

PRELOAD

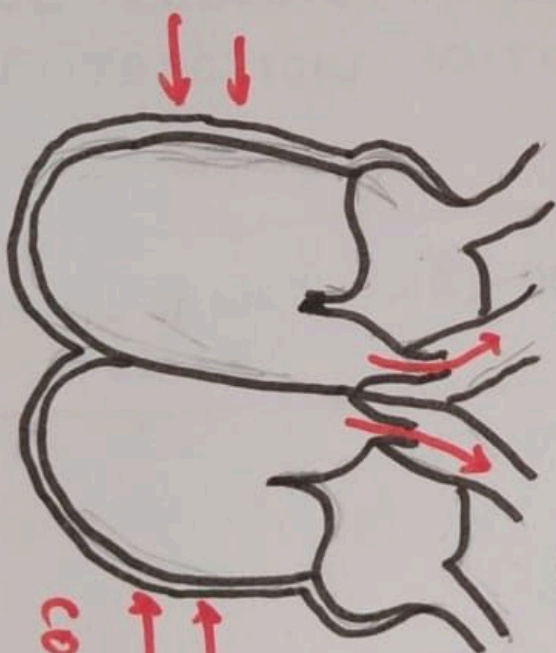
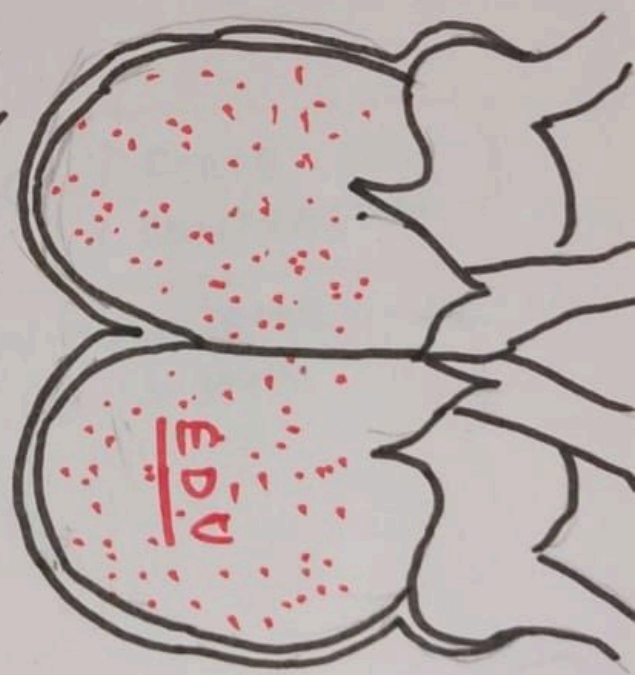
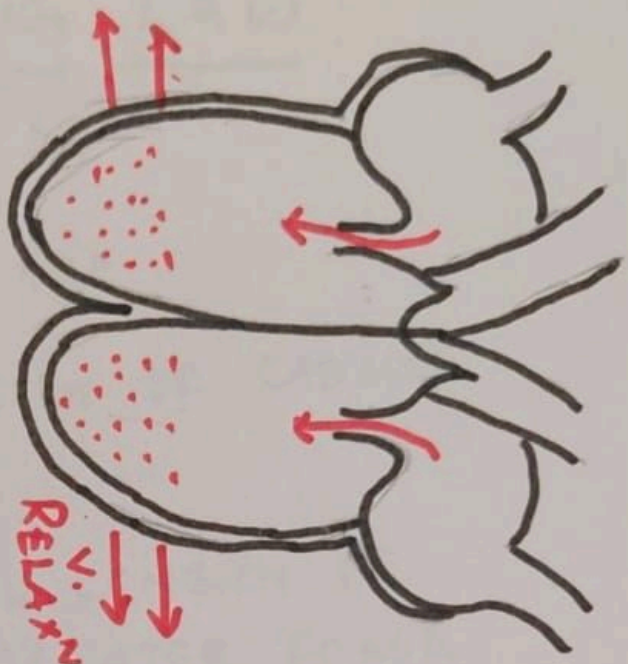
DEGREE OF TENSION ON THE MUSCLE JUST BEFORE CONTRACTION STARTS

OR

VOLUME OF THE BLOOD FILLED IN THE VENTRICLES JUST BEFORE CONTRACTION STARTS.

OR

PRELOAD IS END DIASTOLIC VOLUME.



