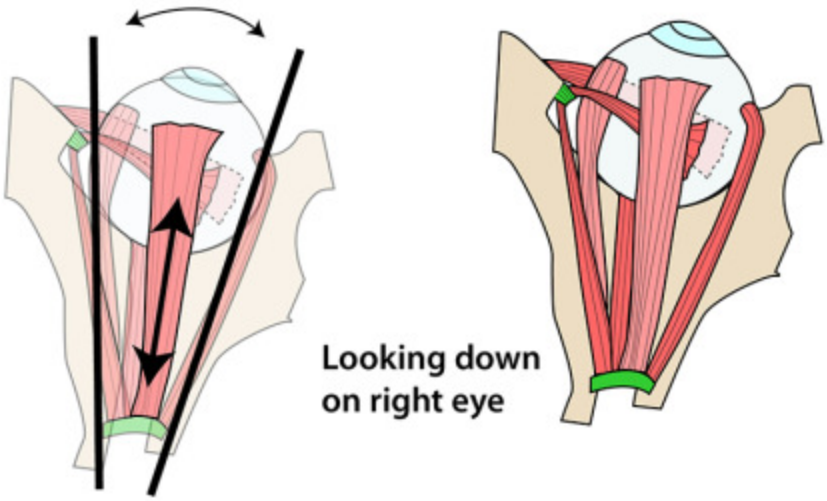
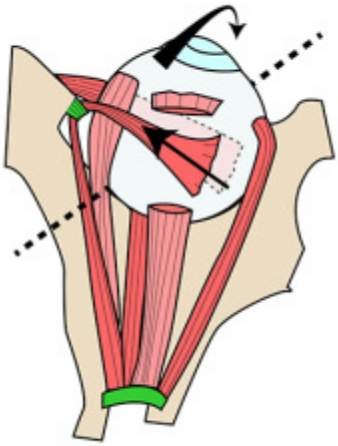
Eye movements produced by the action of single or combined extrinsic muscles of the right eye

OBLIQUE PULL OF SUPERIOR & INFERIOR RECTI



The orbit does not face directly forward but obliquely outwards. This results in the pull of the superior and inferior recti muscles being upwards/downwards but also INWARDS

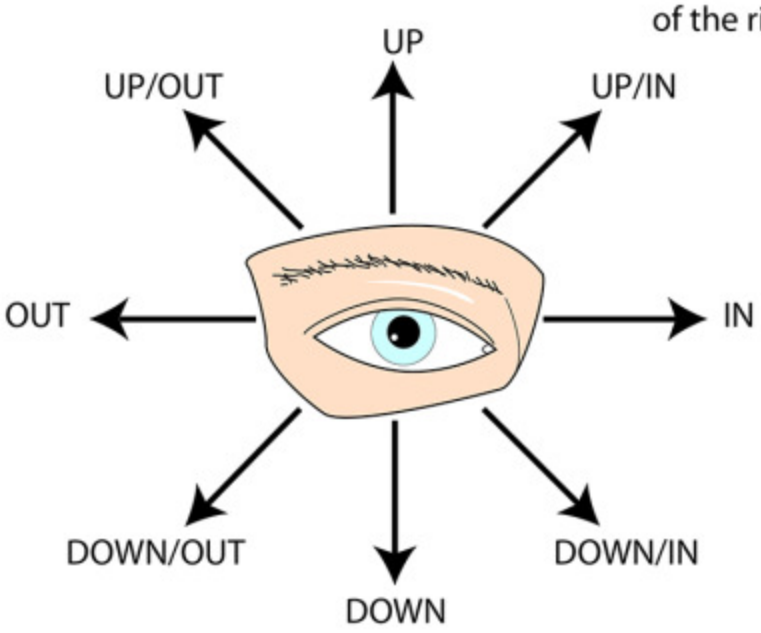
Looking down on right eye. Superior rectus cut away

