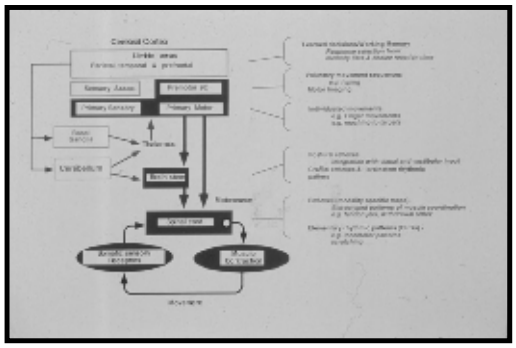
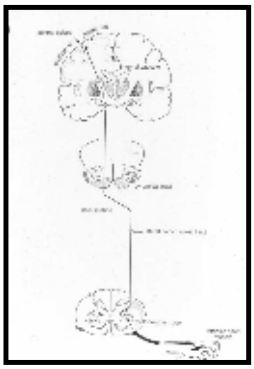
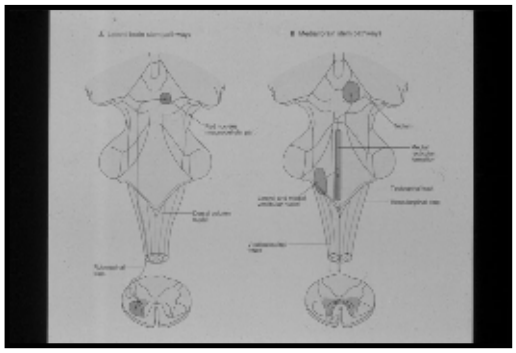
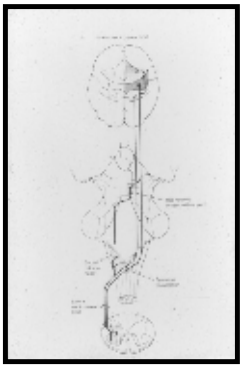
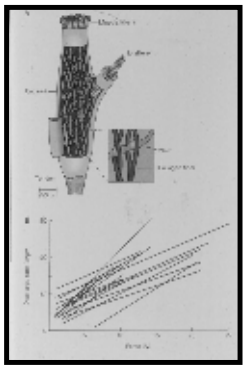
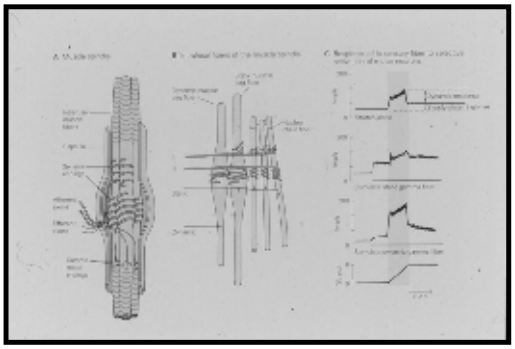

Cerebral Cortex
Premotor area
Primary Sensory
Primary Motor
Thalamus
Cerebellum
Brain stem
Thalamus
Spinal cord
Muscle receptors and tendons
Muscle
Movement

