

# CONTROL OF SWELLING IN BOXING INJURIES

By J. L. BLONSTEIN, M.R.C.S., L.R.C.P., D.I.H.  
*Honorary Medical Officer, Amateur Boxing Association*

THE inflammatory process involves an increase in capillary permeability with loss of fluid into the tissues. It is believed that this fluid is immobilized by soft fibrin deposits in the tissues and in the walls and lumen of blood vessels, and that this fibrin must be removed before healing can be completed.

This physiological process may take many days and recovery is often unnecessarily delayed. I therefore decided to investigate the value of bromelains ('ananase'), which is a concentrate of proteolytic enzymes derived from *Ananas comosus* Merr. Bromelains not only acts directly on the fibrin, depolymerizing the fibrin deposited in the tissues and in the capillary walls, it also activates plasminogen to carry out its normal function of destroying fibrin. In addition, it may activate other enzymes (or induce the formation of other lytic substances) to effect digestion of fibrin.

The removal of fibrin formed in the inflamed areas and the increase in capillary permeability restores drainage, thus reducing swelling. The renewed free flow of fluids allows removal of waste products and encourages rapid healing by assisting the access of phagocytes and antibodies to the damaged area.

In 1960, in a trial on amateur boxers with 'buccal varidase', which is a combination of streptodornase and streptokinase, I found that taken prophylactically it reduced haematomas and general bruising by 15 per cent. and that these cleared up much more rapidly in 50 per cent. of cases (Blonstein, 1960).

## SCOPE OF INVESTIGATION

Last season I carried out a clinical trial of bromelains. It was administered at the time of the first examination after the bout to 74 boxers with bruises of the face and haematomas of the orbits, lips, ears, chest and arms.

Two tablets were given four times a day for four days or until all signs of bruising had disappeared. As a control group, 72 boxers were given dummy tablets in the same dosage.

## RESULTS

Among the 74 boxers who received bromelains, all signs of bruising cleared completely in four days in 58; in the remainder complete clearance took eight to ten days. Among the 72 controls, at the end of four days only 10 had cleared completely, the remainder taking seven to fourteen days to clear completely.

I am indebted to Berk Pharmaceuticals Ltd. for the supplies of 'ananase' and the dummy tablets.