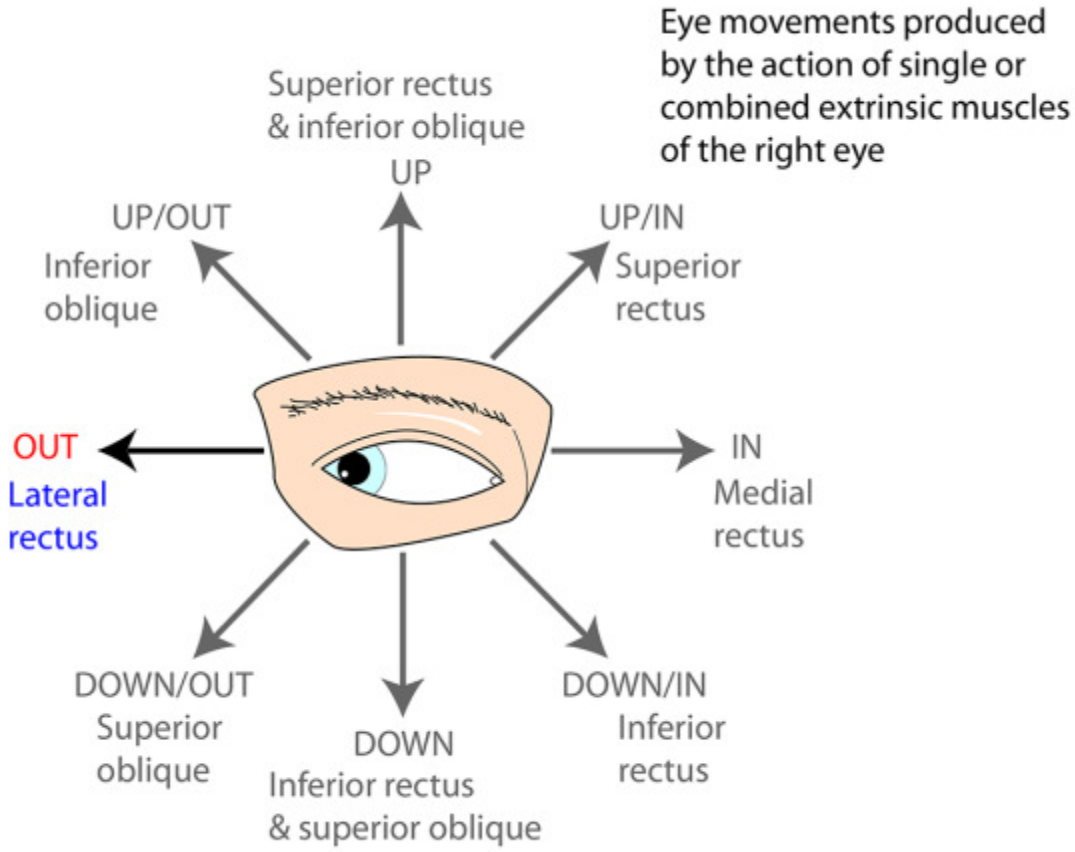


SUPERIOR OBLIQUE

The action of **SUPERIOR OBLIQUE** is to pull its attachment to the globe upwards and medially. This will turn the cornea/eye downwards and outwards. Similarly the inferior oblique does the opposite, turning the cornea/eye upwards and outwards. The dotted line indicates the axis on which the eye "rotates" which is at right angles to the line of pull

Eye movements produced by the action of single or combined extrinsic muscles of the right eye

