

Patient Information:**Wound Care 101:****Basic Instruction for the College Student**

Soft tissue injuries (cuts, abrasions, blisters, burns, and bruises) are common occurrences for the college student. At Schiffert Health Center we see minor to major wounds (from blisters on feet due to ill-fitting shoes to severe abrasions and lacerations from accidents). For the untrained, management of these injury at home may be intimidating and confusing with the wealth of information coming from friends, parents, and the Internet. "I just let it scab over" or "I put Neosporin on it" are common student methods, but may not be appropriate for the best wound healing.

BRIEF ANATOMY OF THE SKIN

There are three layers of the skin that are commonly injured by the students when they suffer cuts, burns, abrasions, blunt trauma, and surgical wounds.

Epidermis. The outermost layer, about .1mm to 1.5 mm thick depending on the body location; composed of 5 layers of epithelial cells; no blood vessels present; most cells of this layer are actually dead, dried and hardened.

Dermis. Supports and nourishes the epidermis; protects against injury, infection, and regulates temperature; is rich with blood small blood vessels, nerves, sebaceous glands, sweat glands, and hair follicles. Its architecture is supported by proteins called collagen and elastin.

Subcutaneous. This layer is the connective tissue under the dermis; binds skin loosely to underlying tissue (e.g. fasciae, muscle, bone, etc); cushions underlying structures; contains lymphatics and deep blood vessel supply; channels oxygen and nutrients to the dermis via capillaries.

Below the subcutaneous layer there are other deeper tissues variably found in the human body (fascia, muscle, bone, ligaments, tendons, cartilage, nerves, and blood vessels) but these won't be described further.

STOP THE BLEEDING

After sustaining a wound, the first priority is to control bleeding (if present), usually with direct

pressure with a finger, hand, or firmly wrapped towel, etc. Fortunately, most acute wounds don't bleed for long, thanks to the natural clotting abilities of the human body. Bleeding wounds not controlled by pressure are a medical emergency, call 911 or go to the ER.

CLEAN THE WOUND

When the bleeding (if present) has stopped or slowed to merely oozing, cleaning the wound is appropriate*:

- ◆ Rinsing the wound in normal saline is best but not super convenient (2 tsp of salt to 1 liter of boiled water). Tap water is acceptable. Use water at room temperature or warmer.
- ◆ Immersing the hand and swishing it around in a bowl of water, or running tap water over the wound for several minutes is fine (safe irrigation pressures are 4-15 PSI). Higher water pressure will drive bacteria and debris deep into the tissue.
- ◆ Hydrogen peroxide provides an effervescent cleansing action, but has very limited antimicrobial activity and should be considered only if a wound is fresh and contaminated (with dirt, etc.). It is otherwise damaging to healthy tissue cells.
- ◆ Don't use alcohol, it burns, it harms healthy tissue...enough said.
- ◆ Scrubbing the tissue may not be possible with a fresh wound for some (due to pain); but using soft, non-abrasive gauze from the center of the wound outward to the wound edges is best; don't reintroduce gauze that has touched the outside of you skin into a fresh wound!
- ◆ In the subsequent days after your initial wound, showering is fine, gentle washing and letting the soapy water run over and down the wound area is fine.* Do not soak the wound unless instructed to do so.

**This assumes this is not a surgical wound, a wound that is covered with specialized dressings, or a wound under SHC Wound Care Clinic care.*

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DRESS THE WOUND

The wound should be kept from drying out (scabbing), and covered. Don't allow a wound to crust and scab over! A moist (not soggy and wet) wound bed allows for migration of cells across the wound more rapidly – thus the wound heals more quickly and scarring is reduced.

When body tissues have been damaged by cuts, burns, blisters, or abrasions, the wounds should be protected and watched for infection until healing has taken place. Acceptable products to place over the open wound include:

- ◆ Plain petroleum jelly,
- ◆ A&D Ointment
- ◆ Bacitracin, or generic triple-antibiotic ointment
- ◆ Calmoseptine Ointment.

Apply these to the wound with a cotton swab, or clean finger with each dressing change.

Once you have applied a moisturizing product, cover the wound with a dressing such as a 2"X2" or 4"x4" gauze, secured with first-aid tape or cotton-gauze wrap. Large Band-Aids or other non-adhesive dressings (with built in tape) are fine. If buying gauze, purchase a type with a non-adherent coating. It will prevent it from sticking to a wound. If you are having trouble determining how to dress or protect a wound, call SHC to make a consultation appointment with a practitioner.

Keep the Dressing Clean and Dry:

This may limit your activity to some extent. If necessary, bandages on fingers and hands may be covered with a rubber glove or a plastic bag to prevent the dressed wound(s) from getting wet at work, at play, or in the shower. Do not submerge dressed wounds in water from pools, hot tubs, or the New River. While moist wound is good, a "soggy-looking", pale, and wrinkling wound indicates too much moisture.

Changing the Dressing:

If the bandage becomes loose, wet, dirty, or blood seeps through the dressing, it will need to be changed. Typically, for minor wounds with over-the-counter dressings, changes are done every 24 hours.

Pain and Swelling:

By holding and/or propping up the wound at or above the level of the heart you can help reduce pain and swelling* which will improve the healing process.

