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are those of Susan Wenberg
and do not necessarily reflect the position or policy of the
Department of Veterans Affairs
or the
United States government

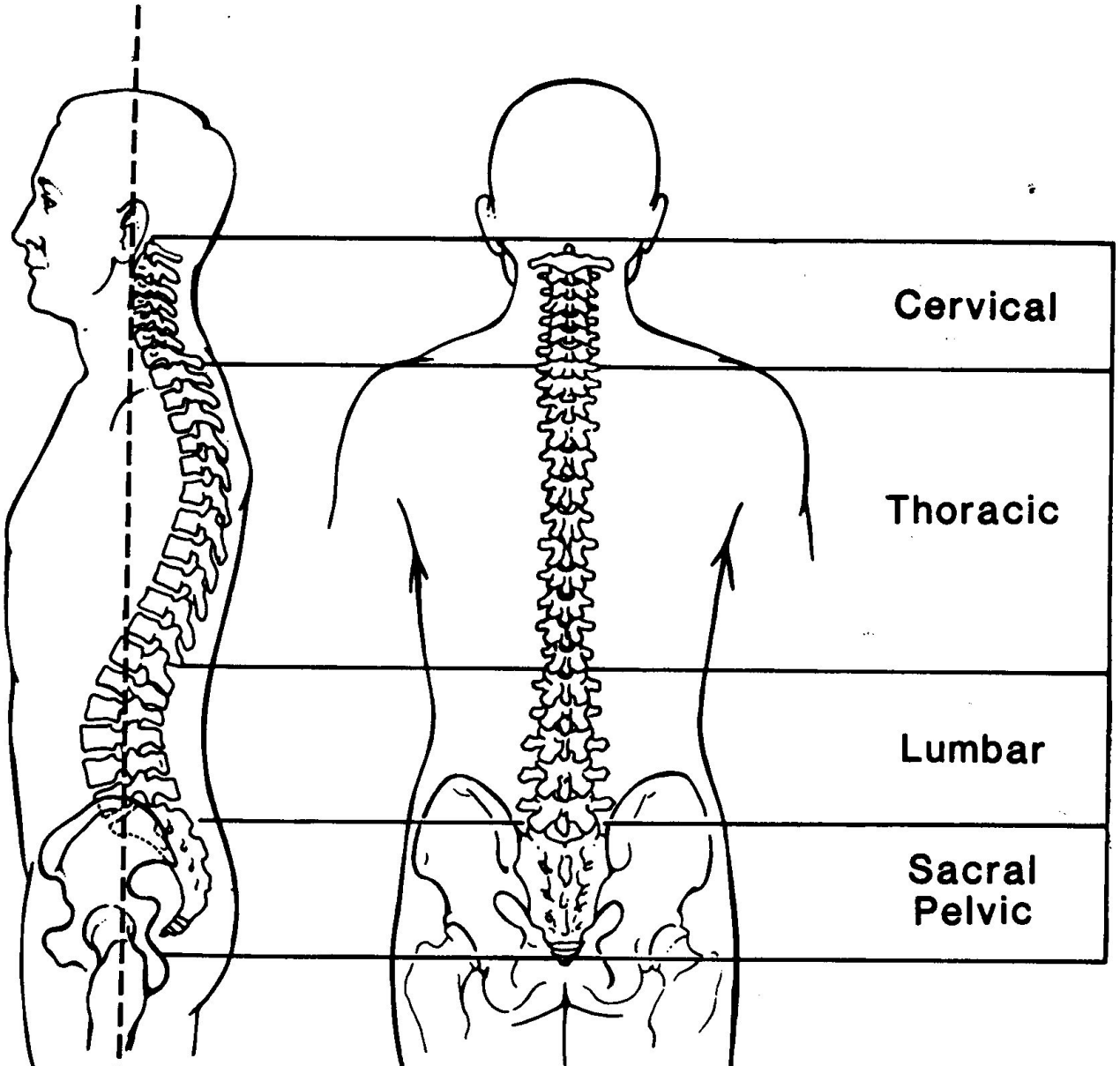
Spinal Nerves ≈ Cranial Nerves

These are the neurology texts that describe the functional relationship between different CNs, and with spinal nerves