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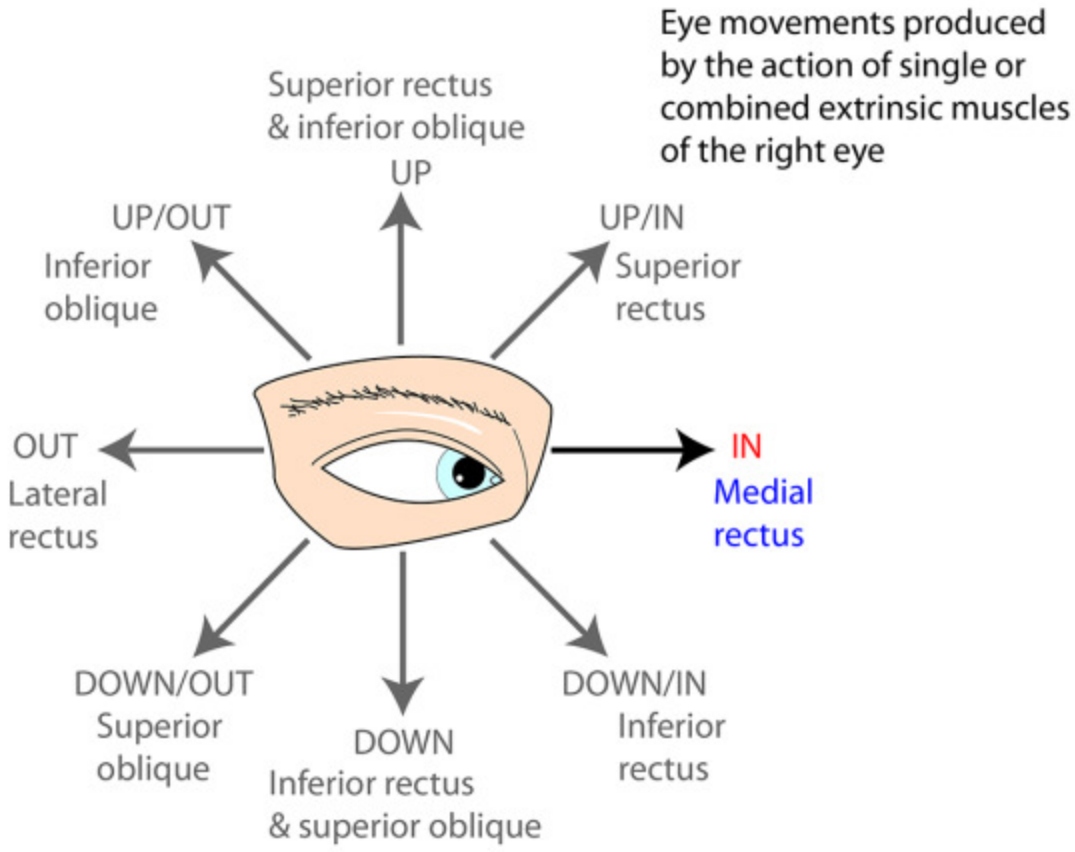
Superior rectus & inferior oblique
UP
UP/OUT
Inferior oblique
UP/IN
Superior rectus
OUT
Lateral rectus