This is most important with severe or infected wounds. This is most beneficial during the first 24-48 hours, but serious wounds and/or infected ones may benefit from longer periods. You may take what ever over-the counter medications (such as Tylenol® or ibuprofen) you usually take for discomfort or pain. Follow the directions in the bottle.

*Prolonged pain and swelling, especially after an interval of improvement is suggestive of infection, especially when associated with several other **SIGNS OF INFECTION** (see below).

SIGNS OF INFECTION

Wound infection means invasion of pathologic organisms into healthy tissue to the extent that they overwhelm your body's immune response. It results in one or more of the following reactions:

- ◆ Swelling or firmness of tissue surrounding the wound
- ◆ Tenderness (increasing pain in the wound area)
- ◆ Redness of the wound, the wound margins or surrounding skin
- ◆ Heat or warmth greater than nearby "normal" skin
- ◆ Unexplained fever
- ◆ Other than small amount of clear drainage from the wound site (large amounts of clear, cloudy or yellow discharge)
- ◆ Foul odor
- ◆ Wound color change from beefy-red to yellow, brown, grey, or pale.
- ◆ New tissue breakdown (e.g. wound getting larger)

Call the Schiffert Health Center if any of the above is apparent as a SHC practitioner may prescribe special wound care, topical or oral antibiotics for the condition.

Protect the Wound Area:

The wound should be protected from repeated injury, chaffing, rubbing, or drying out until it is healed. If you are having trouble determining how to dress or protect a wound, call SHC to make a consultation appointment with a practitioner.

When is the Wound Healed?

Wound healing times are variable, and depend on depth, wound care, patient health, and wound care compliance. For most wounds, when a smooth, fresh, dry, non-tender layer of skin has covered the injury site – the first phases of wound healing are complete.

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No further dressings are needed, if only to protect the site from recurrent injury or to further try to reduce scarring.

A partial thickness wound (such as a deep paper cut) may go through its obvious healing phases in 4-7 days. A full-thickness laceration on the knee may take 2-3 weeks to "heal-over" with a red or pink area being present for weeks. It is called post-inflammatory hyper-pigmentation and is normal to see. The toughness or "tensile strength" of the skin may take a month to 2 years to achieve "normal" skin strength.

SCARRING

Most wounds caused by crushing, tearing, ripping or abrasion have tissue damage surrounding the actual wound. This increases the amount of scar tissue. Scabbing increases scarring and increases the risk of infection, which if present, will also increase the amount of scar tissue formed. Scars are natural results of the body repairing itself and remodeling the new tissue to take over the old damaged, or lost tissue. The scar will take several months to resolve (regretfully, some will remain permanently). Scarring is influenced by:

- ◆ Mechanism of injury
- ◆ Depth of wound.
- ◆ Wound care (e.g. scabbing vs. moist wound healing)
- ◆ Mechanical means to close the wound (e.g. sutures, staples, tapes, glue)
- ◆ Infection present initially or as a complication of healing
- ◆ Re-injury of site while in healing process
- ◆ Location of the injury
- ◆ Pigment of skin
- ◆ Traction forces on the skin at the site of injury.

There are over-the-counter scar treatments that you can apply topically. Mederma® and Neosporin Scar Treatment® are two of many over-the-counter scar reducing products. There are others, most lacking clinical studies to prove effectiveness. If you are concerned about the scar's appearance, or there is decreased flexibility at the wound site (e.g. a joint), contact Schiffert Health Center and have a practitioner take a look at it.

WHEN TO CONTACT SHC FOR WOUND CARE

Make an appointment with a SHC practitioner to discuss your wound if:

- ◆ You have two or more **SIGNS OF INFECTION** as noted above.
- ◆ You have been directed to follow up by an outside provider (e.g. surgeon, ER physician, primary care physician).
- ◆ You have been dressing your wound yourself, but are developing a rash from ointments or tapes, or the wound keeps recurring.
- ◆ If you have concerns about your ability to care for your wound yourself.
- ◆ Your wound is a burn that has blistered an area as large as the palm of your hand on any part of the body, is on the face, eyes, or ears), is on the hands, feet or is completely around a joint or extremity, or is on the groin.
- ◆ You have a laceration that won't "hold together" with out help from pinching skin or adhesives, or that won't stop bleeding, or that is associated with loss of sensation or strength. Most lacerations should be sutured within 6-12 hours of occurring, but this varies on body location and circumstances of the injury.
- ◆ You have a wound from a cat, dog, or other animal bite (even a human) that shows **SIGNS OF INFECTION**.

WOUND DRESSING INSTRUCTIONS:

1. **Change dressing** ___ time(s) every ___ day(s).
2. **Clean** the wound before each dressing change with warm water. Gently wipe/rub the wound with clean wash cloth only to clean loose crusts, dirt or debris.
3. **Apply** _____ topically over the wound bed of the burn, abrasion, blister, or cut to keep it moist, reduce infection risk, and promote healing. Replace after each wound cleansing.
4. **Primary dressing:** Apply _____ over the wound bed topical treatment (if any).
5. **Secondary dressing:** Apply _____ over the primary dressing to protect wound, dressing, and to keep it secure.
6. Return for wound check (in ___ days / as needed).

Other instructions:
