

ISSUE 4
Price £2.50

Aloe Vera **Information Service**

The Healing Properties of **ALOE VERA**

BY DR LAWRENCE PLASKETT B.A., Ph. D., C. CHEM., F.R.I.C.

Aloe Vera contains Glucomannan, a special complex polysaccharide composed largely of the sugar mannose. It interacts with special cell-surface receptors on those cells which repair damaged tissues, called fibroblasts, stimulating them, activating their

faster growth and replication. Plant hormones in Aloe, called auxins and gibberellins, also accelerate healing by stimulating cell replication. These combined actions make Aloe a uniquely potent healing Herb.



BIOMEDICAL INFORMATION SERVICES LTD
23 CHAPEL ST. CAMELFORD CORNWALL PL32 9PJ

The Healing Properties of Aloe vera

Aloe vera contains Glucomannan, a special complex poly-saccharide composed largely of the sugar mannose. It interacts with special cell-surface receptors on those cells which repair damaged tissues, called fibroblasts, stimulating them, activating their faster growth and replication. Plant hormones in Aloe, called auxins and gibberellins, also accelerate healing by stimulating cell replication. These combined actions make Aloe a uniquely potent healing Herb.

Processes which Heal Damaged Tissues.

Wounding does not just cause trauma to one cell type. Whichever part of the body is wounded, the skin is broken and it is also likely that sub-dermal connective tissues are damaged. Such damage makes it inevitable that blood vessels will have been cut through, spilling some blood within the wound, which then clots. Therefore, even if the wound is quite superficial, so long as the skin itself is penetrated, at least three tissue types are involved. Obviously, much deeper wounds are likely to involve muscle tissue. I do not address here the question of very serious injury involving bone, nerves and internal organs.

Within a few hours of wounding, a single layer of epidermal cells starts to migrate from the skin edges to form a delicate covering over the raw area beneath. The chief feature of this process, at least at first, is the movement of already existing epidermal cells over the wound surface, though it is very likely backed up by some cell multiplication. Some 36 to 72 hours after wounding, the predominant cell-type in the inflammation fluid is seen to be macrophages. Whilst these cells are well known as phagocytes (see Issue 1) there is good evidence that they do more than just phagocytose. The macrophage infiltration is followed a day or two later by a proliferation of fibroblasts, cells which produce fibres of collagen and also produce other tissue proteins. By the sixth day thick fibres are present which show the staining reactions of collagen and these tend to be orientated

parallel to the skin surface and across the axis of the wound, giving the repair some strength. At the same time, the fibroblasts are producing "proteoglycans" (macromolecules which combine polysaccharide and protein elements), and these form the underlying matrix for the new connective tissue which is being formed.

Both macrophage infiltration and fibroblast proliferation are accompanied by ingrowth into the wound of small capillary buds which are derived from intact small blood vessels of the dermis (i.e. the skin layer beneath the outer epidermis) near the wound edges. Initially these buds consist of solid ingrowths of endothelial cells, but they soon acquire a lumen. At first these new blood vessels are rudimentary in structure and, compared with normal vessels, they are very leaky. The newly vascularized, collagen-producing tissue is called "granulation tissue" because it appears granular on its surface due to the little knots of delicate blood vessels which show there.

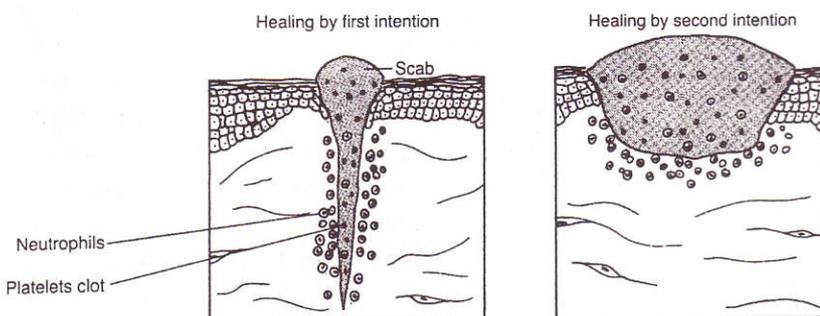


Figure 1

The Illustrations above show the immediate effects of a trauma which penetrates the skin. Where there is a sharp cut producing a narrow incision, this is called "healing by first intention" (left). Where the injury has much more width, the healing which follows is called "healing by second intention" (right). The penetrated epidermis is shown (top layer), the trauma to the substratum of tissues beneath and the migration of white cells, especially neutrophils, to the site.