WORKING NOTES RE: OCULAR ASSESSMENT

THE OPTOMETRIC EXAM

1) FAMILY AND PATIENT HISTORY AND CHIEF COMPLAINT
2) PRELIMINARY EXAM – V.A., VISUAL FIELD, COVER TESTS, MOTILITY, PUPILLARY FUNCTION, CORNEAL REFLEX, STEREOPSIS, COLOUR VISION, TONOMETRY
3) OCULAR HEALTH EXAM – SLIT LAMP AND OPHTHALMOSCOPY (FUNDUS EXAM)
4) REFRACTIVE EXAM – KERATOMETRY, OBJECTIVE AND SUBJECTIVE REFRACTION,
5) BINOCULAR VISION EXAM- PHOROMETRY, ACCOMMODATIVE AMPLITUDE ETC.

HISTORY TAKING – BASIC GUIDELINES

1) PERSONAL DETAILS –NAME, ADDRESS, D.O.B., PH.#'S, OCCUPATION, HOBBIES, SPORTS ETC.
2) PRESENTING COMPLAINT / HISTORY OF PRESENT ILNESS
3) PAST OCULAR HISTORY
4) CURRENT AND PAST MEDICAL HISTORY, INCLUDING BUT NOT LIMITED TO : DIABETES, HIGH BLOOD PRESSURE, ARTERIOSCLEROSIS, HEART DISEASE, MIGRAINES, OTHER HEADACHE PROBLEMS, (WHEN DO THE HEADACHES OCCUR?), MULTIPLE SCLEROSIS, HOSPITALIZATION, SURGERIES
5) FAMILY HISTORY, ESPECIALLY GLAUCOMA, HYPERTENSION, HEART DISEASE, AND DIABETES
6) PATIENTS SYSTEMIC ILLNESSES
7) MEDICATIONS, ORAL AND TOPICAL (DISCUSS)
8) ALLERGIES AND DRUG REACTION (DISCUSS)
9) PARTIALLY SIGHTED PATIENT? DUE TO INJURY? RECORD RELEVANT INFO.

LISTEN TO THE PATIENTS CHIEF COMPLAINT AND ADDITIONAL COMPLAINTS OR SYMPTOMS.
THE HISTORY OF THE PATIENT IS TO BE KEPT ABSOLUTELY CONFIDENTIAL

DECREASED VISION

RECORDING COMPLAINTS OF DECREASED VISION SHOULD INCLUDE:

1) WHICH EYE IS AFFECTED? RIGHT, LEFT OR BOTH?
2) DISTANCE OR NEAR VISION AFFECTED? OR BOTH?
1) WAS DECREASE IN VISION GRADUAL OR SUDDEN? AND DID IT INCLUDE DISCOMFORT AND/OR PAIN?

REFERRING PATIENT TO OPHTHALMOLOGIST OR MEDICAL DOCTOR

1) IF PAIN WAS OR IS INVOLVED

2) RECORD TYPE OF PAIN (ACHING, STABBING, ETC.)
3) RECORD LOCATION OF PAIN
4) RECORD WHEN PAIN FIRST OCCURRED AND FREQUENCY OF OCCURRENCE
5) RECORD ANY ACTIVITY WHICH MAY PROVOKE THE PAIN
6) IS PAIN IMPROVING OR GETTING WORSE

THE FOLLOWING POINTS MAY BE VERY LEGITIMATE REASONS FOR REFERRAL

7) DECREASED VISION AND ANY SYMPTOMS RELATED TO DECREASE IN VISION
8) DIPLOPIA
9) VISION OF 20/40 OR WORSE WHICH CAN NOT BE CORRECTED WITH REFRACTION
10) MORE VIGILANCE WITH YOUNGER CHILDREN
11) COMPLAINTS OF SEEING"CURTAINS"OR"VAILS"
12) COMPLAINT OF TUNNEL VISION
13) COMPLAINTS OF FLASHES OF LIGHT OR UNUSUAL COLOURS OR LIGHTS
14) EXTREME LIGHT SENSITIVITY
15) EYE INJURY DUE TO IMPACT OR FOREIGN MATTER IN EYE
16) CORNEAL ULCERS OR CONJUNTIVITIS

CHIEF COMPLAINT

IN THE ABSENCE OF PAIN AND /OR OCULAR PATHOLOGY, THE TYPICAL CHIEF COMPLAINT WILL BE RELATED TO BLURRED VISION, POSSIBLE EYE STRAIN AND POSSIBLY HEADACHES RELATED TO THE VISION ANOMALY

BLURRED VISION CAN HAVE THE FOLLOWING ASPECTS RELATED TO IT:

1) PROLONGED CLOSE WORK - ARE THEY PRESBYOPIC OR A LATENT HYPEROPE?
2) POOR ILLUMINATION AND IT'S EFFECT ON VISION – NIGHT MYOPIA OR RETINITIS PIGMENTOSA?
3) EXCESSIVE ILLUMINATION AND BLURRED VISION – CRYSTALINE LENS OPACITIES?
4) TRANSIENT LOSS AND/OR OBSCURING OF VISION – TEMPORAL ARTERITIS OR CAROTID ARTERY OCCLUSIVE DISEASE LEADING TO POSSIBLE CLOSURE OF CENTRAL RETINAL ARTERY
5) TRANSIENT LOSS DUE TO MIGRAINE OR MULTIPLE SCLEROSIS
6) FUNCTIONAL AMBLYOPIA
7) RETINAL DETACHMENTS AND/OR RETINAL TEARS

