Importance of Physical Therapy After Severe Leg Injuries

Physical Therapists provide rehab and retraining for patients after severe leg injuries. Regaining normal motion and motor control, improving strength, and restoring *kinesthetic awareness* (sense of position) are some examples of what Physical Therapy addresses for these patients.

It makes sense that a program of this type is needed for patients with lower-extremity trauma. But what's the evidence to back this up? In this study, Physical Therapists compare two groups of patients after severe lower-extremity injuries.

All patients in both groups were recommended for Physical Therapy. Some patients received Physical Therapy but others did not. The patients were divided into two groups. The groups were labeled patients with a *met need* (those who had therapy) and patients with an *unmet need* (those who did not have therapy). Recommendations for Physical Therapy were made by either an orthopedic surgeon or a Physical Therapist. This was done after an interview and evaluation by either of these health care professionals.

The researchers hypothesized that the patients who did indeed receive Physical Therapy would have improved recovery and better outcomes than the patients who did not receive Physical Therapy services.

Patients included in the study came from one of eight different level-one trauma centers in the United States. They had an injury to the lower leg (from the knee down). Patients ranged in age from 16 to 69. The injuries included bone fractures, crush injuries of the soft tissues, and injuries severe enough to consider amputation. Anyone with an actual amputation was excluded from the study.

Information collected about each one came from a database already in existence called the *Lower Extremity Assessment Project* (LEAP) study. Everyone was followed for at least two years. General information collected from the medical record included:

- Extent of injury and treatment
- Presence of other injuries
- Patient demographics (age, race, sex, level of education, general health)
- Psychosocial information (use of alcohol or other drugs, personality type, social support)

More specific information about physical function and disability was also measured. The *Functional Independence Measure* (FIM) was used to measure functional gains for specific activities such as walking, stair climbing, and daily activities (e.g., eating, bathing, self-care).

The FIM is an 18-item, seven-level functional assessment. It is designed to see how much help is needed to perform basic life activities safely and effectively by a person with a disability. In this study specific attention was paid to walking speed and any difficulties with walking. The Physical Therapist recorded any changes in the *gait* (walking) pattern observed during the testing. Joint range-of-motion, walking speed, and number of stairs completed were also observed.

Of those physical activities and limitations evaluated, five measures of physical impairment and activity limitations were used to compare the two groups. These included 1) FIM score, 2) range of motion, 3) stair climbing, 4) problems with gait when walking, and 5) walking speed.

The results showed that when everyone in the two groups was matched equally, the results were better in the group that had Physical Therapy treatment. As expected, the group with met needs had better overall
scores on all tests indicating improved outcomes. There were some ups and downs along the way.

For example, in the area of range of motion, patients with unmet needs generally had worse results than patients with met needs. Later in the follow-up (12 to 24 months), improvement was about the same between the two groups. In all other areas, patients with unmet needs were less likely to improve over any of the selected time periods (three to six months, six to 12 months, 12 to 24 months). The lack of improvement in the unmet needs group was most noticeable with physical activities and functional tasks.

Between Physical Therapists and orthopedic surgeons, Physical Therapists were more likely to recognize which patients would benefit the most from this type of treatment. There may be some specific reasons for this. For example, the patient's insurance status, the relationship between the therapist and the surgeon, and differences in conducting the physician's examination process may account for physician referral (or nonreferral).

The authors conclude that Physical Therapists are more likely to know when and how to recognize the need for a Physical Therapy referral in this group of patients. Currently, there is a need to educate physicians to identify who can benefit from Physical Therapy. Therapists need to provide continue studies such as these and provide standards for prescription of Physical Therapy services.