QUICK REFERENCE

AGE	HR	SBP	RESP
0 - 4 WK	130	60 - 80	35
< 1 YR	120	80 - 100	30
1 - 4 YR	110	80 - 110	25
5 - 8 YR	100	80 - 110	20
9 - 10 YR	70	80 - 120	19
11 - 19 YR	75	90 - 120	18
20 - 64 YR	80	90 - 120	16
> 65 YR	70	100 - 150	16

CORE	97.7°F - 99.5°F
ORAL	95.9°F - 99.5°F
RECTAL	97.8°F - 100.4°F
TEMPORAL	95.0°F
AXILLARY	94.4°F - 99.2°F

PULSE POINTS
TEMPORAL
CAROTID
APICAL
BRACHIAL
RADIAL
FEMORAL
POPLITEAL
POSTERIOR TIBIAL
DORSALIS PEDIS (PEDAL)

Blood Pressure [mmHg]

CATEGORY	SBP	DBP
HYPOTENSION	< 90	< 60
NORMAL	90 - 119	60 - 79
PRE-HYPOTENSION	120 - 139	80 - 89
HBP STAGE I	140 - 159	90 - 99
HBP STAGE II	160 - 179	100 - 109
HYPERTENSIVE CRISIS	≥ 180	≥ 110

SpO_2%	LEVEL
95 - 100	NORMAL
91 - 94	MILD HYPOXIA
86 - 90	MODERATE HYPOXIA
< 85	SEVERE HYPOXIA

EYES 4

4	SPONTANEOUS
3	TO SPEECH
2	TO PAIN
1	NO RESPONSE

VERBAL 5

5	ORIENTED X3
4	CONFUSED
3	INAPPROPRIATE
2	GIBBERISH
1	NO RESPONSE

MOTOR 6

6	OBEY COMMANDS
5	LOCALIZES TO PAIN
4	WITHDRAW FROM PAIN
3	FLEXION TO PAIN
2	EXTENSION TO PAIN
1	NO RESPONSE

WHEN IN Rome

RESPIRATORY
OPPOSITE

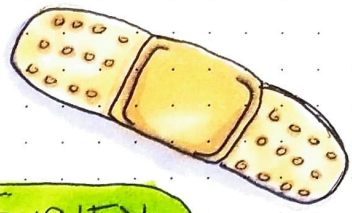
pH ↑ PCO_2 ↓ [ALKALOSIS] HYPERVENT
pH ↓ PCO_2 ↑ [ACIDOSIS] HYPOVENT

METABOLIC
EQUAL

pH ↑ HCO_3 ↑ [ALKALOSIS] HYPERVENT
pH ↓ HCO_3 ↓ [ACIDOSIS] HYPOVENT

1g	=	0.035 oz
1kg	=	2.2 lbs = 35.3 oz
1oz	=	28.34g
1lb	=	0.45kg = 453.6g
1L	=	1,000 mL
1mL	=	0.034 FLOZ
1G = 4QT = 8PT = 16C = 128FLOZ		

PATIENT



1 SCENE SIZE UP

BSI / SCENE SAFE?

NOI

PTs / MCI?

C-SPINE

MEDICAL

LAW ENFORCEMENT
HAZMAT
ADDITIONAL RESOURCES

2 PRIMARY SURVEY + RESUSCITATION

VERBALIZE GENERAL IMPRESSION

LEVEL OF CONSCIOUSNESS

CHIEF COMPLAINT / LIFE THREATS

A) OPEN + ASSESS
ASSURE ADEQUATE VENTILATIONS
- ADJUNCT ?
- SUCTION ?

B) O_2 THERAPY [15 Lpm] + LUNG SOUNDS

C) B-CON
PULSE → RATE + QUALITY
SKIN → COLOUR + TEMP + CONDITION

SHOCK MANAGEMENT

TRANSPORT DECISION

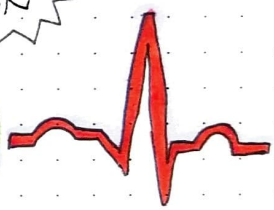
3 HISTORY

ONSET
PROVOCATION
QUALITY
RADIATION
SEVERITY
TIME

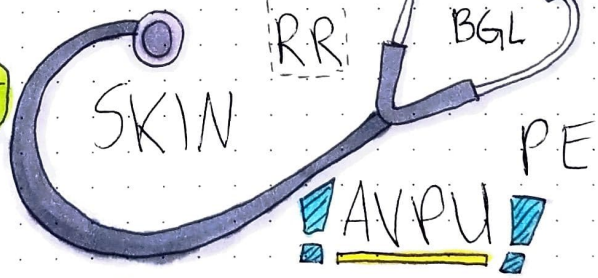
SIGNS + SYMPTOMS
ALLERGIES
MEDICATIONS
PERTINENT PAST MEDICAL Hx
LAST ORAL INTAKE
EVENTS

+ CLARIFYING QUESTIONS

5 VITAL SIGNS



BP
RR
BGL
HR
SpO_2



SKIN
PERRL
! AVPU !

4 SECONDARY ASSESSMENT

CARDIOVASCULAR
NEUROLOGICAL
INTEGUMENTARY
REPRODUCTIVE
PULMONARY
MUSCULOSKELETAL
GI / GU
PSYCHOLOGICAL / SOCIAL

15 MINS STABLE PT

6 REASSESSMENT

5 MINS CRITICAL PT

AMS ?
VITALS

! RE-EVALUATE TRANSPORT !

PT RESPONSE TO Rx
» O_2 + BANDAGES + SPLINTS «

ASSESSMENT

TRAUMA

1. DETERMINE MOI
2. MANAGE ANY COMPROMISES TO AIRWAY, CABCDE!
3. ATTEMPT IF PT IS ABLE
4. DCAP-BTLS
   - HEAD • NECK • CHEST » C-SPINE
   - AB/PELVIS • EXTREMITIES » LOG ROLL + SPINE BOARD
   - POSTERIOR
5. MANAGE SECONDARY INJURIES
6. IF TIME PERMITS

FALLS

- ≥ 10 FEET - PEDIATRIC
- ≥ 20 FEET - ADULT

*SURFACE?

BLASTS

PRIMARY - INITIAL BLAST

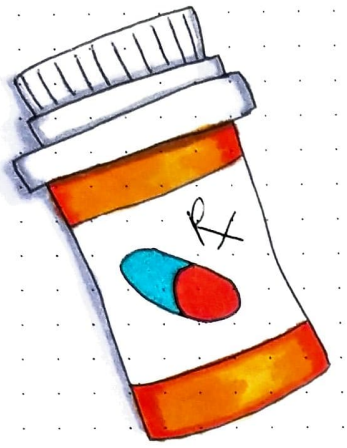
SECONDARY - FLYING DEBRIS

TERTIARY - HITTING GROUND + STATIC OBJECTS

»COLLISION«

VEHICLE • BODY ORGAN

IF OPEN WOUND WITH NO EXIT, C-SPINE



MEDICATION

NITRO

5MIN REPEAT, MAX 3
0.3-0.4mg SL 0.4mg SPRAY

INDICATIONS: CHEST PAIN

CONTRAINDICATIONS: HYPOTENSION, HEAD INJURIES, ED MEDS

ACTION: DILATES BLOOD VESSELS

SFX: HEADACHE, BURNING UNDER TONGUE, HYPOTENSION, NAUSEA

ALS

ASPIRIN

160-325mg PO

NOT FOR CHILDREN

ACTION: ANTI-INFLAMMATORY, ANTI-FEVER, PREVENTS CLOTTING

INDICATIONS: MILD PAIN RELIEVER, CHEST PAIN

CONTRAINDICATIONS: RECENT BLEEDING, ALLERGIC

SFX: NAUSEA, VOMITING, STOMACH PAIN, BLEEDING

RIGHT:

- PERSON
- MEDICATION
- DOSE
- ROUTE
- TIME
- DOCUMENTATION

NARCAN

0.4mg IM 2mg IN

* LOOK FOR MIOSIS AND RR DEPRESSION

INDICATIONS: OPIOD POISONING

NEW NASAL SPRAYS ARE 4mg

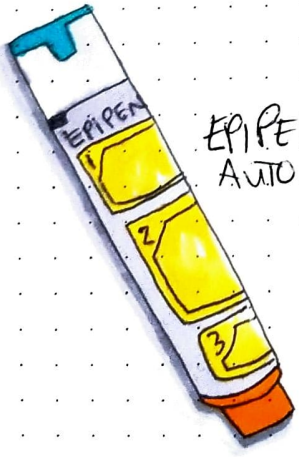
CONTRAINDICATIONS: NONE

ACTION: REVERSES RESPIRATORY DEPRESSION SECONDARY TO OPIOID OVERDOSE

SFX: NAUSEA, VOMITING

COMBATIVE PT WARNING

MIOSIS



EPIPEN AUTO INJECTOR

EPI

0.15mg IM CHILD 0.3mg IM ADULT

5 MINS

DO NOT REPEAT DOSE

INDICATION: ANAPHYLACTIC REACTION

CONTRAINDICATIONS: CHEST PAIN, HYPOTHERMIA, HTN

ACTION: STIMULATES NS, BRONCHODILATOR

SFX: HTN, TACHYCARDIA, ANXIETY, RESTLESSNESS

ALS

ROUTE:

- INHALATION
- INTRAMUSCULAR IM
- INTRAOSSEOUS IO
- INTRAVENOUS IV
- PER OS PO
- PER RECTUM PR
- SUBCUTANEOUS SC
- SUBLINGUAL SL
- TRANSCUTANEOUS (TRANSDERMAL)
- INTRANASAL IN

