

## The Occupational Therapy Role in Rehabilitation for the Person With an Upper-Limb Amputation

### Limb Amputation

In 2005, approximately 541,000 people in the United States were living with an upper-limb amputation, and that number was expected to increase through 2050 (Ziegler-Graham, MacKenzie, Ephraim, Trivison, & Brookmeyer, 2008). Unlike lower-limb amputations, upper-limb amputations are most often the result of sudden trauma to the body, although they also can be caused by malignancy, congenital deficiencies, and vascular disease. A person faced with such a life-altering change will have to make many physical and psychological adjustments to be able to fully participate in everyday life.

### The Benefits of Occupational Therapy

Occupational therapy is a critical rehabilitation component, providing support to individuals and facilitating optimum performance of daily life activities as well as quality of life. A therapeutic team that includes the skills of an occupational therapy practitioner will provide the client with the most successful rehabilitation and prosthetic training.

Upper-limb amputation not only affects a person's physical functioning, but also psychological and emotional well-being. Occupational therapy practitioners recognize the complexity of this condition and use a holistic approach that emphasizes the client's perspective—the roles and activities they meaningful, and personal experiences and values—in developing intervention plans and goals.

The occupational therapy practitioner provides critical interventions, such as

- identifying the client's functional goals, which can include self-care, home management, work tasks, driving, child care, and leisure activities, and offering modifications to complete these goals if required
- analyzing tasks and providing modifications to achieve functional goals
- providing education on compensatory techniques and equipment to accomplish tasks and activities
- providing prosthetic training
- identifying and addressing psychosocial issues

Occupational therapy intervention will vary according to individual needs, and phases of intervention may overlap, depending on the person's progress.

### The Interdisciplinary Team

An interdisciplinary team experienced in all aspects of amputee care—from behavioral health to technology to prosthetic fitting and community reintegration—is critical to successful rehabilitation. The role of occupational therapy as part of the team is to provide the client with adaptive techniques and strategies that enable him or her to regain the ability to participate in all desired life tasks.

Occupational therapists identify the client's individual needs and goals and provide guidance to the rehabilitation team regarding potential prosthetic options. They also provide training in the care and use of any prosthetic device when and if that is prescribed. Prosthetic options will be discussed when the client is deemed prepared for this information. This can be pre-operatively in the case of elective amputations, or at any time postoperatively, depending on the person's ability to assimilate that information. Options include no prosthesis, a passive prosthesis, a body-powered prosthesis, an electric prosthesis, a hybrid prosthesis, or a task-specific prosthesis.

Many technological advances in prosthetic devices have been made in recent years. Componentry, for example, is lighter weight, faster, and offers more realistic functions than past devices. Prostheses are available with specialized terminal devices that allow the person with an amputation to resume or begin participating in work, athletic activities, and leisure pursuits.



The following general guidelines address occupational therapy's roles through four therapeutic phases.

### **Acute Phase**

The occupational therapist will begin evaluating the client and developing a client-centered intervention plan. Occupational therapy practitioners will provide wound care, address range of motion, begin desensitization, facilitate pain control, and provide psychological support. Short- and long-term goals related to activities that the client needs and wants to do will be identified.

### **Pre-Prosthetic Training Phase**

The occupational therapy practitioner will introduce exercises for general conditioning as well as exercises specific to changes in posture due to limb loss or to the foreign weight of a prosthesis. During this phase, intervention will focus more fully on the skills needed to accomplish the activities that are most important to the client and to achieving the client's goals. In the acute setting, these goals often begin with basic daily living tasks such as feeding and dressing. During this time, adaptive equipment will be introduced and change of dominance training will be addressed if necessary.

As part of this phase, occupational therapy has a special role in preparing clients for fitting and optimal use of their prosthesis by using interventions such as edema control, desensitization, scar management, and noninvasive feedback for muscle control and instruction in body motions that may be used to operate the prosthesis.

### **Basic Prosthetic Training Phase**

When the client receives the prosthesis, the occupational therapy practitioner will provide instruction donning and doffing, wear schedule, and basic controls. After the client has mastered these initial activities, he or she will begin to use the prosthesis for those basic daily living tasks previously identified as critical for achieving short- and long-term personal goals. The occupational therapy practitioner will monitor the client's ability to perform specific activities as competence in using the device continues to develop, and will provide modifications as necessary.

Throughout the rehabilitation process, occupational therapy practitioners provide support to help clients cope with the potentially devastating psychosocial effects of an upper-limb amputation. For example, they may facilitate interactions with others who have been through a similar experience, successfully met their goals, and achieved a good quality of life, which can offer critical hope and motivation.

### **Advanced Prosthetic Training**

The occupational therapy practitioner will assist the client in integrating the prosthesis into more advanced activities such as child care, home maintenance, work activities, driving, sports, and hobbies.

Discharge planning is occurring throughout this entire process. Progressive community reintegration, consultation with vocational rehabilitation staff, and resources are provided for the client and family. By now the collaboration between the occupational therapy practitioner(s) and the client should have provided the client with the education and resources to once again engage competently and productively in self-care, vocational, and leisure activities.

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## References

Ziegler-Graham, K., MacKenzie, E. J., Ephraim, P. L., Trivison, T. G., & Brookmeyer, R. (2008). Estimating the prevalence of limb loss in the United States: 2005 to 2050. *Archives of Physical Medicine and Rehabilitation*, 89, 422–429. <http://dx.doi.org/10.1016/j.apmr.2007.11.005>

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Occupational therapy enables people of all ages live life to its fullest by helping them to promote health, make lifestyle or environmental changes, and prevent—or live better with—injury, illness, or disability. By looking at the whole picture—a client's psychological, physical, emotional, and social make-up—occupational therapy assists people to achieve their goals, function at the highest possible level, maintain or rebuild their independence, and participate in the everyday activities of life.

