NECK PROBLEMS, POSTURE & REFRACTIVE CONDITIONS

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WHEN WE DIAGNOSE AN EYE PROBLEM, IS THE CAUSE REALLY IN THE EYES?
We talk about structure & function

• How is vision influenced by these?
• Does the bodies structural/postural mechanisms affect vision
• Why does one child develop normal binocular visual skills and another in similar environment doesn’t?

• Why can a +8.00 Hyperope not develop strabismus but a +1.00 develop it?

• Why does one person become myopic and another not?
The presentation will show that dysfunctions in the body posture, dynamics & structure and changes to these can be directly related to ocular & visual problems.

Conversely Visual problems can be related to systemic, body structural, postural & cognitive dysfunctions which with time lead to disorganisation & to disease.
• Skeffingtons Model we see that all Senses feed into vision > visualisation

• BUT Vision feeds back into all senses. We are self stimulating!
  • Eg: From touch we > visual image of what that object is.
  • From the visual image we can remember what it taste like.
• From the mental visual image we can self stimulate and regulate our senses & body.

• As demonstrated by Dr Ramachandras. Phantom limb therapy using mirrors.
3 systems for understanding the world around us. Both externally & internal time & space.

1. Vestibular ocular Reflex V.O.R system
2. Neck & head muscles – proprioceptive & musco-skeletal system
3. Visual system – Vision & relationship of ambient to focal systems
• Idiopathic scoliosis is often linked with poor balance. Vision is vital in the control of your posture as some studies have shown that static postural performance is 250% better with eyes open than when closed.

• “The head is the reference for the control of the body and therefore, it is imperative that when we examine all idiopathic scoliosis cases, we should be looking at how their heads are aligned on top of the spine and misaligned”

  August 12th, 2009 by Dr Will Kalla
  “Spinal corrective care”
Key points

- Elliot Forrest E B: Astigmatism as function of visual scan, head scan, ans posture. Am J optom Physio Opt 1980

- Astigmatism related to difference in the amount of head movement versus eye movement in the vertical & horizontal planes. The greater the difference the greater the astigmatism. More minus power in the meridian with relatively more head movement.
- ie; the minus axis of cylinder more in the eye movement direction.
- Astigmatism > forced eye movement scan in direction for survival. (Red Indian population Greater cylinder in horizontal axis.)

- Shapiro J: Relation between Vertical facial asymmetry and postural changes of the spine and ancillary muscles.

- Facial asymmetry: If the body wants to maintain good binocular vision the body compensates for the facial distortion by a head tilt > torticollis > scoliosis
- IF the visual system makes the compensation (the disruption in ocular function) then the body will not show the postural misalignment eg suppression.
**Body Stature and Myopia—The Genes in Myopia (GEM) Twin Study**

*Authors: Mohamed Dirani ab; Amirul Islam a; Paul N. Baird ab*

*Conclusion: Females in the heaviest quartile of weight have a significantly increased risk of myopia compared to those in the lightest weight quartile in our twin study population. Our study adds to the growing consensus that anthropometric measures should be considered as potential risk factors in myopia.*

**Effect of Stature and Other Anthropometric Parameters on Eye Size and Refraction in a Population-Based Study of Australian Children**

*Elvis Ojaimi,1 Ian G. Morgan,2 Dana Robaei,1 Kathryn A. Rose,3 Wayne Smith,4 Elena Rochtchina,1 and Paul Mitchell1*

*This study found a strong association between height and axial length and corneal radius,*

This study included 75 children who were visually handicapped (mean age, 11 years and 7 months) and 728 healthy control.

Five times more back surface abnormalities in the visually handicapped. Of the 26 children with both visual impairment and trunk deformity, 18 had a structural scoliosis on radiographs, with an average Cobb Meyer angle of 14.1 degrees.

(Harmon >12 degrees tilt > processing problems)

Peripheral Vision

- Neurology 80% of retinal fibres go to Lateral Geniculate Body part of the Optic Thalamus - 20% to Supra colliculus to which is part of the midbrain associated with posture.

- Peripheral retina is designated to the gyroscopic process of localisation & orientation of the internal & external spatial organisation of the organism.
• “Body Postural functions precede final central ocular resolution in satisfying the needs of the organism in any visual centred task” D.B. Harmon

• Primary biological function of vision is related to determining of space relations & space movements of the organism (for both orientation & localisation) Secondary is the higher function of abstraction & symbolisation of space & space movement for later facilitation and redirection of movement.

D.B. Harmon
• If the body wants to maintain good binocular vision the body compensates for the facial distortion by a head tilt > torticollis > scoliosis

• IF the visual system makes the compensation (the disruption in ocular function) then the body will not show the postural misalignment eg suppression.