GLUCOSE

1/2 - 1 TUBE BUCCAL - PO

INDICATION: LOW BLOOD SUGAR

CONTRAINDICATIONS: DECREASED LOC, NAUSEA, VOMITING

ACTION: WHEN ABSORBED, PROVIDES GLUCOSE FOR CELLS

SFX: NAUSEA, VOMITING

OXYGEN

28% - 100%

COMBUSTABLE

INDICATIONS: HYPOXIA

CONTRAINDICATIONS: VERY RARELY USED FOR COPD PT'S

ACTION: REVERSES HYPOXIA, PROVIDES OXYGEN TO BE ABSORBED BY LUNGS

SFX: DECREASED RESPIRATORY EFFORT IN COPD PT'S

Conversions

- 1kg = 2.2lbs
- 1mL = 1cc
- 1mL = 0.001L
- 1L = 33.8oz
- 1kg = 1,000g

ACTIVATED CHARCOAL

1-2g/kg PO

INDICATIONS: MOST ORAL POISONINGS, OD

ACTION: ABSORBS TOXINS IN GI

CONTRAINDICATIONS: DECREASED LOC, OD OF CORROSIVES/CAUSTICS/PETROLEUM

SFX: NAUSEA, VOMITING, CONSTIPATION, BLACK STOOLS

MDI

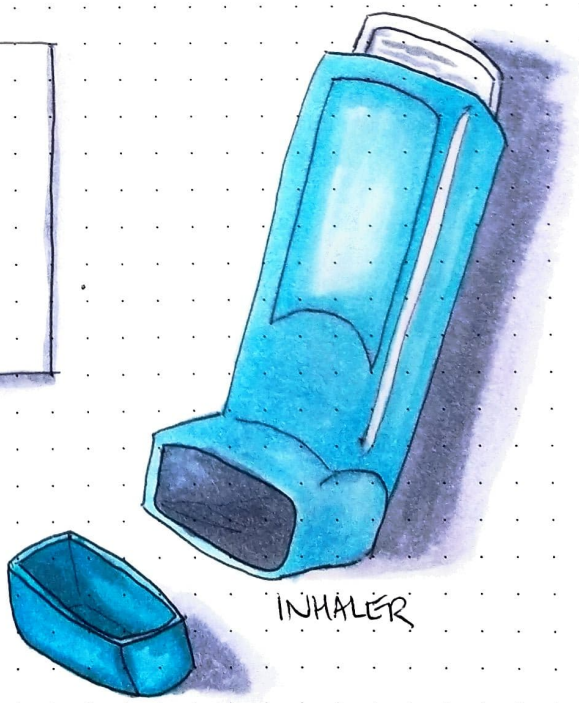
1-2 INHALATIONS, 5MIN REPEAT

INDICATIONS: ASTHMA, DYSPNEA W/ WHEEZING

CONTRAINDICATIONS: TACHYCARDIA, CHEST PAIN

ACTION: STIMULATES NS, CAUSES BRONCHODILATION

SFX: HTN, TACHYCARDIA, ANXIETY, RESTLESSNESS



INHALER

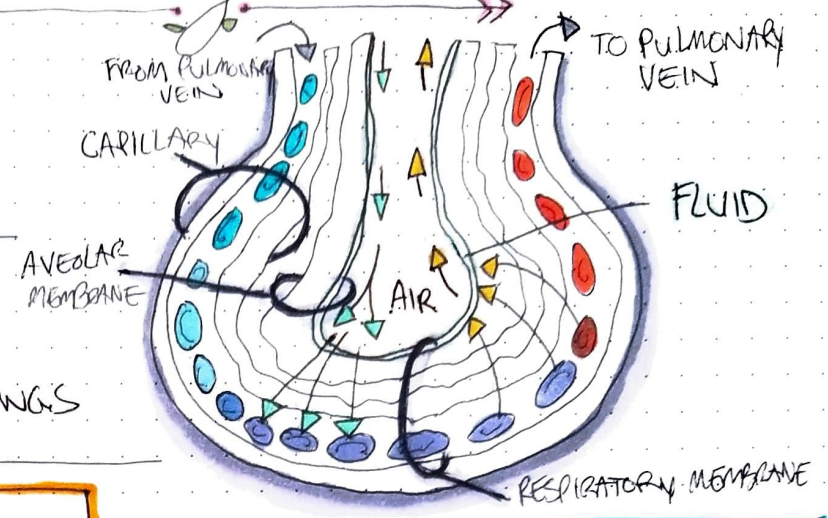
Airway Management

RESPIRATION

GASSES EXCHANGING IN LUNGS

VENTILATION

MOVEMENT OF AIR IN + OUT OF LUNGS



BVM

ADULT 1,000 ML
CHILD 450ML
NEONATE 250ML

GURGLING = SUCTION 10s
SNORING = REPOSITION + ADJUNCT
STRIDOR = PARTIAL OBSTRUCTION
FBAO = FOREIGN BODY

21% O_2 = ROOM AIR

AEROBIC METABOLISM :)
ANAEROBIC METABOLISM :(

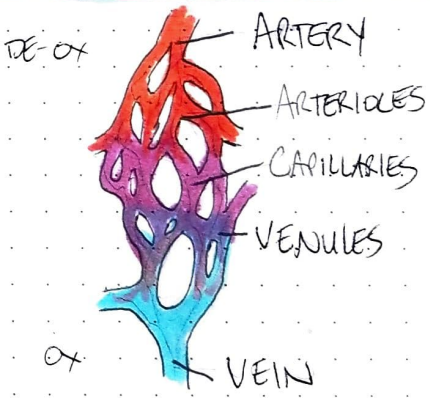
TIDAL VOLUME

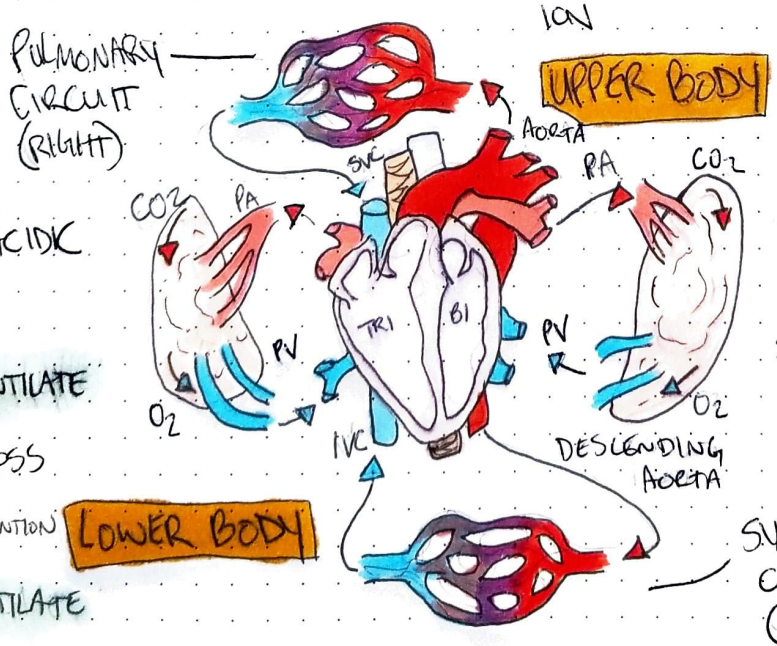
AVERAGES

MALE 600ML
FEMALE 500 ML
PEDS 5-10ML/Kg
* X10 EX: 22 Kg = 220mL

$H_2O + CO_2 \rightleftharpoons H_2CO_3 \rightleftharpoons H^+ + HCO_3$

LACTIC ACID — CARBONIC ACID — HYDROGEN ION — BICARBONATE





CO_2 = ACIDIC

HYPERVENTILATE → CO_2 LOSS

CO_2 RETENTION ← HYPOVENTILATE

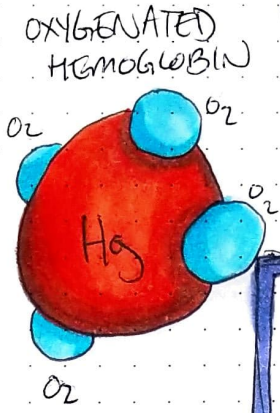
PARTIAL PRESSURE OF O_2 IN BLOOD - TAKEN IN BY CELLS

V/Q = VENTILATION + PERFUSION QUOTIENT

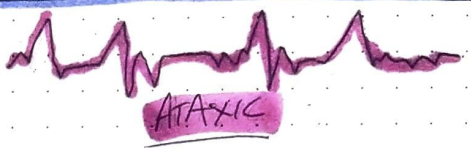
V/Q MISMATCH – VENTILATORY

INTRINSIC
- ALLERGY
- UNRESPONSIVE
  - ↳ TONGUE
- INFECTION
- PNEUMONIA
- MEDS
- TBI
- FLUID
- INHALED TOXINS

EXTRINSIC
- FBAO
- TRAUMA
- BURNS



* HEAD INJURY
INCREASED WITH PERIODS OF APNEA



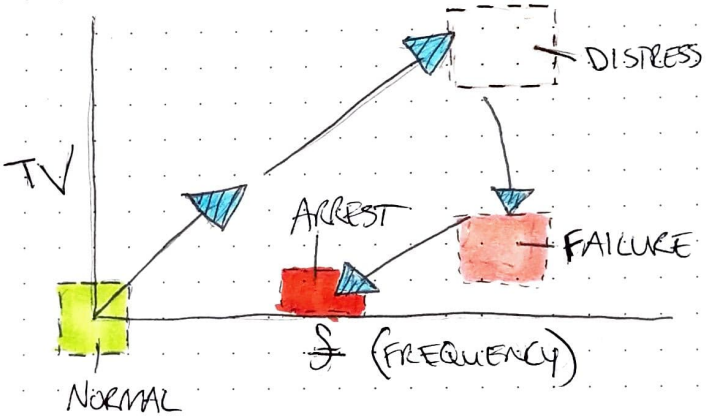
IRREGULAR, POSSIBLY METABOLIC

* DKA PT'S
DEEP + RAPID

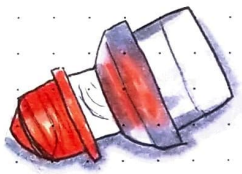
V/Q MISMATCH – PERFUSION

- PULMONARY EMBOLISM
- SIMPLE / TENSION PNEUMOTHORAX
- OPEN PNEUMOTHORAX / SUCKING CHEST WOUND
- HEMOTHORAX OR HEMOPNEUMOTHORAX
- CARDIAC TAMPONADE
- ANYTHING THAT SLOWS OR STOPS BLOOD FLOW

HYPERCARBIA = "CO_2 DRUNK"



PEEP



* DON'T USE ON MI (DROPS CO)

POSITIVE END-EXPIRATORY PRESSURE

HFPA

CPAP

CONTINUOUS POSITIVE AIRWAY PRESSURE

* DON'T USE ON GI BLEEDS OR AB SURGERY OR PNEUMOTHORAX

ACMV

ASSISTED CONTROL MODE VENTILATION

ADULT	12-20 /MIN	RR
CHILD	15-30 /MIN	RR
INFANT	25-40 /MIN	RR

SUCTION

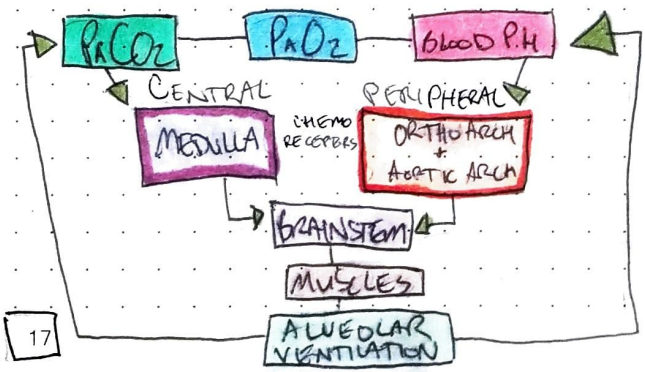
MAX
- 300 mL - ADULT
- 150 mL - CHILD
- 50 mL - NEONATE