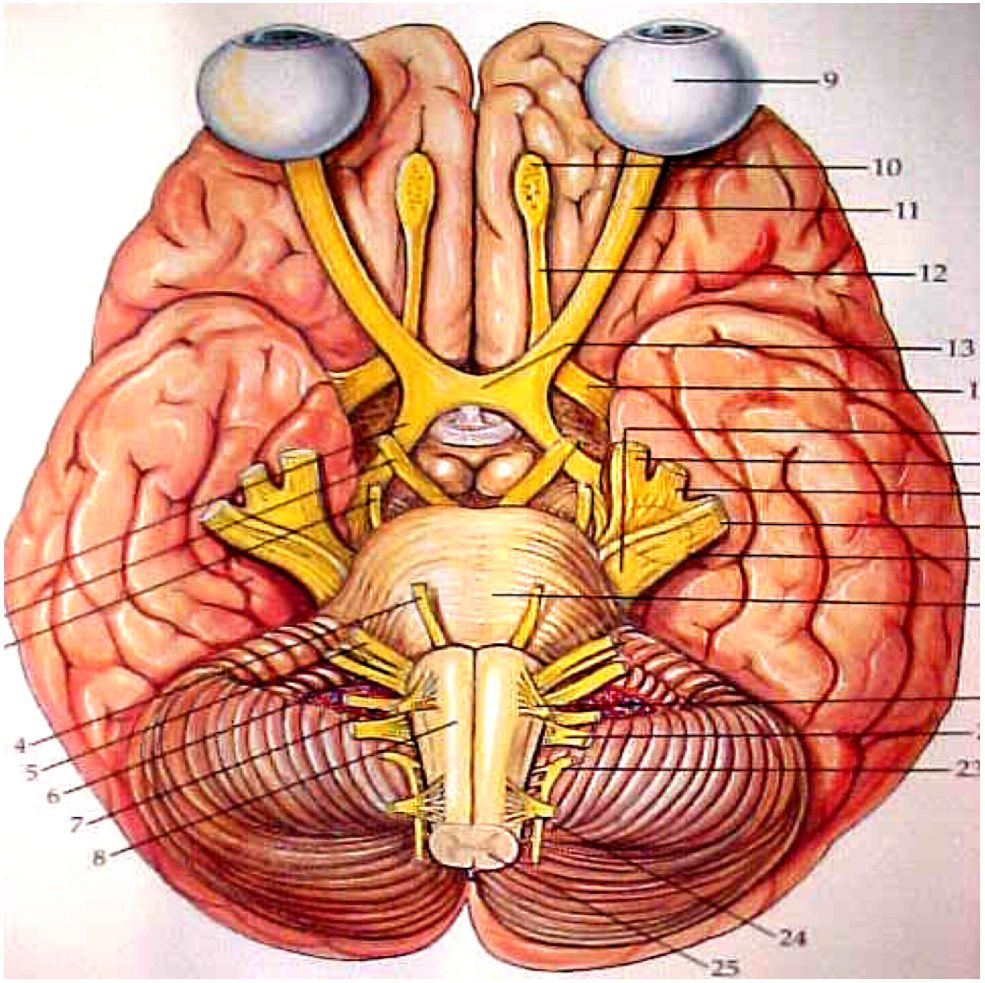
The Human Brain:
An Introduction to its Functional Anatomy
By John Nolte
NORA 2006

Clinical Neuroanatomy
By Stephen Waxman

Spinal Nerves ≈ Cranial Nerves



Cranial Nerves

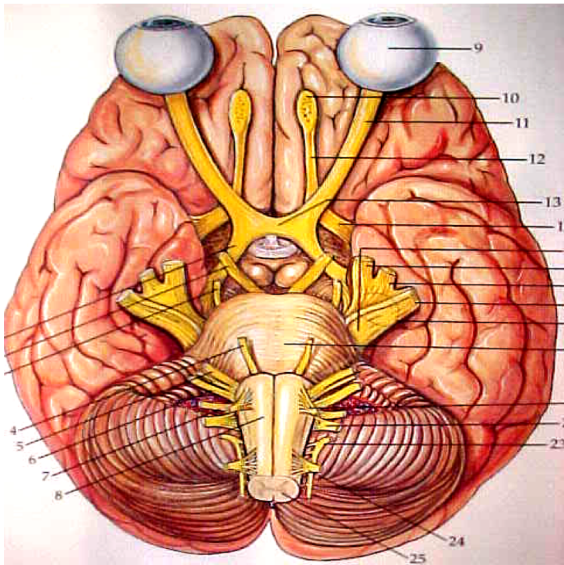


List the 12 nerves

Cranial Nerves are grouped according to embryological and phylogenetic origins ≈ type of nerve fibers

Somatic Efferent: III, IV, VI, XII
Branchial Efferent: V, VII, IX, X, XI
Visceral Efferent: III, XII, IX, X
Visceral Afferent: IX, X, (VII – taste)
Somatic Afferent: V (VII, IX, X)
Special Sensory: I, II, VIII

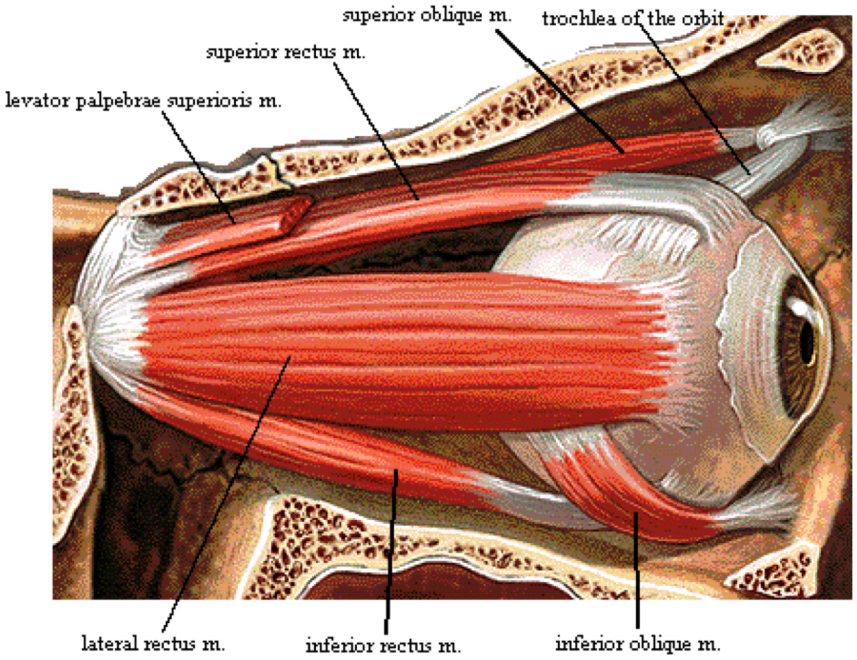
brain	1 2 8	5 7 9 10 11	3 4 6 12	3 4 6 12	5 7 9 10 11	1 2 8
body			INTRINSIC	INTRINSIC		

