

Muscular Dystrophy

Hereditary / Degenerative disease -**Neuromuscular**
Affects voluntary & involuntary muscles
Muscles waste away or turn to flaccid, fat replaces muscle

Symptoms:

Tire easily, loss of motor control, scoliosis, thermo & circulation problems, emotional stress
Affects the shoulders and pelvic girdle first - lift by torso
not limbs / **joint instability, susceptible to injury**

Myatonic – most common, onset 20-40 yrs, slow progressive. Affects central nervous(CNS), eyes, heart, endocrine glands

Duchenne's – Most common type
Age 2-6 Often fatal-Respiratory depression
Hereditary / progressive
Affects men more

Mitochondria - rare, **seizures possible**

Friedrich's Ataxia

Spino-cerebellar Degeneration

Degeneration of the posterior & lateral tracks of spinal cord & cerebellum
Slow progression

Symptoms:

Onset – 5-15 yrs old
Affects coordination of lower extremities, spreads to hands and trunk, **scoliosis, leg pains**, doesn't affect cognitive, balance problems, high arches, claw toes
Eventually wheelchair bound

Related affects:

Heart disease (can be fatal), abnormal heart beat, **shortness of breath**, vocal breakdown

Chromosomal Abnormalities

Genetic Neurological Disorders

Tuberous sclerosis
Neurofibromatosis
Myotonic Dystrophy

Genetic Metabolic Disorders

Lowe's syndrome
Lesch's syndrome
Nyhans syndrome
Hunter's syndrome

Auto Recessive Disorders

Phenylketonuria
Galactosemia

Lipid Storage Disorder-Tay-Sachs Disease

Myasthenia Gravis (MG)

Auto Immune Disease

- Immune system produces antibodies that block muscle receptors
- Electrical impulses fail from nerve to muscles in ACh receptor on muscles
- Thymus gland is involved

Symptoms:

Weakness in limbs, face, **swallowing & breathing issues**
Tiredness

Therapy:

Surgical removal of thymus gland

Meds:

Anticholinesterase: pyridostigmine bromide (increases muscle tone)
Corticosteroids & ACTH hormones-suppresses immune system

Paget's Disease

Bone Disease- bones become weak or grow larger
Affects skull, hip & pelvis, femur, tibia

Symptoms:

Pain, bone deformity, **severe back pain, bones break easily**
Men or than women – over 40 usually
Fatigue, bowed legs, head bigger

Complications:

Damage to nerves & spinal cord due to excessive growth of abnormal bone in skull and spine
Leads to - Osteoarthritis, kidney stones, heart disease

Skiing:

Well padded, avoid high speeds & jolts

Meds:

Aspirin, Acetaminophen, non-steroidal anti-inflammatory
Bisphosphonates - helps normal bone growth, calcium
Calcitonin – slows bone loss

Down Syndrome

Abnormal Chromosome 21 (3 instead of 2)
Auto recessive disorder
1 in 800-1000 live births

Symptoms:

Flat face, short neck, oval eyes
Wide gap between toes 1 & 2
Hypotonic (flaccid musculature)
Hypoplasia (short middle bone, 5th finger)
Gastro intestinal defects (10%)
Frequent respiratory infections

Heart defects

Cervical (neck) instability-poor C1/C2 development
Mental retardation

Shunts

Mental Retardation

Mild MR – IQ=51-70
Moderate – IQ=36-50
Severe - IQ=21-35
Profound – IQ=20 or less

Prenatal - abnormalities due to genetic, congenital, infection, drugs/chemical agents, radiation

Microcephaly = small head
Hydrocephaly = big head

Post natal-abnormalities due to viral or bacterial (measles) infection, poisoning, injury, asphyxia

Huntington's Disease

Hereditary / degenerative brain disorder – brain shrinkage esp. basal ganglia

Symptoms:

Evolve slowly –vary per person

Cognitive

Depression, forgetful, **impaired judgment, concentration**

Behavioral / Emotional

Mood swings / irritability

Anxiety / depression

Social withdrawal

Motor

Abrupt, jerky, / **involuntary movements** (chorea, dystonic)

Difficulty w/ speech, swallowing, balance, walking

Eventually dependant on others

Death from complications-choking, infections, heart failure

Batten's Disease

Neuronal Ceroid Lipofuscinoses (NCL)

Lipopigments (fats & proteins) in body tissue of brain & eye, skin, muscles & others (1/2 moons, gravel or fingerprint shapes)

Causes neuron death in brain, retina & central nervous system.