_J. Shapiro_
BODY MECHANICS

- Body balance, one of the primary survival mechanisms of the body, is affected by posture.
- Posture is the window to the Spine
- The balancing system of the body is comprised of the muscles of the neck, upper and Lower back, legs, and feet.
- Human movement is produced by the skeletal acting as simple lever machines

- The 4 skeletal pivot points of importance
Peripheral vision and the semi-circular canals of the inner ear are intimately related neurologically to maintain body balance.

When either the semi-circular canals or peripheral vision are thrown out of balance,

tension results in the musculature of the body, usually more on one side than the other, and the body compensates to prevent falling.
VESTIBULAR & VISUAL

- Unbalanced posture interferes with effective use of peripheral and binocular vision,
- results in tension which then results in an adverse adaptation of the visual system to the demands of the task,
- These adaptations are measured as vertical imbalances, myopia, high hyperopia, astigmatism, anisometropia, and fusion difficulties.
VISION & POSTURE

• Visual system & posture are affected
• When seated by
  • Vestibular Ocular system
  • Position of Pelvis
  • Position of neck
• When standing upright by
  • Vestibular Ocular system
  • Position of neck
  • Position of Pelvis
  • Feet pattern
A Binocular problem or Refractive problem is depicted by a characteristic postural pattern. These are translated in the body by the posture of:

- The chin, (neck posture)
- The shoulder extension,
- The Pelvis hip position and
- The feet patterns.
Figure 10. Child aged 4 years—the beginning of the adaptation. The right eye is positioned higher than the left when the head is held straight.

Figure 11. The head is tilted to the right shoulder to level the eyes.

Figure 12. The early spinal changes induced by the head tilt. There is a small S shape bend forming at the neck and in the lumbar area.
• Four key components
  • Skeletal System
  • Muscular System
  • Vascular System
  • Nervous System
• Skelton structure held in position by muscular system
• Vertebrae similar to kinematic chain each link influences all the other links with greatest on the adjoining links.
From each vertebrae both nerve fibers and blood vessels leave to enter into the body supplying specific areas.
Symptoms of TMJ include:

An inability to open the mouth comfortably
Clicking or popping sounds in the jaw
Locking of the jaw while opening the mouth
Headaches
An uncomfortable "bite"
Shoulder, neck and back pain
Facial swelling
The eye sits in its orbit surrounded by cranial plates and parts of it pass through narrow fissures.

Any changes in the position of orbital bones or fissure size can affect function of eye!
CASE PRESENTATIONS ON THE AFFECT OF
CHANGES IN SKELETAL POSTURES
AFFECTING EYE FUNCTION & VISION
These cases are not to be viewed as a criticism of any of the treatment modalities. The severity and acuteness of the cases is used to demonstrate the extreme sensitivity of the structure function relationship. Cases begin with a severe case leading to less severe to demonstrate that subtle changes in the structure can result in subclinical symptomatic changes in vision.
Case 1

- CN: Male 40’s
- Cranial adjustments for tight cranial plates

Resulted in Central retinal vessel occlusion
CASE 2

- Female early thirties
- Pregnant
- Last semester of pregnancy
- Hip gave in became bed ridden unable to walk or stand
- Sudden vision loss & restriction in field
- Investigation; neurologist neuro-ophthalmologist

Suspect: Pituitary tumor

Cranial & Chiropractic Applied Kinesiology
CASE 3

- Female mid 40’s
- Chiropodistics for scoliosis
- Bite built up 6mm
- Sudden removal of built up material.
CASE 3 continued…

• Symptoms experienced post removal and attempts to relieve symptoms

   Macula hemorrhages

   Visual discomfort an blurred vision

   Disorientation
CASE 4

- Female mid 40’s
- Car accident whiplash
- Moderate Hyperopic astigmat for about 30yrs
- \( R + 2.50 - 2.00 \times 180 \ L + 2.00 - 1.25 \times 180 \)

Axis flipped to 90
CASE 5

- Male age 37
- 2005 Rx R+1.00-0.50x3 L+1.00
- 16/8/2007 Check up
- Left wisdom tooth problems & inflamed
- New Rx R+1.00-1.00*45 L+1.75-0.75*105  Dist Ph 3s/1BULE
- Review 2/10/07

Rx R+1.25-0.50*45 L+1.25-0.50*105
Dist Ph: 2s/0
CASE 6

- Female 50’s
- Base cerebellum bone removed
- Resulted in chronic double vision
- Plastic plate implanted to reduce vertical helped but not totally
- Syntonics & VT given to relieve rest
RECAP

- Cranial plates can affect eye function.
- TMJ greatest affect of all skeletal system on sensory function (vision/vestibular)
- Lobe rail 11 degree tilt adjusts spine
- Harmon >12degree head tilt will affect perception.
- Yawning releases tension in TMJ > greater nerve & blood flow
DONT FEEL OVERWHELMED

Relax enjoy the View