IN
Medial rectus
DOWN/OUT
Superior oblique
DOWN
Inferior rectus & superior oblique
DOWN/IN
Inferior rectus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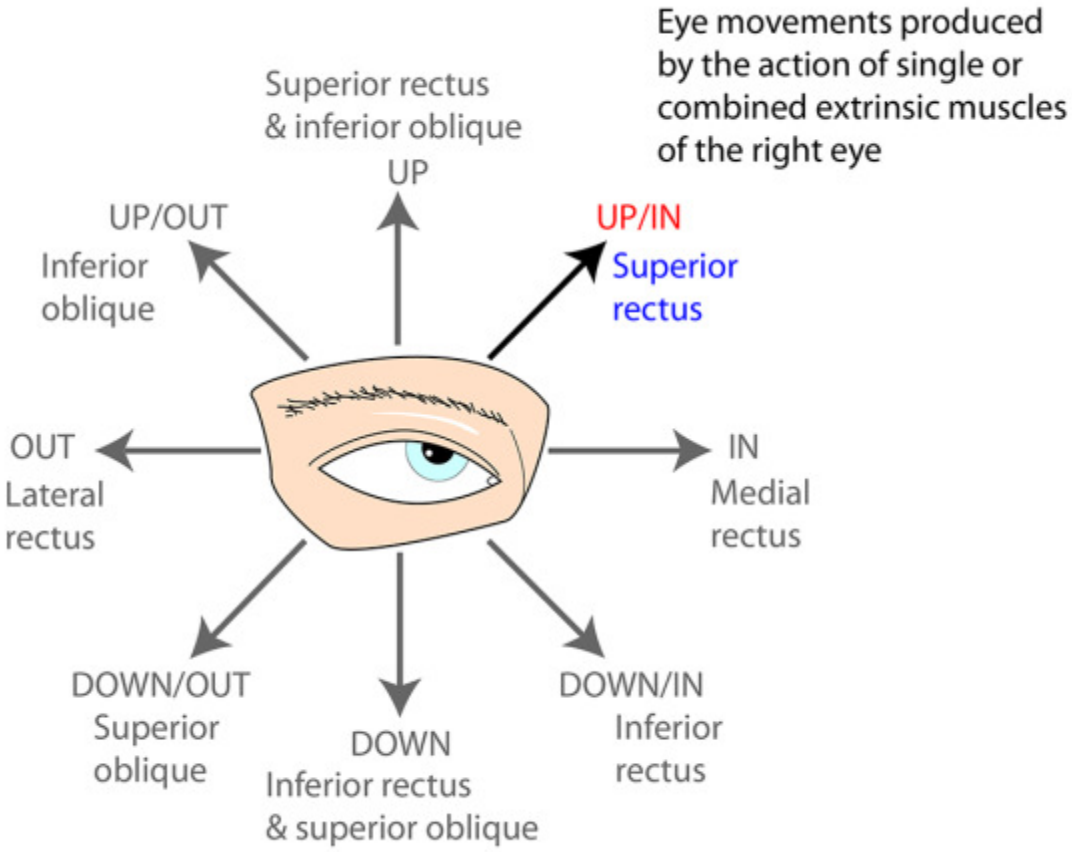