REFRACTIVE CHANGES IN ADULTS

1) INCREASE IN MYOPIA OR DECREASE IN HYPEROPIA COULD BE RELATED TO CATARACT

DEVELOPMENT IF UNILATERAL OR RELATED TO INCREASE BLOOD SUGAR IF BILATERAL

2) INCREASE IN HYPEROPIA OR DECREASE IN MYOPIA COULD BE RELATED TO SEROUS DETACHMENT OF MACULA IF UNILATERAL OR RELATED TO A DECREASE IN BLOOD SUGAR IF BILATERAL

*IN OLDER PATIENT – BLURRED VISION WHICH IS NOT RESOLVED WITH A PRESCRIPTION CHANGE WILL MOST LIKELY BE RELATED TO LENS OPACITIES OR AGE RELATED MACULAR DEGENERATION

EYESTRAIN OR ASTHENOPIA CAN BE DESCRIBED AS FATIGUE, DISCOMFORT AND/OR PAIN LOCALIZED NEAR OR AT THE EYES AND ASSOCIATED WITH USE OF THE EYES.

MYOPIA IS NOT LIKELY TO CAUSE EYESTRAIN – PATIENT HAS BLURRED DISTANCE VISION AND SEEKS CORRECTION

HYPEROPIA AND LATENT HYPEROPIA MAY VERY WELL RESULT IN EYESTRAIN ESP. DURING NEAR VISION TASKS AND THE LACK OF ACCOMMODATIVE AMPLITUDE

<u>*(THE FOLLOWING IS A SIDE BAR ON LATENT HYPEROPIA</u>)

LATENT AND MANIFEST HYPEROPIA

<u>LATENT HYPEROPIA</u>
THE AMOUNT OF HYPEROPIA WHICH IS COMPENSATED FOR BY <u>INVOLUNTARY</u>
ACCOMMODATION DUE TO THE TONICITY OF THE CILIARY MUSCLE,

MANIFEST HYPEROPIA

THE AMONT OF HYPEROPIA WHICH THE PATIENT SUBJECTIVELY REQUIRES TO BE CORRECTED,

EG. OBJECTIVE REFRACTION USING RETINOSCOPY REVEALS 3.0 D. HYPEROPIA
SUJECTIVE REFRACTION REVEALS 2.0 D. HYPEROPIA

THEREFORE MANIFEST HYPEROPIA IS 2.00 D.
LATENT HYPEROPIA IS 1.00 D.

CONSIDER WHAT HAPPENS WHEN, OVER TIME, THE AMPLITUDE OF ACCOMMODATION DECREASES WITH AGE,

PATIENT MAY BEGIN TO SUFFER EYE STRAIN (ASTHENOPIA), THAT WHICH WAS LATENT BECOMES MANIFEST,

ABSOLUTE AND FACULTATIVE HYPEROPIA

FACULTATIVE HYPEROPIA
THE AMOUNT OF HYPEROPIA WHICH A PATIENT CAN VOLUNTARILY ACCOMMODATE FOR,

ABSOLUTE HYPEROPIA
THE AMOUNT OF HYPEROPIA WHICH THE PATIENT MUST HAVE CORRECTED,

***(END OF SIDE BAR)**
***(CONTINUE REFRACTIVE CHANGES IN ADULTS)**

UNCORRECTED ASTIGMATISM MEANS NO AMOUNT OF ACCOMMODATION CAN CREATE A POINT FOCUS AND CAN RESULT IN EYESTRAIN, (DISCUSS)

ALL BINOCULAR VISION ANOMALIES INCLUDING CONVERGENCE INSUFFICIENCY, CONVERGENCE EXCESS, DIVERGENCE INSUFFICIENCY, DIVERGENCE EXCESS, BASIC EXO AND ESOPHORIAS WILL LIKELY CAUSE EYESTRAIN

EYESTRAIN OR ASTHENOPIA WILL ALSO BE CAUSED BY VERTICAL PHORIAS, ANISOMETROPIA AND ANISEIKONIA

STRABISMUS (UNLESS IT IS PARALYTIC STRABISMUS OCCURRING LATER IN LIFE) IS NOT LIKELY TO CAUSE EYESTRAIN DUE TO SUPPRESSION, AMBLYOPIA, ECCENTRIC FIXATION OR ANOMALOUS RETINAL CORRESPONDENCE

HEADACHES

HEADACHE HISTORY

1) PATIENT'S DESRIPTION OF HEADACHE
2) FAMILY HISTORY
3) HEADACHES FIRST OCCURRENCE
4) ONSET TIME EACH DAY
5) FREQUENCY
6) INTENSITY
7) CHARACTER
8) DURATION

9) TRIGGERING FACTORS
10) LOCATION

EYESTRAIN HEADACHES ARE TYPICALLY HEADACHES WHICH ARE RELATED TO USE OF THE EYES AND BECOME MORE PRONOUNCED THE LONGER THE EYES ARE USED

TYPICALLY THE PATIENT HAS BEEN EXPERIENCING MEDIUM INTENSITY HEADACHES DESCRIBED AS "DULL" AND OCCURRING IN THE BROW AREA OR AROUND AND BEHIND THE EYES

ONSET CAN BE RELATED TO A CHANGE OF VISUAL TASKS AT WORK, EG. MORE CLOSE WORK
AND MAY ALSO CAUSE MUSCULAR TENSION LOCATED IN THE BACK OF THE NECK