CONTRACT
V.
↑

RELAX
V.
↓

AFTERLOAD

LOAD AGAINST WHICH MUSCLE EXERTS
ITS CONTRACTILE FORCE

OR

AORTIC PRESSURE AGAINST WHICH
VENTRICLES MUST CONTRACT

OR

RESISTANCE AGAINST WHICH VENTRICLES
MUST CONTRACT.

FRANK-STARLING LAW

GREATER THE EDV



GREATER IS THE EDP

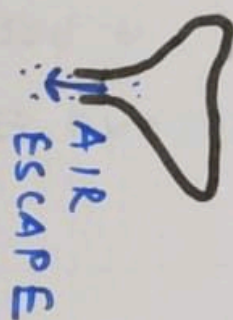


GREATER IS STRETCH OF CARDIAC MUSCLE

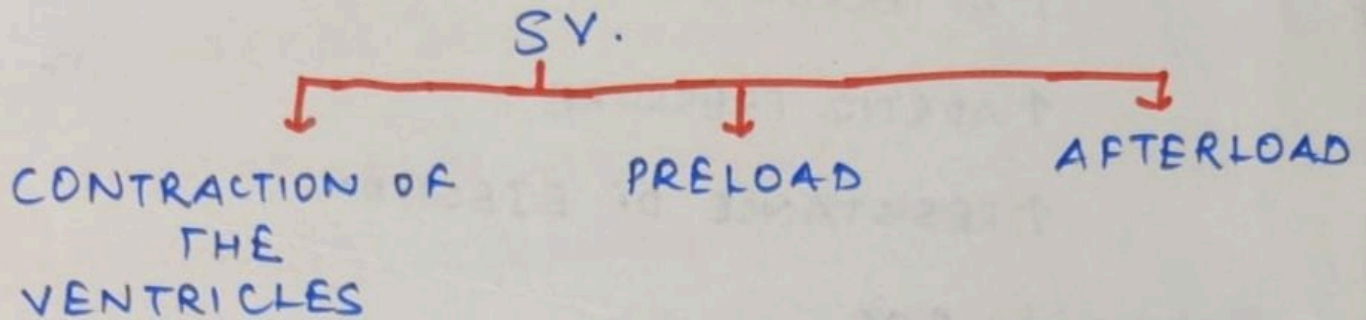
THIS INCREASED INITIAL LENGTH OF MUSCLE RESULTS IN GREATER FORCE OF CONTRACTION WITHIN PHYSIOLOGICAL LIMITS.

$\uparrow$ INITIAL LENGTH OF MUSCLE $\propto$ $\uparrow$ FORCE OF CONTRACTION

WITHIN PHYSIOLOGICAL LIMITS

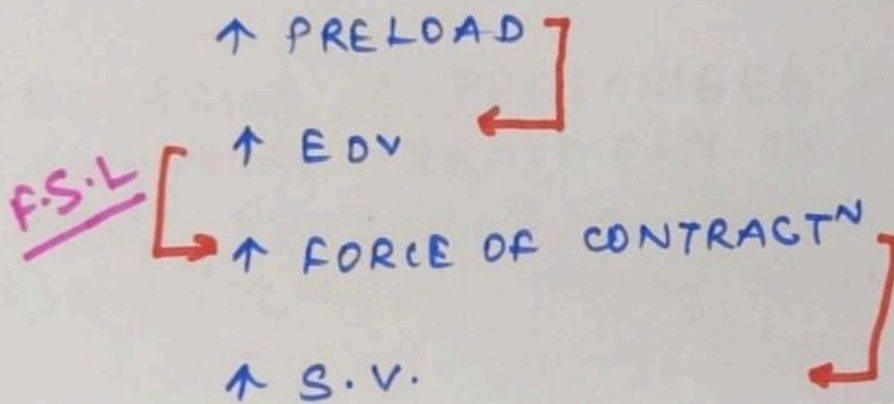


FACTORS AFFECTING STROKE VOLUME



1. > $S.V. \propto \text{CONTRACTION OF THE VENTRICLES}$

2. > $\text{PRELOAD} \equiv \text{EDV}$



$\text{PRELOAD} \propto S.V.$

$\text{PRELOAD} \propto \text{CONTRAC}^N \propto S.V. \propto C.O.$

F.S.L.

3. > AFTERLOAD $\equiv$ AORTIC PRESSURE
[RESIST]

↑ AFTERLOAD

↑ AORTIC PRESSURE

↑ RESISTANCE OF EJECTION

↓ S.V

$$\text{AFTERLOAD} \propto \frac{1}{\text{S.V.}}$$