

Decreasing Risk of Fall in
the Aging Population
(Increased ROF Population)

Presenter



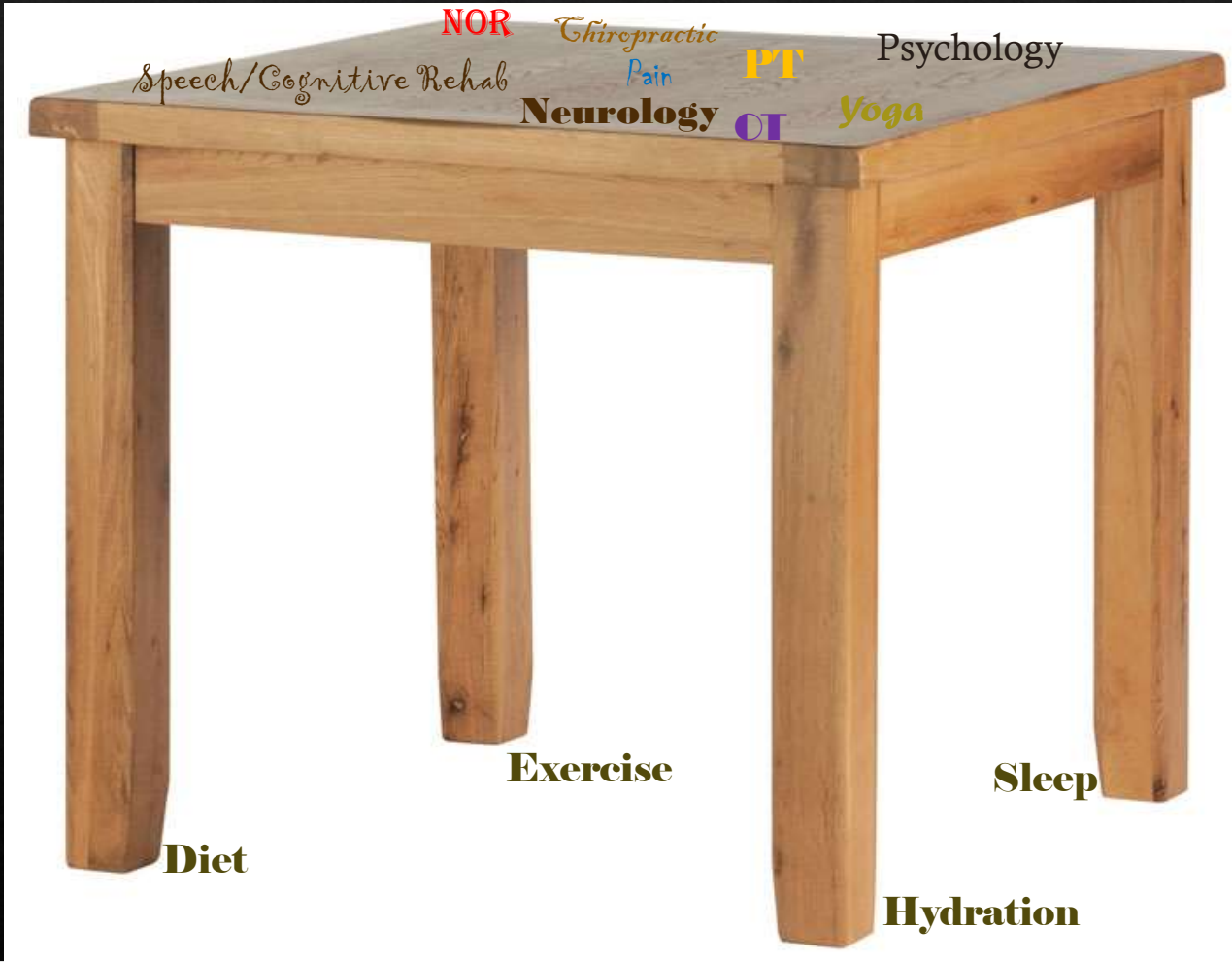
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“Look at life through the window, not the rearview mirror.”

-Byrd Baggett



...ETC

PRIMARY OBJECTIVE...

HAVE FUN!!!

IF YOU'VE LEARNED
SOMETHING NEW AND NO
ONE HAS DIED,
IT'S BEEN A GOOD DAY!



OPTOMETRIST

An optometrist is a **primary care physician**
(or **secondary** or **tertiary**)
who specializes in the **vision** and
health of the eye (Patient) and
manipulation of the brain. (TLA)

VISION

“A dynamic, interactive process of motor and sensory function mediated by the eyes for the purpose of simultaneous organization of posture, movement, spatial orientation, manipulation of the environment, and to the highest degree, perception and thought.”