2-6 mL NC
10-15 mL NRB

PONS + MEDULLA CONTROL BREATHING

COPD PT'S RELY ON CO_2 LEVELS

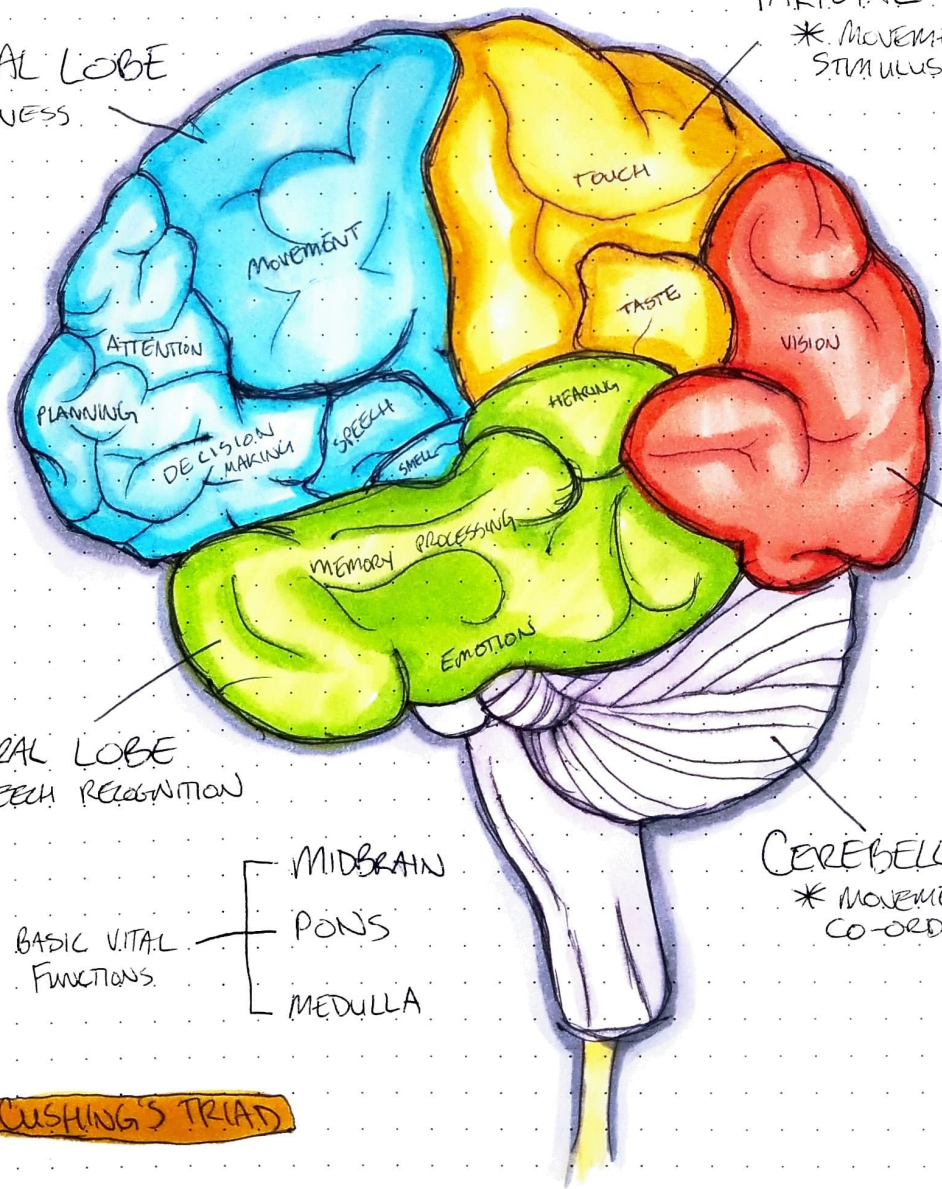
CHEMORECEPTORS MONITOR CO_2, O_2, H^+ LEVELS
↳ ABNORMAL #'S = DETERMINATION OF RR



NERVOUS SYSTEM

CNS (MASTER CONTROL)
- SPINAL CORD
- BRAIN
  - CEREBRUM
  - CEREBELLUM
  - BRAINSTEM
    - MEDULLA
    - PONS
    - MIDBRAIN
  - DIENCEPHALON
    - THALAMUS
    - HYPOTHALAMUS

(OUTSIDE WORLD) **PNS**
- AFFERENT (SENSORY)
- EFFERENT (MOTOR)
  - SYMPATHETIC
  - PARASYMPATHETIC
  - AUTOMATIC
  - SOMATIC

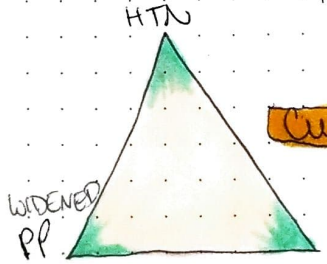


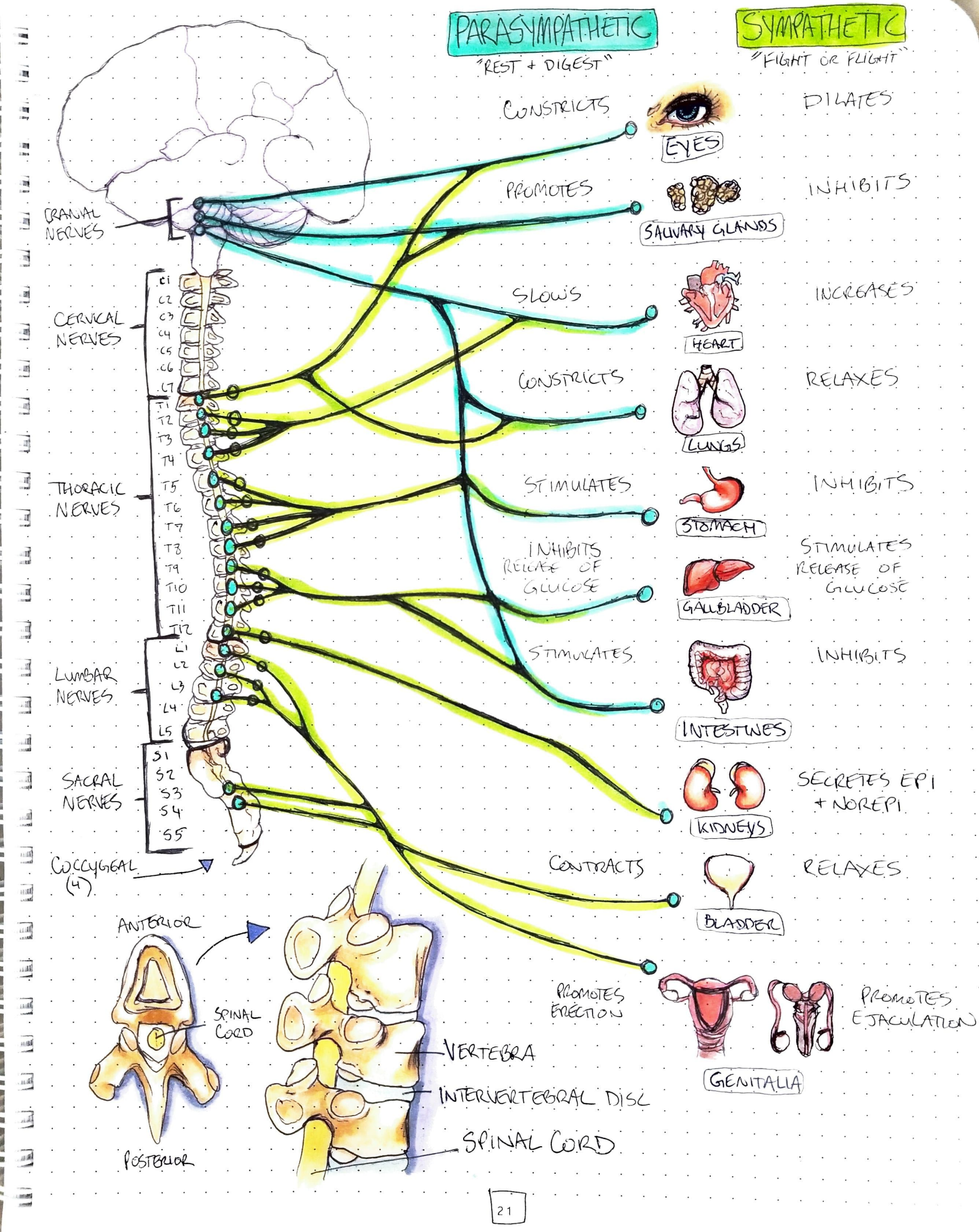
MONRO-KELLIE DOCTRINE

BRAIN, BLOOD, AND CSF VOLUME REMAINS CONSTANT. FOR ONE TO INCREASE, THE OTHERS HAVE TO DECREASE.

