Smoking and Wound Healing: A Guide for Surgical, Burn and Wound Patients

Smoking can slow wound healing. There are many ways you can help your body heal faster.

What is the function of our skin?
Our skin system is made of 3 layers, the epidermis, dermis, and subcutaneous layer. Hair, nails, and glands are included in the skin system. The skin is the largest organ of the body. It acts as a giant covering that protects the inside of our bodies from infection. This is what our skin looks like.

What happens when my skin has a wound?
Wounds result from many things such as burns, surgery, scraping your knee, or infections. No matter how big or small your wound is your body follows a similar process to help it heal. When a wound occurs, the immune system sends out many healing factors through the blood vessels to the wound to help it heal. Oxygen we breathe is also sent to the wound through our blood vessels to help the wound heal. When the wound-healing process is complete. The new skin and/or scar tissue acts as a new covering to protect us from future injuries and infection.

How does smoking affect my skin and wound healing?

Immediately
Smoking causes narrowing of blood vessels. The narrowed vessels have a hard time carrying oxygen, nutrients, and healing factors to the wound. This can slow the wound healing process.

Carbon monoxide is a poison from smoking that enters your blood cells. This poison lowers the level of oxygen in your blood. Oxygen is a vital energy source to your healing. Smoking will slow the healing process as less oxygen is delivered to your wound. It takes 3 full days of not smoking to get rid of all the carbon monoxide in your blood. It is vital to quit smoking for at least 3 days before your surgery so the oxygen can build back up in your blood stream.

Smoking can put a person at risk for getting an infection after surgery due reduced oxygen and neutrophils in the blood. Oxygen is important for the surgical site or
wound because that is the energy source for
the healing process. Neutrophils are
important because they are the white blood
cells that fight infection. Infection is
concerning because not only will your
surgical site or wound not heal, the body can
also become ill.

**Long Term**
The chance for atherosclerosis also known
as heart disease increases for people who
smoke. This occurs when cholesterol,
cellular waste, calcium, and other fatty
substances get stuck on the walls in our
arteries. Another name for the combination
of these deposits is plaque. When plaque is
present and builds up, blood flow is
prevented through the arteries. If blood
doesn’t flow, a wound cannot heal.

Smoking can increase platelet activation.
Platelets exist within our blood. They are
important because they are what help keep
the blood within our blood vessels. Smoking
can cause an increase in the number of
platelets. If this occurs, your blood is at risk
for clotting. When blood clots, the body is at
a higher risk for stroke or a heart attack.

**What if I only smoke every once in a
while or only smoke cigars?**
Studies have shown that any amount of
smoking can delay the wound healing
process, even if you only smoke once in a
while. Cigars also prevent wound healing in
the same way.

**Won’t my wound(s) heal anyway?**
Yes, your wound(s) may still heal but it will
take longer due to smoking. Also, there are
many other reasons why you should stop
smoking. Smoking can cause many of the
problems listed below.

- Infection of your wound.
- Longer and more expensive hospital
  stay.

- If you have had a skin graft, it has a
greater chance of not attaching as it
  should or failing.
- Blood clots may form near the
  wound.
- Stitches may come apart, causing
  scarring.
- You are more likely to catch a cold
  or pneumonia due to more mucus in
  your lungs.
- Decreased vitamin C levels. Vitamin
  C is needed to help your skin heal.

**What can I do to help my wound(s) heal?**
Eat right and drink lots of fluids. Wound
healing takes a lot of energy. It is a good
idea to increase the amount of protein,
calories, and vitamin C you eat. Meats, nuts,
beans and dairy products are great sources
of protein. Citrus fruits and green leafy
vegetables are sources of vitamin C. Try to
drink eight (8 oz.) glasses of water a day and
avoid drinks with caffeine. Caffeine causes
the body to lose water. When the body does
not have enough water, your skin can
become dry, and your wound will not heal
as well.

**Know and look for signs and symptoms of
infection.**
Contact your doctor if you have these
symptoms.

- Increased redness (over 1 inch in
  width) and swelling around the skin
  graft.
- Foul smelling drainage or pus from
  the skin graft.
- Flu-like symptoms (fever, chills,
  nausea or vomiting, muscle aches)
  and/or increased pain.

**Stay as active as possible.** Exercise will
help keep you healthy. It will also help your
immune system fight infections.
**Quit Smoking.** Quitting is the best possible choice you can make to help your wound(s) heal faster, safer, and with fewer problems. It is also the best way to start a healthy lifestyle. If you would like more info on quitting please ask any member of your health care team.

**Questions? Please call:**

The University of Wisconsin Smoking Cessation and Prevention Clinic  
(608) 263-0573  
Wisconsin Tobacco Quit Line  
1-800-784-8669

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 12/2018. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing HF#6150