William V. Padula, O.D.

PATIENT

*A patient is a whole
person, not just a pair
of eyes on a stick!*

WHOLISTIC/FUNCTIONAL APPROACH TO PATIENT CARE

Improved patient participation in treatment

- Referrals to transdisciplinary team
 - o Audiology
 - o Nutrition
 - o Physical therapy
 - o BROS
 - o VIST
 - o Etc.

Communication with Primary Care Provider

- Improved continuity of care
- Further improvement of patient outcomes
- Help with further testing
- Opportunity to educate and improve referral services

ELDERLY AND RISK OF FALL (ROF)

Primary reason for ER visits for those 65 and older

- Mortality and morbidity

Risk factors are often overlooked by primary care and ER providers

- Visual impairment

Diseases of aging increase ROF

- Alzheimer's
- Parkinson's
- Normal neuro-degenerative changes of aging

ELDERLY AND RISK OF FALL (ROF), CON'T

Fear of ROF in the elderly

- Decrease activity
 - Increase in cognitive decline
 - Loss of strength
 - Thereby further increasing risk of fall and injury
 - Increase in depression
- Decrease in interactions with others
 - Increasing cognitive decline
 - Increase depression

ELDERLY AND RISK OF FALL (ROF), CON'T

Tauopathy in neurodegenerative changes of aging

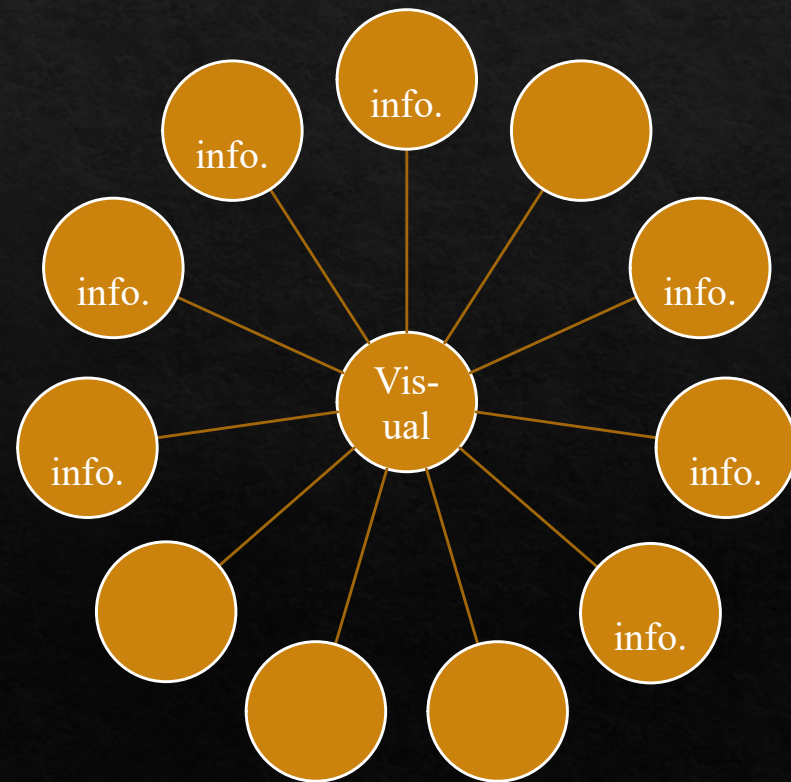
- Affect posture
- Affect balance
- Affect movement through space
- The more severe the tauopathy, the more severe the condition

“When we
are no
longer able
to change
a situation,
we are
challenged
to change
ourselves.”

-Victor
Frankl

NEURO-OPTOMETRIC REHABILITATION

65%-85% of all the information processed by the brain travels through the ambient and/or focal visual system.



NEURO-OPTOMETRIC REHAB, CONT.

Neuro-Optometric Rehabilitation:

Process of using therapeutic lenses (prisms) to balance the system

Multi-disciplinary/Trans-disciplinary approach to neurological insult rehabilitation.

*It is **NOT** vision therapy, although vision therapy may be a discipline needed in treatment

Vision vs. Perception Vision Therapy vs. NOR

Vision is like a lens.
It collects the light.
Moving the lens around shows you a new image in the frame.

VT works on the Motor and sensory aspects of the system

However, a camera is useless without the film, which collects the light information and puts it together into an image to be enjoyed for all time.

If the system isn't kept stable, the picture is... blurred.

Disorganization of perceptual space causes a person disorientation in space, yielding issues with balance and movement through space. Reorganize (stabilize) space, improve gait, posture and movement through space...



Gait and Balance evaluation without prism.