BASIC VITAL FUNCTIONS
- MIDBRAIN
- PONS
- MEDULLA

CUSHING'S TRIAD




PARASYMPATHETIC
"REST + DIGEST"
SYMPATHETIC
"FIGHT OR FLIGHT"
CRANIAL NERVES
CERVICAL NERVES
C1
C2
C3
C4
C5
C6
C7
THORACIC NERVES
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
LUMBAR NERVES
L1
L2
L3
L4
L5
SACRAL NERVES
S1
S2
S3
S4
S5
COCCYGEAL (4)
CONSTRICTS
DILATES
EYES
PROMOTES
INHIBITS
SALIVARY GLANDS
SLOWS
INCREASES
HEART
CONSTRICTS
RELAXES
LUNGS
STIMULATES
INHIBITS
STOMACH
INHIBITS RELEASE OF GLUCOSE
STIMULATES RELEASE OF GLUCOSE
GALLBLADDER
STIMULATES
INHIBITS
INTESTINES
SECRETES EPI + NOREPI
KIDNEYS
CONTRACTS
RELAXES
BLADDER
PROMOTES ERECTION
PROMOTES EJACULATION
GENITALIA
ANTERIOR
SPINAL CORD
POSTERIOR
VERTEBRA
INTERVERTEBRAL DISC
SPINAL CORD

Heart

*RE-POLARIZATION IS WHERE THERE IS NO MOVEMENT OF HEART, BUT Na + K CHANGE PLACES

MAX HR INTENSITY

220 - AGE

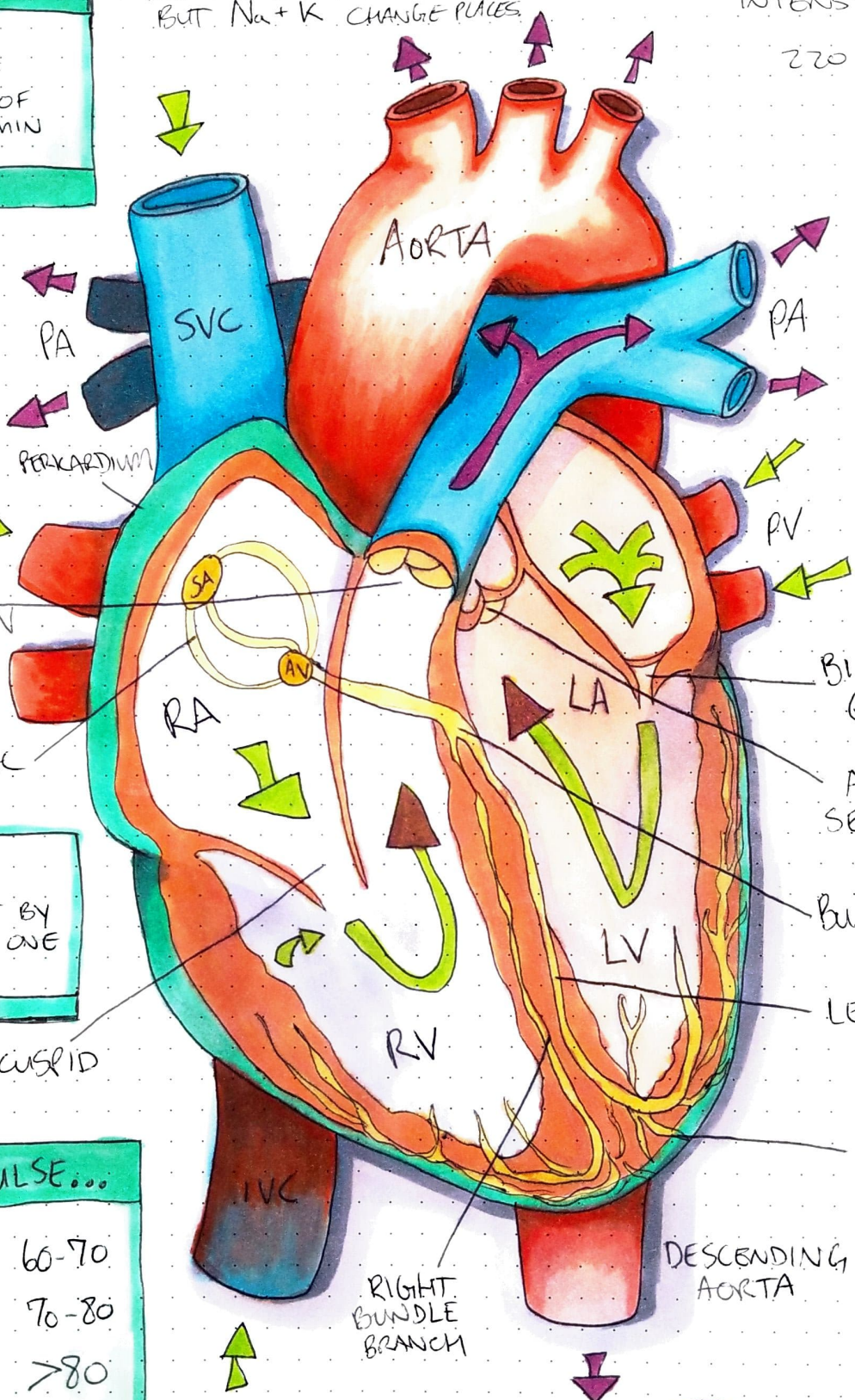
CARDIAC OUTPUT IS THE AMOUNT OF BLOOD PUMPED OUT OF LEFT VENTRICLE IN 1 MIN

$CO = HR \times SV$

ARTERIES GO AWAY

OXYGENATED

DE-OXYGENATED



EPI
MYO
ENDO

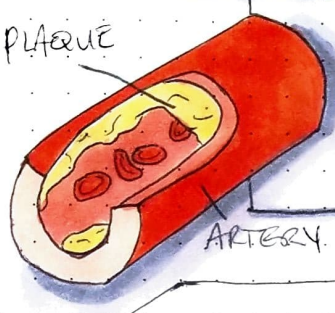
STROKE VOLUME IS THE VOLUME OF BLOOD PUMPED OUT BY LEFT VENTRICLE IN ONE CONTRACTION

IF THERE IS A PULSE...

CAROTID	SBP	60-70
FEMORAL	SBP	70-80
RADIAL	SBP	>80

*COULD OVERESTIMATE, SO BE CAUTIOUS & DON'T RELY ONLY ON PULSE!

ARTHEROSCLEROSIS



CALCIUM + CHOLESTEROL BUILD UP AND FORM PLAQUE INSIDE VESSELS, OBSTRUCTING FLOW AND INTERFERING WITH DILATION + CONTRACTILITY.

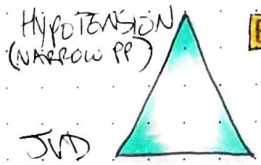
AORTIC ANEURYSM

ABNORMAL BULGE THAT OCCURS IN WALL OF THE AORTA. CAN OCCUR ANYWHERE ALONG AORTA + CAN BE TUBE-SHAPED (FUSIFORM) OR ROUND (SACCULAR).

PULSATING NEAR NAVEL; PAIN IN BACK, FLANK, OR SIDE.

CARDIAC TAMPONADE

BLOOD OR FLUID FILLS SPACE BETWEEN SAC THAT ENCASES HEART + HEART MUSCLE.



PERICARDITIS

SWELLING + IRRITATION OF THE PERICARDIUM.

COULD HAPPEN DUE TO INFECTION OR HEART ATTACK.

SHARP STABBING PAIN LOCATED IN THE CHEST. CAN TRAVEL TO LEFT SHOULDER OR NECK.

CAN BEGIN SUDDENLY, BUT USUALLY DOESN'T LAST LONG.

MYOCARDITIS

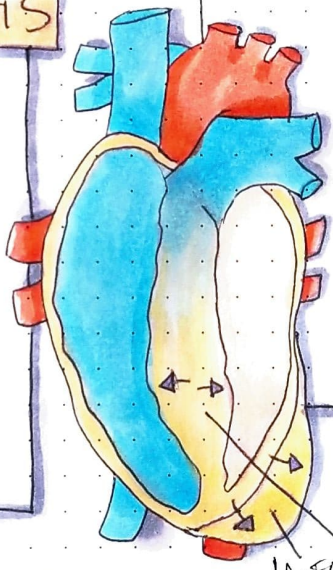
INFLAMMATION OF MYOCARDIUM.

USUALLY CAUSED BY VIRAL INFECTION.

SEVERE CASES CAN WEAKEN HEART WHICH COULD LEAD TO HEART FAILURE, DYSRHYTHMIA, OR DEATH.

CHEST PAIN, SOB, ABNORMAL HEART BEAT.

EFFECTS THE HEART'S ELECTRICAL SYSTEM.



ACS = REDUCED BLOOD FLOW

ANGINA PECTORIS

"ISCHEMIC CHEST PAIN"

SYMPTOM OF CORONARY ARTERY DISEASE.

SQUEEZING, PRESSURE, HEAVINESS, OR TIGHTNESS IN CHEST.

CAN BE SUDDEN OR RECURRING.

ACUTE MYOCARDIAL INFARCTION

"HEART ATTACK"

BLOOD FLOW TO HEART IS ABRUPTLY CUT OFF, CAUSING TISSUE DAMAGE.

USUALLY RESULT OF ONE OR MORE OF CORONARY ARTERIES BLOCKED.

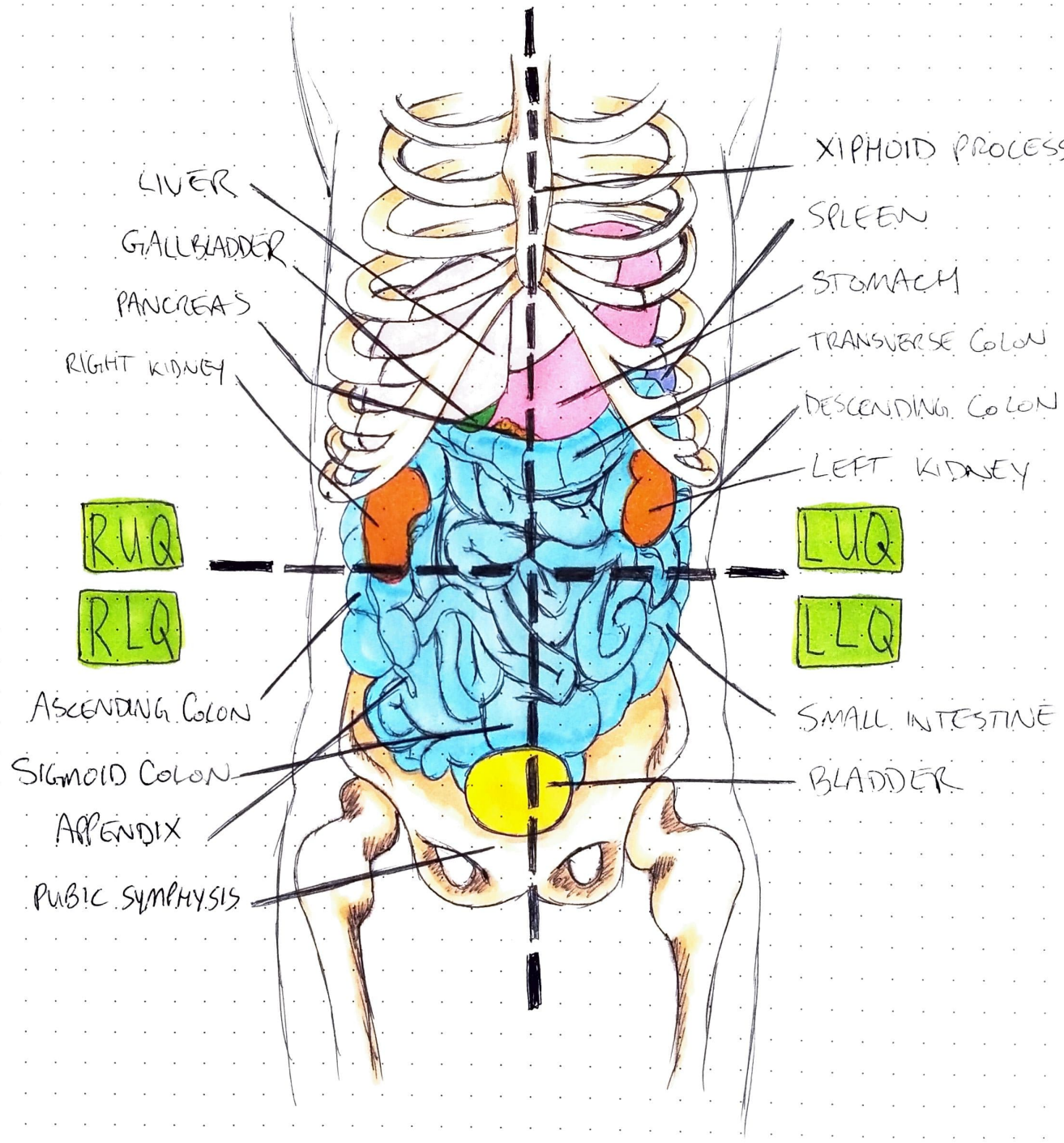
PAIN IN CHEST, NECK, BACK, OR ARMS.

