

## **The Role of Occupational Therapy in Wound Management**

The American Occupational Therapy Association (AOTA) asserts that the prevention and amelioration of wounds and their impact on daily life occupations are within the scope of occupational therapy practice. Occupational therapists and occupational therapy assistants<sup>1</sup> routinely work with individuals and populations who are at risk for or have sustained wounds.

In the 2020 Healthy People initiative, the U.S. Department of Health and Human Services (DHHS) called for a 10% reduction in pressure ulcer–related hospitalizations in persons 65 or older by 2020 (DHHS, 2010), identifying this area as one of significant concern for individuals and society. This position paper serves to inform internal and external audiences, including employers and payer sources, about the role of occupational therapy related to prevention and amelioration of wounds to preserve and restore the ability of the individual to participate in meaningful, desired, and necessary daily life occupations.

### **Types, Incidence, and Prevalence of Wounds**

*Wounds*, or impaired skin integrities, include abrasions, punctures, bites, surgical wounds, diabetic ulcers, pressure ulcers, traumatic wounds, venous stasis ulcers, and arterial ulcers. Certain populations either exhibit or are at risk for wounds and from related complications. These populations include people with spinal cord injuries, cerebral palsy, hand injuries, diabetes, cancer, burns, and those with sensory or mobility impairments, including the elderly. For example, the Centers for Disease Control and Prevention (CDC) has reported that in 2006, about 65,700 nontraumatic lower-limb amputations were performed in people with diabetes, representing approximately 60% of all nontraumatic lower-limb amputations (CDC, 2011).

Wounds and related conditions can affect a person’s ability to participate fully in all daily life activities. Limitations can occur in performing self-care, work, educational activities, leisure activities, social participation, and rest and sleep. Wounds affect both the physical and psychological well-being of individuals and can adversely affect quality of life. Pain, depression, social isolation, and anxiety can result from the existence of wounds, particularly those that are chronic in nature (Nogueira, Zanin, Miyazaki, & Godoy, 2009).

In addition, and depending on the location and severity of the wound, a person may also have difficulties with any of the following:

- Management of the wound site, including applying wound care treatments and products to promote healing as well as manage drainage or odor
- Management of clothing and footwear that may no longer fit correctly or that may worsen the wound condition
- Care, use, and application of pressure garments for scar management
- Engaging in restful sleep due to the presence of pain
- Functional mobility related to the wound site or associated pain

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<sup>1</sup>*Occupational therapists* are responsible for all aspects of occupational therapy service delivery and are accountable for the safety and effectiveness of the occupational therapy service delivery process. *Occupational therapy assistants* deliver occupational therapy services under the supervision of and in partnership with an occupational therapist (AOTA, 2009).

- Engaging in physical activity necessary to prevent impairments in endurance, overall strength, cardiovascular status, pulmonary status, and cognition
- Social participation, self-efficacy, and reported quality of life resulting from discoloration of the skin, visible scars, contracting or hypertrophic scars, and conspicuous use of compression garments
- Financial stability due to an inability to work
- Maintaining role identity in all aspects of life.

## **Occupational Therapy’s Role in Wound Management**

Occupational therapy’s perspective on working in this area combines an understanding of the mechanism and progression of acute and chronic wound healing and management, related body functions and structures, positive mental health, and the benefits of participation in everyday activities. Occupational therapy interventions focus on supporting health and participation through engagement in daily life activities and occupations.

The profession of occupational therapy is grounded in the principle that participation in meaningful and relevant life activities leads to life satisfaction, longevity, health, and wellness (AOTA, 2008; Christiansen, 2011). The ability to actively pursue and participate in desired life tasks and activities can be altered temporarily or for sustained periods of time due to the presence of a significant or chronic wound. In addition, diminished engagement in activity and mobility are considered risk factors for pressure ulcer–type wounds, according to the Braden Scale wound risk assessment tool (Prevention Plus, 2011).

Occupational therapy practitioners understand and appreciate the transactional relationship between client factors, including body functions and structures, and performance skills and performance patterns that are fundamental to participation (AOTA, 2008). When a wound is sustained, such as a severe finger laceration, direct attention to the wound itself as part of the overall occupational therapy intervention may be required to prevent or reduce occupational dysfunction that may occur secondary to this breach in the integumentary system (AOTA, 2010b).