Symptoms:

Mental Impairment, **seizures**, Progressive **vision & motor skill loss – FATAL**

- 1) Infantile – 6 mths- 2 yrs, sm heads, myoclonic jerks
- 2) Late Infantile – 2-4 yrs, loss of muscle coordination (ataxia), seizures, Fatal by 8-12 yrs
- 3) Juvenile NCL – 5-8 yrs, Vision loss, seizures, ataxia – fatal by late teen -20's
- 4) Adult – 40 yrs, milder symptoms & slower progress, no vision loss, doesn't shorten life

Muscular Dystrophy (continued)

(Imperfect nutrition)

Meds:

Analgesic narcotic: Demerol, Dilaudid, Percocet, Ty/Cod, Percodan

Analgesic SAID:
Motrin, Aleve, Tylenol

Anti Dizzy: Antivert

Anti-Inflamatory:
Advil, Decadon, Indocin, Azulfidine, Viox

Morphine

Friedrich's Ataxia (continued)

Friedrich's Ataxia Meds

Baclofen
Skeletal muscle relaxant

Coreg
Beta blocker – affects the heart and circulatory system
Lowers hypertension

Lexapro
Selective serotonin reuptake inhibitor

Methdone
Narcotic pain reliever

Reglan
Increases speed of digestion to help stomach empty

Trazadone
Antidepressant – prevents reuptake of serotonin

Zanaflex
Muscle relaxant

Chromosomal Abnormalities (continued)

Down's Syndrome
Fragile X
Klienfelter's Syndrome

Can be caused by:

Congenital infections – measles, cytomegalovirus

Cerebral Palsy (CP)

Caused by lack of oxygen to brain before, during or shortly after birth - Non-progressive

Symptoms:

Abnormal muscle tone, delay in development, abnormal reflex activity, **speech often affected**, **NOT always mental retardation**, more saliva, swallowing difficulties, scoliosis, VI, fatigue

Spastic: most common (80%), tense contracted muscles, movements are quick & jerky, balance issues, Hemiplegic/ one side affected (**2T, 4T, 3T, bi ski**)

Athetoid: uncontrolled, writhing movements of (**Bi ski, 4T**) arms & head, flailing, muscles may be unsupported

Ataxic: jerky, lack balance, uncoord. Movemts (**Bi ski-fixed Riggers**)

Dystonic: rigid, often MR, least common

Flaccid: No muscle tone

Fragile X

Hereditary Chromosome abnormality
Weakness or Break in X Chromosome structure

Symptoms:

Boys affected more

Long face, large ears, flat feet, **hyper extendible joints**

Mental retardation / Autism/refusal to communicate

ADD, **hyperactivity**, anxiety, Hand flapping and **biting**

Lability / unstable mood, Behavior problems

Meds:

Psycho-stimulants: Concerta, Dexedrine, Ritalin

Multiple Sclerosis

Neurological Disorder – Central Nervous System

Affects brain & spinal cord

Destruction of nerves' myelin sheath, causes short circuit that blocks nerve impulses, **scaring** of nerves

Degenerative Auto immune disease

Symptoms:

Onset – 20-40 yrs

Cyclic exacerbations / remission (lesions)

Weakness, **fatigue**, tingling, **balance** & coord. problems, **vision loss**, slurred speech, spacticity, paralysis, bladder incontinence, **thermo-regulation problems**, **lability**, problems processing info

Meds:

Immuno-suppressives

Anti-Inflammatory

Muscle Relaxants

Antibacterial

Analgesic NSAID

Steroids

Analgesic Narcotic

Anti Dizzy

Charcot Marie Tooth Disease (CMT) Spino-Celebellar Degeneration

Hereditary Motor & Sensory Neuropathy (HMSN)

Peroneal Muscular atrophy Disease

Gradual nerve degeneration & muscle atrophy

Symptoms:

Weakness of foot & lower leg muscles (champagne bottle shape to lower legs)

Foot drop - Foot deformities / High-step gait (frequent tipping & falls)

High arches / Hammer toes

Later- atrophy of hands

Little numbness or pain / **reduced ability to feel heat & cold**

Onset: most often Adolescence or early adulthood

Can be mid-adulthood

Guillian-Barre Syndrome

(*Polyradiculitis*)

