Large Burns Can Cause Lasting Movement Problems, Long-Term Rehabilitation Interventions May Help

Each year, about half a million Americans are treated for burn-related injuries. A burn injury commonly results from a fire, but can also be caused by contact with hot liquids, electricity, or chemicals. Large burns are those that cover at least 30% of a person’s body. They can cause lasting damage to bones, joints or muscles in the burned area. This damage may lead to challenges with activities of daily living. In a recent NIDILRR-funded study, researchers looked at the most common movement-related problems that persist after a large burn injury. They wanted to see how much a large burn might affect long-term functioning.

Researchers at the North Texas Burn Rehabilitation Model System enrolled 98 burn survivors in the study. The burn survivors were all at least 18 years old and had lived with their burn injury for three years or longer. All of the participants had burn injuries covering at least 30% of their total body surface area and had lived with their injury for an average of 17 years (ranging from 3-53 years).

The study consisted of both a survey and a physical exam. On the survey, the participants completed a checklist of 50 health problems. They checked the health problems that they experienced at the time of the study. The participants also answered 80 questions describing how much difficulty they had with daily tasks, including mobility, self-care, household chores, and leisure activities, as well as their employment status. Finally, the participants had a complete physical exam from a rehabilitation doctor to test the range of motion in their joints, and identify any secondary complications or residual impairments from their burn injuries.

The researchers found that, by the time of the survey, most of the participants had adjusted to their injuries and returned to work or school, with about half returning to the same job or school program. Despite these successful adjustments, many of the participants still experienced some long term effects of their injuries that had an impact on their daily functioning. The researchers found that several movement-related problems were common among the large burn survivors. Specifically:

- The most commonly reported ongoing problems were joint pain, joint stiffness, problems walking or running, weak arms or hands, and fatigue, with at least half of the participants experiencing each problem.
- Generally, the participants with more recent burn injuries reported greater difficulty with daily activities than those who had had more time to adapt to their burn injuries. The participants who had lived with their injury for 30 years or longer reported fewer functional limitations than the participants with newer burn injuries.
On physical examination, most of the participants (73%) had limited range of motion in at least one joint. The most often affected joints were in the neck, hands, and shoulders.

The participants who had limited range of motion in at least one joint also tended to have more difficulties with physical tasks than those participants without range-of-motion limitations.

According to the authors, the results from this study show that people with burn injuries, particularly large area burns, may continue to experience pain, stiffness, and other conditions that cause limitations for many years after their injury. Although people adjust to these changes over time, they may also experience worsening physical symptoms as a result of aging. This underscores the need for long-term rehabilitation and follow-up to reduce the impact of these injuries on work and home life.

The authors noted that exercise programs may help people with large burn injuries to keep up their strength and improve range of motion in their joints. Rehabilitation interventions and physical therapies may help people with large burn injuries to remain active and continue participating in leisure activities. Such interventions may still be useful even decades after the burn injury, especially for people with limited range of motion. Researchers may want to examine factors that could help people with large burn injuries maximize their physical abilities as they age.

To Learn More
The Boston-Harvard/Spaulding Burn Injury Model System has a series of exercise videos for burn survivors. Stretching and range of motion exercises are organized by body area: http://mghcme.org/page/boston_harvard_burn_injury_model_system

The Model Systems Knowledge Translation Center (MSKTC) offers a wealth of information for burn injury survivors including factsheets, quick topic reviews, and a hot topic suite focused on employment after injury: http://www.msktc.org/burn

To Learn More About this Study

Research In Focus is a publication of the National Rehabilitation Information Center (NARIC), a library and information center focusing on disability and rehabilitation research, with a special focus on the research funded by NIDILRR. NARIC provides information, referral, and document delivery on a wide range of disability and rehabilitation topics. To learn more about this study and the work of the greater NIDILRR grantee community, visit NARIC at www.naric.com or call 800/346-2742 to speak to an information specialist.
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