With established service competency, following a plan of care established by an occupational therapist and as allowed by federal and state regulations and third-party payer requirements, the occupational therapy practitioner<sup>2</sup> can utilize preparatory techniques such as

- Application of clean dressings using the principles of moist wound care with both exudating and non-exudating wounds
- Application of wound closure strips
- Removal of sutures and wound closure strips
- Monitoring of wound status
- Mechanical debridement using forceps, cotton-tipped applicators, and wet-to-dry dressings and pulsed lavage
- Sharp debridement using scalpel or scissors to remove denatured tissue

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<sup>2</sup>When the term *occupational therapy practitioner* is used in this document, it refers to both occupational therapists and occupational therapy assistants (AOTA, 2006).

- Application of appropriate topical agents to facilitate wound healing and debridement
- Application of silver nitrate for reduction of hypertrophic granulation tissue
- Application of enzymatic agents (e.g., collagenase) for debridement
- Application of negative pressure wound therapy
- Application of physical agent modalities such as whirlpool, electrical stimulation, and ultrasound.

This care may be offered as part of a team approach to intervention or in collaboration with the referring physician. In addition, occupational therapy practitioners may provide accommodations while the wound is healing. For example, education and adaptive equipment can allow a client to assist with or perform dressing changes, basic activities of daily living, instrumental activities of daily living, and tasks within all other areas of occupation.

Occupational therapy practitioners also are skilled in the prevention of wounds for people with various acute and chronic conditions such as spinal cord injuries, burns, lymphedema, cancer, diabetes, hand injuries, and other sensory and mobility impairments. In these cases, individual attention is given to the client's health status, environmental and contextual status, patterns of activity, and lifestyle choices as part of an overall plan to maintain skin integrity. Some interventions focus on the client (persons, organizations, and populations), others address the way activities are performed, and still others seek to change the context or environment that surrounds the client and influences performance. Interventions may focus on treatment of the actual wound, treatment of the resulting dysfunction or prevention of the wound from occurring.

The following are examples of types of interventions and intervention approaches used in the delivery of occupational therapy services:

- Position the body to alleviate points of pressure including positioning techniques to ensure postural alignment, distribution of weight, balance and stability.
- Fabricate and provide splints and orthotic devices to protect healing structures, prevent deformity, and secure dressings.
- Recommend support surfaces such as specialized beds and customized wheelchairs, cushions, and seating systems.
- Educate client and caregivers in skin care techniques, including moisture control and dry skin prevention.
- Educate clients and caregivers in precautions and safety techniques for all areas of occupation.
- Modify and adapt the environment for safe functional performance.
- Educate in transfer techniques to minimize risk of skin tears.
- Work with clients to identify ways to incorporate recommended prevention measures into their ongoing daily routines. These include pressure relief activities (techniques and frequency) and pressure reduction equipment such as tilt- in-space wheelchairs and seat cushions.
- Educate clients and caregivers in techniques for donning and doffing pressure garments to manage swelling.
- Utilize specialized techniques for the management of upper-extremity lymphedema.

In addition, occupation-based and purposeful activities are provided and designed to engage the

client in tasks that are meaningful and relevant and that support the mind, body, and spirit. Skilled selection of appropriate activities will minimize the detrimental effects of physical inactivity; loss of habits, roles, and routines; and the social isolation that may result from the presence of wounds (AOTA, 2008).

Occupational therapy practitioners recognize that, in addition to neuromusculoskeletal concerns, clients experiencing wounds also may exhibit diminished sense of self and self-efficacy, anxiety, and depression that interfere with their ability to manage currently existing wounds or participate in relevant daily occupations. Individuals who currently do not present with a wound may be at risk due to various lifestyle choices or environmental situations. Occupational therapy practitioners engage the qualities of their personality; verbal and nonverbal communication; listening skills; and empathy to encourage, facilitate, and motivate clients as they seek and achieve personal health, wellness, and occupational participation (AOTA, 2008). Practitioners consider the contextual issues that affect availability and choice with regard to wound care methods and access to tools. Advocacy efforts are initiated by practitioners as appropriate to prevent and treat wounds when individuals are faced with these concerns.