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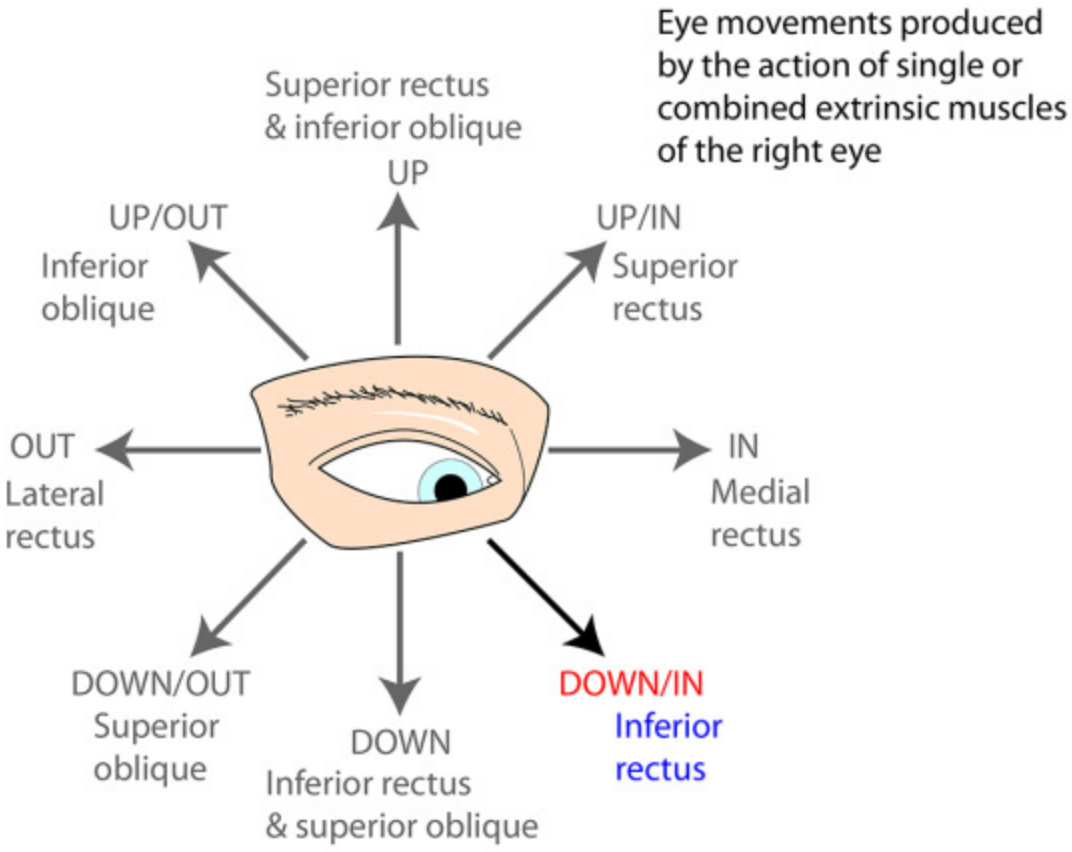
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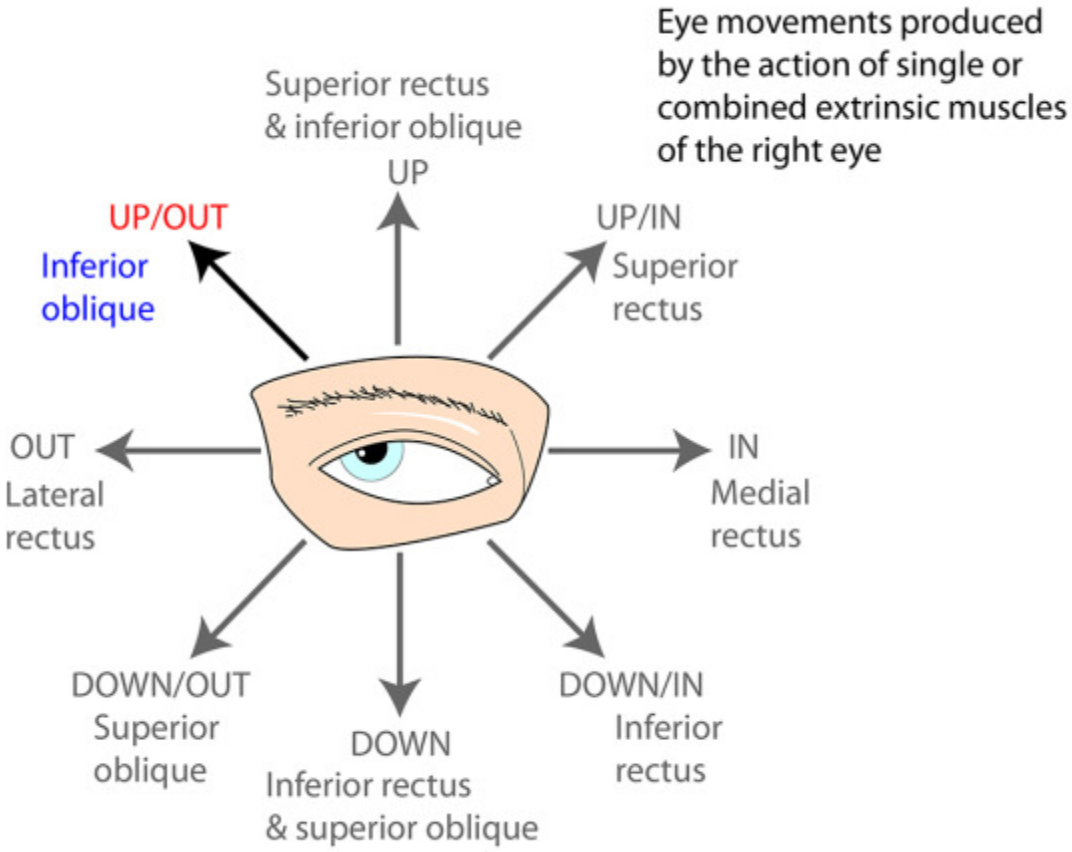
