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The Roles of Physical Therapists in Wound Management, Part II: Patient and Wound Evaluation

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A thorough evaluation of the patient and all wounds is imperative prior to administering treatment. Assessing patient musculoskeletal function, mobility, and strength is unique to physical therapist (PT) expertise, and findings frequently reveal compromises or losses in one or all areas. Afflictions that often interfere with patient function, mobility, and strength include but are not limited to comorbid conditions such as diabetes; renal failure; peripheral arterial disease; venous insufficiency; rheumatoid arthritis; spinal cord injury; and other neurologic or neurovascular conditions such as multiple sclerosis, Parkinson's disease, and cerebral vascular infarct; as well as aging. The PT evaluates function and mobility by having the patient perform activities of daily living; measuring range of motion, strength, and balance; evaluating gait patterns; and performing supervised ambulation training for qualified patients with intermittent claudication. In addition, the PT thoroughly evaluates the patient's wound for length, width, depth, exudate quantity and qualities, and signs of soft tissue and bone infection. Further, for patients with sensory, motor, or autonomic neuropathy, the PT also assesses for bilateral upper and lower extremity proprioceptive feedback; balance; biomechanical foot deformities; the need for protective footwear, orthotics, and support surfaces; and the status of protective sensation, muscle strength, and sweating. To evaluate for lower extremity arterial insufficiency, the PT performs tests for capillary refill and rubor of dependency, checks for foot and leg hair loss, queries the patient regarding symptoms of claudication pain, and uses Doppler ultrasound to perform the ankle-brachial index test. The

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Doppler is also used to assess for lower extremity venous obstruction and reflux. Edema is evaluated either by taking extremity girth measurements, by volumetric water displacement, or by manually grading severity by 1+, 2+, pitting, and chronic or woody texture.

PT Management of Patients with Pressure Ulceration

Since pressure ulcers usually result from the patient's having compromised chair or bed mobility or a combination, the PT determines whether the decline in mobility is due to a reduction in strength from aging, injury, or weakness or loss of protective sensation secondary to a disease process, eg, spinal cord injury or multiple sclerosis. If a large and deep cavity wound over the right trochanter is a stage IV pressure ulcer, the PT will perform a manual muscle test to determine whether hip abductor muscle strength is compromised because of pressure necrosis erosion into the gluteus medius/minimus muscle(s). If these muscles are weak because of attrition and the patient can tolerate exercise, the PT will include an exercise program in the patient's plan of care as a means of restoring normal gait function and mobility. A thorough wound evaluation is performed as previously mentioned, with additional emphasis on determining the viability of tissues, whether the wound is infected or inflamed, whether the amount of wound moisture is adequate, and whether the epithelial edge of the wound is intact and capable of migrating. If nonviable tissue is present, the PT, under physician direction, may perform selective sharp debridement or debride with low-frequency ultrasound. Several options are available for wound irrigation, including but not limited to use of a bulb syringe, a 60-cc syringe with a 19-gauge needle, and pulsed lavage with suction. Following irrigation, an enzymatic debriding agent may be topically applied via a gauze dressing to any remaining nonviable tissue to facilitate its solubilization. In the absence of clinical signs or objective indicators of wound infection, or in the case of a shortage of nursing service, several choices of primary wound dressings are available to control exudation and to maintain moisture of the wound interior. Examples of moisture-retentive and absorbent dressings include alginate, hydrofiber, composite, and hydrocolloid products. A secondary absorptive composite or foam dressing may be used to secure the primary dressing and to prevent skin maceration. If the patient's mobility will continue to be limited by extended periods of sitting or recumbency, the PT may use available pressure mapping technology to reduce the risk of new pressure necrosis by identifying appropriate bed and/or wheelchair surfaces and adaptive equipment that will effectively position the patient and redistribute surface-to-skin interface pressures away from bony prominences.

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