Cultural issues are also considered in the course of occupational therapy intervention. The impact of beliefs and choices are considered and integrated as part of the holistic approach to treatment. For example, parents may prefer that only organic debridement agents be used on their child's wound. An occupational therapy practitioner who is aware of this decision may advocate for the family through a team conference in which a discussion about the use of autolytic debrident versus pharmaceutical agents can take place.

### ***Education***

Occupational therapy practitioners are knowledgeable within the areas of human biology and physiology and treatment methods and interventions used as part of wound management. According to the Accreditation Council on Occupational Therapy Education Standards (ACOTE, 2012), occupational therapists and occupational therapy assistants must demonstrate knowledge and understanding of the structure and function of the human body to include the biological and physical sciences (B.1.1). They select and provide interventions and procedures to enhance safety, health and wellness, and performance in all areas of occupation (i. e., ADLs, IADLs, work, play, leisure, social participation, education, and rest and sleep; B.5.2). In addition, occupational therapy practitioners provide development, remediation, and compensation for physical, mental, cognitive, perceptual, sensory functions, neuromuscular, and behavioral skills (B.5.6) and are able to design, fabricate, apply, fit, and train in assistive technologies and devices (e.g., electronic aids to daily living, seating and positioning systems) used to enhance occupational performance and foster participation (B.5.10). Occupational practitioners are able to demonstrate safe and effective application of superficial thermal and mechanical modalities as a preparatory measure to manage pain and improve occupational performance (B.5.15).

### ***Ethical Considerations***

The *Occupational Therapy Code of Ethics and Ethics Standards (2010)* (AOTA, 2010a) provides principles that guide safe and competent professional practice in all areas, including wound management. Several principles from the Code and Ethics Standards are particularly relevant to the use of wound management interventions and state that occupational therapy personnel shall

- “Provide occupational therapy services that are within each practitioner’s level of competence and scope of practice (e.g., qualifications, experience, the law)” (AOTA, 2010a, p. S19, Principle 1E).
- “Use, to the extent possible, evaluation, planning, intervention techniques, and therapeutic equipment that are evidence-based and within the recognized scope of occupational therapy practice” (AOTA, 2010a, p. S19, Principle 1F).
- “Take responsible steps (e.g., continuing education, research, supervision, training) and use careful judgment to ensure competence and weigh potential for client harm when generally recognized standards do not exist in emerging technology or areas of practice” (AOTA, 2010a, p. S19, Principle 1G).
- “Take responsibility for maintaining high standards and continuing competence in practice, education, and research by participating in professional development and educational activities to improve and update knowledge and skills” (AOTA, 2010a, p. S23, Principle 5F).
- “Ensure that all duties assumed by or assigned to other occupational therapy personnel match credentials, qualifications, experience, and scope of practice” (AOTA, 2010a, p. S23, Principle 5G).
- “Provide appropriate supervision to individuals for whom they have supervisory responsibility in accordance with AOTA official documents and local, state, and federal or national laws, rules, regulations, policies, procedures, standards, and guidelines” (AOTA, 2010a, p. S23, Principle 5H ).

All state laws and regulations related to wound management have precedence over AOTA policies and positions.

