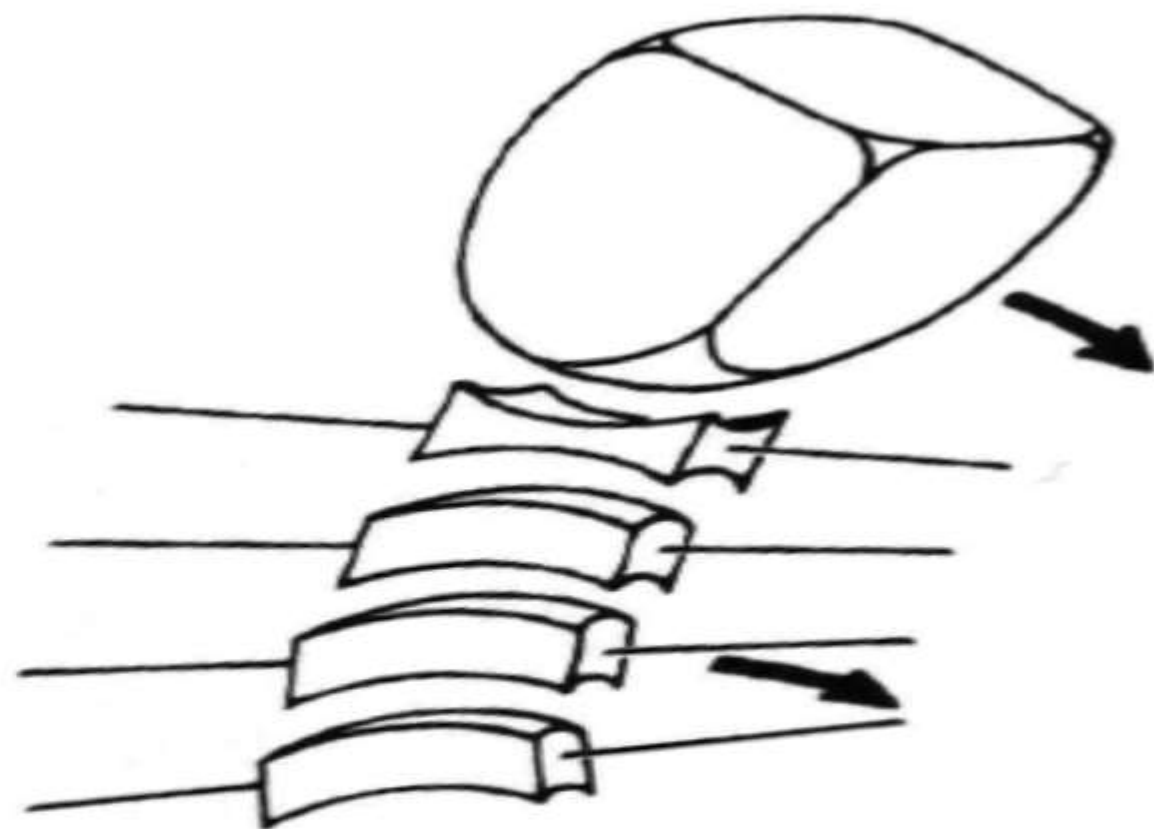
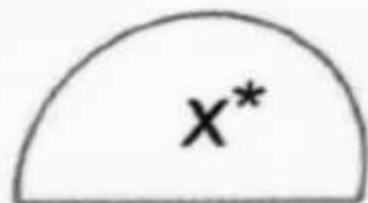
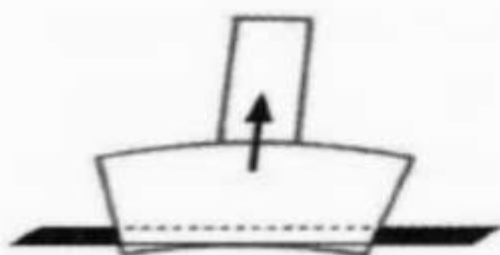
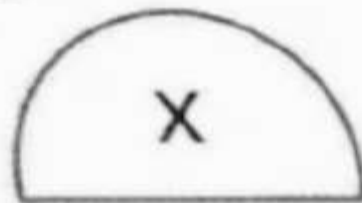
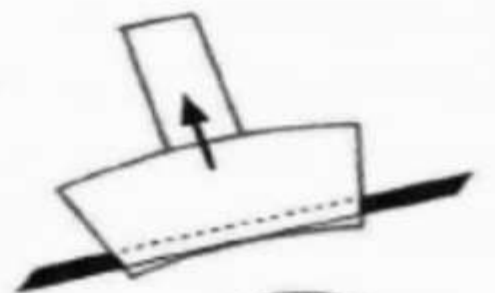


Figure 2.8b
CONCAVE RULE → **SAME**
 Cervical vertebrae below C2
 move according to the
 concave rule.