Patient is in for initial evaluation

Complaints of

- x balance & dizziness
- x headaches
- x anxiety
- x temper
- x vision fluctuations

Drifts Right

Back on heels

Tips Right and Left

VISION VS. PERCEPTION VISION THERAPY VS. NOR



How can you take a useful picture if the lens is stable, but the film is moving everywhere?

NOR stabilizes the **perceptual world**.
If there are motor/sensory issues left over, that is where vision therapy comes into play.

Gait and Balance evaluation with prism.

This is 3 minutes later with prism in place.

Note changes in gait, balance and posture.

Perceptual world has been adjusted being from
up and to the right, back to center.

The film is no longer moving. The perceptual
world is stable to allow for processing to be
more effective in all areas.

GAIT, POSTURE AND BALANCE

Evaluation of gait/balance/posture of the low vision/neurologically challenged patient

- History questions
- Drift
- Lean
- Head posture
- Lean in chair
- Which eye is more disabled
- Has there been any history of accidents, tumors, TBI, PTSD

FOCAL VISION:

80% of fibers from eyes

Slow process (Cognitive-Perceptual)

- Attention to detail, associated with attention, concentration, and time present
- Unstable without functional ambient system
- Instability in the focal system can result in symptoms, ie , “Letters jump around!”

AMBIENT VISION:

20% of fibers from the eyes (Magnocellular)

• More than 34 sites in the brain!

-Fast process (Spatial-Perceptual)

-Grounds the visual system to motor

OVERFOCALIZATION/AMBIENT UNDERPROCESSING

<https://www.facebook.com/reel/882996569704291?mibextid=9drbnH&s=yWDuG2&fs=e>

NEURO OPTOMETRIC REHAB, CONT.

VMSS:

- Visual Midline Shift Syndrome.
 - Think of it as a shift in 'perception'- Perceptual Midline Shift
- Posture, and balance, neurology of sensorimotor systems
- Symptoms
 - Dizziness
 - Nausea
 - Poor balance: leaning forward onto toes, backward onto heels, leaning right or left
 - Photophobia
 - Decrease depth perception
 - Weaving while walking or drifting to one side of hall or the other: Leaning in wheel chair.

CHANGES IN EGOCENTRIC LOCALIZATION WITH TRAUMA AND/OR AGING

Diminished in all retinal disease

- Most evident in macular diseases

- However, also affected in peripheral disease
 - i.e. glaucoma, Retinitis Pigmentosa

Seen very regularly in

- Monocular patients
- Low vision more in one eye than the other

NEURO OPTOMETRIC REHAB, CONT.

P.T.V.S. - Post Trauma Vision Syndrome

Dysfunction between the **ambient** and **focal** process causing the person to overemphasize the details (overfocalization)

- Exophoria or exotropia (a tendency for the eyes to turn out or an actual eye turned outward)
- accommodative or focusing dysfunction
- oculomotor dysfunction
- convergence insufficiency (a difficulty converging the eyes and sustaining convergence at a near plane)
- increased myopia.
- include diplopia (double vision)
- perceived movement of print or stationary objects
- headaches
- photophobia (light sensitivity).

NEURO OPTOMETRIC REHAB, CONT.

Post Trauma Vision Syndrome

- Under worked or nonfunctioning ambient system.

- Problems with multisensory integration and conscious perception.

Symptoms May Include:

- ✓ Double Vision
- ✓ Headaches
- ✓ Blurry Vision
- ✓ Dizziness
- ✓ Nausea
- ✓ Attention or concentration difficulties
- ✓ Increased Staring
- ✓ Depth perception problems

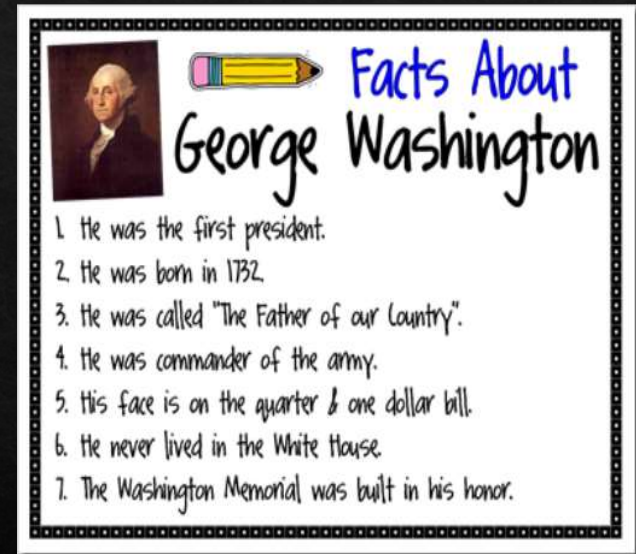
- ✓ Losing place when reading
- ✓ Can't find beginning of next line when reading
- ✓ Comprehension difficulty when reading
- ✓ Difficulty remembering what was seen when asked to retrace object
- ✓ Visual discomfort when objects are brought close
- ✓ Sensitivity to bright light

Post Trauma Vision Syndrome- PTVS

George Washington Test:

!! Please take out a pen and paper and follow directions.