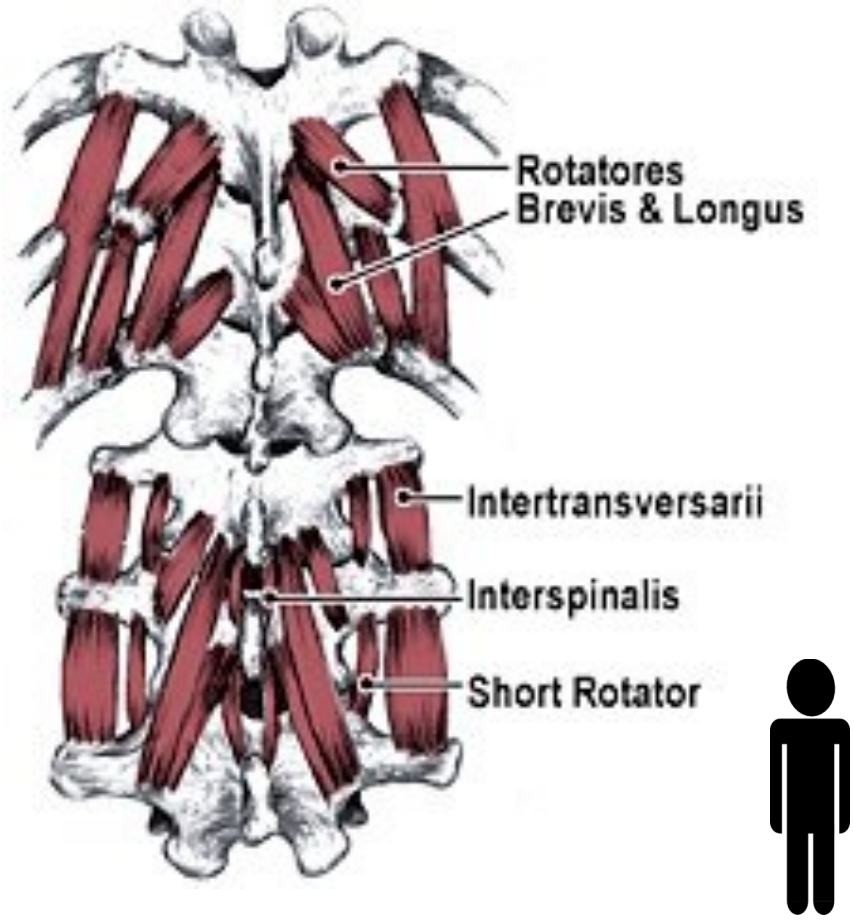


Homologous column

Somatic Efferent
III, IV, VI, XII

spinal nerves
(Innervate intrinsic spinal muscles)


superior oblique m.
trochlea of the orbit
superior rectus m.
levator palpebrae superioris m.
lateral rectus m.
inferior rectus m.
inferior oblique m.


Rotatores
Brevis & Longus
Intertransversarii
Interspinalis
Short Rotator

Functional Anatomy

What is wired together fires together

Neuronal connections are strengthening and remodeled by our experiences and movements