IMPORTANT TO CONFIRM THAT THE HEADACHES ARE EYESTRAIN RELATED

CHECK FOR NEAR POINT PHORIAS EVEN IN THE ABSENCE OF A REFRACTIVE ERROR

CONSIDER PATIENTS AGE , OCCUPATION AND VISUAL HABITS, EG. ACCOUNTANT VERSUS A FARMER

IF EYESTRAIN RELATED – HEADACHES MAY BE SOLVED WITH PRISM AND/OR CHANGES TO THE DIST. OR NEAR Rx **OR** WITH CHANGES TO WORKPLACE ILLUMINATION, POSTURE AND SEATING

EXTERNAL EYE SYMPTOMS

ITCHING AND BURNING

- SMALL AMOUNTS MAY BE RELATED TO HYPEROPIA, ASTIGMATISM OR BINOCULAR VISION PROBLEM
- CAN ALSO EXHIBIT HYPEREMIA OF LIDS AND CONJUNCTIVA WHICH WILL RESOLVE WITH CORRECTION
- SYMPTOMS OF ITCHING AND BURNING CAN ALSO CAUSE EYE RUBBING WITH RESULTANT INCREASE IN BACTERIAL COUNT, CONJUNCTIVITIS AND BLEPHARITIS

BLEPHARITIS

- INFLAMMATORY PROCESS OF THE LID MARGINS
- SEBORRHEIC FORM – SMALL SCALES "DANDRUFF" ALONG THE LASH LINE

- CLEAN WITH “LID SCRUB” – EG. SELSUN SHAMPOO
- ULCERATIVE FORM – COMMONLY ENTAILS CHRONIC STAPHLOCOCCUS INFECTION CAUSING LIDS TO STICK IN MORNING, LOSS OF EYE LASHES,SUPERFICIAL KERATITIS OF LOWER PART OF CORNEA
- MAY PERSIST FOR MONTHS OR YEARS

ALLERGIC CONJUNCTIVITIS

- INTENSE ITCHING, TEARING, INJECTION AND EDEMA OF THE BULBAR CONJUNTIVA
- EG. HAY FEVER OR ATOPIC CONJUNCTIVITIS
- VERNAL CONJUNCTIVITIS – MAINLY YOUNG MALES, SPRING AND SUMMER MONTHS –EXTREME ITCHING, STRINGY OR ROPEY DICHARGE,
- VERNAL CAN BE PALPEBRAL – COBBLESTONE PAPILLAE FOUND UPPER TARSAL CONJUNCTIVA (INVERT LID),
- VERNAL CAN BE LIMBAL FORM – PAPILLAE OCCUR AS THICKENED GELATINOUS OPACIFICATIONS IN CONJUNCTIVA SURROUNDING THE LIMBUS

BACTERIAL CONJUNCTIVITIS

- IRRITATION AND INJECTION (REDNESS), MUCOPURULENT DISCHARGE, EYES STICKING IN MORNING
- UNLIKE ALLERGIC CONJUNTIVITIS – BACTERIAL CAN BE MONOCULAR
- TREATED WITH ANTIMICROBIAL AGENTS

PAIN OR FOREIGN BODY SENSATION

- FOREIGN BODY MAY BE EMBEDDED UNDER THE UPPER LID, EVERT LID WITH Q TIP AND WIPE OFF TARSAL CONJUNCTIVA WITH STERILE Q TIP
- IF EMBEDDED IN CORNEAL EPITHELIUM – IT MAY BE DISLODGED WITH IRRIGATION
- MAY HAVE TO BE REFERRED FOR A CORNEAL SCRAPE
- SENSATION OF FOREIGN BODY MAY BE A CORNEAL ABRASION (FOREIGN BODY IS GONE) OR POSSIBLY A RECURRENT EROSION, USE FLUORESCEIN TO OBSERVE
- NOT LIKELY TO AFFECT VISUAL ACUITY UNLESS DIRECTLY IN LINE WITH THE VISUAL AXIS

MORE DEEP SEATED OCULAR PAIN MAY BE THE RESULT OF CORNEAL ULCERS, ACUTE IRITIS AND ACUTE GLAUCOMA AND MAY WELL RESULT IN A DROP IN VISUAL ACUITY
THESE CONDITIONS WILL EXHIBIT CILIARY INJECTION (LILAC COLOURED INJECTION OF DEEP CONJUNCTIVAL VESSELS FANNING OUT FROM THE LIMBUS)

UNLIKE CONJUNCTIVAL INJECTION WHICH IS BRIGHT RED INJECTION OF THE SUPERFICIAL CONJ. VESSELS AND INCREASE PREDOMINANCE TOWARD THE FORNIX

SENSITIVITY TO LIGHT

- ONE OF THE “TRIAD” RESPONSE WHEN THE OPHTHALMIC DIVISION OF THE FITH CRANIAL NERVE IS STIMULATED, THE OTHERS BEING LACRIMATION AND PAIN
- COMMON WITH KERATOCONJUNCTIVITIS AND CONGENITAL GLAUCOMA

EXCESSIVE TEARING

- APART FROM TEARING AS A RESULT OF OPHTHALMIC NERVE STIMULATION – TEARING WILL RESULT IF THE LACRIMAL DRAINAGE SYSTEM IS INTERFERED
- EG. INFANTS – STENOSIS (NARROWING) OF NASOLACRIMAL DUCT
- EG. OLDER ADULTS – BLOCKED TEAR DUCTS AND/OR ECTROPIAN (SAGGING AND EVERSION OF LOWER LID)

