

Burns

Description of the Disability

Burn injuries are described based on their severity and their depth. Severity is the percentage of TBSA (Total Body Surface Area) affected. Depth is the familiar degree system – first, second, third, and fourth degree. First and second-degree burns usually heal within two or three weeks without serious complications. Third degree burns cause deeper injuries to the skin and can lead to scarring and functional limitations. Fourth degree burns cause injuries to muscles and bone and can lead to scarring, functional limitations, and amputations. The most common causes of serious burns are fire, hot water, steam, electricity, or chemicals.

Scarring can be a significant issue in recovery from burns. After a serious burn injury, cells in the lower or dermis layer release collagen to knit the wound back together and re-cover the wound. Sometimes, too much collage is created, causing a very noticeable, raised scar. These prominent scars are classified as either Hypertrophic or Keloid. Hypertrophic scars stay within the range of the original wound and frequently grow less prominent over time. Keloid scars are essentially benign, non-cancerous tumors that will keep growing beyond the range of the original scar and continue to be prominent. Keloid scars may need several rounds of follow-up surgery to bring them under control. Both Hypertrophic and Keloid scars need to be kept out of direct sunlight for at least a year after the injury to prevent pigmentation problems.

Severe burns may also result in respiratory damage, muscle damage, or amputations.

Incidence Statistics

- Every year more than 2 million Americans experience a burn injury
- Between 50,000 and 100,000 Americans are hospitalized for burn treatment, and more than 5,000 die from those injuries.
- 80% of the burns happen in the home.
- Cigarettes are a leading cause of fire deaths in the US, resulting in 1,000 burn deaths and 3,000 burn injuries every year.
- Secondary infection is the leading cause of death from burns.
- Typical recovery of serious burns takes from 6 months to two years.
- The most common amputations due to burns are ears and fingers.

Common Treatments, Medications, and Side Effects

Long-term treatment for burns typically focuses on several areas: functional issues, scar management, other medical consequences (circulatory problems, pain, etc.) and psychological issues.

Functional Issues can vary depending on the injury. Prosthetics may be involved if the injury resulted in amputations. Plastic surgery is frequently used, especially if the injuries involve the head or face. However, many plastic surgeons prefer to wait up to a year after the burn to allow the scars to mature before attempting surgery.

Scar Management: As burn scars mature, they can contract, reducing range of motion and function. Frequent massage and physical therapy during recovery can help prevent this contracture, but occasionally surgery is required. In addition, if a limb or joint is immobilized during treatment, it can cause contractures. Again, physical therapy can usually address the problem, but severe contractures may require surgery.

The use of compression garments, which keep a constant pressure on the injury, is the primary technique for minimizing hypertrophic and keloid scars. These garments may be tight fabric garments, splints, or rigid plastic forms, depending on the location of the burn. Frequent massage also helps reduce the visibility and improve the flexibility of scars. Keloid scars may require periodic steroid injections, abrasion, or surgery to control their growth. (See the Drugs section for possible side effects of steroid injections)

In the case of severe, extensive burns, physicians may try skin grafts to cover wounds that are too wide for natural recovery. If possible, they will harvest skin from elsewhere on the person's body, but there are also other sources of skin for grafting, including different types of artificial skin. This new skin is frequently incomplete, lacking sweat glands and other deep structures. As a rule, skin grafts and scarred skin are more fragile and sensitive than the original skin. There can also be significant problems with itching or general pain when skin grafts are used. However, itching can be a problem with burn injuries even when there has not been a skin graft.

Other Medical Complications: Extensive, severe burns can damage the blood flow to the affected areas. This may compound problems of sensitivity to heat and cold in scarred or grafted skin. It can also lead to problems with swelling in the legs when standing for long periods of time. Bacterial infection of the damaged tissue is always a concern during recovery, but is not usually a long-term problem. Individuals with lung damage from smoke inhalation may have chronic problems in dusty or smoky environments. Some individuals may have chronic pain after burn injuries (see entry on chronic pain). With most scars, the person will have some itching to deal with in addition to the pain. If the sweat glands of the skin have been damaged, the person will have trouble regulating their body temperature - making them vulnerable to heat and cold. Depending on the stage of recovery and the extent of damage, the individual may need to moisturize the affected skin several times a day. In general, burn injuries have more significant consequences for children than for adults.

