Smoking and wound healing

The association between cigarette smoking and delayed wound healing is well recognized in clinical practice, although extensive controlled studies have yet to be performed. The documented effects of the toxic constituents of cigarette smoke--particularly nicotine, carbon monoxide, and hydrogen cyanide--suggest potential mechanisms by which smoking may undermine expeditious wound repair.

Nicotine is a vasoconstrictor that reduces nutritional blood flow to the skin, resulting in tissue ischemia and impaired healing of injured tissue. Nicotine also increases platelet adhesiveness, raising the risk of thrombotic microvascular occlusion and tissue ischemia. In addition, proliferation of red blood cells, fibroblasts, and macrophages is reduced by nicotine.

Carbon monoxide diminishes oxygen transport and metabolism, whereas hydrogen cyanide inhibits the enzyme systems necessary for oxidative metabolism and oxygen transport at the cellular level. Slower healing has been observed clinically in smokers with wounds resulting from trauma, disease, or surgical procedures.

The reduced capacity for wound repair is a particular concern in patients undergoing plastic or reconstructive surgery. Compared with nonsmokers, smokers have a higher incidence of unsatisfactory healing after face-lift surgery, as well as a greater degree of complications following breast surgery.

Smokers should be advised to stop smoking prior to elective surgery or when recovering from wounds resulting from trauma, disease, or emergent surgery.

http://www.ncbi.nlm.nih.gov/pubmed/1323208