DRYNESS

- AQUEOUS DEFICIENCY (KERATOCONJUNCTIVITIS SICCA) – DEFICIENCY IN AQUEOUS PRODUCTION
- SYMPTOMS OF DRYNESS, GRITTY FEELING, BURNING AND LIGHT SENSITIVITY
- COMMON AMONG OLDER PEOPLE,
- IF DRY MOUTH AND RHEUMATOID ARTHRITIS ALSO PRESENT – THEN TERMED SJOGREN’S SYNDROME
- EXCESSIVE DEBRIS IN TEAR FILM, MUCOUS THREADS AND FILAMENTS IN TEAR FILM, POOR TEAR PRODUCTION
- TREAT WITH ARTIFICIAL TEARS, PUNCTUM PLUGS AND BANDAGE CONTACT LENSES

DRYNESS

- MUCIN DEFICIENCY – INDICATED BY A POOR FILM BREAK UP TIME OF 10 SECONDS OR LESS,
- REDUCED GOBLET CELL POPULATION
- TREAT WITH ARTIFICIAL TEARS WHICH ARE CLASSIFIED AS MUCOMIMETICS

DRYNESS

- LIPID ABNORMALITIES –MAY BE CAUSED BY CHRONIC BLEPHARITIS

DRYNESS

- LID-SURFACING ABNORMALITIES – POOR BLINK RATE, INCOMPLETE BLINK, RAISED PINGUECULA, RIGID CONTACT LENSES (3&9 STAINING)

VISUAL DISTURBANCES

VITREOUS FLOATERS

- DUE TO LIQUIFICATION OF PARTS OF THE VITREOUS, OCCURS INCREASINGLY WITH AGE AND HIGHER MYOPES,
- VITREOUS OPACITIES CAST A SHADOW ON THE RETINA, SEEN WHEN LOOKING AT AN UNOBSTRUCTED FIELD EG. LIGHT COLOURED WALL OR SKY
- SEEN AS STRANDS OR COB WEBS WHICH MOVE IN THE VISUAL FIELD
- OF NO CONCERN – JUST AN ANNOYANCE

PARS PLANITIS

- FORM OF CHRONIC ANTERIOR UVEITIS AFFECTING CILIARY BODY, OCCURS WITH YOUNG ADULTS
- SYMPTOM – "FLOATING SPOTS" DUE TO INFLAMMATORY CELLS IN THE ANTERIOR VITREOUS
- LONG TERM COMPLICATIONS – POSTERIOR SUBCAPSULAR CATARACTS AND CYSTOID MACULAR EDEMA

RETINAL HEMORRHAGES

- "RED SPOTS" IN THE VISUAL FIELD
- RETINAL OR VITREOUS HEMORRHAGES COMMON WITH DIABETIC RETINOPATHY AND HYPERTENSIVE RETINOPATHY
- WARRANTS THOROUGH EXAM OF RETINA AND VITREOUS

LIGHT FLASHES

- MAY INDICATE VITREOUS DETACHMENT, PARTIAL LIQUIFICATION OF POSTERIOR VITREOUS AT OPTIC NERVE HEAD
- COMMON WITH OLDER PEOPLE AND APHAKES AND RESULTS IN TEMPORAL ARC OF FLASHES AND MAY LEAD TO A RETINAL TEAR AND FURTHER RETINAL DETACHMENT

TEMPORARY LOSS OF VISION

- TEMPORARY OR TRANSIENT - CAN BE RELATED TO MIGRAINE, MULTIPLE SCLEROSIS,CAROTID ARTERY OCCLUSIVE DISEASE AND TEMPORAL ARTERITIS
- REQUIRES IMMEDIATE REFERRAL

“CURTAIN IN FRONT OF THE EYES”

- INDICATES A RETINAL DETACHMENT AND REQUIRE IMMEDIATE REFERRAL
- THIS DESCRIPTION MAY ALSO INDICATE TRANSIENT RETINAL ISCHEMIA (NOT A DETACHMENT) CAUSED BY CAROTID ARTERY OCCLUSIVE DISEASE OR TEMPORAL ARTERITIS, (LASTS ONLY A FEW SECONDS)

DISTORTION OF OBJECTS

- NEWLY PRESCRIBED PLUS OR MINUS LENSES RESULTING IN A CHANGE IN RETINAL IMAGE SIZE, (VERY EVIDENT WITH HIGH PRESCRIPTIONS AND FIRST TIME CONTACT LENS WEARERS)
- OVER-MINUSING CAUSES EXCESSIVE ACCOMMODATION AND MINIFICATION
- CAN ALSO BE CAUSED BY MACULAR DISEASE – SEROUS DETACHMENT OR MACULAR DEGENERATION,
- CAN DETECT WITH “AMSLER CHARTS” COLOUR VISION TESTING (FARNSWORTH D15) AND MACULAR AREA INSPECTION WITH SLIT LAMP AND HRUBY LENS

HALOS

- CAN INDICATE ANGLE CLOSURE GLAUCOMA
- AND VERY COMMONLY CORNEAL EDEMA CREATED BY A POORLY FIT CONTACT LENS

DOUBLE VISION

WHERE ARE THE SEPARATE IMAGES WITH RESPECT TO EACH OTHER AND DO THEY TEND TO “BLEND TOGETHER” ?

