BURN CARE COMMENTARY®

SPRING 2022 - THE REHABILITATION ISSUE

JOSH ROBERSON

BURN SURVIVOR

PHOTO/KAYLA ROBERSON

BRCA
BURN AND RECONSTRUCTIVE CENTERS OF AMERICA

JMS JOSEPH M. STILL BURN CENTERS, INC.
An Affiliate of Burn and Reconstructive Centers of America

LETTER FROM THE

Chief of Plastic and Reconstructive Services

WELCOME to the spring issue of Burn Care Commentary on rehabilitation. At Burn and Reconstructive Centers of America (BRCA), we are more than just burns—our burn care system offers unsurpassed care from initial injury through long-term rehabilitation, even if that care extends beyond the walls of our centers.

In this issue, you'll have the opportunity to read more about the psychological aspects of recovery, including ongoing peer support and mentorship, and a deeper look at the physical aspects of rehabilitation. As Chief of Plastic and Reconstructive Services at BRCA, I work with a lot of patients after the acute phase of their care, and I know how a traumatic burn or wound injury can impact everyday life.

Over the last year, we have continued to enhance the BRCA Reconstructive Program to include reconstruction consultations during the acute phase of care, helping reduce delays and minimize their recovery time with disabilities.

I hope you enjoy our rehabilitation issue and learn more about our programs and resources. We are honored to create this quarterly publication and hope the treatment options and resources presented continue to lead to better patient outcomes. ◆

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PHOTO/KAYLA ROBERSON

Life after the burn center:
mental challenges during long-term rehabilitation

AS BURN TECHNIQUES CONTINUE TO ADVANCE, the survival rates of patients suffering from extensive burns have significantly improved. Common to many who have survived a large burn injury, patients can develop psychological symptoms or disorders that create a new set of challenges as they recover. For almost twenty years, the psychological recovery of burn care patients has been broken into three phases: critical, acute and long-term rehabilitation. Understandably, a patient's psychological needs change with each stage.

Typically, the first two phases are focused on the survival and physical recovery of the patient, and most psychological interventions are directed toward helping the patient's immediate needs like trouble sleeping or managing pain. However, patients will start to deal with more significant, ongoing psychological challenges during long-term rehabilitation after an initial injury.

Many patients find it difficult to adjust to their new "normal" and will often not be motivated to take part in their care plan. Patients' lives are often entirely changed following a traumatic injury, and their ability to adapt to their new situation can seem overwhelming.

The psychological impact felt by patients is one of the reasons why Burn and Reconstructive Centers of America (BRCA) partners with peer supporters and other organizations to help address these more subtle emotional and psychological responses, often referred to by patients as their internal scars.

At BRCA, we continually strive to give patients back as much of their lives as possible, which means helping them recover from more than just their physical trauma but helping them thrive after being discharged. Partnering with support communities, burn care professionals and researchers can help our patients as they continue to heal, including reconstructive procedures to help restore form and function, or to help rebuild confidence through scar revisions, wound treatments, camouflaging techniques and more.

Phoenix SOAR (Survivors Offering Assistance in Recovery), a program created by Phoenix Society for Burn Survivors, is a community that helps connect burn survivors and their families with others who have experienced the same kind of trauma. This program's success can often be seen through former patients who become peer supporters, offering the same support and care to burn survivors they once received.

Across our national system, our goal is to provide a continuum of care that supports each patient from initial injury through recovery and long-term rehabilitation beyond the walls of our burn centers. Thanks to our partners, burn and wound specialists and support communities, we can set each patient up for the best possible outcome, following our mission of *Healing Patients. Healing Families. Healing Lives.*® ◆

Kevin Vann, peer mediator with Phoenix SOAR (Survivors Offering Assistance in Recovery).

Physical rehabilitation after traumatic injury

DAMAGE FROM BURN DISEASE does not end when a patient is discharged from the hospital and covered with new skin. The scars remain active and can disrupt recovery in a number of ways. They can work to shrink the wounds in size for years after the wounds are closed. They can grow in size, well above the surface of the original injury or even outside the wounded area, such as a keloid. In addition, a patient's metabolic rate remains greatly accelerated for years, making it difficult to build muscle and regain strength. While the physical scars may be addressed with surgery and lasers, the psychological scars can take a lifetime to heal.

Burn rehabilitation aims to restore strength, coordination, mobility and function to as normal as possible. As no burn injury is the same, the rehabilitation of each of our patients is tailored to their individualized needs.

While a patient is in the hospital, surgeons, nurses, advanced practice providers and therapists work as a team to heal burns, treat infections, nourish patients and grow skin.