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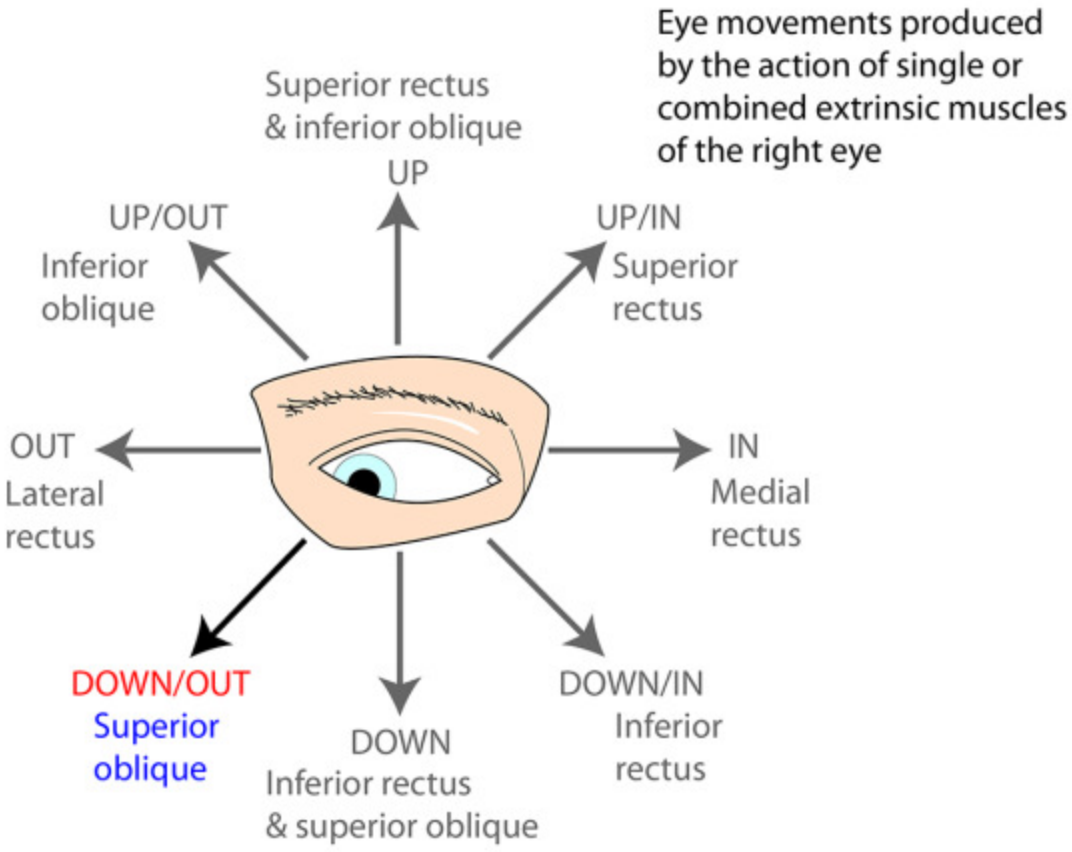
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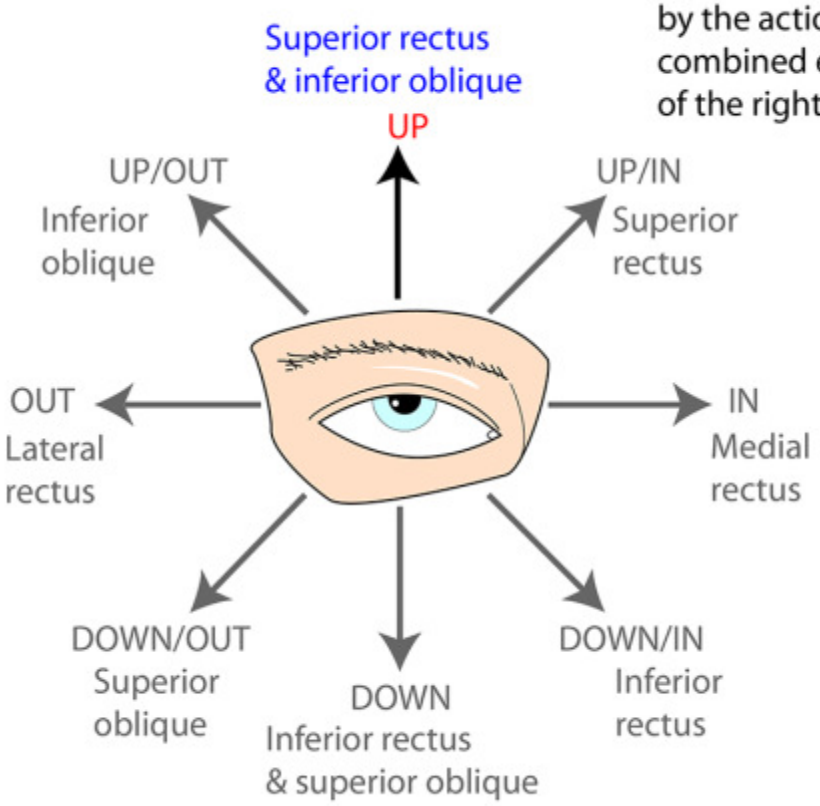