UNCORRECTED REFRACTIVE ERROR

- UNCORRECTED ASTIGMATISM OR UNCORRECTED HYPEROPIA OR UNCORRECTED PRESBYOPIA CAN CAUSE DOUBLE VISION

MONOCULAR DIPLOPIA

- COMMONLY CAUSED BY KERATOCONUS

BINOCULAR VISION PROBLEMS

- DOUBLE VISION DUE TO SIGNIFICANT PHORIA WITH INADEQUATE FUSIONAL RESERVE
- COULD ALSO BE A VERTICAL PHORIA WITH INADEQUATE VERTICAL FUSIONAL RESERVE

NEWLY ACQUIRED DOUBLE VISION SHOULD BE REFERRED FOR MEDICAL EVALUATION

DEVIATING EYE

IN YOUNG CHILDREN IT CAN APPEAR THAT THEY HAVE AN EYE WHICH TURNS IN, IN FACT IT MAY BE SIMPLY AN EPICANTHUS OR FOLD OF SKIN AT THE INNER CANTHAL AREA.
THE CHILD WILL GROW OUT OF THE APPEARANCE OF AN INTURNING EYE

IF IT TRULY IS AN ESOTROPIA – UPON EXAMINATION – CHILD FOUND TO BE HYPEROPIC WITH A HIGH AC/A RATIO
CORRECT THE HYPEROPIA AND THE ESOTROPIA IS RESOLVED

IF HYPEROPIA DOES NOT EXIST, THEN THE CHILD IS USING ANOMALOUS RETINAL CORRESPONDENCE
REQUIRES ORTHOPTICS AND /OR STRABISMUS SURGERY (ORTHOPTICS – POST OPERATIVE VISION THERAPY)

PROTRUDING EYE

MAY SIMPLY BE LARGER THAN THE OTHER THEREFORE POSSIBLY CONGENITAL OR INFANTILE GLAUCOMA
POSSIBLY OPPOSITE EYE IS IN FACT MICROOPHTHALMOS

TRULY PROTRUDING EYE (EXOPHTHALMIC) MAY INDICATE A RETROBULBAR TUMOUR

PERHAPS ONE EYE APPEARS TO BE SQUINTING, IN FACT HAS A PTOSIS (DROOPING UPPER LID)
INDICATES CONGENITAL PTOSIS OR POSSIBLY HORNER'S SYNDROME (DUE TO A NEUROLOGICAL LESION)

UNEQUAL PUPIL SIZE

CALLED ESSENTIAL ANISOCORIA – EG. ADIE'S TONIC PUPIL – ONE EYE CONSTRICTS VERY SLOWLY IN RESPONSE TO LIGHT BUT CONSTRICTS NORMALLY WITH NEAR STIMULUS,
PUPIL IS ALSO SLOW TO RE-DIALATE
LESION OF CILIARY GANGLION

READING OR LEARNING PROBLEMS

REFRACTIVE ANOMALIES, PHORIAS AND STRABISMUS - IF UNCORRECTED – MAY BE A CAUSE OF LEARNING PROBLEMS

THE PRELIMINARY EXAM

1. VISUAL ACUITY
2. OCULAR MOTILITY AND BINOCULAR FUNCTION
    a. COVER TESTS
    b. CORNEAL REFLEX TEST
    c. NEAR POINT OF CONVERGENCE (NOT DISCUSSED)
    d. NEAR POINT OF ACCOMMODATION (NOT DISCUSSED)
    e. OCULAR MOTILITY
    f. PUPILLARY FUNCTION
    g. STEREOPSIS
3. COLOUR VISION TESTING
4. VISUAL FIELD SCREENING
    a. CONFRONTATIONS
    b. TANGENT SCREEN OR AUTOMATIC PERIMETRY
5. TONOMETRY
6. BLOOD PRESSURE MEASUREMENT
7. EXTERNAL EXAMINATION
8. INTERNAL EXAMINATION

VISUAL ACUITY

* KNOWING V.A. PUTS ALL OTHER TESTS IN CONTEXT

- IMPORTANT TO RECORD
- POSSIBLY LEGAL ISSUE ; DRIVERS LICENSE, INSURANCE CLAIM, PENSION
- STANDARD SNELLEN CHART AT 20 FEET (OR 6 METRES)
- DIAGRAM 10 FT.ROOM
- HIGH CONTRAST OF CHART / IN ENVIORNMENT OF LOW LIGHTING

DISCUSS EFFECT OF CONTRAST AND AMBIENT ILLUMINATION ON V.A.

- WITHOUT CORRECTION – MONOCULAR THEN BINOCULAR
- WITH HABITUAL CORRECTION – MONOCULAR THEN BINOCULAR

(WITH MONOCULAR – TEST OD. FIRST – IT'S THE CONVENTION)

- WATCH FOR SQUINTING
- DISCUSS NOTATION 20/30+1 ETC.

- FOR NEAR VISION – REDUCED SNELLEN CHART AT 40 CM WITH NEAR CORRECTION IF HABITUAL

- CHILDREN'S ACUITY CHART, TUMBLING "E" WITH HANDHELD "E"

<u>*(SIDE BAR ON ANOMALIES OF BINOCULAR VISION)</u>

ANOMALIES OF BINOCULAR VISION

1) ANOMALIES WHICH PROVIDE BINOCULAR VISION AT THE COST OF STRESS –THIS CAN INCLUDE HETEROPHORIAS, PROBLEMS WITH FUSIONAL VERGENCE, FIXATION DISPARITY AND ANOMALIES OF ACCOMMODATION AND HIGH OR LOW AC/A RATIOS

2) ANOMALIES IN WHICH BINOCULAR VISION IS ABSENT – KNOWN AS HETEROTROPIA,STRABISMUS AND SQUINT

HETEROPHORIA – LATENT DEVIATION OF THE EYE
PHORIA POSITION IS THE POSITION WHICH THE EYES TAKE WHEN THERE IS NO STIMULUS TO FIXATION
IF THERE IS NO DEVIATION (VISUAL AXIS ARE PARALLEL) – TERMED ORTHOPHORIA

EXOPHORIA – OUTWARD TURNING
ESOPHORIA – INWARD TURNING
HYPERPHORIA – UPWARD OR DOWNWARD DEVIATION

REMEMBER THESE MIS-ALIGNMENTS ARE ONLY IN EFFECT WHEN THERE IS NO STIMULUS TO FUSION
AS SOON AS A STIMULUS IS PRESENTED – THE PHORIA IS GONE, THEREFORE TERMED LATENT

THE PROCESS OF REMOVING FUSION STIMULUS IS TERMED **DISSOCIATION**
PLACING A COVER (PADDLE) OVER ONE EYE WILL CAUSE DISSOCIATION

(COVER TEST TO FOLLOW AFTER SIDE BAR)

HETEROTROPIAS – MANIFEST DEVIATION OF THE EYE
WITH OR WITHOUT FUSION STIMULUS – ONE OR BOTH EYES WILL NOT ALIGN WHILE BOTH EYES ARE OPEN
THIS IS ALSO COMMONLY REFERRED TO AS **STRABISMUS**

UNILATERAL STRABISMUS EFFECTS ONE EYE – EG. RIGHT EXOTROPIA, RIGHT HYPERTROPIA ETC.
ALTERNATING STRABISMUS CAUSES ALTERNATING DEVIATION IN BOTH
CONSTANT STRABISMUS OCCURS ALL THE TIME
INTERMITTENT STRABISMUS OCCURS PART OF THE TIME
PERIODIC STRABISMUS OCCURS AT ONLY CERTAIN DISTANCES, NEAR VS FAR, RELATED TO AC/A RATIO
CONCOMITANT STRABISMUS – ANGLE OF SQUINT IS SAME IN ALL DIRECTIONS OF GAZE
INCOMITANT STRABISMUS – ANGLE CHANGES DEPENDING ON DIRECTION OF GAZE

(COVER TEST TO FOLLOW AFTER SIDE BAR)

DETECTION OF STRABISMUS

1) UNILATERAL COVER TEST
2) CORNEAL REFLEX TEST

IF THE STRABISMUS HAS A LARGE ANGLE – DETECTION WOULD BE EVIDENT JUST BY OBSERVATION
SMALLER DEGREES OF STRABISMUS WOULD REQUIRE COVER TEST OR CORNEAL REFLEX TEST

SUPPRESSION – CORTICAL INHIBITION OF THE RETINAL IMAGE FROM THE DEVIATING EYE TO GET RID OF DIPLOPIA (NOT PERMANENT – ONLY IN EFFECT WHILE THE PERSON HAS BOTH EYES OPEN.
IF GOOD EYE IS OCCLUDED – DEVIATING EYE WILL FIXATE AND RECOGNIZE RETINAL IMAGE

TO CONFIRM SUPPRESSION – “WORTH DOT TEST”
PG. 108 PRIMARY CARE OPTOMETRY

AMBLYOPIA – WHEN VISION IS POOR (LESS THAN 20/20) – A PERMANENT LOSS OF SOME VISUAL FUNCTION WITH LITTLE HOPE OF REHABILITATION

ORGANIC AMBLYOPIA – NUTRITIONAL, TOXIC, OR CONGENITAL

FUNCTIONAL AMBLYOPIA – STRABISMIC, REFRACTIVE AND HYSTERICAL (PSYCHOGENIC)

REFRACTIVE AMBLYOPIA – UNCORRECTED ANISOMETROPIA AND / OR UNCORRECTED ASTIGMATISM

EG. ANISOMETROPIA Rx +4.00
+1.00
IF LEFT UNCORRECTED – THE CHILD WILL ACCOMMODATE TO CORRECT THE LEFT EYE (+1.00) BOTH EYES ACCOMMODATE EQUALLY – THEREFORE THE RIGHT EYE WILL BE UNDERPLUSSED BY +3.00 WITHOUT USE THE EYE WILL HABITUALLY SUPPRESS POSSIBLY BECOMING AMBLYOPIC IN THE RIGHT EYE

ANISOMETROPE – SIGNIFICANT DIFFERENCE IN FREFRACTIVE STATES OF THE TWO EYES

ANISEIKONIA – UNEQUAL IMAGE SIZE, AS A POSSIBLE RESULT OF CORRECTING ANISOMETROPIA

***(END OF SIDE BAR, BACK TO PRELIMINARY EXAM AND TESTS)**

UNILATERAL COVER TEST (LOOKING FOR A TROPIA)

PERFORMED WITH HABITUAL CORRECTION – PERFORMED AT DISTANCE AND NEAR, (FOR DISTANCE, EXAMINERS HEAD IS JUST BELOW THE SIGHT LINE WITH REASONABLE ILLUMINATION)

THE EYE NOT BEING COVERED IS THE EYE WHICH IS OBSERVED WHILE THE OTHER EYE IS BEING COVERED AND UN-COVERED

EG. PERSON IS A CONSTANT RIGHT EXOTROPE
BOTH EYES OPEN TO VIEW TARGET,
WHILE OBSERVING THE LEFT EYE – THE RIGHT EYE IS COVERED – LEFT EYE WILL MAINTAIN FIXATION,
STILL OBSERVING THE LEFT EYE – THE RIGHT IS UN-COVERED – THE LEFT EYE MAINTAINS FIXATION
NOW BOTH EYES OPEN AND FIXATING ON A TARGET