- Video of young girl

Homologous column

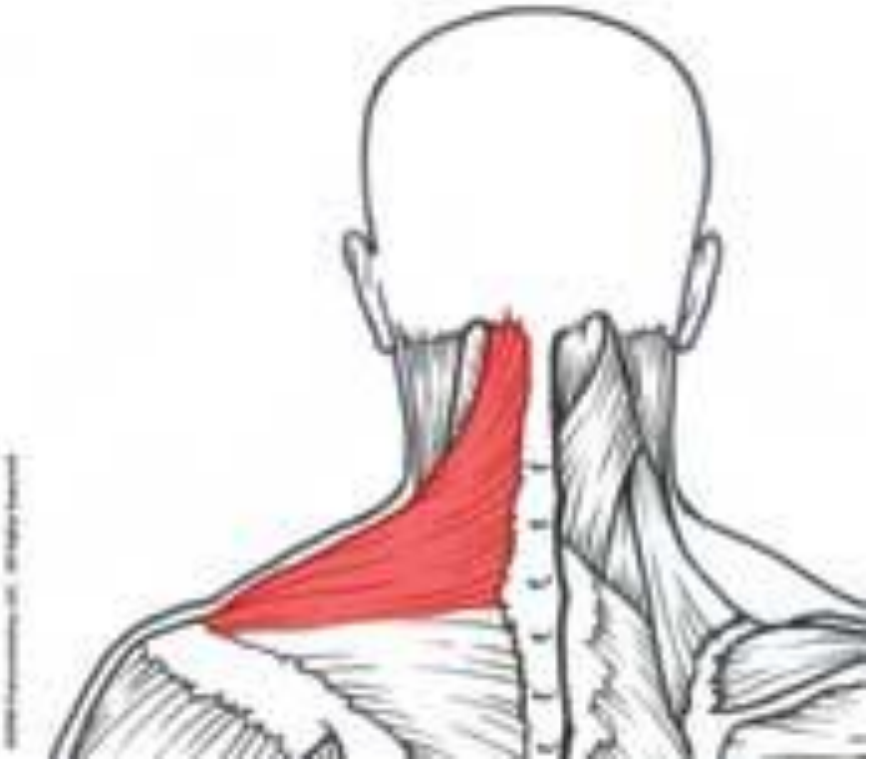
Branchial Efferent

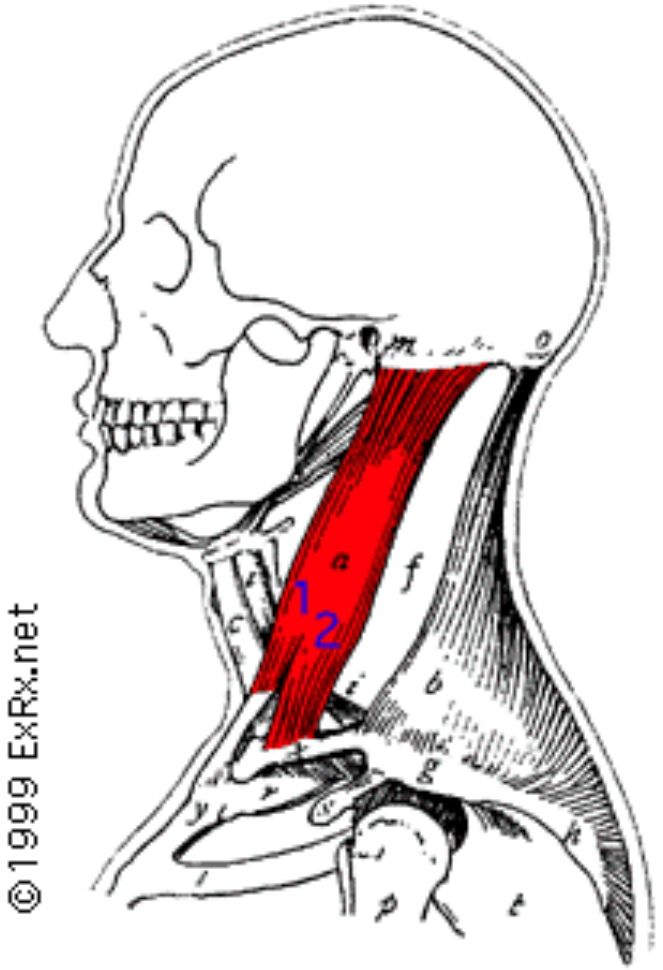
V - Jaw muscles
VII -Facial muscles
IX- glossopharyngeal (visera)
X- vagus (viscera)
XI -Accessory

Can I eat it or can it eat me? (fight or flight)

A connection between the autonomic nervous system, gut, and jaw/neck tension

CN XI Accessory Nerve

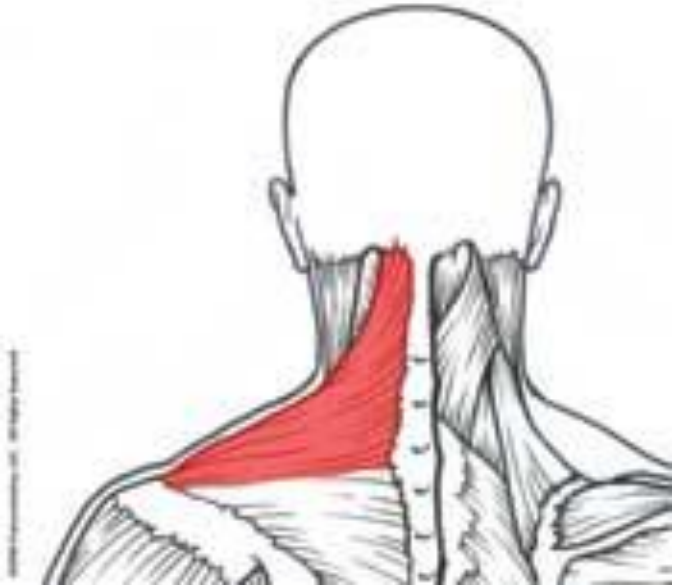




CN XI Accessory Nerve
Upper Trapezius

Trigger Points
- base of the skull
- behind the eye
- behind the ear
- temple

Autonomic Concomitants
- dizziness, vertigo

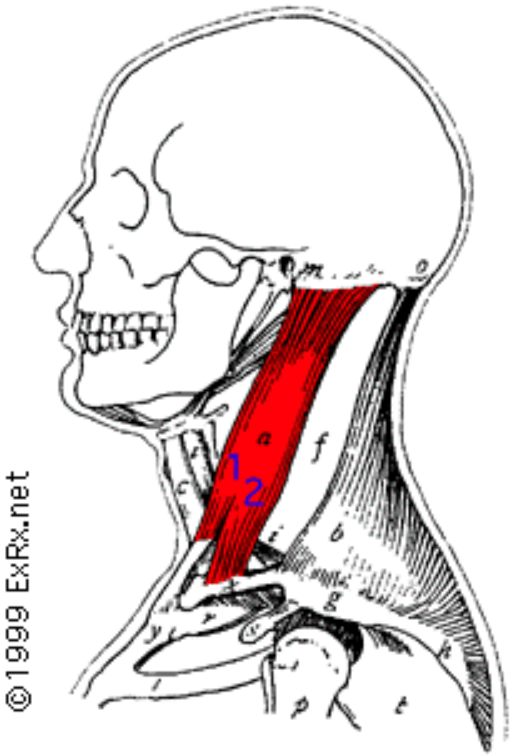


Trigger Points

occiput
around eye
forehead
behind and in ear

Autonomic and Proprioceptive Concomitants

excessive lacrimation or rhinitis
reddening of conjunctiva
apparent “ptosis”
sore throat
cracking in ear
spatial disorientation, ataxia
syncope or Falling
blurred or Double vision
forehead sweating
nausea



SCM muscle

CN XI

CN V Trigeminal Nerve
Jaw Muscles

Trigger Points

teeth
jaw
forehead
ear
sinuses
face

Autonomic and Proprioceptive Concomitants

unilateral tinnitus
sinusitis

CN VII Facial Nerve

Trigger Points
Face, including eye and nose

Autonomic and Proprioceptive Concomitants
trouble with contrast
jumpy print when reading

Homologous column

Branchial Efferent

V - Jaw muscles
VII -Facial muscles
IX- glossopharyngeal (visera)
X- vagus (viscera)
XI -Accessory