CONGESTIVE HEART FAILURE

HEART MUSCLE DOESN'T PUMP AS WELL AS IT SHOULD.

CHEST PAIN, COUGH, TACHYPNEA, SWELLING.

QUADRANTS



AND THE ORGANS

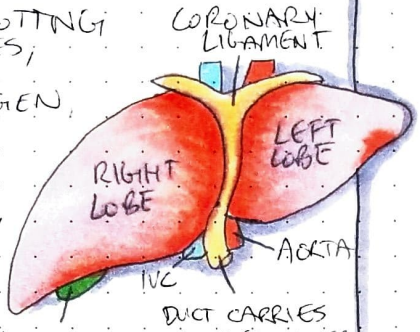
LIVER

LARGEST INTERNAL ORGAN.

MAKES PROTEINS + CLOTTING FACTORS, TRIGLYCERIDES, CHOLESTEROL, GLYCOGEN, AND BILE.

METABOLIZES TOXINS, DRUGS, MEDICATIONS, AND CHEMICALS.

SOLID



KIDNEYS

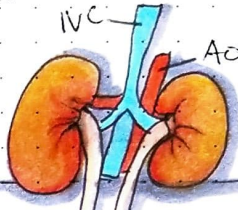
LOCATED ON EITHER SIDE OF SPINE.

FILTERS BLOOD, REMOVES WASTE, CONTROLS FLUID BALANCE, KEEPS ELECTROLYTES LEVEL.

WASTE TURNS TO URINE.

HAS TINY FILTERS CALLED NEPHRONS

SOLID



SPLEEN

LARGEST ORGAN IN LYMPHATIC SYSTEM.

KEEPS BODY FLUIDS BALANCED.

FILTERS BLOOD — RECYCLES RBC'S, STORES PLATELETS + WBC'S

SOLID

BLADDER

COLLECTS AND STORES URINE FROM KIDNEYS.

SITS ON PELVIC FLOOR, BEHIND PUBIC BONE.

HOLLOW

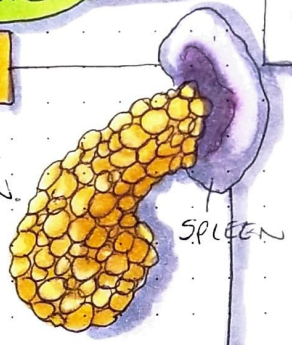
PANCREAS

SOLID

CONTROLS DIGESTION + BLOOD SUGAR REGULATION.

SECRETES INSULIN.

EXCRETES JUICE INTO DUODENUM TO NEUTRALIZE STOMACH ACID.

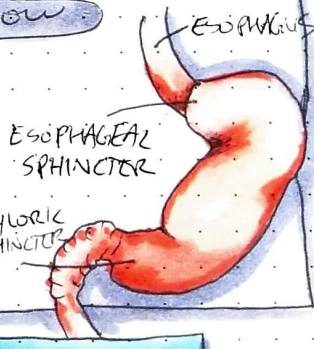


STOMACH

HOLLOW

RECEIVES FOOD FROM ESOPHAGUS.

SECRETES STOMACH ACID + ENZYMES THAT DIGEST FOOD.

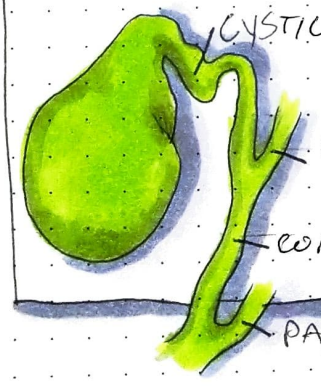


GALLBLADDER

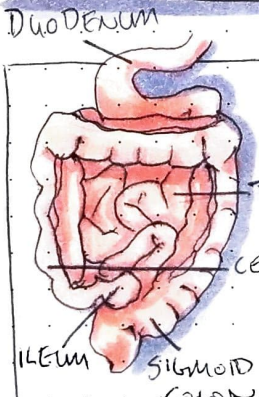
HOLLOW

STORES BILE, FLUIDS, FATS, AND CHOLESTEROL.

HELPS BREAK DOWN FAT FROM FOOD IN THE INTESTINE.



INTESTINES



LONG TUBE THAT RUNS FROM STOMACH TO ANUS

MOST ABSORPTION OF WATER + NUTRIENTS TAKES PLACE.

HOLLOW

INCLUDES:

SMALL INTESTINES, LARGE INTESTINES, AND RECTUM.

SMALL INTESTINES APROX 20 FT LO

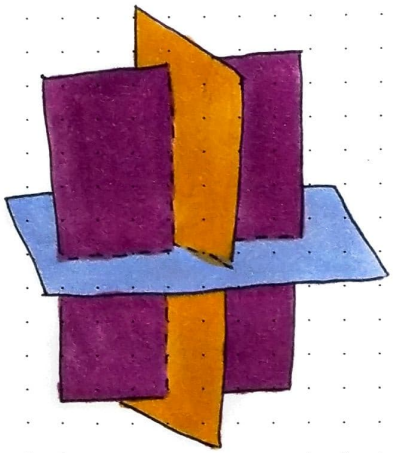
SKELETAL

206 BONES

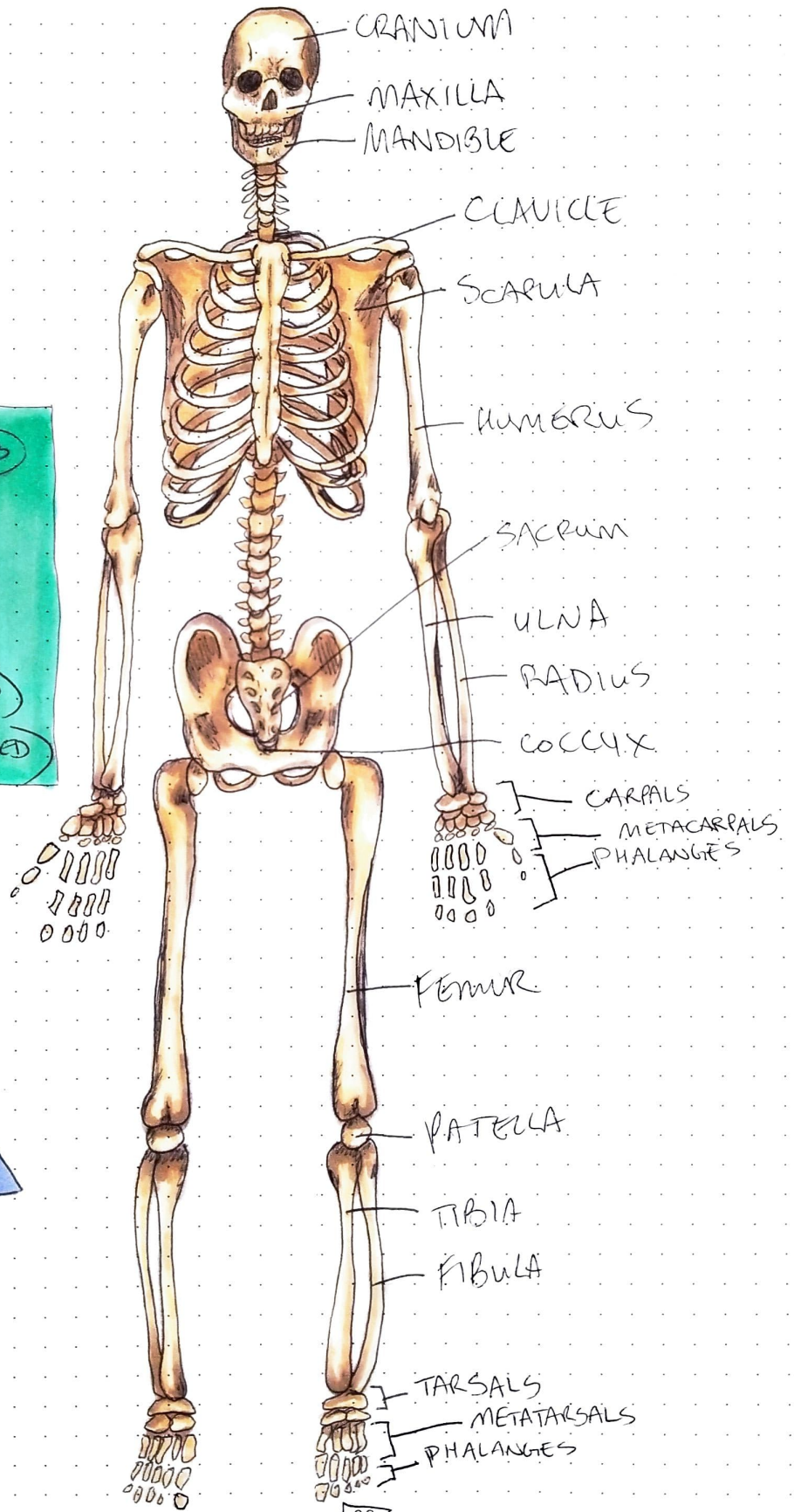
* BORN WITH OVER 300

VERTEBRAE	33
CERVICAL	7
THORACIC	12
LUMBAR	5
SACCRAL	5 (FUSED)
COCCYGEAL	4 (FUSED)