WHILE OBSERVING THE RIGHT EYE – THE LEFT IS COVERED – THE RIGHT WILL MOVE IN TO FIXATE
STILL OBSERVING THE RIGHT EYE – THE LEFT IS UNCOVERED – THE RIGHT EYE WILL MOVE BACK OUT TO IT'S EXOTROPIC POSITION

ALTERNATING COVER TEST (LOOKING FOR A PHORIA)

SAME SET – UP AS UNILATERAL COVER TEST

A COVER IS ALTERNATELY PASSED FROM ONE EYE TO THE OTHER
THE SHIFT IS DONE QUICKLY TO AVOID FUSION
THE EYE THAT IS BEING UNCOVERED IS OBSERVED TO SEE IF IT IS TAKING UP FIXATION
IE. DOES EITHER EYE SHIFT IN, OUT, UP, OR DOWN

CAN DETECT 3 TO 4 PRISM DIOPTERS OF MOVEMENT

REMEMBER – WITH A PHORIA, BOTH EYES ARE ALIGNED WITH BINOCULAR VISION,
- WITH A TROPIA, EYES ARE NOT ALIGNED WITH BINOCULAR VISION,

CORNEAL REFLEX TEST

CAN DETECT STRABISMUS AT NEAR
AT A DISTANCE OF 40 CM – THE PATIENT LOOKS AT A SMALL PEN LIGHT WHILE THE EXAMINER OBSERVES THE CORNEAL REFLEX FROM A CENTRAL POSITION
IF NO TROPIA – REFLEX POSITION WILL BE IDENTICAL IN BOTH EYES
IF ONE EYE IS EXOTROPIC – THE REFLEX WILL BE NASAL TO THE PUPIL IN THAT EYE
IF ESOTROPIC – CORNEAL REFLEX WILL BE TEMPORAL TO THE PUPIL IN THAT EYE

OCULAR MOTILITY

- EXAMINES INTEGRITY OF EXTRA OCULAR MUSCLES
- OBSERVES 9 CARDINAL POINTS USING PENLIGHT UNDER BINOCULAR CONDITIONS

SEE" PRIMARY CARE OPTOMETRY" PG. 149 2ND EDITION

PUPILLARY FUNCTION

1) MEASURE PUPIL SIZE IN LOW AND HIGH ILLUMINATION
2) OBSERVE DIRECT PUPILLARY REFLEX WITH PEN LIGHT
3) OBSERVE CONSENSUAL PUPILLARY REFLEX
4) OBSERVE NEAR REFLEX: SIMPLY HAVING PNT. FIXATE FROM DIST. TO NEAR (BACK AND FORTH) TO OBSERVE PUPIL CONSTRICTION AT CLOSE
5) SWINGING FLASH LIGHT TEST – DISCUSS MARCUS GUNN

SWINGING FLASH LIGHT TEST – PNT. FIXATES DIST. OBJECT, SEMI-DARKENED ROOM, ALTERNATELY – EACH EYE IS "EQUALLY" ILLUMINATED FOR 1 SECOND, THE LIGHT BEING QUICKLY MOVED FROM ONE EYE TO THE NEXT, REPEATED SEVERAL TIMES OBSERVING THE "JUST" ILLUMINATED EYE, NORMA – PUPIL CONSTRICTS,

BUT WITH MARCUS GUNN – WHEN HEALTHY EYE IS ILLUMINATED – BOTH WILL NORMALLY CONSTRICT, WHEN LIGHT IS SWUNG OVER TO THE AFFECTED EYE – IT WILL APPEAR THAT THE EYES DILATE BECAUSE THEY DO NOT FULLY CONSTRICT WHEN THE AFFECTED EYE IS ILLUMINATED, OBSERVING BOTH EYES AFTER THE LIGHT HAS BEEN DIVERTED AWAY FROM BOTH EYES – BOTH EYES WILL DILATE FURTHER,
MARCUS GUNN IS AN AFFERENT PUPILLARY DEFECT, MULTIPLE SCLEROSIS – POSSIBLE CAUSE,

ADIE'S TONIC PUPIL – UNILATERAL, DILATED WITH NO REACTION TO LIGHT

- SLUGGISH REACTION TO NEAR STIMULUS
- 20 TO 30 FEMALES, LESION OF CILIARY GANGLION
- NO TREATMENT

AMAUROTIC PUPIL – NO LIGHT PERCEPTION

- WILL ONLY CONSTRICT WHEN UNAFFECTED EYE IS LIGHT STIMULATED
- UNAFFECTED EYE WILL NOT RESPOND TO CONSENSUAL STIMULATION

- NEAR REFLEX FOR BOTH EYES NORMAL

HORNER'S SYNDROME – ONE EYE DEMONSTRATES MIOSIS (CONSTRICTED PUPIL), PTOSIS AND
APPARENT ENOPHTHALMUS

- DUE TO SYMPATHETIC NERVE PARALYSIS
- USUALLY BENIGN FORM BUT CAN BE RELATED TO MALIGNANT TUMOUR OF APEX OF THE LUNG

STEREOPSIS

- ABILITY TO PERCEIVE DEPTH ON THE BASIS OF RETINAL DISPARITY IE: A BINOCULAR FUNCTION (AS OPPOSED TO MONOCULAR CLUES WHICH IS LEARNED)
- EG. TITMUS STEREOTEST USING POLARIZED TEST STIMULI AT 40 CM WITH CROSS POLARIZED GLASSES
- ALSO BERNELL STEREO REINDEER TEST
- PLUS MANY MORE