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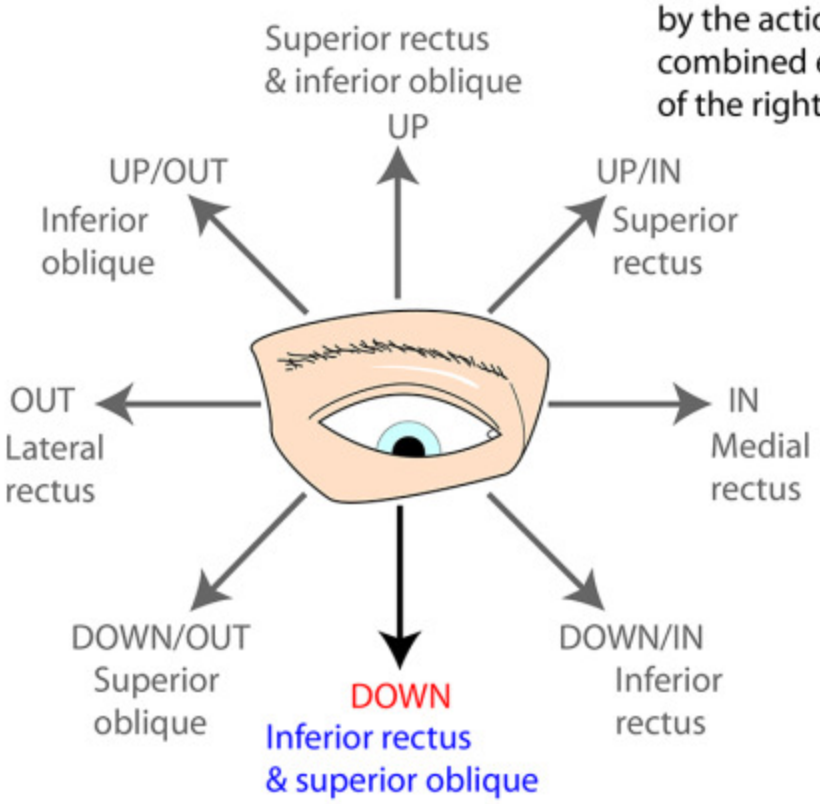
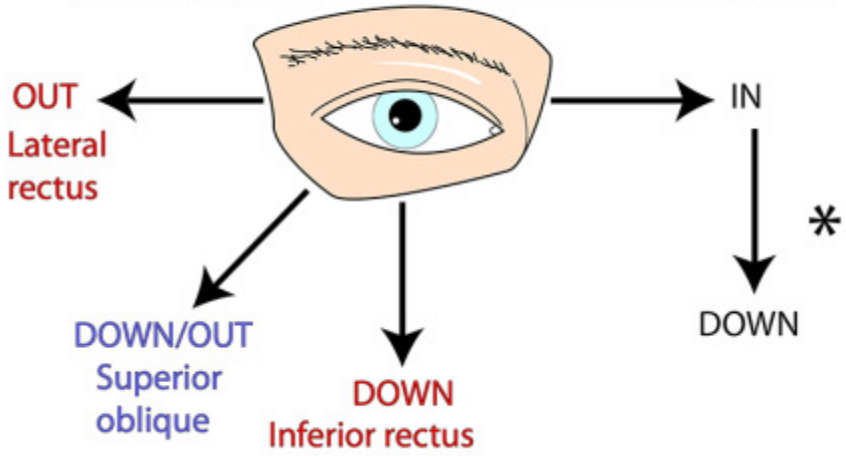
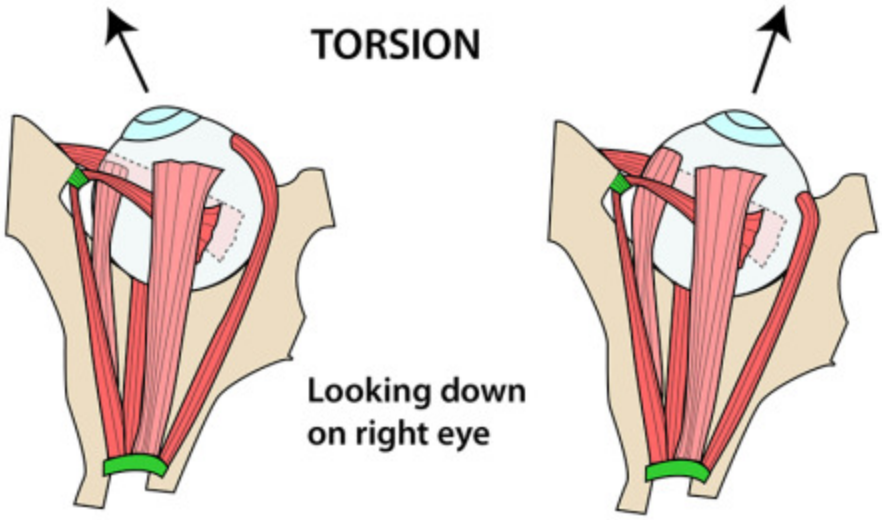


TESTING ACTION OF SUPERIOR OBLIQUE



We know that the isolated action of superior oblique is to turn the eye downwards & outwards. BUT lateral rectus & inferior rectus, acting together, could achieve the same action. By asking the patient to first look inwards (to negate the action of lateral rectus) & then downwards* (inferior rectus is largely disabled when the eye is turned in) we test the isolated downward action of superior oblique

TORSION



IN ADDUCTION

Superior rectus elevates & intorts
Inferior rectus depresses & extorts
Superior oblique turns eye down & out only
Inferior oblique turns eye up & out only

IN ABDUCTION

Superior rectus elevates only
Inferior rectus depresses only
Superior oblique turns eye down & out & intorts
Inferior oblique turns eye up & out & extorts

Patient is looking to the left and both eyes are moving correctly

Patient now looks to the right. Left eye moves correctly but right eye does not indicating a **right lateral rectus palsy** due to a defective right abducent nerve

Patient is looking directly ahead.The right eye is normal. On the left there is a marked degree of ptosis, a dilated pupil and the gaze is downwards and outwards.

This indicates a **left third nerve lesion** with loss of parasympathetic to the pupil and loss of medial, superior & inferior recti & inferior oblique muscles.

The dominant muscles are now the lateral rectus (abducent n) and the superior oblique (trochlear n)