**Table 1. Case Examples of Occupational Therapy’s Role in Wound Management**

<b>Client and Background</b>	<b>Assessment and Findings</b>	<b>Interventions</b>
<p><b>Geneva, age 68</b>, was referred to an occupational therapist specializing in hand rehabilitation following an extensive palmar fasciotomy resulting from progressive Dupuytren’s contracture. A full-thickness skin graft harvested from her volar wrist/forearm was used to close a full-thickness wound on the volar surface of the small finger proximal phalanx and palm that sustained extensive loss of tissue due to long-standing MP and PIP contracture.</p> <p>At the time of the initial occupational therapy evaluation, about 4 days post surgery, it was noted that the</p>	<p>Following a saline rinse, the occupational therapy practitioner visually inspected the wound site and measured it using a disposable tape measure. Possible undermining and tunneling were assessed using a sterile cotton swab; no undermining or tunneling were found. The depth of the wound (2 mm) was measured with a tongue depressor and tape measure overlay. Observation of wound color and exudate indicated a clean red wound with early granulation tissue. Exudate was minimal/moderate and clear, as would be expected for this type of donor site. No signs of infection were present.</p>	<p>The occupational therapy practitioner initiated moist wound care using hydrogel to maintain an appropriately moist environment for granulation tissue growth. She covered the wound and hydrogel with semi-permeable film dressing to ensure adequate oxygenation and minimize the potential for anaerobic bacterial proliferation. A secondary dry gauze dressing was applied to protect the film dressing during splint wear and functional tasks. Geneva was instructed to keep the dressing in place until her next occupational therapy visit, at which time the wound was reassessed and re-dressed</p>

<p>donor site (about 2 cm by 5 cm) was left to heal by secondary intention. Physician orders called for the initiation of a moist wound care regimen following removal of the post-surgical dressing.</p>	<p>Circumferential measurements were taken of the arm just distal and proximal to the wound; when compared to the noninvolved side, no significant differences were noted. The measurements served as a baseline for levels of edema.</p> <p>An analog pain scale revealed that Geneva had very minimal pain, with a score of 2 on a scale of 1–10.</p> <p>The occupational profile included client-centered assessment tools and outlined areas of occupation of concern to Geneva.</p>	<p>as appropriate. Geneva was instructed in modification and adaptation strategies to maintain involvement in areas of occupation such as cooking and gardening, from which she derived significant personal satisfaction.</p> <p>This wound care regimen was administered by the occupational therapy practitioner for 2 weeks until granulation tissue bed was established. Geneva was then instructed to continue with program at home. About 2 weeks later, moist wound care was discontinued, as the wound had epithelialized fully.</p>
<p><b>Mr. Adams, age 71</b>, was referred to home health care services following a recent fall, resulting in a pelvic fracture, increased BP, and chronic Parkinson’s disease. He was discharged home from the ER with no inpatient hospitalization. Upon admission to home care, a Stage II ischial tuberosity ulcer was discovered. According to Mr. Adams, he preferred to stay in a recliner during the day and occasionally sleeps there at night if he doesn’t “feel strong.” Mr. Adams lives with his daughter and son-in-law, both of whom work during the day. Mr. Adams reported decreased appetite and that family are available to help with bathing if needed. He prefers to wear adult diapers, as he occasionally “cannot get to the toilet in time.”</p>	<p>During a visit to the home, the occupational therapist visually assessed the covered wound (a nurse provided documentation of measurements and granulation tissue, while occupational therapy documentation described the type of wound and dressing present). The nurse and occupational therapist collaborated to determine if the wound dressing was appropriate for Mr. Adams to shower. A hydrocolloid dressing was recommended to the doctor to allow a moist healing environment but provide a waterproof seal to allow bathing and prevent contamination.</p> <p>Upon further visual assessment of skin integrity and evaluation of clinical factors (i.e., decreased mobility with prolonged sitting, occasional incontinence with moistness leading to potential maceration, and decreased nutrition due to</p>	<p>While the home care nurse initially provided the direct application of the hydrocolloid dressing to the Stage II ulcer and monitored the wound status with photographs and diagrams, the occupational therapist was imperative in the wound care. As the wound began epithelialization, the dressing changes were reduced to every 4 days, and the nurse instructed the family in proper application, which the occupational therapist was able to reinforce during the performance of bathing. The therapist instructed Mr. Adams and his caregivers on the effects of prolonged pressure, shear forces, friction, and incontinence on the development of future ulcers and prevention of healing in the current ulcer. Bathing and toileting were addressed for thoroughness of drying skin as well as techniques for self-inspection. A toileting routine was established. Pressure relief</p>