Learning Points

cranial nerves ≈ intrinsic spinal nerve

Some cranial nerves are more closely related to each other than other cranial nerves

OM muscles ≈ intrinsic spinal muscles

Breakout Session References for Spine and Cranial Nerves

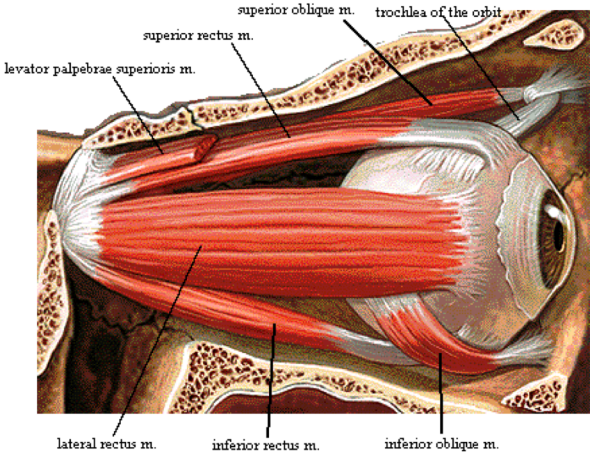
www.masgutovamethod.com

www.AnatBanielMethod.com

https://www.restoringbreathing.com

Anat Baniel TedX Berkeley

Accessing the Healing Power of the Vagus Nerve by Stanley Rosenberg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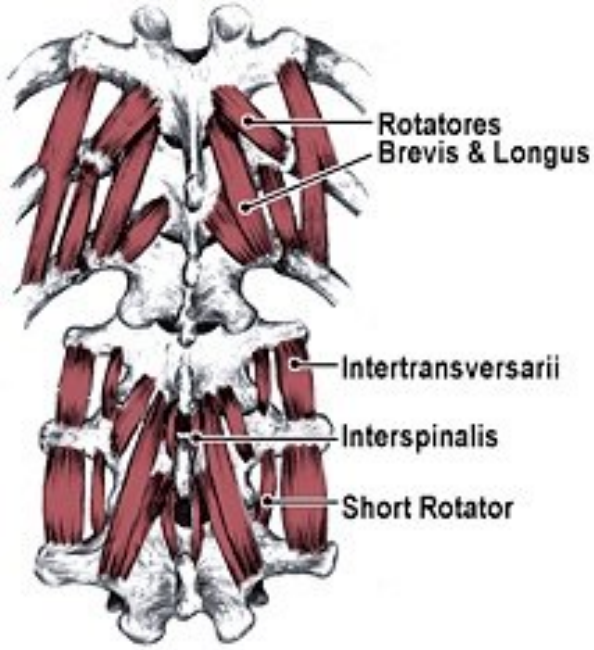
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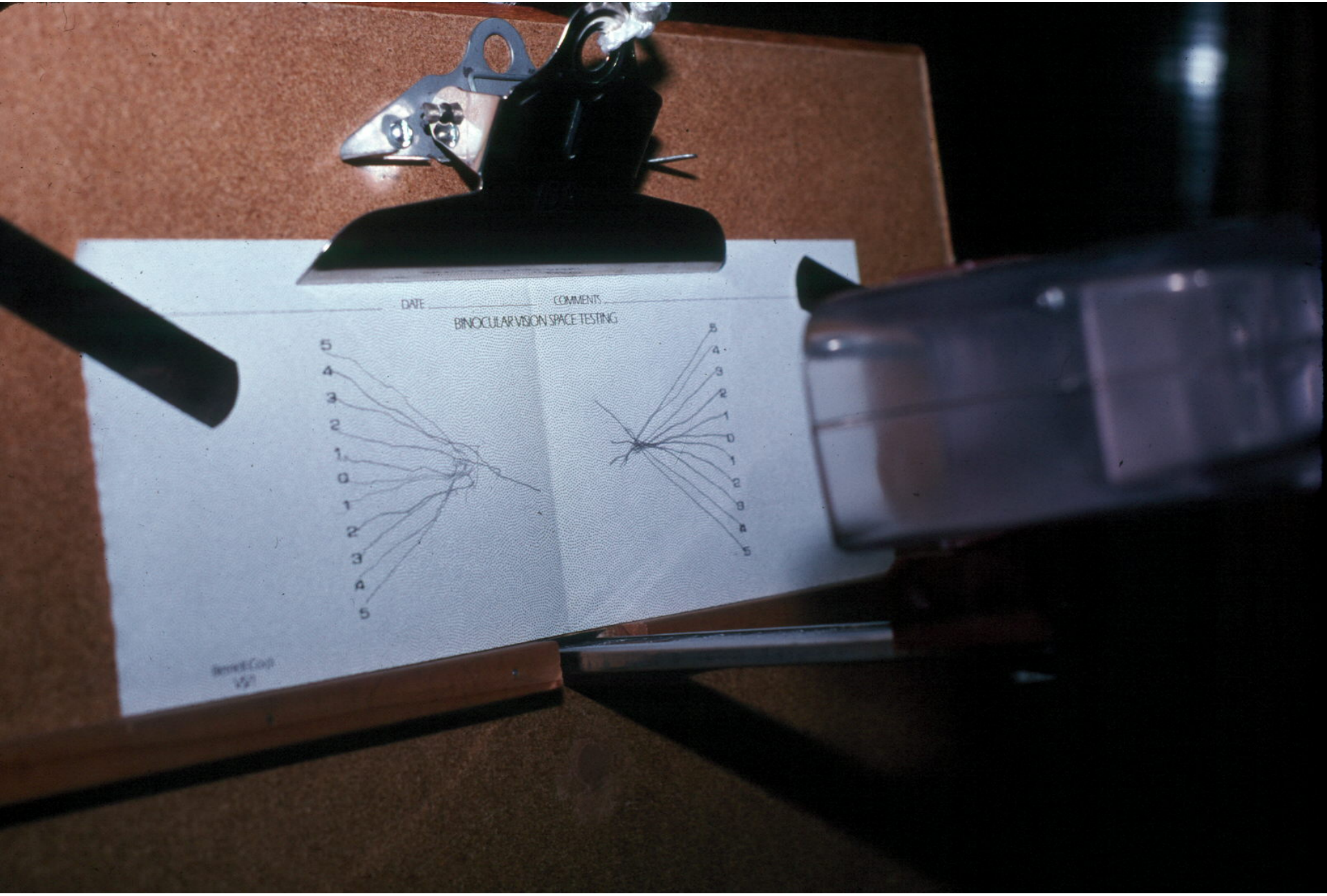
Brevis & Longus
Intertransversarii
Interspinalis
Short Rotator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BINOCULAR VISION SPACE TESTING