COLOUR VISION ANOMALIES - CAN NOT BE TREATED

NORMAL VISION – TRICHROMATIC
ANOMALOUS TRICHROMAT – CAN BE PROTANOMOULAS (RED WEAK) OR DEUTERANOMOULAS (GREEN WEAK)

DICHROMAT – PROTANOPE (RED DEFICIENT) LACK RED ABSORBING PIGMENT - ERYTHROLABE
DEUTERANOPE (GREEN DEFICIENT) LACK GREEN PIGMENT – CHLOROLABE

BOTH ARE CLASSIFIED AS RED/GREEN ANOMALIES

TRITANOPIA – YELLOW/BLUE ANOMALY, MUCH LESS COMMON THAN RED/GREEN

COLOUR VISION TEST PLATES - ISHIHARA COLOUR PLATES

VISUAL FIELD *SEE PRIMARY CARE OPTOMETRY 4TH ED. PAGE 152 TO 157

TO DETERMINE POSSIBLE VISUAL FIELD LOSS DUE TO GLAUCOMA OR LESIONS

CHOROID OR RETINAL LESIONS – WOULD BE MORE OBVIOUS WITH THE OPHTHALMOSCOPE
VISUAL PATHWAY LESIONS – OPTIC NERVE, OPTIC TRACTS, OPTIC RADIATIONS OR VISUAL CORTEX, MORE USEFUL DIAGNOSTIC TOOL

ALL TESTS – ONE EYE OCCLUDED AND PATIENT REMINDED TO FIXATE

CONFRONTATION TEST – PRIMARILY DETECTS RESTRICTIONS OF OUTER LIMITS OF FIELD

- DISCUSS WITH 8 CARDINAL POINTS OF ENTRY
- EMPHASIZE FIXATION

TANGENT SCREEN – PRIMARILY USED FOR CENTRAL FIELD SCREENING

- DISCUSS
- EMPHASIZE FIXATION

AMSLER CHARTS – REASON TO SUSPECT MACULAR DISEASE

- SEVEN GRID LIKE CHARTS ON STIFF CARDBOARD IN BINDER
- DISCUSS

AUOTOMATED VISUAL FIELD DEVICES – CAPABLE OF MAPPING BOTH PERIPHERAL AND CENTRAL FIELDS EG. SYNEMED FIELDMASTER

INFORMATION IS RECORDED AND MAINTAINED FOR FUTURE REFERENCE AND COMPARISON

TONOMETRY SEE PRIMARY CARE OPTOMETRY 4TH ED. PAGE 157 TO 159

MEASURES INTRA OCULAR PRESSURE IN MM Hg.
15 TO 17 MM Hg. IS NORMAL IOP
AN IOP OF 22 MM Hg. OR HIGHER – SUSPECT GLAUCOMA (CAN HAVE LOW PRESSURE GLAUCOMA)

GOLDMAN TONOMETER – IS THE CLINICAL STANDARD OF IOP MEASUREMENT

DISCUSS – 3.06 MM STERILIZED TIP (UPPER & LOWER PRISMS)

- DARKENED ROOM WITH BLUE LIGHT
- TOPICAL ANESTHETIC ETC. REPEAT 2-3 TIMES

- RECORDING PRESSURE (READING X 10), NOTE TIME OF DAY, IF MEDS – WHEN LAST TAKEN
- ALCOHOL, MARIJUANA, H2O CONSUMPTION ALL AFFECT PRESSURE
- IF PRESSURE IS BETWEEN 22MM Hg. OR HIGHER – PERFORM GONIOSCOPY TO EXAMINE ANGLE
- ALSO OPHTHALMOSCOPY TO EXAMINE CUP TO DISC RATIO, COLOUR AND HEALTH OF NEURORETINAL RING
- ALSO VISUAL FIELD RESULTS
- IN THE ABSENCE OF FAMILY HISTORY (PRESSURE BETWEEN 22 AND 30) – FOLLOW EVERY YEAR, (ALL TESTS)
- IF OVER 30 MM – PROBABLY BEGIN GLAUCOMA MEDS

NONCONTACT TONOMETER – PUFF TONOMETER – NO ANESTHETIC – DELEGATED PROCEDURE

BLOOD PRESSURE * SEE PRIMARY CARE OPTOMETRY 4TH ED. PAGE 159 TO161

EXTERNAL EXAM

DISCUSS OBSERVATIONS – SLIT LAMP EXAM – OBSERVATION OF LIDS, LASHES, SCLERA(INJECTION AND/ OR EDEMA), LIMBUS (VASCULARIZATION), CORNEA (TEAR FILM, CORNEAL LAYERS, CLARITY ETC.) LENS (OPACIFICATION/CLARITY) IRIS / PUPIL
COMMON FORMS OF ILLUMINATION USED – DIRECT, INDIRECT, RETRO., AND SCLEROTIC SCATTER,
SEE PRIMARY CARE OPTOMETRY 4TH ED. PAGE 170 TO 176

INTERNAL EXAM

DISCUSS OBSERVATIONS – WITH THE USE OF DIRECT AND INDIRECT OPHTHALMOSCOPES
OBSERVATIONS CAN BE MADE OF THE CRYSTALLINE LENS (CLARITY OR LACK OF:, POSSIBLE CATARACT FORMATION)VITREOUS BODY(HEALTHY VITREOUS APPEARS OPTICALLY “EMPTY”)
OCULAR FUNDUS (INCLUDES MACULA, OPTIC NERVE HEAD, RETINAL VESSELS WITH ASSOCIATED BACKGROUNDS),
SEE PRIMARY CARE OPTOMETRY 4TH ED. PAGE 182 TO 188