Program Summary, September 13, 2009

Lower Extremity Orthotics

by Steve Mersch, Hangar Prosthetics & Orthotics

The North Central Florida Post Polio Support Group started this season's lecture series at TimberRidge in Ocala by welcoming back Dr. Burton W. Marsh, who visited our group for the first time in the three years since his retirement. It was really great to see him. Dr. Marsh introduced Steve Mersch from Hangar prosthetics and orthotics in Gainesville, who discussed the benefits of lower extremity orthotics.

Mr. Mersch explained that his experience with Post-Polio patients has been sporadic. He stated that people with PPS are a fairly unique group of people, mainly in their 50s, 60s and 70s who spent a great deal of their lives without the use of orthotics and then with the onset of PPS, had to make the transition of going back and using a brace again.

When survivors were very young they were usually put into some sort of metal brace made from steel and aluminum. Then in the 1960s, braces made of plastics were introduced. Today's technology offers a wide variety of materials including poly fibers, acrylics and epoxy resins. The majority of these new materials were developed by the aerospace industry.

The basic definition of an orthotics device is to provide support, alignment, to try to correct or prevent deformity, substitute or enhance function and decrease pain or discomfort.

When you come in to see Steve for an evaluation, he will probably be trying to focus on these type of things.

Depending on the priority between pain and deformity, it is a collaborative effort between you and the practitioner to come up with what is best suited for you. As adults, you will know what you need and it is important for you to find someone that you can work with and that you feel comfortable with as an orthotist.

Hangar's evaluation process is similar to most in a rehab setting. They do some manual muscle testing and just checking range of motion. Different types of orthosis require different functions, different strengths and different muscle use.

You have to take in account height, weight and activity level when designing different braces. If the knee is involved, you have to consider how the hip will be affected by the length of the brace. Sometimes you have to give up some stability for motion. Sometimes you can take something small, medium or large and cut it so it is custom fit.

For ankle/foot orthosis, basically what is provided is support for the foot area and ankle. There are different types of flexion depending on what is necessary for the prescription. They look at the angle and position of the foot, ankle alignment, drop foot, fractures and instability. They also have to take the knee into account. Today there are many different types of ankle and foot joint orthotics that can be prescribed depending on the patient.

People who have had a stroke or have a problem with spasticity often need a brace that locks their ankle or foot in place and it can even help with their upper extremities because

now they don't have to focus on foot and ankle movement and they feel more stable. For patients with a history of polio it's a different matter. A lot of times motion is necessary to create a stable feel.

There are different types of brace attachments for the foot. There are stirrups that attach to shoes and they are designed to go up higher to provide some knee stability and help to keep the foot from turning over. If you don't want to go above the knee, you may have to compromise by using a walker along with this type of brace for better stability. There are foot plates that fit inside shoes with the brace attached. However for some people, especially people with diabetes, this may cause irritation or worse damage to the foot.

It's important to deal with the whole person. Some people have nightmares remembering some of the types of appliances they had to wear when they were younger and this can determine what type of brace they are willing to wear as adults.

Hangar uses different types of materials including foams and an array of plastics that have different characteristics and different durabilities. New materials that are being used today include laminated materials, carbon fibers and resins. Thermo-plastics are hypo-allergenic, however, some of the newer materials aren't and people have to be tested before they can be used.

Steve showed us a new device called Otto Bock E-MAG Control 17B200 Sensor Walk, which is a new generation of electronic stance control orthotics. It was developed for the Mayo Clinic by Otto Bock. The Sensor Walk is a heavy duty custom KAFO. Unique sensors in the foot plate know when the patient is in late stance phase and triggers the knee joint to unlock. This technology is new and costs around $30,000. Medicare only covers about $3,600. The patient also has to get used to the weight and learn to walk without a locked knee, but it is the newest technology available for people who need this type of orthotics.

Steve went on to describe new technology that has been developed for people with spinal cord injuries, but that cannot help those with PPS.

We thank him for his informative presentation and, as always, we appreciate his traveling to Ocala from Gainesville to meet with our group.

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Summarized by Sharon Daszczynski