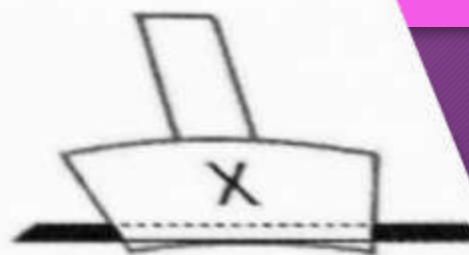
*Figure 5.1
Traction at a right angle
to the treatment plane.
Vertebrae labelled with
an "x" are stabilized.*



a



b



c

** Note in Figure 5.1a, you can alternatively fixate the concave joint partner and mobilize the convex joint partner.*

- If the traction force is applied to the caudal vertebra in a segment, the spacial orientation of the treatment plane does *not change* (Figure 5.1 c)
- ❖ This is usually the case with **lumbar traction techniques**.
- While the sacrum or the caudal vertebra in the segment is pre-positioned, the stabilized cranial vertebra remains stationary, as does the treatment plane.
- The direction of the traction force always remains at a right angle to the stationary treatment plane, independent of the position of the caudal joint partner (Figure 5.lc).

Grade III traction mobilization in the (actual) resting position

- can stretch any soft tissue that crosses the joint and limits joint movement, including
 - muscle connective tissues,
 - joint capsules
 - ligaments.
- As a trial treatment, apply about ten stretch-traction mobilizations.
- If reassessment reveals improvement, continue with this and progress toward the true resting position.
- Progress the stretch-traction mobilization in nonresting positions as improvement allows.

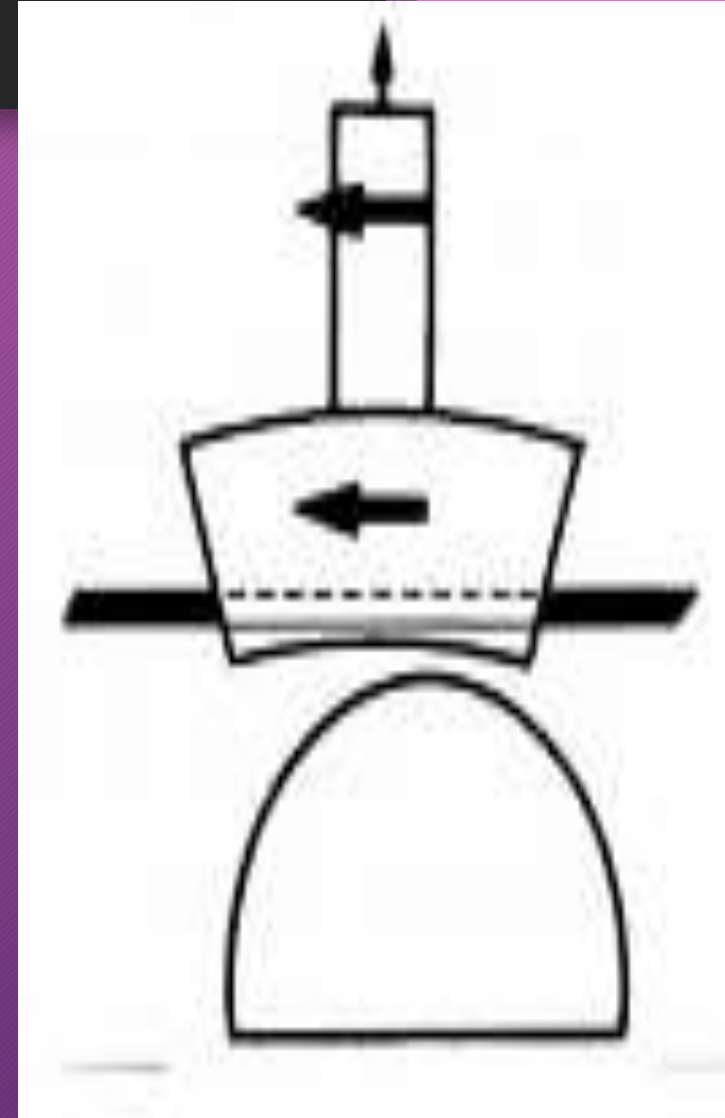
Grade III traction mobilization at the point of restriction

- is applied with the joint pre-positioned near the limit of range in the restricted movement direction.
 - This maneuver will increase joint mobility primarily in the pre-positioned direction. For example,
 - to increase a flexion restriction, pre-position the joint at the limit of the flexion range and apply the stretch-traction mobilization in that position.

- Skilled practitioners pre-position and stretch in more than one dimension, for example, in flexion with abduction (bi-axial joint) or flexion with abduction and external rotation (tri-axial joint).
- Progress the stretch-traction mobilization further into the restriction as improvement allows.
- Treatment is often successful with skillful pre-positioning at the point of restriction combined with stretch-traction mobilization alone.
- ❖ *However, in some cases, especially to treat the last degrees of restriction, it can be necessary to use stretch-glide mobilization as well.*

Grade III Stretch-glide mobilization

- Stretch-glide mobilization directly stretches the tissues restricting joint movement.
- Progress to Grade III stretch-glide mobilizations if and when stretch-traction mobilizations no longer produce adequate mobility gains. e.g.,
 - ❖ the last degree of restriction,
 - ❖ or to re-position a positional fault.