Acute care is accomplished in the weeks and months following the burn injury. Rehabilitation is measured in months and years. It is hard work, but it is work that patients can do to help them get back their lives and go from burn victims to burn survivors.

The rehabilitation process begins during the acute hospitalization stage of a patient's recovery. The location and degree of injury dictate where contractures and deformities may develop. As such, they also present a guide for rehabilitation. The more a patient has been burned, and the more severe the burn, the more intensive the rehabilitation.

The principal goal is, of course, preserving the lives of our patients and covering their wounds. However, early rehabilitation and mobilization is key to restoring as much function as possible. During the acute phase, when a patient is unable to move, therapists and nurses move all their joints through the full range of motion, working tirelessly to counteract the body's innate process of scarring in order to maintain the patient's flexibility and suppleness. Patient positioning and extensive splinting are used to limit early wound contracture and reduce the extent of the rehabilitative battle the patient must subsequently fight. Patient positioning begins soon after admission and splinting, as needed, early in the course of treatment. Baseline function measurements are made and notated to track each patient's progress over time.

As soon as our patients are capable of doing anything for themselves, it is imperative that the patient does so. Throughout each day, patients must work on their strength, endurance and flexibility. Exercise therapy remains a principal modality to suppress hypertrophic scar formation and sustain strength and flexibility. This phase can be challenging as our patients need to fight through the acute pain of open wounds. Set backs can occur, such as infections. The support of family, community, spiritual beliefs and the inner strength of our patients are critical to recovering through this acute phase of illness.

As our patients transition out of the hospital burn unit, they enter the intermediate and paramount rehabilitation phase. The goal of rehabilitation is to rebuild the patients' strength, flexibility and function to achieve their best functional and cosmetic outcome. Exercise remains an essential component of rehabilitation in this setting for function and psychosocial health. All the joints must be taken through a full range of motion, and if contractures limit movement, surgical releases are then made to allow physical progression. Patients ambulate through steadily increasing distances and work to regain their stamina. Different terrains, such as stairs, are now incorporated into the routine. Resistance training is used to regain muscle mass and also to reduce bone atrophy. Sometimes a period of non-operative care in rehabilitation is needed to determine if another surgical procedure is necessary.

Occupational therapists work diligently with the patient to regain hand function and relearn the performance of daily life activities as well as to preserve muscle memory and coordination. Prosthetists work with our patients to develop individualized prostheses or orthotics to help overcome the loss of body parts or functions. Prosthetic devices help replicate the function and appearance of a limb lost to the burn or other injury. Each device is tailored to each patient. Sensorimotor limitations due to the burn injury not seen in nonburn patients necessitate that these prostheses be easy to use and useful to individuals with multiple limitations.

Splints and compression garments are used to flatten scars and limit deforming contractures. Compression garments are generally used in patients whose wounds do not heal within 14 days to suppress hypertrophic scars. Inserts can help these garments over some regions of the body where consistent pressure is difficult to achieve, such as the back of the hand. These regimens must be tailored to the individual patient; children must be monitored with compression garments as the garments may interfere with growth. Scar massages can assist in improving joint mobility.

Our patients' mental wellbeing is important to their physical recovery. In addition, the individual patient's preference in modalities is important as discomfort in a regimen can lead to noncompliance and diminished functional and cosmetic outcomes for the patient. Psychologists work with the patient to overcome acute stress disorder and treat post-traumatic stress disorder.

Over time, our patients transition to the long-term outpatient rehabilitation phase. Here, individualized programs can be designed to achieve long-term, lasting and positive outcomes. Our patients work with our reconstructive team throughout the rehabilitative course to release contractures, remodel scars with lasers and rebuild function and cosmesis. Exercise therapy continues to be important to improving function until rehabilitation is completed. Ongoing and productive communication between our team and our patients is the key to success.

Burn injury is a major trauma with lifelong implications. However, through a comprehensive treatment algorithm, skilled rehabilitative and reconstructive teams and the drive and determination of our patients, we can achieve improved functional, cosmetic and psychosocial outcomes. ◆

BY GENEVIEVE CULNAN, Contributor.

SOURCES

The information about the metabolism in the first paragraph comes from Craig Porter's 2013 article in The Lancet entitled "The Metabolic Stress Response to Burn Trauma: Current Understanding and Therapies"

The location and degree of injury is a guide for contractures comes from Michael Serghiou's chapter in Total Burn Care entitled "Burn Rehabilitation across the continuum of care." 5th edition.