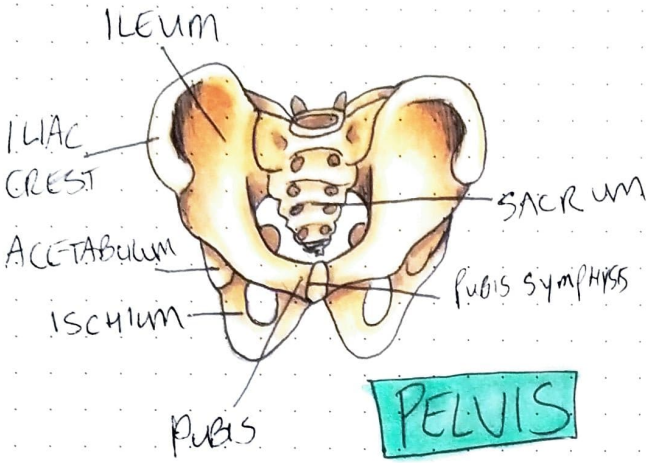
24 RIBS



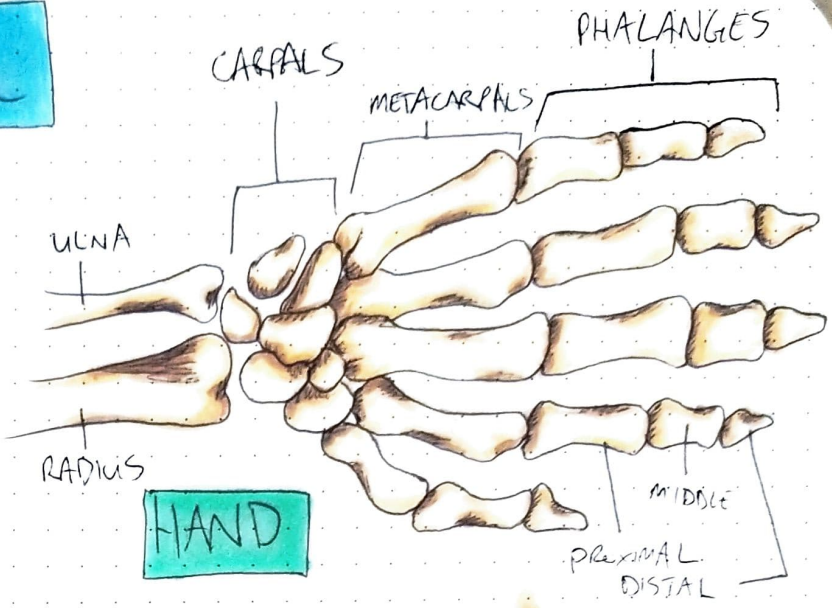
- TRANSVERSE
- CORONAL
- SAGITTAL



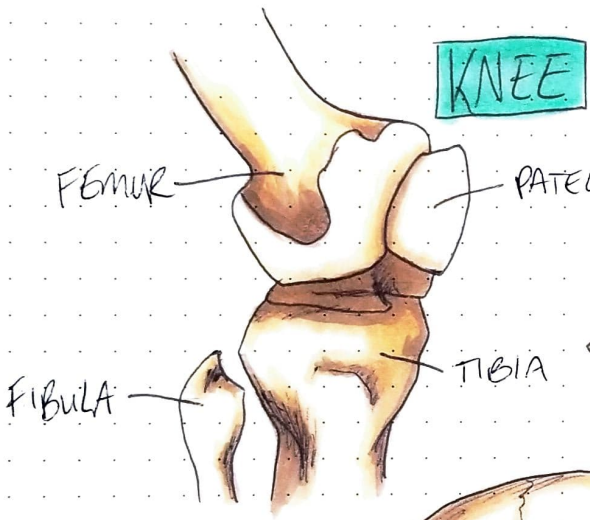
SYSTEM

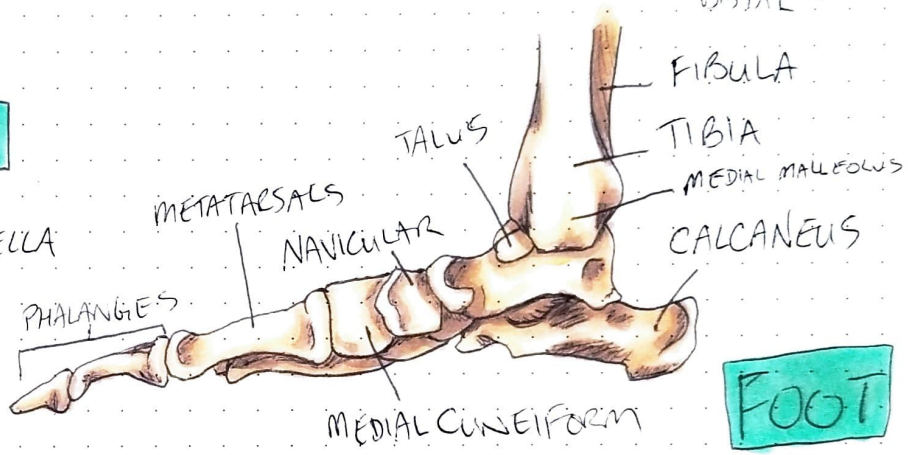


PELVIS

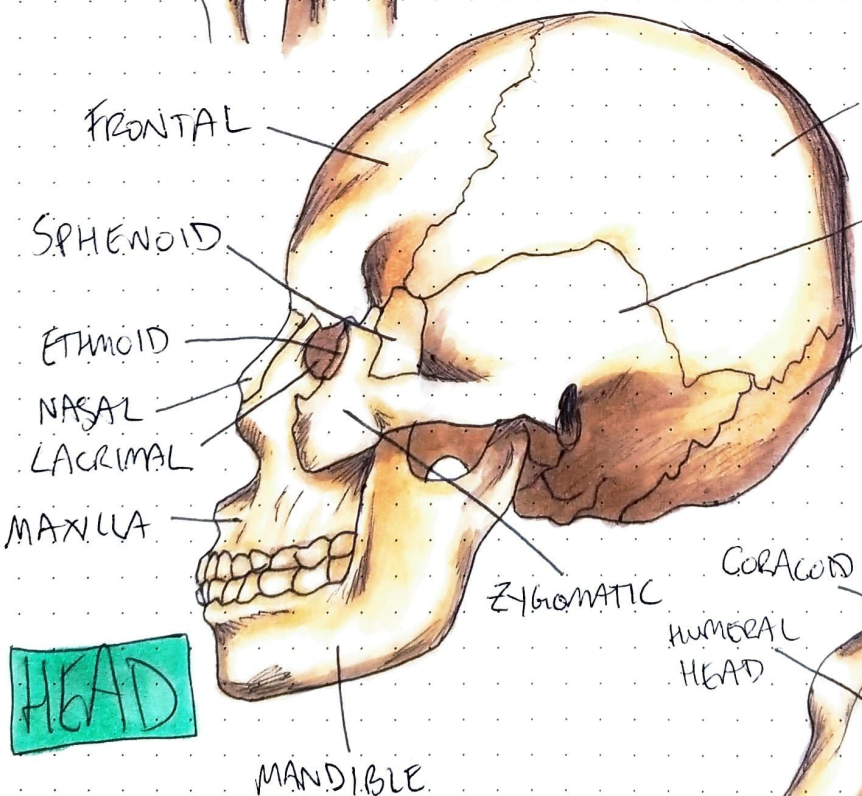


HAND



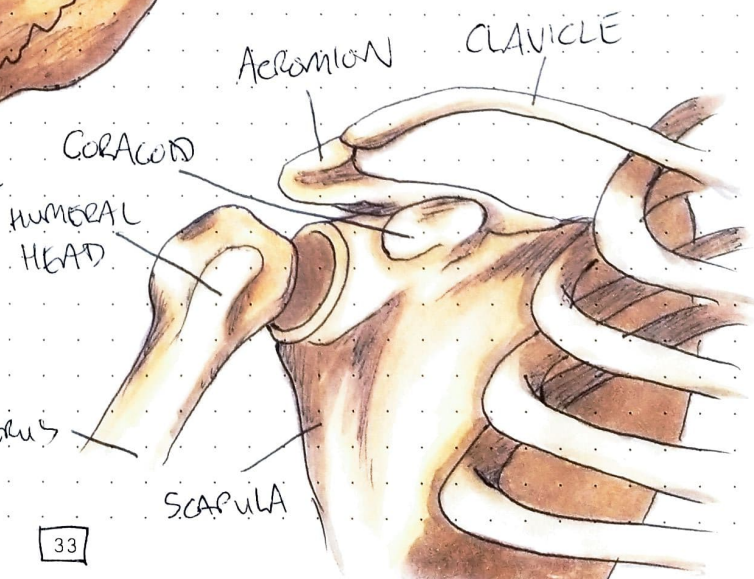


FOOT



HEAD

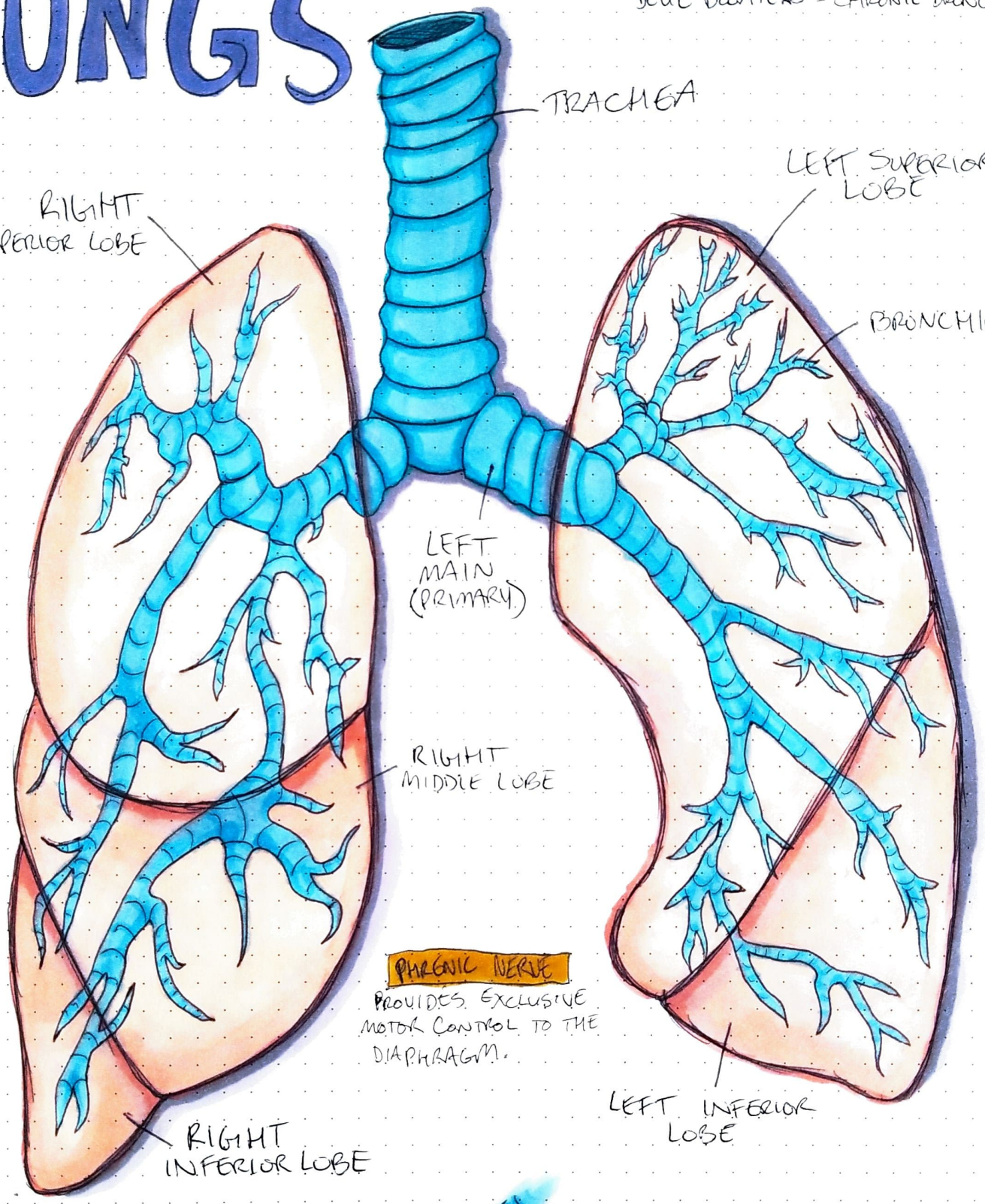
SHOULDER



LUNGS

"PINK PUFFERS" - EMPHYSEMA

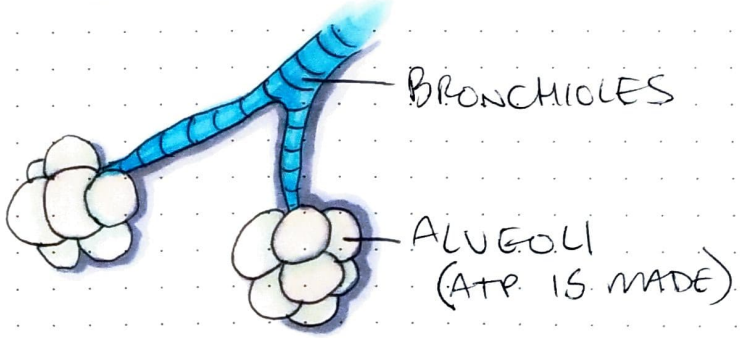
"BLUE BLOATERS" - CHRONIC BRONCHITIS



PHRENIC NERVE

PROVIDES EXCLUSIVE MOTOR CONTROL TO THE DIAPHRAGM.

RESPIRATORY RATE	
NEONATE	40-60/MIN
PEDS	20-35/MIN
ADULT	12-20/MIN



PNEUMOTHORAX

SUDDEN RUPTURE OF VISCERAL LINING + PARTIAL COLLAPSE OF LUNG. SPONTANEOUS PNEUMO ISN'T CAUSED BY TRAUMA, BUT WEAKENED LUNGS.

S/S CHEST OR SHOULDER PAIN, DECREASED BREATH SOUNDS ON ONE SIDE, SUB-Q EMPHASEMA, HYPOXIA

* CAN LEAD TO TENSION PNEUMO!

BRONCHITIS

INFLAMMATION OF BRONCHIAL TUBES. COUGH BRINGS UP MUCUS. CAN BE ACUTE OR CHRONIC.

S/S COUGH, SPUTUM, FATIGUE, WHEEZING, FEVER, DYSPNEA

PLEURAL EFFUSION

EXCESSIVE COLLECTION OF FLUID IN PLEURAL SPACE

S/S CHEST PAIN, DRY + NON-PRODUCTIVE COUGH, DYSPNEA, ORTHOPNEA

PNEUMONIA

BACTERIAL OR VIRAL INFECTION TO LOWER RESPIRATORY TRACT, CAUSES INFLAMMATION + FLUID TO FILL ALVEOLI, DECREASES GAS EXCHANGE.

S/S HYPOXIA, FEVER, COUGH, CHEST PAIN

LUNG SOUNDS

CLEAR - NORMAL

ABSENT - RESPIRATORY ARREST
↳ BVM!

DIMINISHED - AIR OR FLUID IN OR AROUND LUNGS
* TYPICALLY QUIETER

WHEEZING - NARROWED UPPER AIRWAY
* USUALLY ON EXHALATION

RHONCHI - LOW PITCH, ALMOST SNORING SOUND. SECRETIONS OR OBSTRUCTION IN UPPER AIRWAY