Psychological issues: Burn survivors report that the psychological aspects of the injury can be just as significant as the physical aspects. One specialist calls a burn injury "the worst injury to the human body anyone can endure and survive." In addition to the obvious recovery issues, individuals surviving significant burns have to deal with the death of a body image and memories of the traumatic event and painful hospital stays. Many burn victims experience posttraumatic stress syndrome (see entry on PTSD) from the original event and the catastrophic consequences. Counseling can be an important part of their recovery. Individuals with extensive scarring, especially to the hands or face, may have difficulty adapting to the new body image. They may also have to deal with stares and nervous reactions from others. In some cases, the reaction of others to the individual's appearance could become a factor in finding a job.

Possible Functional Issues

- Sensitivity to heat or cold
- Sensitivity to abrasive chemicals
- Sensitivity to sunlight
- Reduced Endurance
- Reduced Strength
- Difficulty concentrating due to itching, pain, or fatigue
- Skin sensitivity to bruising, scrapes, tight-fitting clothes, etc.
- Limited function due to amputation
- Limited range of motion of mobility due to contracture
- Reduced coordination
- Difficulty breathing in dusty or smoky environments if smoke inhalation was involved.
- Difficulty standing for long periods of time if lower limbs were involved
- Shyness in social situations if scars are visible

Initial Interview Considerations

Initial Questions

- What mobility problems do they have if any?
- What dexterity problems do they have if any?
- What upper extremity mobility problems do they have if any?

- What, if any compression garments or devices do they wear? Are there any functional problems from the garments?
- What skin maintenance procedures do they perform, if any? How often?
- What problems do they have with sensitivity to heat or cold?
- What problems do they have with skin irritation? Is sunlight a problem?
- How much is itching a problem? Are there times of the day when it is worse?
- What kinds of pads if any do they wear to prevent skin damage from friction?
- What kinds of fatigue or endurance problems do they have?
- How often do they have problems with pain from the injuries?
- What pain medications, if any, are they taking? What side effects do they have from the pain medications?
- How often, if ever, do they have panic attacks or residual anxiety from the burn? What work situations that might trigger these attacks?
- When do they expect to have any future surgeries related to the injury?
- How do they feel about leaving the house and going out in public? How many times a day (or a week) do they go out?
- How do they feel about jobs that involve meeting the public? Would they rather not?
- What clubs do they belong to? What hobbies do they have? (level of social comfort)
- What fears do they have about job situations?

Initial Observations

- Are there any obvious mobility issues?
- Are there any visible scars, especially to the face, that might be unsettling to others?
- Are there any signs of depression or anxiety about their appearance?

Interview Accommodations (if any)

- Make sure they are not sitting in direct sunlight
- Make sure the room is not excessively hot or cold

Possible Accommodations and Assistive Technology

- Frequent breaks (if fatigue or skin care is an issue)
- Flexible work schedule
- No extreme heat or cold

- No harsh chemicals that might irritate skin
- Work done away from direct sunlight
- Limited standing if lower extremities were involved in injury
- Functional accommodations related to amputations or the specific injury

Career Planning Issues

- Reaction of the public to any visible scars should be considered.
- Endurance problems may be present
- Strength problems may be present.
- Prior work history is not likely to be affected.
- Social skills are not likely to be affected
- Educational history and skills are not likely to be affected
- Intelligence is not affected. Learning skills are not affected. Education may be an option
- May be good candidates for self-employment

Emerging Issues

- Posttraumatic stress issues related to burns
- Long-term psychological issues for adults scarred as children

Additional Information Resources

- Burn Survivors Online: www.burnsurvivorsonline.com
- Phoenix Society for Burn Survivors: www.phoenix-society.org
- Changing faces: www.cfaces.demon.co.uk
- American Burn Association: www.ameriburn.org
- University of Iowa's Virtual Hospital, Burn Injuries Overview:
www.vh.org/Patients/IHB/Surgery/BurnCenter/BurnInjury/burninjuriesTOC.html