Wounds do not heal for 14 days may need pressure garments comes from McDonald's and Deitch's article in the journal of trauma in 1987 entitled "Hypertrophic Skin Grafts in Burn patients: a prospective analysis of variables"

Josh Roberson with his next demolition derby car. (Photo/Kayla Roberson)

Demolishing the odds:
burn survivor back behind the wheel after engine explosion

UNDER THE BEAMING LIGHTS OF THE LURAY FAIRGROUNDS IN LURAY, VA, ON AUG. 27, 2021, Joshua Roberson was one of three drivers still competing in the demolition derby. The last operational car to make contact with another car would win the match, and it was getting down to the last few minutes. Driving a 1973 Chevrolet Impala, Roberson was maneuvering around the track when his car burst into flames.

"My transmission line blew on the car, and the whole car was engulfed in flames," Roberson said. "It just did it on its own."

The fire that started in the engine blazed under the hood and inside the car, burning Roberson, who was strapped into the driver's seat. He was able to get himself out but not without suffering severe burns to his legs, hands and face.

Roberson was taken to a local hospital, where he was informed that they didn't have the resources necessary to care for his burns, and he would have to be transferred to a burn center. He was given three locations to choose from and decided on Richmond, VA, where he had heard of the burn centers and where he would be that much closer to home.

When the helicopter landed at Burn and Reconstructive Centers of America (BRCA) at Richmond, VA, Burn Medical Director Dr. Samuel Jones was there to greet him. With burns on 30% of his body, Roberson was a large burn that needed immediate medical attention.

"A burn of that size and magnitude has to be resuscitated to make sure that they're stable," Dr. Jones said. "After that, we took him to surgery within the first 24 hours to get his burns excised, and then placed on temporary skin, we used cadaver skin."

Patients burned over 20-25% require a sufficient amount of IV fluids within the first 24 hours of their care (resuscitation) to avoid going into "burn shock," which can cause changes in pulse, breathing and consciousness. Once the patient is considered stable, they are taken into surgery, like Roberson, to remove the dead or damaged tissue and cover it with a skin substitute.

Fortunately for Roberson, the initial healing process happened quickly. As a result, he was only in the hospital for five days during the acute phase of his care.


Third-degree burn with skin grafting. (Photo/Kayla Roberson)

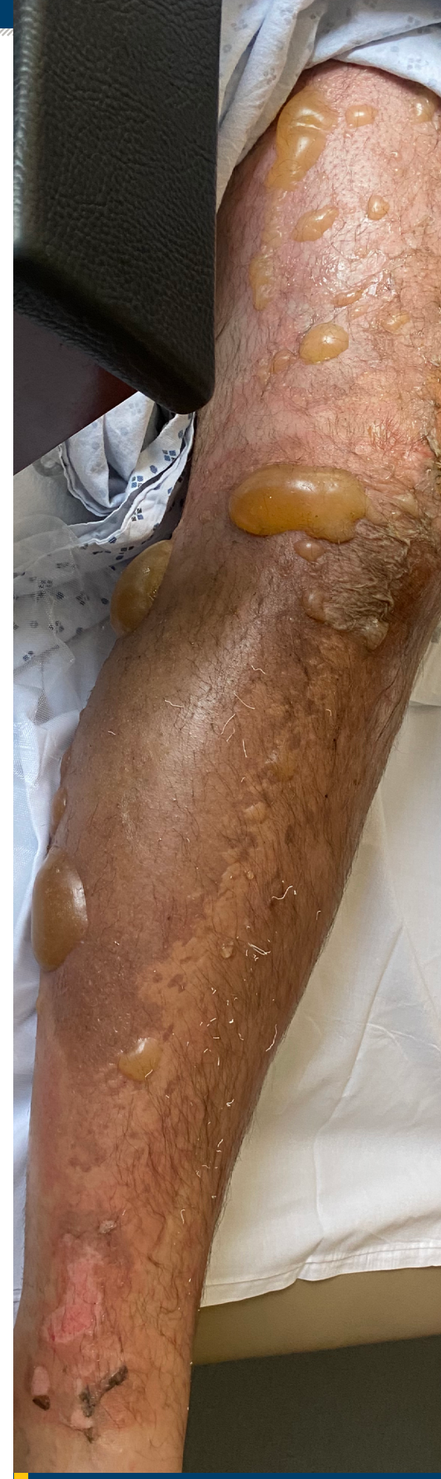
"They cleaned my burns, scraped all my blisters off, and wrapped me up," Roberson said. "All that good stuff. I went through, I think, six surgeries. After each surgery, physical therapy would come in and get me to get out of the bed and that stuff, and I kind of took off on my own."