CRACKLES "RALES" - EXPLOSIVE OPENING OF SMALL AIRWAYS. MORE COMMON ON INSPIRATION. COULD BE INFLAMMATION ON INFECTION OF BRONCHI, BRONCHIOLES OR ALVEOLI

STRIDOR - HIGH PITCHED, NARROW AIRWAYS INDICATING OBSTRUCTION

PLEURAL RUB - PLEURAL RUBS AGAINST RIBS

PULMONARY EMBOLISM

OBSTRUCTION IN PULMONARY ARTERIES. CAN CAUSE CLOTS, AIR BUBBLES, FAT, ETC. HIGH RISK IF LACK OF MOBILITY, HEART DZ, RECENT SURGERY, DVT, CLOTTING CONDITIONS.

S/S CHEST PAIN, COUGH, JVD, HYPOXIA

PULMONARY EDEMA

FLUID BETWEEN ALVEOLI + CAPILLARIES. DECREASES GAS EXCHANGE.

S/S CRACKLES, HYPOXIA, FROTHY SPUTUM, ORTHOPNEA

* HIGH RISK FOR PNEUMOTHORAX!

COPD

PROLONGED AO, INCLUDES EMPHYSEMA + CHRONIC BRONCHITIS.

CF

GENETIC DISORDER IN WHICH LUNGS + DIGESTIVE SYSTEM GET CLOGGED WITH MUCUS.

ASTHMA

BRONCHOSPASMS THAT NARROW THE BRONCHIOLES, EDEMA OF INNER LINING, AND MUCUS OBSTRUCTION.

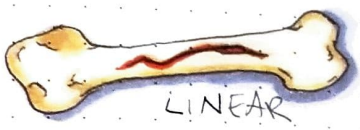
S/S NON-PRODUCTIVE COUGH, WHEEZING

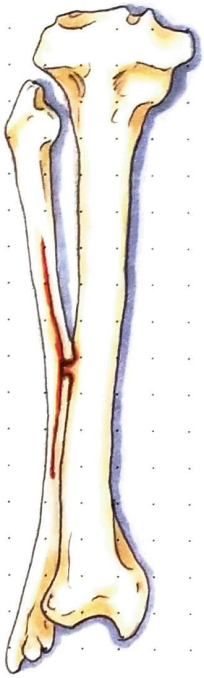
EMPHYSEMA

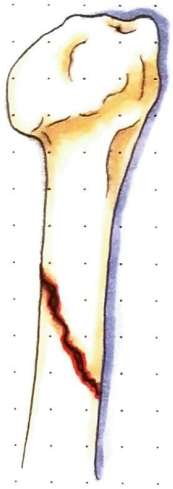
DECREASED ALVEOLI SURFACE AREA, LEADS TO INEFFICIENT GAS EXCHANGE INCREASED DISTAL AIRWAY RESISTANCE, MAKING IT DIFFICULT TO BREATHE

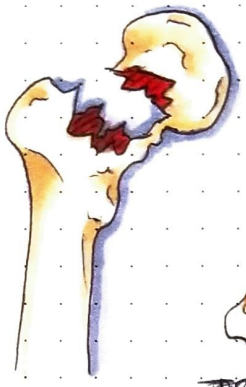
S/S BARREL CHEST, PINK, NON-PRODUCTIVE COUGH

FRACTURES



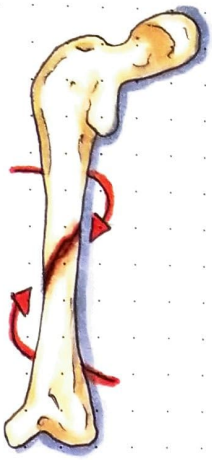

GREENSTICK


OBLIQUE
(NON-DISPLACED)


PATHOLOGIC


TRANSVERSE


INCOMPLETE


SPIRAL

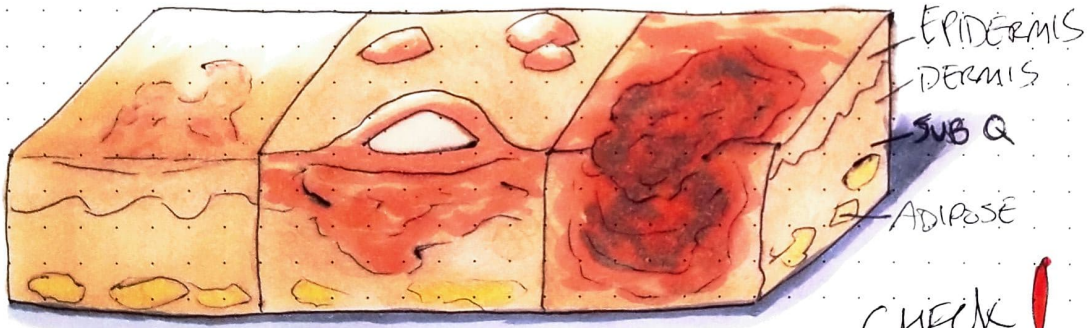

COMMINUTED
* MORE THAN 2 PIECES

EPIPHYSEAL - FRACTURE THAT OCCURS IN A GROWTH SECTION OF A CHILD'S BONE + MAY LEAD TO GROWTH ABNORMALITIES.