Peripheral Nervous System (PNS) Disease

Symptoms:

Auto immune system attacks the PNS

Affects nervous system except brain & spinal cord (CNS)

Muscle weakness / paralysis of limbs & breathing muscles

Can develop over hours, days or up to a month

Progressive –occasionally total paralysis

Most recover with **residual weakness & sensations:**

Numbness, tingling, burning, skin 'crawling', pain, muscle spasm and cramp

Immune system attacks myelin sheath around axoms

Causes:

Affects a few days or weeks after a respiratory or gastrointestinal viral infection, or following recent surgery

No real known cause

Left Brain Injury= right paralysis= **Right Hemipelgia**

Affects **Speech & Language / Logic**

Speaking, reading writing

Dysarthria &/or Aphasia &/or Lability, one-sided VI

Right Brain Injury =left paralysis= **Left Hemipelgia**

Affects- **Spatial awareness** & Time & place

Distance, shape, form & body position

Distance perception ****Seizure**

Creative, intuitive, music, art ****Memory loss**

Affects Judgment - Run away ****Shunts**

Cortex – conscious thought, movements, feelings, speech, emotions, judgment, memories

Brain stem- automatically regulate wakefulness, breathing, heart

Cranial nerves – face, voice, smells, sight, sound

Cerebellum – controls motor muscle coordination

Cerebrospinal Fluid (CSF)– 4 ventricles –cushion brain

Shunts help to regulate

Learning Disabilities

Causes:

Prenatal –during pregnancy- malnutrition, toxemia, alcoholism, drugs

During Birth – long delivery, lack of O₂, dry birth, prematurely, intracranial pressure, rapid delivery

After Birth – delay breathing, high fever, sharp blow to head, lead poisoning, drugs, suffocation, malnutrition

Difficulties:

Following directions, reasoning, setting goals, reading & writing (reverses or switches words & numbers), left/right concepts, eye coordination, coordination, organization, moods & temper, impulsivity, needs recognition, childish behavior, loner

Attention Deficit Hyperactive Disorder (ADHD)

Inattention, hyperactivity, & impulsivity

Causes appear to fall in the realm of neurobiology and genetics. Environmental factors may affect

Diet restrictions helped about 5% of children with ADHD, study showed no significant effects of the sugar on behavior or learning.

Run away risk – watch sitting still on chairlift
Following directions, organization, moods & temper

Meds:

Psychostimulants: Adderall, Cylert, Ritalin
Antidepressants: Tofranil, tranxene

Cancer

Types:

Leukemia – blood cancer -bone marrow, too many white blood cells

Symptoms:

Weakness, fatigue, loss of hair, amputation, seizures

Meds:

Chemotherapy
Anti-depressants
Analgesic Narcotic
Anti-convulsant
Antiemetic (Nausea)
Immuno-suppressives: Cytosin,

Cerebral Palsy (CP) (continued)

Quadraplegic – all 4 limbs

Diplegia – all 4 limbs, mild involvement of upper extremities

Meds:

Anti spasmodic

Robaxin, Soma, Valium, Balcoten

Muscle Relaxants

Dantrium, Flexeril

Stool softeners

Colace, Dialose, Surfak

May need canting

Check Leg lengths

Lou Gehrig's Disease

ALS - Amyotrophic Lateral Sclerosis
(no muscles nourishment)

Symptoms:

Progressive, neurodegenerative-affects nerve cells in brain & spinal cord so motor neurons die=paralysis

Cognitive is not affected

Usually FATAL 1-5 yrs after diagnosis

Muscles weakness to paralysis

Meds:

Antiglutamate = Rilutek© = riluzole

Slows progress of ALS

Symptom relief

Anti-spasmodics: Robaxin, Soma, Valium

Muscle Relaxants: Flexeril, dantrium

Stool Softeners: Colace, Dialose, Surfak

Asthma

Symptoms:

Trouble Breathing

Wheezing

Coughing

Chest pain

Tightness in chest

Causes:

Mold, dust mites, smoke, pet dander

Cockroaches, Chemical irritants

Nitrogen Monoxide from gas burning appliances

Meds:

Anti-Inflammatory: Deltasone

Autism

Pervasive Developmental Disorder (PDD)

Defects in social interaction (from "auto" = within self)

Causes:

Onset – by toddler stage (within 1st 3 yrs of life)

Prenatal, viral, metabolic, epilepsy, or unknown

Diet can affect

Males – 4 or 5 / 1

Symptoms:

Deficient social & communication skills, obsessive repetitive routines, upset by routine changes, **seizures sensitive to, touch, loud noises, lights, &/or odors**, fixation on subjects or objects, awkward in sports, immature speech
Can be aggressive or self injurious, **MR possible**

Meds:

Anti-convulsants: Tegritol, Klonopin, Dilantin, Phenobarb

Psychostimulants: Adderall

Antidepressant: Prozac, Anaframil, Luxox

Antipsychotic: seroquel, Zyprexa

Epilepsy

Temporary electrochemical imbalance within regulatory mechanism of the brain

Grand mal – full involvement

Prior to **seizure** – aura

Usually lasts 1 minute or less

Will be very tired after

Swallowing & Bladder/bowel control affected

Petite mal – momentary suspension of activity

Blank Star, **"spaced out"**, muscle twitch, eye roll,

5-10 seconds

Meds:

Anti-seizure

Dilantin, Tegretol, Phenobarbital, Depakene, Klonopin

Amputation

Overall fitness?

Trauma

How did it happen?

Anything else affected?

Rods, pins, etc.?

Cancer

Chemo? Other Meds?

Anything else affected?

Fatigue

Nausea

Diabetes

Circulation? Vision?

Fatigue

Residual Limb Concerns

How long ago? Tender? Pressure sores?

Susceptibility to frost bit? Padding? Prosthesis fit?

Spinal Cord Injury

7 Cervical vertebra (neck)

L5 ↓ – 4 track

12 Thoracic vertebra (back)

T6-L5 – mono ski

5 Lumbar vertebra (lower back)

T6 ↑ – bi ski

5 Sacral vertebra (fused)

4 Coccyx–(fused) (tail bone)

C1-4: Neck & Diaphragm **Common Injury C5-6**

C5-6: Deltoid & Biceps **T6-7**

C6-7: Wrist extensors/shoulder motion **T12-L1**

C7-8: Triceps & Elbow & Finger extensors

C8,T1: Finger extensors, Thumb opposition

T2-T6: Upper Chest –forced inhalation

T9-T12: Abdominals-trunk flexion,expiration, cough

L1-L3: Legs, hip adductors

L3-4: Quads – knee extension

L4-5, S1: Hip abductors, dorsi flexion

L5, S1-2: Glut. Max – Hip extension, plantar flexion

S2-4: Bowel & Bladder

Arthritis

Rheumatoid Arthritis

Hereditary, swollen joints, pain, can be debilitating, bilateral

Osteoarthritis

Caused by age & overuse, can be hereditary, joints wear out

Ankylosing Spondylitis

Chronic inflammation, crippling

Don't smoke, avoid trauma, keep active

Meds:

Anaygesic NSAID or Narcotic, ,

Anti-Imflamitory,

Gold Treatments, Morphine

Anti-rhumatic drugs

TBI -- Traumatic Injuries – Inorganic

Causes:

Gun shot

Impact to brain

Tearing of brain tissue

Symptoms:

Seizures, Shuts, Speech problems

Lability = unexplained or inappropriate mood changes

Partial to complete **vision loss**

Meds:

Sedatives: Xanax, Ativan

Stool Softeners: Colace, Dialose, Surfak

Spinal Cord Injury(continued)

Precautions:

Autonomic dysreflexia – T6 or higher

Impending doom, headache, blurred vision, sweating, trouble communicating or comprehension, flush skin

Spinal fusion

Thermo-regulation –T8 or higher

Bladder spasms, **Muscle spasms**

Depression

Meds: (continued)

Analgesic NSAID:

Aspirin, Feldene, Motrin, Aleve, Toradol

Analgesic Narcotic: Demerol, Percodan, Tyl/Codeine

Anti-Bacterial: Septra, Macroclantin

Antibiotic: Keflex, Penicillin, Tetracycline, Ceclor

Anticholinergic: ditropan, Daricon, Urecholine

Anti-Depressant: Zoloft Paxil, Pamilor, Norpramine

Anti-Inflammatory: Advil, Indocin, Vioxx

Lupus

Autoimmune disease, hyperactive immune system

Excessive antibodies / Not cancer / Not contagious

Symptoms:

Fatigue / achy & swollen joints / Anemia / Inflammation

Persistent fever over 100

Ski rashes – butterfly / Hair loss

Sensitivity to sun / Cold turns fingers blue

Seizures

Mouth & nose ulcers

Abnormal blood clotting problems

4 Types:

Cutaneous (skin), Systemic, Drug-Induced, Neonatal

Meds:

Immuno-suppressives: Cytoxin, Sandimmune

Anticonvulsants: Tegretol, Phenobarb, Dilantin

Steroids: Prednisone

TBI -- Traumatic Injuries – Organic

Symptoms:

Partial to complete **vision loss** &/or **paralysis,**

labiality, anxiety, speech problems,

behavior problems / inappropriate sex behavior

Seizures, Shunts, memory loss

Ignoral – brains doesn't recognize things on side due to injury

Causes:

Stroke or heart attack

Cerebral Aneurysm

Cerebral embolism

Brain deprived of blood

Fetal Alcohol syndrome

Tumor

Meds:

Anticonvulsants

Phenobarbitol

Dilantin

Tegretol

Clonopin

Sides: Drowsy, low energy, nausea
Confusion

Autism (continued)

Asperger's Syndrome – (High functioning Autism)

Deficits in social development

Normal communication & Cognitive skills

Restricted range of interests

60% - IQ< 50

20% - IQ 50-70

20% - IQ> 70

Some are savants

PDD

(Pervasive Development Disorder)

Only social interaction deficits

Epilepsy (continued)

Psychomotor & Focal Motor Seizures

Less frequent

Less severe – not unconscious

Confused, stagger, facial muscle twitch,

purposeless movements, unintelligible sounds

Rest after

Amputation (continued)

Sacral Agenesis

Lower pelvis & legs never fully formed

Hemipelvectomy

½ pelvis and associated leg are gone

Red Flags:

Hypertensive to cold & heat / frostbite

Stump sensitivity-needs padding

Meds:

Coumadin (anticoagulant)

can cause **excessive bleeding**

Spina bifida

Congenital defect of the spinal cord&/or vertebrae

Myelomeningcele is most common

Symptoms:

Muscle weakness & sensory loss below affected area, hydrocephalus, bladder & bowel incontinence,

Spinal fusion

Shunts

Latex allergies (can cause- seizures, anaphylactic shock)

Recent surgeries???

Most common at T12 – S4

S1 – planter flexion, walk on heels

S5 – flattened feet

L4 – can't extend knee

T6 + below – No trunk use, temperature control not good

3 Track

Disabilities:

Amputation – BK, AK,

Unilateral amputation

Bilateral amputation

Post Polio

Congenital anomalies

Stroke / TBI

Hip Disarticulation

Hemipelvectomy

Arthritis

Cancer – amputation

Meds:

Analgesics

Antibiotics

Antimetics

Anti-inflammatory

Chemotherapy

Anti-depressants

Anti-diabetics

Equipment:

Riggers, cants, braces, stump protection &/or support

CVA / TBI

Possible symptoms:

Expressive Aphasia

Understands but can't speak words in mind

Receptive Aphasia

Can't understand words heard

Dysarthria

Speech deficit - language muscles don't work

Ask "yes" & "no" questions

Polio (Poliomyelitis)

Viral Disease that attacks the anterior horn cells of the spinal cord - preventable via immunization

Any of 3 Viruses

Post Polio Symptoms:

Minimal & temporary to Paralysis

Muscle weakness- usually lower extremities

Respiratory, trunk muscles, legs

Leg length discrepancies

Fatigue -Tires easily – shortness of breath

Balance problems

Thermo regulatory problems

Paralysis

Swallowing difficulties

Meds: none at time of virus

Post Polio Meds: Muscle Relaxants: Dantrium

Therapy: Leg braces

CVA / TBI

Hemorrhage = leak / rupture
Aneurysm = ballooning
Embolism = clotting
Occlusion = plaque deposits

Emoplegia

Objects on that side aren't seen or are ignored

Left Brain Injury= right paralysis= **Right Hemiplegia**

Affects **Speech & Language / Logic**

Speaking, reading writing

Dysarthria &/or Aphasia &/or Lability, one-sided VI

Right Brain Injury =left paralysis= **Left Hemiplegia**

Affects- **Spatial awareness** & Time & place

Distance, shape, form & body position

Distance perception

Creative, intuitive, music, art

Affects Judgment - Run away

Parkinson's

A Motor System Disorder

Chronic, progressive disorder of central nervous system

Due to loss of cells in brain @ substantia nigra

Loss of dopamine a chemical messenger in brain

Symptoms:

Tremors

Balance Problems

Rigidity

Cause: Hereditary / environment

Meds:

Anti-parkinsons: Sinemet

Anti-spasmodics: Robaxin, Soma, Valium

Muscle Relaxants: Flexeril, Dantrium

Spina bifida (continued)

Meds:

Antibiotic: Penicillin, Keflex, Tetracycline

Anticholinergic (bladder): Ditropan, Daricon

Antibacterial (urinary): Macrochantin, Septra

Antidepressant: Elavil, Norpramine, Paxil, Zoloft

Muscle Relaxants: Zanaflex

Autonomic Dysreflexia – T6 and above

Hypertension crisis

4-Track

Stands 50% of the time

Disabilities

CP

Cancer

Brain Injury/CVA/Stroke

Post Polio

Spinal cord injury

Spina bifida

Progressive Diseases

MS, MD, ASL

Friedrich's Ataxia

Guillian-Barre Syndrome

Charcot-Marie Tooth

Types:

Basic 4-Track

Open Stance 4-Track

Wedger 4-Track

Walker 4-Track

Equipment:

Riggers, cants (corrective or non-corrective),

spreader bar, tip connector, walker

Visual Impairments

- 1) **Totally Blind** – can distinguish light & dark but not shapes or less
- 2) **Partially Sighted** – best correction = 20/200 &/or visual field of 5⁰
- 3) **Partially sighted** – best correction = 20/600 to 20/200 &/or field of vision of 20⁰
- 4) **Legally Blind** – visual acuity of 20/200 or less with correction

Macula is 100x more sensitive to detail than
Peripheral vision

Amblyopia

Uncorrectable poor vision (not disease related)
Congenital or can develop any time

Symptoms:

Eye Turn
Cloudiness

Dry Eye

Constant tears
Reflex Tears

Causes:

Absent of faulty blinking
Age
Dry environment / contact lenses
Medications
Disease affecting tear glands

Meds:

Eye drops

Macular Degeneration

Degenerative

Central area blindness/blank spots in central vision
Affects detail vision / blurred vision

Causes:

Age or anytime
Thinning of macular tissue
Abnormal blood vessels - hemorrhage

Therapy:

Surgery can halt degeneration

Tunnel Vision

Vision of 20⁰ or less in best eye – **narrow vision**

Causes:

RP
Glaucoma

Albinism

Hereditary, Congenital

Lack of Normal pigment in part or all of the body

Symptoms:

White hair
Fair skin,
light sensitive
Imperfect retina – **possible poor vision**
Nystamus – oscillation of the eye

Diabetes

Lack of hormone insulin or inability to use insulin

Insulin Dependent

Type 1 – Juvenile onset-produces little or no insulin

Requires daily insulin injections

Non- Insulin Dependent

Type 2 – Adult onset – insufficient insulin

Controlled by diet & exercise

Oral meds:

Affects of Disease:

Poor circulation, vision loss, hypertension, weakness, hyperglycemia, possible amputation, possible **amputation** due to tissue death (necrosis) ****Seizures possible**

Macular degeneration, Diabetic Retinopathy

Corneal Disease

Injury or disorder with cornea

Degenerative **vision loss**

Causes:

Injury

Disorder in cones

Ulcers causing scarring or perforation of cornea

Therapy:

Corneal transplant – can often restore vision to near normal

Aniridia

Iris fails to fully develop

Large pupil

Aphakia

Missing lens

Symptoms:

Difficulty adapting to different light situations

Inability to control light entering eye

Cataracts

Degenerative

Clouding of the lens –blocks passage of light

Causes:

Congenital, hereditary, age, retinal disease, chemical burns

Symptoms:

Poor or cloudy vision

Cloudy lens / opaque lens

Vision worse in the sunlight

Surgery can correct by removing or replacing the lens

Color Blindness

Cones in retina are missing or damaged

Usually Red & Green, occasionally all colors

Mostly in Males

Causes:

Hereditary

Poison

Retinal Disease

Damage to Optic Nerve

Damage or lack of cones

Congenital Visual Impairment of Eye

Defects of iris, retina, cornea, lens, or optic nerve
Vision loss

Causes:

Hereditary

Disease

Lack of nutrition during pregnancy

Spontaneous chromosome mutation

Congenital

Types:

Glaucoma

Hyperopia

Small eyes

Diplopia

Albinism

Retinitis Pigmentosa

Tunnel vision

Myopia

Diabetic Retinopathy-Non Proliferative

Macula damage

Occurs usually **after 10 yrs of diabetes**

Degenerative

Symptoms:

Macular damage

Hemorrhage & scarring on retina

Scars contract and detach retina

Blurred / distorted vision

Deep red veil over visual field/ patchy vision

Decreased acuity

Therapy:

Laser surgery

Glaucoma (continued)

Acute Glaucoma

Pressure builds rapidly in eye

Damage to optic nerve

Rapid vision loss

Increase flow or production of fluids

Those at Risk: Diabetes, myopia, history

Meds:

Eye drops (pills no longer used)

Timolol - beta blocker (#1 drug of choice)

Xalatan, Travatan, Leunegan - prostaglandins

Alphagan - alpha-agonist

(Pilocarpine hardly used)

Therapy: Early diagnosis & treatment, eye drops,
Surgery

Diabetes (continued)

Insulin shock symptoms:

Hypoglycemia = low blood sugar – **give sugar**

Pale, moist skin, rapid pulse, headache, confusion, weakness, trembling

Diabetic Shock symptoms:

Hyperglycemia = High blood sugar = shock → coma

Meds:

Antibiotic: Bactrim, Ceclor, Keflex, Penicillin,
Tetracycline

Anticonvulsants: Dilantin, Klonopin, Tegretol,
Phenobarbitol

Insulin

Strabismus

Eye turn – Peripherally or nasally

Imbalance of eye muscles

Causes:

Congenital disease

Trauma

Therapy:

Laser surgery

Astigmatism

Symptoms:

Cornea is oval like a football instead of spherical

Most astigmatic corneas have two curves – a steeper curve and a flatter curve

Occurs along with nearsightedness or farsightedness

Blurred vision (near and distance)

Due to light being focused on more than one point

Therapy:

Glasses / contacts

Surgery to reshape the cornea so it becomes more spherical or uniformly curved
via- astigmatic keratotomy or LASIK

Macular Edema

Fluids collect in macula
Macula is central vision – acuity (for reading)

Causes:

Blood vessels leak
Swelling of the macula
Diabetes
Hypertension

Symptoms:

Blurred vision
Distortion
Cloudiness

Myopia

Nearsightedness

Cause:

Eyeball too long
Too much power in cornea or lens

Therapy:

Corrective glasses

Nystagmus

Oscillation of the eyes
Inability to focus causes rapid eye movement

Causes:

Congenital
Trauma
Neurological disease
Diabetes
MS

Diabetic Retinopathy-Proliferative

Serious due to macular damage
Severity related to duration or stability
Degenerative

Symptoms:

Retinal Detachment
Possible total vision loss
Macular damage
Hemorrhage in retina
Blurred / distorted vision
Deep red veil over visual field/ patchy vision
Decreased acuity

Therapy:

Laser surgery

Optic Atrophy

Optic nerve fibers atrophy

Symptoms:

Poor night vision
Reduced visual acuity
Defective color vision

Glaucoma

Increase pressure → nerve damage → vision loss

Symptoms:

Blurred vision / foggy vision – eventual vision loss

Chronic Glaucoma

> age 40
Diabetes
Myopia
Hereditary
Increase flow or production of fluids = increase in pressure
Gradual vision loss

Optic Nerve Disease

Possible loss of vision

Range from mild to enlarged blind spot

Causes:

Congenital disease

MS – most common

Tumors

Glaucoma

Hypertension – high blood pressure

Diabetes

Nutritional deficiencies

Chemical Poisoning

Retinal Breaks / Detachments

Degenerative

Separation of retina (rods & cones) from back of eye

Fluids through tear and separates from back of eye

Fluids reduce blood flow causing eventual total blindness

Painless

Causes:

Normal degeneration

Trauma

Acute myopia

Uncared for retinal tears

Retinitis Pigmentosa – “RP”

Progressive degeneration of rods & cones of retina
(light receptors)

Hereditary -from childhood

Symptoms:

Night blindness-degeneration of light receptors

Both eyes

Vision loss - Progressive to tunnel vision-lose peripheral

1st – ring shaped area of vision loss

Causes:

Abnormal deposits of pigment on retina

Retinal sensors are destroyed

Rods are affected more than cones

black & White vision

Total blindness, cataracts, macular degen. can occur

No treatment