SUMMARY AND CONCLUSION
SUMMARY

In animal model (albino rats), the effect of 90 days under-nutrition (semistarvation) from 23 days of age, the effect of 30 days and 60 days rehabilitation of the undernourished rats by \textit{ad lib} feeding and combined effects of undernutrition plus swimming were investigated on the contractile functions of skeletal muscle (soleus and e.d.l.) and smooth muscle (colon).

In soleus and e.d.l. \textit{in situ} isometric contractions were recorded. Contraction time (CT), half relaxation time ($\frac{1}{2}$ RT), twitch and tetanic forces, maximum relaxation rate (MRR) and endurance time (ET) were studied. In colon, contraction-pressures induced by electrical field stimulation and exogenous acetylcholine were studied \textit{in situ}.

The soleus and e.d.l. of chronically undernourished rats showed prolonged $\frac{1}{2}$ RT, reduced twitch and tetanic forces and similar values of CT, MRR and ET as compared to control (freedfed) rats.

The colon of undernourished rats produced lower contraction-pressures at some frequencies of stimulation and similar contraction-pressure to exogenously applied acetylcholine as compared to control (freedfed) rats.

Rehabilitation of the undernourished rats by \textit{ad lib} feeding for 30 and 60 days has made all the contractile functions
of soleus, e.d.l. and colon similar to those in control (freefed) rats.

The soleus and e.d.l. in the chronically undernourished plus swimming rats showed prolongation of CT and 1/2 RT, similar twitch and tetanic forces and similar MRR and ET as compared to control (freefed) rats.

The colon of undernourished plus swimming rats showed similar contraction-pressures by electrical field stimulation and exogenous acetylcholine as compared to control (freefed) rats.

CONCLUSION

In skeletal muscles, chronic undernutrition reduced the strength of contraction and the speed of relaxation. These functional deficits were rectified by short term rehabilitation. Superimposition of swimming with undernutrition caused further slowing and improvement in the strength of contraction.

In smooth muscle, chronic undernutrition caused reduction in contraction-pressures. This reduction in contraction-pressures was rectified by the rehabilitation. Superimposition of swimming with undernutrition improved the contraction-pressures.