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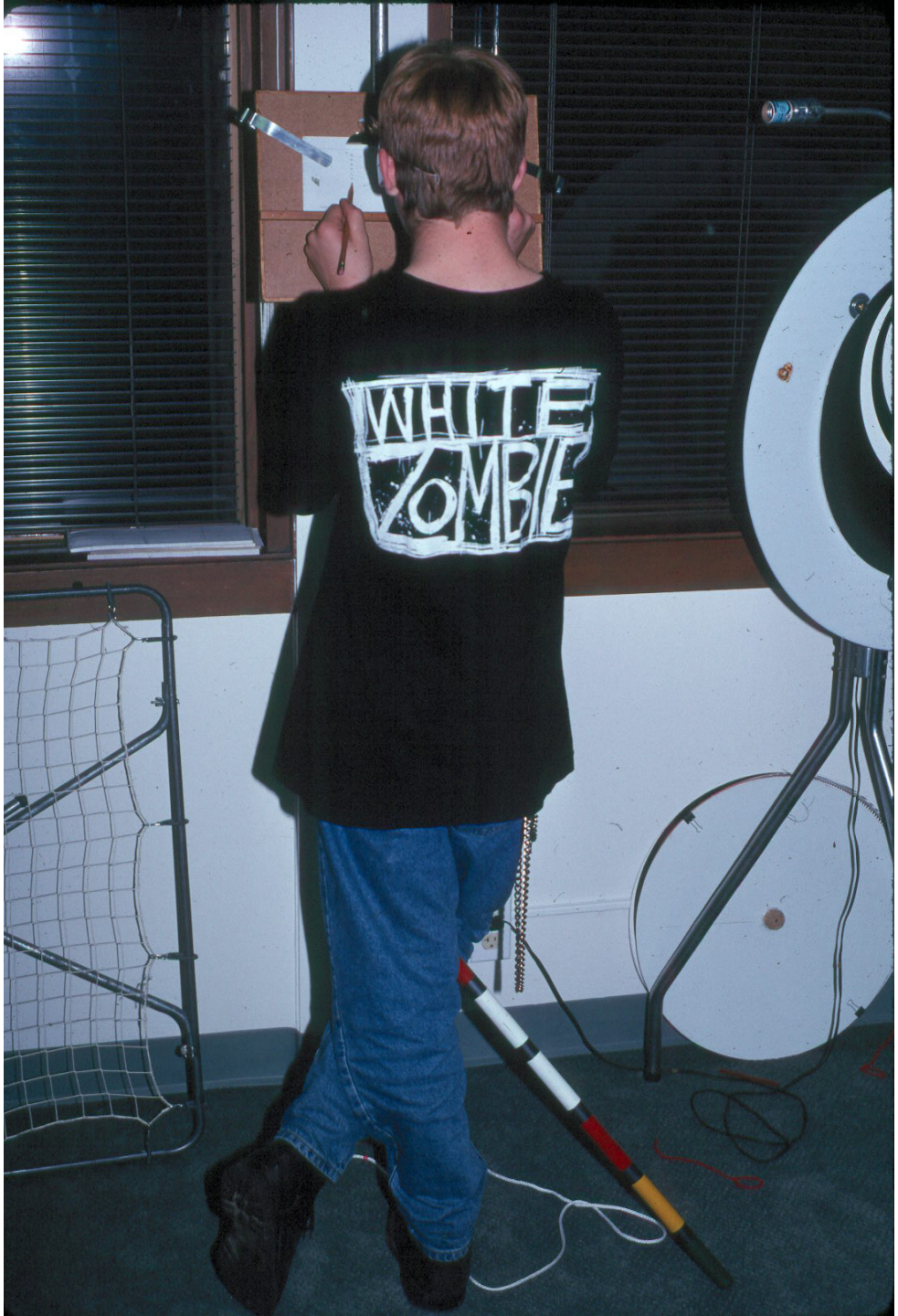
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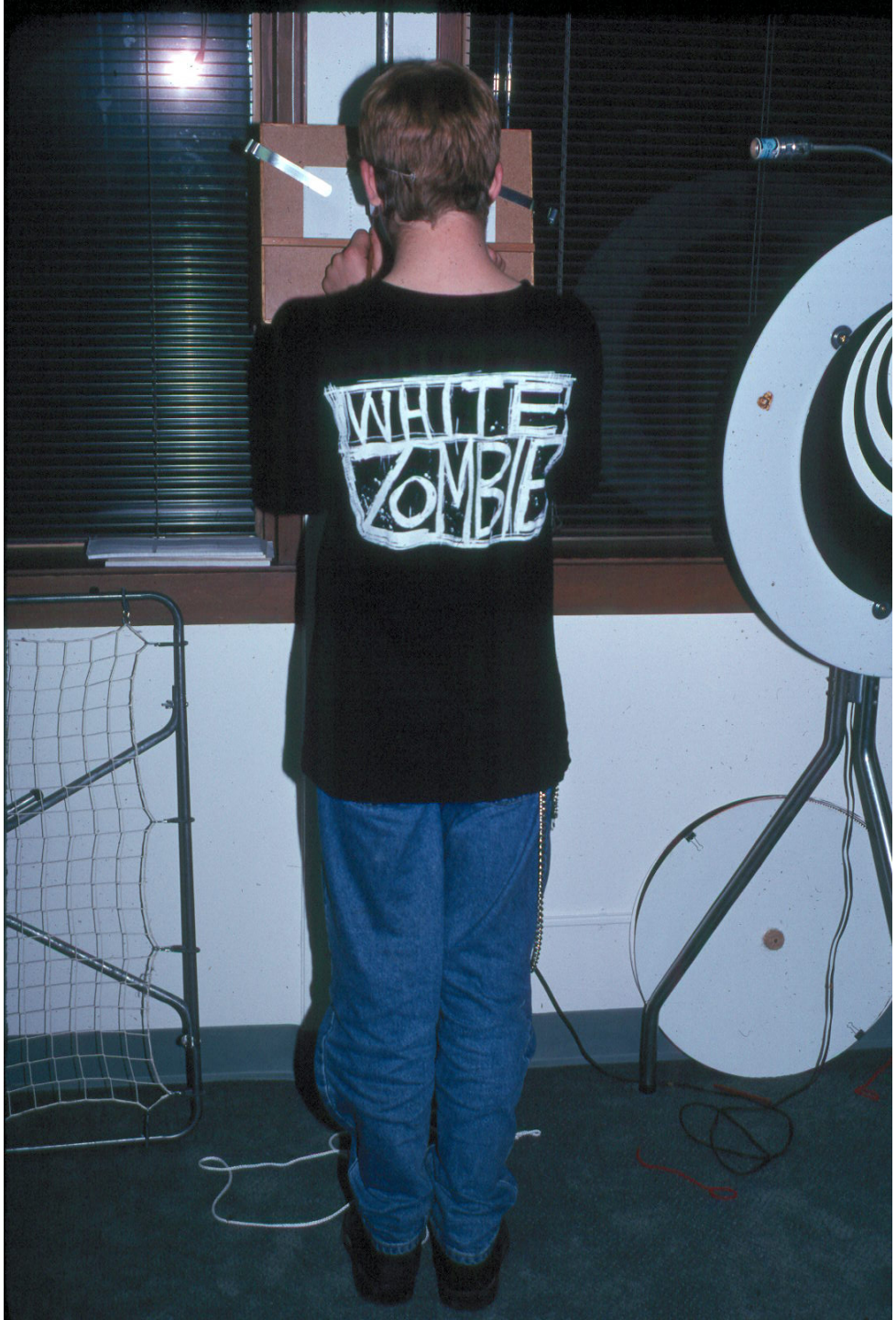
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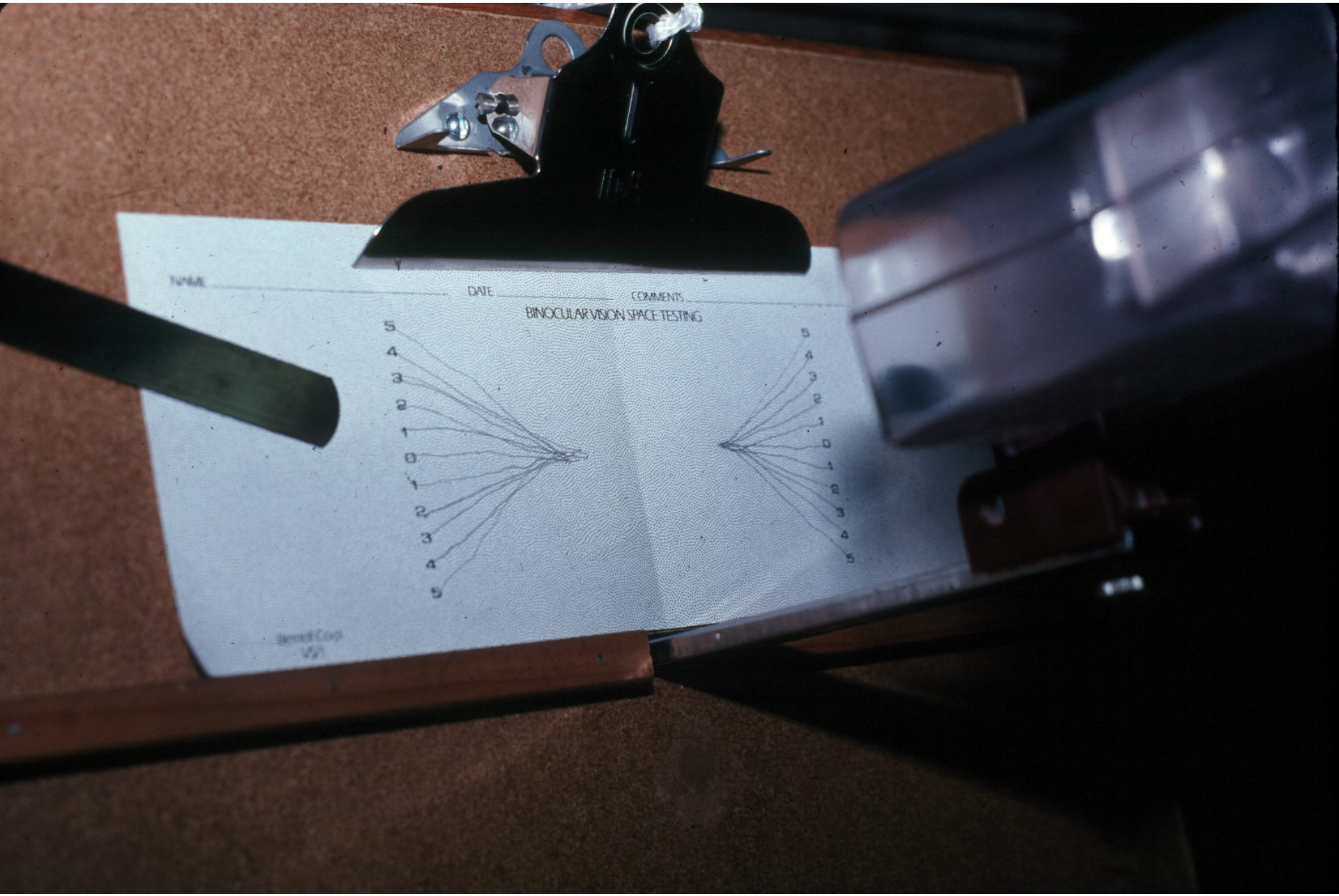
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Changing the

