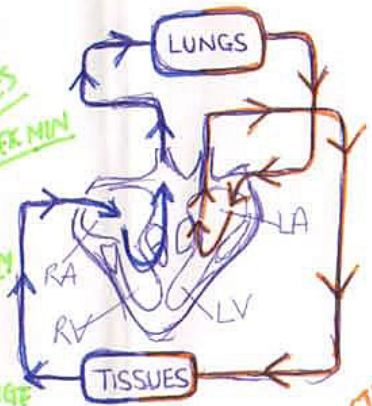


EXERCISE INTENSITY			
	RESTING	SUB-MAX (MODERATE)	MAXIMAL
SV	60/80 ml	80/100 ml - untrained 110/200 ml - trained	100/120 ml - untrained 110/200 ml - trained
HR	70/72 bpm	Up to 100/130 bpm	220 - your age
Q	5 l/min	Up to 10 l/min	20-40 l/min



HR
 TIMES NO. OF HEART VENTRILES BEAT PER MIN
 AVERAGE RESTING 70-72 BPM
 MAX = 220 - AGE
 BRADYCARDIA REST HR BELOW 60 BPM
 HIGH AEROBIC FITNESS

The Cardiovascular and Respiratory Systems. Part 1. Chps. AS.

RELATIONSHIPS
 BLOOD VOL. DIFFERENCE
 EDV - ESV = SV
 Q = SV x HR
 END DIASTOLIC VOL. (EDV)
 END DIASTOLIC VOL. (ESV)
 VOLUME OF BLOOD IN VENTRILES
 VOLUME OF BLOOD IN VENTRICLES
 VOLUME OF BLOOD IN VENTRICLES
 VOLUME OF BLOOD IN VENTRICLES

CONDUCTION SYSTEM
 CARDIAC CYCLE
 HEART PUMP
 MYOIC SEPERATE
 DIFFERENT DESTINATIONS
 RIGHT DEOXYGENATED BLOOD TO LUNGS
 LEFT OXYGENATED BLOOD TO BODY

CARDIAC CYCLE
 1) CARDIAC IMPULSE FROM SAME IN RA.
 2) IMPULSES THROUGH R & L ATRIUM WALLS TO AV NODE
 3) 4) AV NODE CONDUCTS IMPULSE THROUGH BUNDLE OF HIS...
 5) ... DOWN L & R BUNDLE BRANCHES TO APEX & V.
 6) IMPULSES UP & AROUND BUNDLE BRANCHES VIA PURKINJE FIBRES.
 REPRESENTS MECHANICAL EVENTS OF ONE HEARTBEAT
 1 COMPLETE CYCLE LASTS 0.8 SECONDS
 2 PHASES: CONTRACTION & RELAXATION OF VENTRICLE



KEY POINTS
 RESTING HR USUALLY 72.
 ANTI-ATHLETE IN YOUNG CAN BE 60
 BEFORE EXERCISE HR ↑
 PROPRIORECEPTORS START
 CHEMORECEPTORS
 BLOOD TEMP. INCREASE
 VENOUS RETURN
 MUSCLE DEMAND = O2 SUPPLY
 HR SLOW BARORECEPTORS
 DEMAND MEET O2
 LACTIC ACID INCREASE ANAEROBIC
 PH DECREASE
 PAIN RECEPTORS STIMULATED
 MUSCLE FATIGUE
 RELEASE STIMULUS FALL
 TO RESTING SLOWER FALL

HR REGULATION IN PHYSICAL ACTIVITY
 LINK TO HEALTHY LIFESTYLE
 HYPERTROPHY ↑ SIZE STRENGTH FORCE
 INCREASE SV ↓ REST HR
 SAME Q ↓ O2 DURING EXERCISE
 POTENTIAL INTENSITY/QUANTUM.
 STAIN
 LESS STAIN
 REPAIR DE O2 JUST AFTER
 LACTIC ACID KICKS
 TO RESTING SLOWER FALL

CARDIAC CONTROL CENTRE (CCC)
 MEDULLA OBLONGATA
 CONTROLLED BY AUTONOMIC NERVOUS SYSTEM (ANS)
 CONSISTS OF NERVES FROM EITHER SYMPATHETIC OR PARASYMPATHETIC NERVOUS SYSTEM
 REGULATES HR. VIA SA NODE
 RESPIRATORY SYSTEM TAKES IN O2 & REMOVS CO2
 HEART RELIEVES BLOOD FROM VENTRICLES & SENDS TO PUMP → BLOOD AROUND VASCULAR SYSTEM TO LUNGS & BODY TISSUE/MUSCLE.
 VASCULAR SYSTEM BLOOD & BLOOD VESSELS - TRANSPORT & DIRECT O2/CO2 TO A ROOM LUNGS & HEART AND TISSUES & MUSCLE

