



Severe Burns

A burn, or thermal injury, is a type of injury that may be caused by heat, cold, electricity, chemicals, light, radiation, or friction.^{1,2} Burn injuries during military conflicts are usually caused by explosive device detonation.³ Burns vary in terms of the tissue affected, the severity, and the resulting complications.^{1,2} Additionally, muscle, bone, blood vessel, and skin tissue can be damaged.^{1,2}

Depending on the location affected and the degree of severity, a burn victim may experience potentially fatal complications, including shock, infection, electrolyte imbalance, and respiratory distress.³ Even relatively small burns can be incapacitating, disfiguring, and painful.⁴

Burn injuries to service members are also further complicated by supplementary injuries from multiple fragment wounds and a high rate of infection.^{4,5} Beyond physical complications, burn victims may also experience severe psychological and emotional distress due to scarring and deformity.³

Traditionally, burns were defined by three types, however, some sources define burns by four types:^{1,2}

- First-degree burns damage the outer layer of skin¹
- Second-degree burns damage the outer layer of skin and the layer underneath¹
- Third-degree (full thickness) burns damage or destroy the deepest layer and tissues underneath^{1,2}
- Fourth-degree burns extend through the skin to injure muscle, ligaments, tendons, nerves, blood vessels, and bones²

Treatments and Recovery

Service members who sustain burn injuries are usually transported to the U.S. military hospital in Landstuhl, Germany, and then to burn units such as Brooke Army Medical Center in Texas.⁶ When burn victims arrive, their bodies are carefully cleaned to remove any blisters or dead skin.⁶ Then doctors cut away dead tissue to prevent infection and cover exposed areas with skin or synthetic grafts and encourage new skin to grow.^{1,6} Medical staff keep rooms between 90 and 100 degrees because patients cannot maintain their core body temperatures without skin.⁶ Doctors will also control the patient's pain with medication because patients endure excruciating pain from burns and other injuries.⁶ Medical staff will work with injured service members to manage pain, prevent infection, maintain proper nutrition, regain movement, and lessen scarring.⁷

Prevalence:

- In the United States, approximately 2.4 million burn injuries are reported per year⁸
- Approximately 650,000 of the injuries are treated by medical professionals; 75,000 are hospitalized⁸
- Of those hospitalized, 20,000 have major burns involving at least 25% of their total body surface⁸
- Thermal injuries historically constitute approximately 5 to 20% of conventional warfare military casualties, depending on the situation⁹⁻¹³
- Despite the severity of combat burns, mortality at present is low and outcomes generally good³

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