Way the ground

talks to the person

Breakout Session References

Interestingly, these are all programs that use developmental and reflex models to addressing the management of neuromusculoskeletal conditions.

www.rehabps.com

www.AnatBanielMethod.com

www.masgutovamethod.com

http://phillipbeach.com


Hvítárnes 8

Somatosensory
vs
Proprioception

Meissner's corpuscles
Ruffini endings
Free nerve endings

Merkel's discs
Pacinian corpuscles
Muscle spindles
Golgi tendon organs

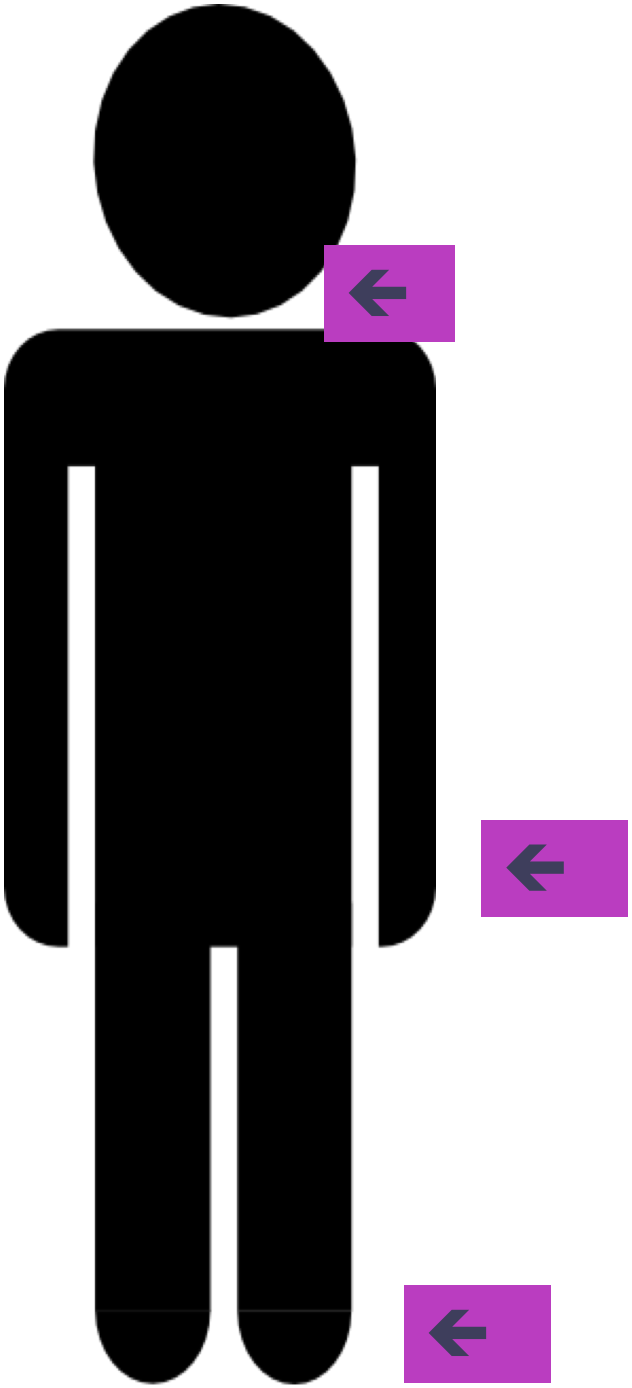
receptors in skin, muscle, bone, connective tissue, internal organs

There are no “Proprioceptors”

Proprioceptive information comes largely from mechanoreceptors in muscles and joints

Receptor information contributes to sense of position of self and body parts, and movement of body parts

Areas that provide a disproportionately large amount of proprioceptive input



Why we are stiff

Trauma, and treatment, can disrupt proprioception

Breakout Session References

Therapeutic Tape and Courses

RockTape.com

Kinesiotaping.com

Breakout Session 1
midline reflexogenic systems

Extraocular muscle exercises and cervical motion

Tongue exercises and cervical motion

Posture and cervical motion

Balance and cervical motion

Breakout Session 2
walking and transitional movements

Walking and standing

- upright at it's best
- centrated joints

transitional movements

- falls risk and tweak risk
- sit to stand [stand to sit]
- supine to prone
- supine to standing

Breakout Session 3

position sense and kinesthetic awareness

Somatosensory:

skin/mm/bone/connective tissue/guts

therapeutic approaches

touch tape brush skin slide suction

Proprioception:

position sense

kinesthetic awareness