Physical and occupational therapy is an essential part of the healing and reconstruction process for burn survivors like Roberson. Depending on the extent of the burns and the placement, burn survivors often require physical therapy to relearn how to walk, eat, use their hands or regain muscle mass. By gently stretching and exercising the afflicted skin, muscles and joints, the physical therapists can help burn survivors overcome or improve complications such as contraction, tightness, pain and immobility while restoring basic function and independence.

"With deeper burns, you can definitely have contraction and have functional deficits as a result, so we work very hard as soon as they get here in trying to overcome those," Dr. Jones said.

The top of Roberson's right hand—the one he was using to steer and that was closest to the flames—received the brunt of his burn injuries, where he was burned from his wrist to the tips of his fingers. Dr. Jones placed a skin graft on his hand, but the burns were deep enough that Roberson struggled with his fine motor skills and flexibility.

"I didn't have very much motion in my hand," Roberson said. "I went to hand therapy for weeks. But now, I'm back to work 100%. I can do anything really that I need to do."


Second-degree burns on right leg. (Photo/Kayla Roberson)

Roberson during the recovery process. (Photo/Kayla Roberson)

Throughout his care, Roberson received cadaver skin grafts, split-thickness skin grafts and spray-on skin cells (used to help heal large burns) on his legs, and a stem cell/placenta treatment on his facial burn. Though he says his legs still have some healing left to do, he couldn't be happier with the outcome of his care.

"My skin grafts are excellent," Roberson said. "That all healed up pretty nicely. You have to really look to see them. It just kind of looks like I'm a just a little bit sunburned on that side [of my face] but not bad."

Five months after the accident, Roberson is ready to be behind the wheel again. He will be competing in his first demolition derby this February since becoming a burn survivor last August. While he is a bit nervous about driving again, he is excited to see some familiar faces in the stands cheering him on in his 1985 Ford Crown Victoria.

"I was very satisfied with [Dr. Jones] and his team," Roberson said. "Everyone treated me very well. They actually said they were going to come watch me run a derby next month. I'm a little bit nervous about it. But we'll see."

On Feb. 19, Roberson competed in his first demolition derby since the accident. Surrounded by a large crowd, he finished mid-pack but said he was proud of how it turned out. ◆

Providing burn education
through community, collaboration and innovation

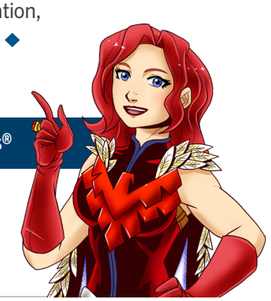
BRCA FOUNDATION

CO-CREATED BY DR. ROBERT "FRED" MULLINS, founder of Burn and Reconstructive Centers of America, in 2018, BRCA Foundation was established on the principles of community, collaboration and innovation.

The non-profit organization works to advance burn care treatment and competence in practice both in the hospital and in local communities through various web-based and in-person education initiatives. Advanced Burn Life Support (ABLS) classes, pre-hospital burn care lectures, online continuing education courses and burn prevention education materials for community members of all ages are just a few of the resources available nationwide.

Also coming soon to communities across Burn and Reconstructive Center of America's national care system is the second edition of BRCA Foundation's Phoenix Powers® coloring book. Burn survivor and superhero Phoenix Powers promotes safety and awareness through online videos and coloring books, helping kids stay safe by teaching them to identify burn and fire hazards at home and on the go. The upcoming edition will feature the importance of having a home escape plan through fun illustrations, activities and a story about Taka, a dog who survived a house fire to become a therapy dog.

For more information on BRCA Foundation, visit burnfdn.org. ◆



Phoenix Powers®

JOSEPH M. STILL BURN SYMPOSIUM

THE 2022 JOSEPH M. STILL (JMS) BURN SYMPOSIUM, hosted by the BRCA Foundation, marked the sixteenth annual event since its inception in 2007. Each year, healthcare professionals practicing in the burn care continuum are invited to present on the most relevant topics in the burn care world today. Topics in the past have included everything from a burn patient's acute care and psychological care to their long-term rehabilitation and reconstruction.

The 2022 JMS Burn Symposium was held Mar. 6-7, 2022, in-person and online. Check out the follow-up of the event at burncenters.com/burnnews and be on the lookout for information about the 2023 event. Continuing education credits and continuing medical education credits were available to earn for those who attended in person or virtually.