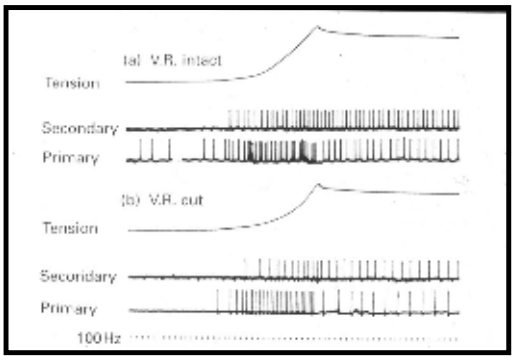


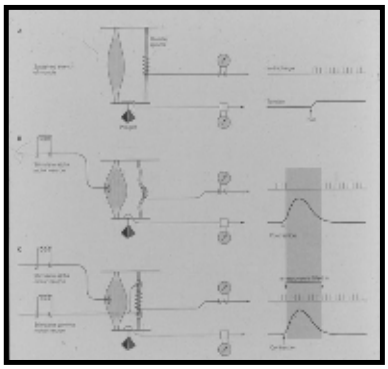


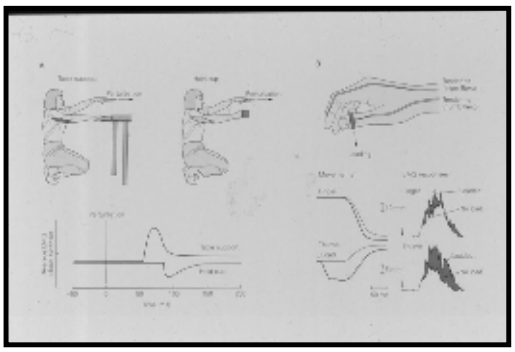


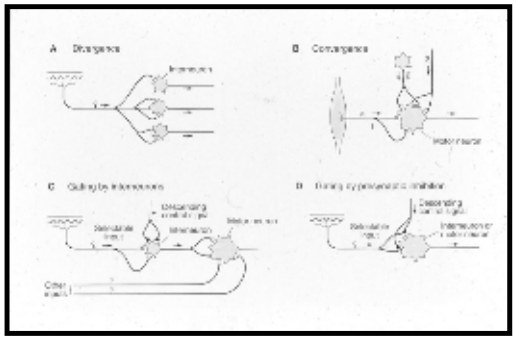


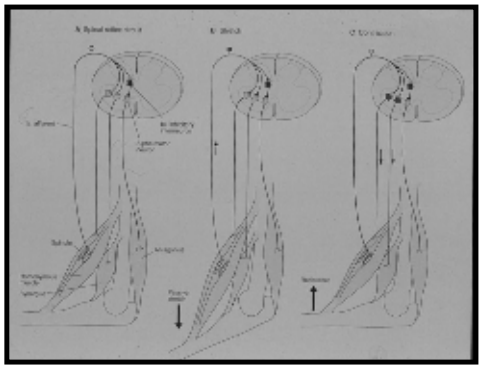


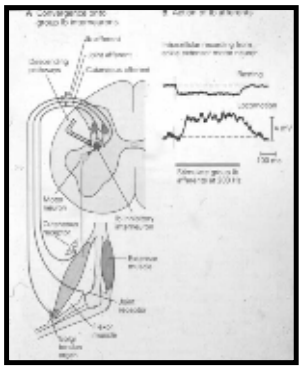

(a) V.R. intact
Tension
Secondary
Primary
(b) V.R. cut
Tension
Secondary
Primary
100 Hz

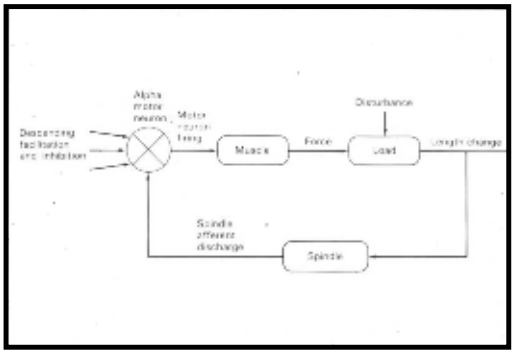


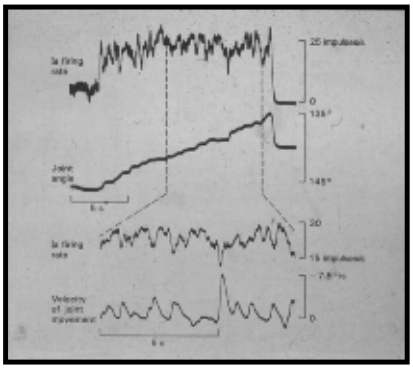


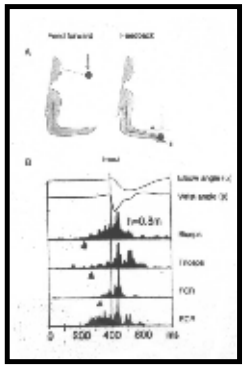

A Divergence
B Convergence
Motor neuron
C Gating by interneurons
D Firing asynchronous inhibition
Descending
Other






Alpha motor neuron
Descending facilitation and inhibition
Motor neuron firing
Muscle
Force
Disturbance
Load
Length change
Spindle afferent discharge
Spindle


Ia firing rate
25 impulses
0
Joint angle
135°
145°
Ia firing rate
20
15 impulses
Velocity of joint movement
0


A
B
0
200
400
600
ms