BURNS

* CAN CAUSE HYPOTHERMIA + ACIDOSIS

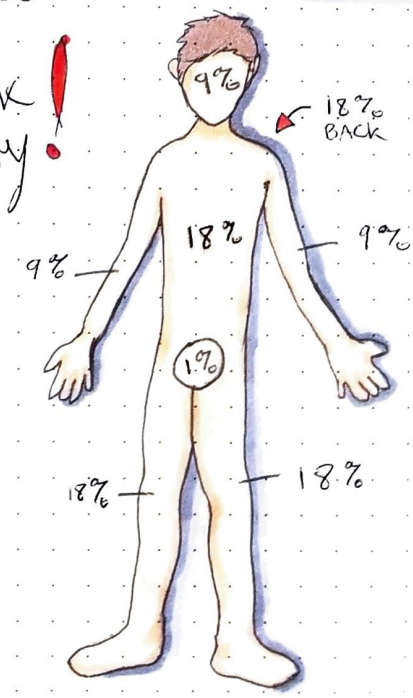
DEPTH, EXTENT, LOCATION, AGE, MED HX



SUPERFICIAL (1ST) | PARTIAL THICKNESS (2ND) | FULL THICKNESS (3RD)

RULE OF 9'S

CHECK AIRWAY!

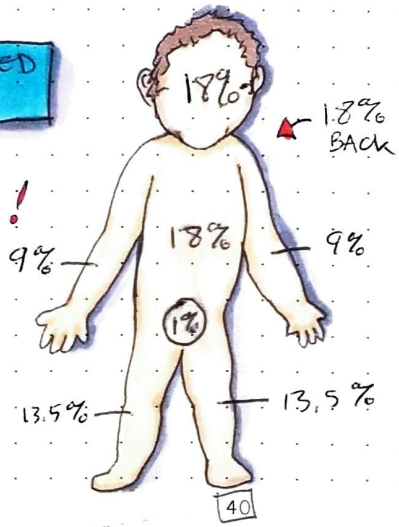


1ST DEGREE IS NOT INCLUDED IN BSA%

SEVERE = 20%+
* ANY FULL THICKNESS!

MODERATE = 10-20%

MINOR = <10%



SHOCK!

TYPE	RR	HR	BP	SKIN	TEMP	URINE	S/S OTHER
HYPOVOLEMIC	↑	↑	↓	PCC	NO CHANGE	↓	ANXIETY, THIRST, SYNCOPE, WEAKNESS, CONFUSION, WEAK PULSE
DISTRIBUTIVE							
▪ SEPTIC	↑	↑	↓	FLUSHED ▽PC	≥ 100.4°F ≤ 96.8°F	↑	BOUNDING PULSE, LOC
▪ NEUROGENIC	↑	↓	↓	WPD	↑ OR ↓	NO CONTROL	DISTAL PARALYSIS, PRIAPRISM
▪ ANAPHYLACTIC	↑ ↓	↑	↓	FLUSHED SWOLLEN ITCHY	NO CHANGE	↓	URTICARIA, LOC, PRURITUS, BRONCHOCONSTRICTION
CARDIOGENIC	↑	↑	↓	PCC	NO CHANGE	↓	CHEST PAIN, SYNCOPE, JVD, PULMONARY EDEMA, ORTHOPNEA
OBSTRUCTIVE	↑	↑	↓	LIMBS PC	↓	↓	MUFFLED HR TONES, JVD, LOC, POOR PERFUSION

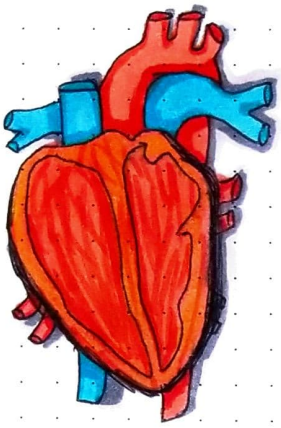
KEEP THEM WARM, RAISE LEGS, APPLY O_2, BUT TREAT CAUSE!

COMPENSATED - EARLY STAGES, BODY TRIES TO MAINTAIN HOMEOSTASIS
↑HR + NORMAL BP

DECOMPENSATED - LATE STAGES INADEQUATE END-ORGAN PERFUSION
↑HR + ↓BP

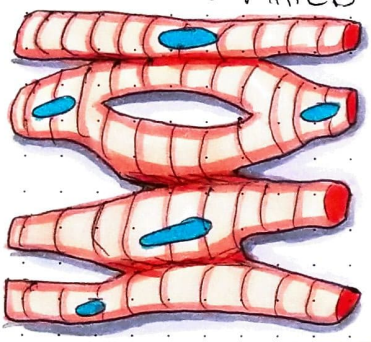
IRREVERSIBLE - FINAL STAGE, DEATH OF CELLS + TISSUE
↓HR + ↓BP

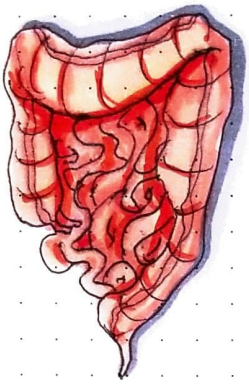
MUSCLE TYPES



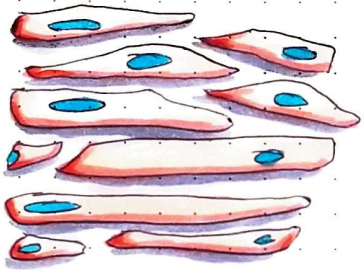
CARDIAC MUSCLE

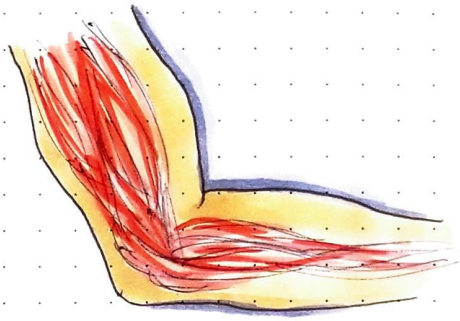
*STRIATED





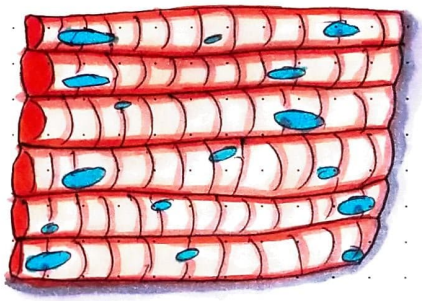
SMOOTH MUSCLE





SKELETAL MUSCLE

*STRIATED



$CO_2 + H_2O \rightleftharpoons H_2CO_3 \rightleftharpoons H^+ + HCO_3$

"BICARB BUFFER SYSTEM"

METABOLIC

PH < 7.35

ACIDOSIS

↓ HCO_3

↓ PH

VASODILATION

CAUSE: HYPOVENTILATION

COMPENSATION: TACHYPNEA

RESPIRATORY

↓ PH ↑

↑ CO_2 ↓

IF CO_2 + PH ARE GOING IN OPPOSITE DIRECTIONS, IT'S RESPIRATORY. IF NOT, IT'S METABOLIC.

PH > 7.45

ALKALOSIS

↑ HCO_3

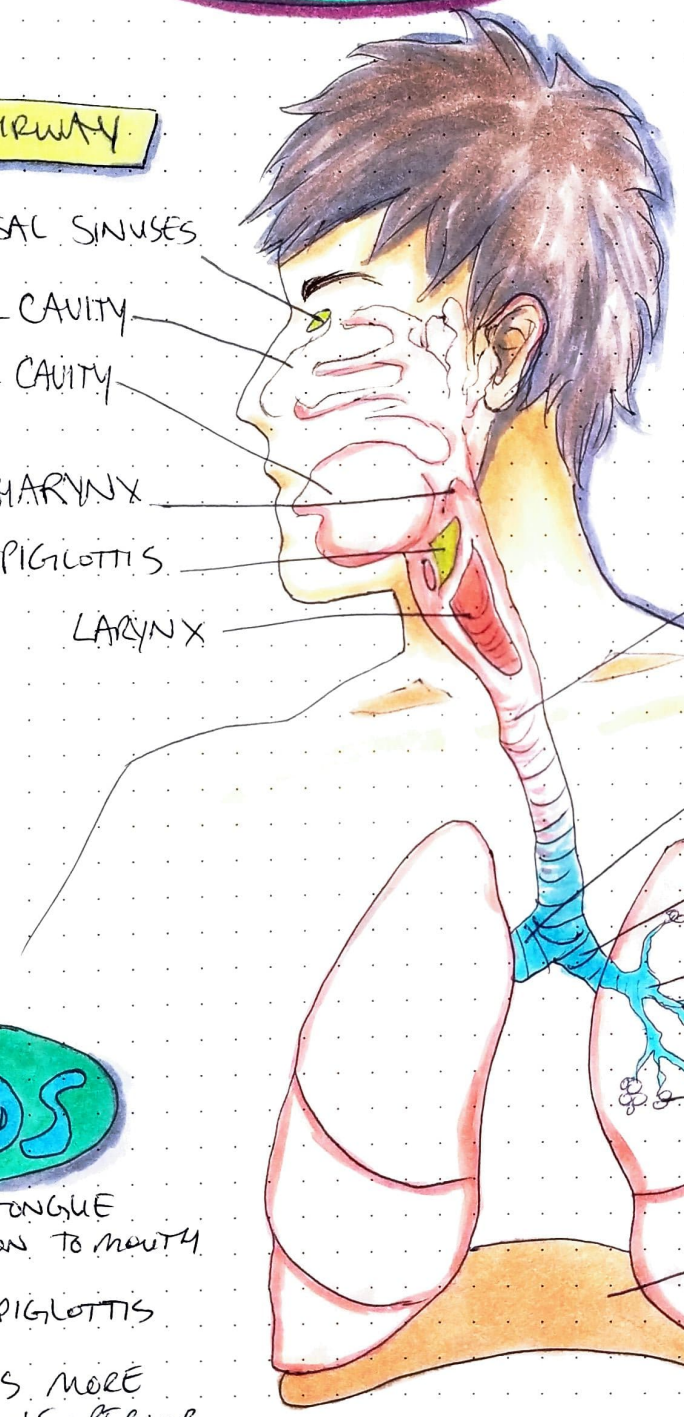
↑ PH

VASOCONSTRICTION

CAUSE: HYPERVENTILATION

COMPENSATION: BRADYPNEA

ADULT



UPPER AIRWAY

PARANASAL SINUSES

NASAL CAVITY

ORAL CAVITY

PHARYNX

EPIGLOTTIS

LARYNX

LOWER AIRWAY

TRACHEA

RIGHT BRONCHUS

LEFT BRONCHUS

BRONCHI

BRONCHIOLES

ALVEOLI

DIAPHRAGM

PEDS

- LARGER TONGUE IN PROPORTION TO MOUTH
- LARGER EPIGLOTTIS
- LARYNX IS MORE ANTERIOR + SUPERIOR
- TRACHEA IS NARROW + LESS RIGID
- CRICOID CARTILAGE IS SMALLEST AND FUNNEL-SHAPED