This year's event included four pre-conference classes:
- Burn Nursing Summit
- Pearls for Burn Rehabilitation taught by burn therapists with over 70 years of collective patient care experience
- Burn Registry class open to Registry and PI coordinators
- Advanced Burn Life Support (ABLS) class open to the public

Education at BRCA

FACE-TO-FACE AND LIVE WEBINAR TOPICS

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WHAT IS ABLS?

Advanced Burn Life Support (ABLS) programs provide knowledge for immediate care of the burn patient through the first 24-hours post injury. ABLS programs also support emergency preparedness and mass casualty incidents focusing on triage, burn survivability, prioritizing transport of patients and patient treatment. ABLS is available for a wide range of burn care professionals.

BRCA provides ABLS classes on behalf of the American Burn Association.

Q2 LIVE EDUCATION

Waxahachie Fire Rescue Central Station
Tuesday, Apr. 5

Crandall Fire Department
Monday, Apr. 11

Hillsboro Fire Department
Tuesday, Apr. 12

Midlothian Fire Department Station #3
Tuesday, Apr. 26

Idaho State University - CWET
Friday, Apr. 29

Chester County EMS Burn Care Lecture
Tuesday, May. 24

Graham Regional Medical Center
Wednesday, Jun. 1

Upcoming education events are at listed locations only. These are pre-registered events and virtual attendance is not offered at this time. For a full listing of upcoming education classes, including ABLS, or to bring training to your location, contact BRCA Education at foundation@burnfdn.org.

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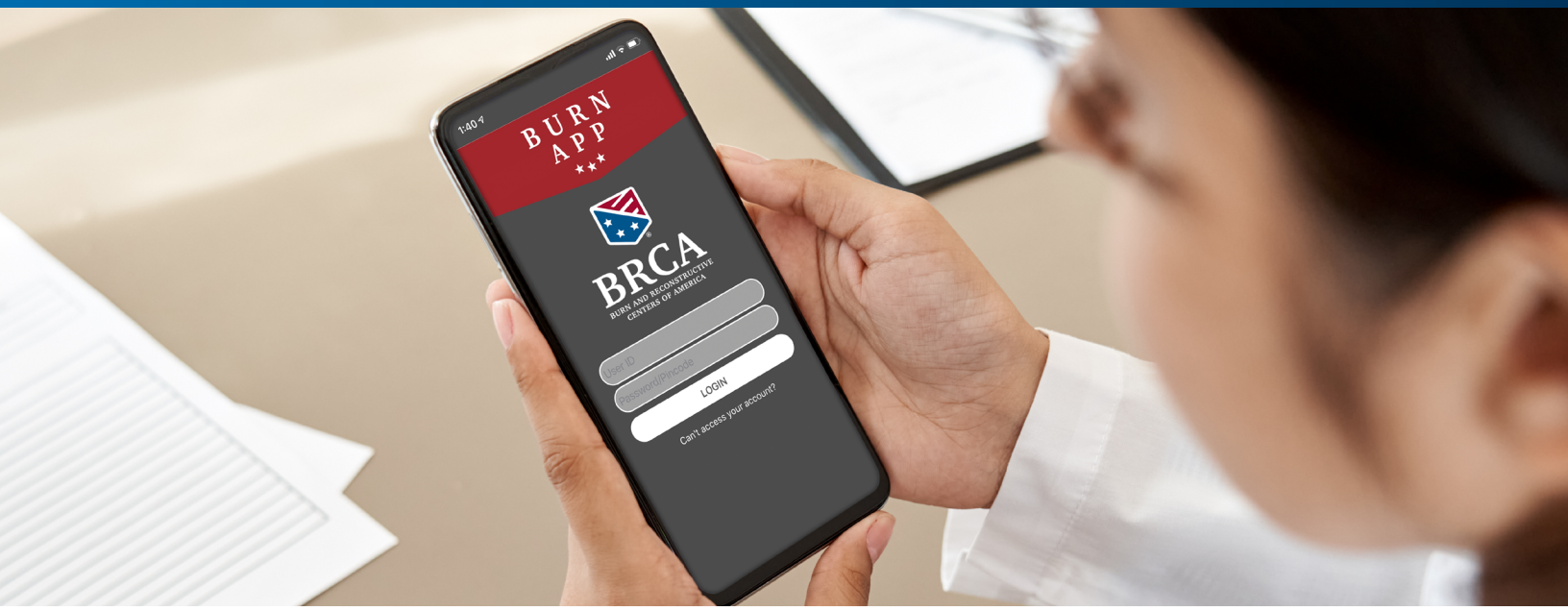

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