

THE IMPORTANCE OF SMOKING CESSATION IN SURGICAL WOUND HEALING

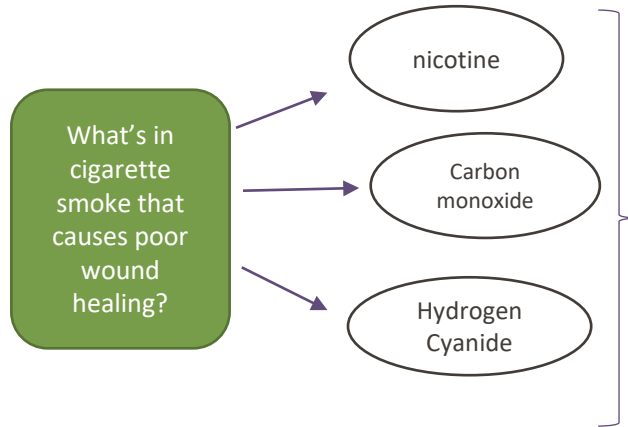
Ameika Connor, MSN, FNP-BC

Abstract

Cigarette smoking causes close to 500,000 deaths each year in the United States. It is the cause of 90% of all lung cancers and increases risk for death from all causes in men and women. Smoking affects nearly every body organ and causes issues such as heart disease, stroke, COPD, impaired immune system and delay in surgical incision and wounds.

Cigarettes contains constituents such as nicotine, carbon monoxide and hydrogen cyanide that effect normal wound healing. Nicotine acts as a vasoconstrictor, which limits the blood flow to the wound, and it increases platelets adhesiveness. Carbon monoxide binds to hemoglobin and causes reduction of oxygen to the wound and hydrogen cyanide inhibits oxygen transport. All these play a major role in poor wound healing. Inadequate wound healing can lead to infections, delayed hospital stay's, possible redo surgeries and other issues.

Providing education and alternatives to smoking, prior to surgical interventions can help to increase proper wound healing in patients who smoke.



- **Nicotine** acts as a vasoconstrictor which limits the blood flow to the wound
- **Carbon monoxide** binds to hemoglobin and causes reduction of oxygen the wound
- **Hydrogen Cyanide** inhibits oxygen transport which delays healing

Common signs of poor healing

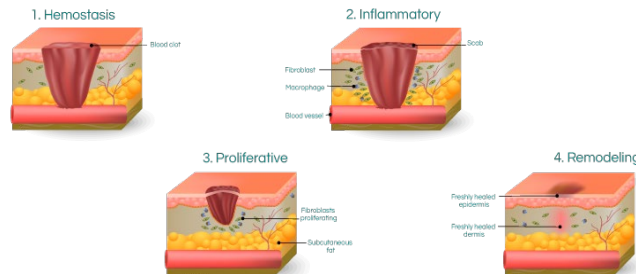
- Redness or erythema
- Swelling, Induration
- Pain and/or tenderness
- Purulent Drainage / Continued bleeding
- Odor
- Warm or hot skin



Patient Education

- ✓ Urge patient to quit smoking at least 3 weeks prior or surgical procedure
- ✓ Talk about the effects of smoking on the wound healing process
- ✓ Provide patient with resources about effects of smoking on wound healing prior to surgery
- ✓ Discuss post op signs and symptoms to look for

4 STAGES OF WOUND HEALING



- ➔ **Hemostasis Phase**- This begins at the onset of the injury, try to stop bleeding
- ➔ **Inflammatory Phase**- This is the defensive phase and begins to destroy bacteria
- ➔ **Proliferative phase**- The granulation tissue begins to grow, and new blood cells form in order to cover the wound bed
- ➔ **Remodeling phase** – new tissue forms and strengthens

Other Alternatives

- ✓ Nicotine patch – small transdermal patch that released nicotine through the skin, it is a replacement option to help quit smoking
- ✓ Acupuncture
- ✓ Hypnotherapy
- ✓ Herbal E- Cigarettes – contains herbs instead of tobacco and is less harmful than nicotine
- ✓ Lozenges
- ✓ Medications such as Bupropion and Varenicline

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- Sarin CL, Austin JC, Nickel WO. Effects of smoking on digital blood-flow velocity. *JAMA* 1974;229:13271328.
- Bartsch RH, Weiss G, Kästenbauer T, et al. Crucial aspects of smoking in wound healing after breast reduction surgery. *J Plast Reconstr Aesthet Surg.* 2007;60:10451049.
- Educate Patients about Effects of Smoking on the Wound Healing Process Published on November 7, 2018 by Nancy Collins, PhD, RDN, LD, NWCC, FAND