**This is interactive
Please interact!!**



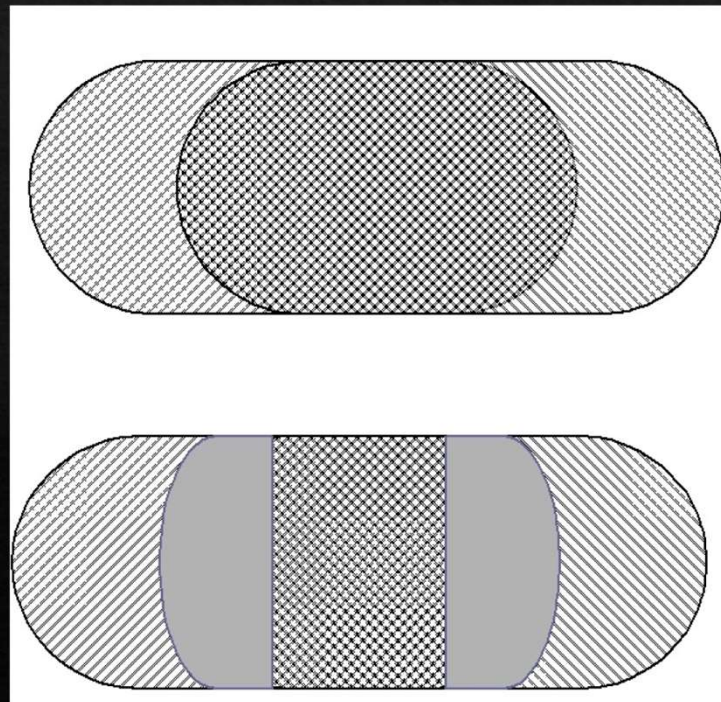
**Facts About
George Washington**

1. He was the first president.
2. He was born in 1732.
3. He was called "The Father of our Country".
4. He was commander of the army.
5. His face is on the quarter & one dollar bill.
6. He never lived in the White House.
7. The Washington Memorial was built in his honor.

3/8" binasal occlusion



HOW MIGHT BINASAL OCCLUSION WORK?



*Curtis Baxstrom

“It’s only after you’ve stepped outside your comfort zone that you begin to change, grow, and transform.”

— Roy T. Bennett

Water Intake:

Dehydration plays a significant role in dizziness and balance issues in the elderly (or anyone!!).

Multiple studies have shown that proper hydration improves memory, learning, test scores and behavior.

Amount: $\text{body weight} / 2 = \text{oz H}_2\text{O per day}$.

Coffee: For every 8 oz cup of coffee- increase H₂O by 16 oz.

Example:

Body weight $160 \text{ lbs} / 2 = 80 \text{ oz H}_2\text{O}$

2 cups of coffee per day- $80 + 32 \text{ oz} = 112 \text{ oz per day}$.



PRISM- YOKED

1 BI 1 BU OD .5 BO 1 BU OS

DETERMINATION OF DIRECTION

WHERE TO START

QUICK AND DIRTY

PRISM TAPING- $\frac{1}{4}$ PRISM DIOPTER = 1 MM TAPE
X 1 BI 1 BU OD .5 BO 1 BU OS

- 4mm BI 4 mm BU OD 2 mm BO 4 mm BU OS

WHEN AND WHY





“Life is Either a Daring
Adventure or Nothing”

-Helen Keller-



Brain  **Based**
REHABILITATION

NORA 2023 ANNUAL CONFERENCE

OCTOBER 5-8 , 2023 • PORTLAND, OREGON

www.noravisionrehab.com

Neuro-Optometrists in the Louisville Area

Dan Bowersox, OD, FCOVD

Phone - Business

502 647 3937

Stuart Young, OD, FCOVD

Phone - Business

502-647-3937

Mary Van Hoy

Indianapolis, IN

Phone - Business

317-818-0541

All of the exciting
work happens at
the multi-disciplinary
fringes.

-Dr. Bret Logan

NOTE: Look at noravisionrehab.com. Go to Find a Provider.

NOTE: If you have patients with stroke, TBI, other neuro-insult diseases or ROF, please refer to a Neuro-Optometrist for full trans/multi-disciplinary care.



Questions?

Questions?



“The greatest pleasure in life is doing
what people say you cannot do” –

Walter Bagehot

THANK YOU!