- Glide-mobilizations produce some intra-articular compression,
 - To facilitate the glide mobilization and reduce these compressive forces acting on the joint, combine it with a
 - Grade I traction movement .
- In joints with advanced degenerative changes, or which are painful when compressed, it may be necessary to use additional traction force or less gliding force in order to avoid pain during treatment.
- ❖ In cases where joint compression testing produces nerve root symptoms, stretch glide mobilization is contraindicated.

- Progress joint pre-positioning in the same way as for stretch traction mobilization.
 - Start in the actual resting position,
 - progress toward the true resting position,
 - gradually re-position the joint nearer and nearer to the point of restriction, as improvement allows.
- ❖ **For best effect when the joint is pre-positioned at the movement limit, ease off the limit a little before applying the stretch-glide mobilization.**

- Apply vertebral stretch-glide mobilizations parallel to the treatment plane in the joint.
- Remember that the spacial orientation of the treatment plane follows the orientation of the cranial vertebra in the segment.
- When applying glide-mobilization to the cranial vertebra in the segment,
 - the treatment plane and treatment direction changes to follow the pre-positioning orientation of the cranial vertebra.

- When applying glide-mobilization to the caudal vertebra in the segment,
 - the treatment plane remains stationary,
 - ❖ so the direction of the glide force does not change regardless of the pre-positioning orientation of the caudal vertebra.
 - ❖ The most effective stretch-glide mobilizations move a joint in the direction of most restricted gliding.
 - However, if performed with poor technique
 - or with excessive force they can injure sensitive joint structures.

- Stretch-glide mobilization in a **severely restricted** gliding direction may produce joint compression and be too painful for a patient to tolerate.
- In this case, return to Grade III stretch-traction mobilizations carefully applied in less restricted and less symptomatic positions.
- Once mobility status improves to a slight hypomobility, progress again to specific
 - Grade III stretch-glide mobilization in the most restricted gliding direction .

Manipulation

Thrust is a high-velocity, short-amplitude motion such that the patient cannot prevent the motion.

- The motion is performed at the end of the pathological limit of the joint and is intended
 - to alter positional relationships,
 - snap adhesions,
 - to stimulate joint receptors.
- ❖ Pathological limit means the end of the available ROM when there is restriction.

- Afferent nerve impulses from joint receptors transmit information to the central nervous system
 - so provide awareness of position and motion.
 - ❖ With injury or joint degeneration,
 - there is a potential decrease in an important source of proprioceptive feedback
 - that may affect an individual's balance response.
 - ❖ Joint motion provides sensory input

Receptors Types

Static position and sense of speed of movement

- *type I receptors found in the superficial joint capsule*

Change of speed of movement

- *type II receptors found in deep layers of the joint capsule and articular fat pads*

Sense of direction of movement

- *type I and III receptors; type III found in joint ligaments*

Regulation of muscle tone

- *type I, II, and III receptors*

Nociceptive stimuli

- *type IV receptors found in the fibrous capsule, ligaments, articular fat pads, periosteum, and walls of blood vessels*

Manipulation Under Anesthesia

- Manipulation under anesthesia is a medical procedure used to restore full ROM by breaking adhesions around a joint while the patient is anesthetized.
- ❖ The technique may be a rapid thrust or a passive stretch using physiological or accessory movements.

Manipulation

Manipulation also carries risk of serious injury.

OMT practitioners must understand the

- indications and contraindications to manipulation in order to prevent patient injury.

Manipulation technique

- In an attempt to reduce the risks inherent in manipulation, we have worked for many years to perfect techniques which
 - use a **translatory linear traction-thrust, rather than a rotatory-thrust.**
 - A linear thrust is technically more difficult to perform than a rotatory thrust,
 - ❖ however it is far safer and just as effective.
- Risks to the patient increase with rotatory manipulation, especially in the craniovertebral region.
- Our linear thrust techniques are primarily applied as traction, however some are applied in a gliding direction.

- We no longer teach rotatory manipulation techniques either for the extremity joints (since 1979) or for the spine (since 1991).
- We practice manipulation as a high velocity, small amplitude, linear movement in the actual resting position, applied with a quick impulse ("thrust") to a joint showing a suitable end-feel, to effect joint separation and restore translatoric glide.

A common misconception

- A common misconception is that manipulation is a continuation of a stretch-mobilization.
- It is true that the practitioner first confirms that the patient can safely tolerate a low-force manipulation by applying a brief Grade III stretch-mobilization.
- After this stretch-mobilization "**screening test**" the stretch is released into the Grade II range before taking up the slack again, this time tightening the tissues through the Transition Zone into the Grade III range and immediately applying the low-force thrust at the point of the