	<p>poor meal planning), the occupational therapists noted 2 additional reddened areas over bony prominences on the coccyx. In addition, Mr. Adams presented with decreased pain awareness and fragile skin due to decreased weight, which contributed to pressure ulcer formation. The occupational therapist consulted with the nurse case manager to discuss a recommendation for a nutritionist consult, which the nurse followed up on and received from the doctor.</p>	<p>was addressed (Mr. Adams and his caregivers were instructed on changing position every hour, and a chair cushion was introduced for the recliner). Adequate nutrition needs (to assist with healing) were met after meal preparation alternatives were addressed with Mr. Adams, his caregivers, and a nutritionist. The wound was considered healed after full epithelialization, and as the last health care professional involved, the occupational therapist completed proper Medicare documentation and staging of the healed wound.</p>
<p><b>Tanner, age 10</b>, qualifies for special education services at school due to multiple impairments (e.g., orthopedic, cognitive, visual). As a result of a disability, Tanner is not able to independently change his position to relieve pressure points created by the gravitational pull on his body in any position. Tanner is supported with a customized wheelchair for mobility, adapted stander, and adaptive seating in the school setting to facilitate his highest level of participation in instructional activities. Tanner is recovering from a medical intervention to address a pressure area.</p>	<p>Occupational therapy services evaluated Tanner’s participation at school using observation, parent and teacher interviews, and the School Function Assessment (Coster, Deeney, Haltiwanger, &amp; Haley, 1998). From the evaluation process, it was identified that Tanner required alternative positioning options at school to facilitate his highest level of functional participation in the instructional activities presented in this setting. Additionally, the classroom personnel required training on the necessity to provide Tanner with a daily schedule for change in position to facilitate healing of the pressure area.</p>	<p>The occupational therapist provided training for the classroom personnel on how to transfer and position Tanner in the various positioning options provided in the classroom and the functional performance they should expect from Tanner in each option. The therapist also collaborated with the classroom teacher to develop a daily positioning schedule for Tanner while at school that not only facilitated function in the setting but also provided Tanner with a change in position at least every hour. The frequency of positional changes at school was determined in consultation with Tanner’s orthopedic surgeon, who is medically managing the pressure area healing process.</p>
<p><b>Brian,* age 36</b>, had a complete SCI at the T-8 level 2 years ago as a result of motor vehicle crash. He lives alone and uses a manual wheelchair for mobility. He drives a vehicle adapted with hand controls. He</p>	<p>The rehabilitation team worked with the hospital urologist to determine the cause of Brian’s recurrent UTIs. Brian uses intermittent catheterization and may not have always used the safest techniques. The team</p>	<p>The occupational therapy practitioner reviewed with Brian strategies for reducing infection during intermittent catheterization. She discussed strategies for continued engagement in work and</p>

<p>has been employed as a computer programmer and has had a history of pressure ulcers for the past year. Currently, he is admitted to the hospital for a UTI and a Stage 3 pressure ulcer on his left ischial tuberosity.</p>	<p>also reviewed Brian’s pressure ulcer history. The pressure ulcer was cultured and treated according to the hospital’s protocol, which may include dressings, whirlpool, vacuum-assisted closure, or surgery. Brian remains prone as much as possible while in the hospital. The occupational therapist evaluated Brian’s ability to participate in bladder management and work. All equipment pertaining to seating (e.g., wheelchair, cushion) was evaluated for appropriateness, condition, and effectiveness. Pressure mapping may be necessary to find a wheelchair pressure reduction cushion that helps reduce the risk of pressure ulcers.</p>	<p>leisure tasks while he is hospitalized in the prone position. If necessary, Brian’s wheelchair will be modified or replaced (if finances are available). Brian will participate in group and individual pressure ulcer prevention and management education sessions and will be provided with a home program to follow. Brian will be instructed on managing the ulcer (surgical site if he had surgery) with dressings and pressure redistribution (weight shifts if he is allowed to sit) during sitting or lying in bed, on nutrition, on transfers, and on sitting tolerance. Home and work site visits are recommended to help Brian identify situations that may be contributing to his recurrent pressure ulcers. He may be referred for home health services while the ulcer heals.</p>
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*Note.* BP = blood pressure; ER = emergency room; MP = metacarpophalangeal; PIP = proximal interphalangeal; UTI = urinary tract infection.

\*The case study on Brian was contributed by Susan L. Garber, MA, OTR, FAOTA, FACRM.

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### **Additional Resources**

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