

Dynamic therapy



OTs study success of stroke rehab tool

By Cheri Ghan

It resembles something from a science fiction movie. This complex creation of springs, coils, straps and plastic tips is not likely to be named the latest chic fashion accessory but to Betty Gayle Smith it's the most beautiful thing she's ever seen. The **SaeboFlex** is a custom-fabricated orthotic that helps stroke survivors regain the use of their affected hand and arm.

Giuli Krug, clinical assistant professor of occupational therapy and Adult OT Clinic coordinator, is the only person within 98 miles of Columbia certified to use the Saebo in a clinical setting. A year ago she'd never heard of it. In fact, it was the 64-year-old Smith, of Columbia, who brought the device to Krug's attention. Nearly six years post stroke she was a client at the occupational therapy (OT) clinic that Krug runs.

"I was reading a *Stroke Connection* magazine and saw an ad for Saebo and looked them up on the internet," Smith recalls. "I found the closest certified person was in Rolla so I asked Giuli about it. The rest is history."

Well, it almost wasn't. Krug, an OT trained in conventional treatments, was skeptical of the spring-loaded gadget but she decided to attend a free training course.

Training day

"It went against some of the theories I grew up with as an OT," she says. "But then I saw it in action with clients who had never tried it before. I saw their faces when they were able to pick up a ball with their affected hand on their own power for the first time in months, even years."

A convert, Krug returned to Columbia as a certified Level I Saebo therapist. This summer she completed Level II, the maximum training for evaluation, fitting and training in the Saebo devices.

The Saebo system features wrist straps and forms fitted to each patient. The springs and tips are adjusted to account for an individual's range of movement. Initially, the Saebo assists the patient with opening their hand. Next they grasp the object with their own muscle power while Saebo helps them open their fingers. As the patient becomes more adept and masters control over their hand, the tension

is loosened. Eventually the Saebo is withdrawn as muscle power increases.

Created by an OT, the Saebo company reports success with patients from several weeks to many years post stroke. Smith was Krug's first Saebo client. On a cold January day in the basement of Lewis Hall a miracle happened. After trying unsuccessfully to automatically open her hand and pick up a multi-colored foam ball, Smith sat patiently while Krug strapped a Saebo on and adjusted the springs. "It was just hair-raising to me to see and be able to move my hand and fingers after no movement for almost six years," Smith says. "It just seemed unreal to me."

One of the best aspects of the device is that it is at least partially covered by most insurance, 80 percent by Medicare, and 100 percent by Medicaid. But some clients, many of whom have had their income affected by their stroke, are frustrated. "Some of my clients can't even afford the 20 percent co-pay, which is between \$200 and \$250," Krug says.

Charting success

Krug can see that Saebo works, she just wants to discover how well it works. She took advantage of the fact that all OT students must conduct a research project to graduate. She recruited three members of the class of 2010 to help gather and process data. Their question: Is training with both arms while wearing the device on the affected limb more effective than



Giuli Krug adjusts the Saebo for Betty Gayle Smith. The device has helped her regain hand function.

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just training the affected arm for stroke survivors six months or more post stroke? Half of the participants do the two-arm training while the other half does the one-arm training

“With this study students get to learn how to adjust treatment interventions to the ability level of each participant based on the participant’s functional goals,” Krug says. “They also learn how to utilize standardized testing and how to interpret that information.”

The goal is to have 12 participants complete the study by the spring of 2011 and as the word about Saebo gets out, the list of participants has grown. Saebo loaned equipment for the research and participants get their own customized devices. The evaluation, fitting and training are free as part of the study.

As with Smith, the first time a client tries the device is emotional. “Mostly I see huge smiles, sometimes tears,” Krug says. “This is the first time in a long time for most clients that they have seen their hand do anything at all!”

Commitment required

Although **SaeboFlex** appears to provide users with instant improvement, the device requires commitment for best results. Research participants come into Lewis Hall twice a week for 12 to 15 weeks of 45-minute sessions. There’s also homework: two 45-minute practices daily. It’s hard, but the clients are motivated.

The results vary but all see progress. Generally, Krug says, the tighter the arm, the slower the recovery.

Ashley Ebert is one of the OT students helping with the research. “I find this intriguing because as OTs we are always looking for innovative ideas to help our clients regain function. The more exposure I have to various treatments, the more I can tell others about it when I am in the workplace,” Ebert says. “Seeing the expression on the individuals’ faces when they are able to pick up an object with their affected hand for the first time since their stroke is priceless.”

Krug calls Saebo “another weapon in my arsenal to help people recover for a two-handed world.” Smith is glad of that. She now sees some finger movement without the device.

“I am able to move my arm and sometimes the entire hand seems improved. I don’t remember being able to move the lower arm as much before,” she says.

But with her visits to the SHP clinic, Smith has received something more. “I’m just so appreciative of the enthusiasm of Giuli and all the students I have worked with and all the positive energy they provide. I can come to the clinic feeling a little bummed out some days and discouraged with what may seem like little progress at home and they always have me feeling better about myself and the possibilities before I leave.”

Joplin alumna finds Saebo success

Jana Brownlee, BHS- OT ’93, was watching television one winter night in 2005 when she saw a demonstration of the **SaeboFlex** device, a mechanical custom fabricated orthosis. The next morning former patients were calling the Joplin, Mo. occupational therapist to find out what she knew about it. After researching the device she attended training sessions and brought the therapy back to her patients. Four years later Brownlee and Saebo are still bringing smiles to the faces of men and women who thought they would never regain function in their stroke-affected arms.

“Most patients are usually excited and very willing to give it a try,” Brownlee says. “They just want whatever might work to get their arm back. The first session they put the **SaeboFlex** on and see that they can actually pick up something and move it from point A to point B. This is usually a tearful experience, sometimes for me as well, because typically this is the first time since the stroke they have done anything functional with the affected arm.”

After those sessions, Brownlee still has patients complete traditional tone-reduction and weight-bearing strengthening with the same grasp and release activities that are completed with the **SaeboFlex**. Her goal is to see tell how much skill carryover she is seeing from one round of work to the next. She has several patients who, through dedicated use, have made substantial recoveries to use their affected arm functionally.

“I had one patient in particular who is able to rebuild car engines and remodel and repair his house. I had another who was able to resume her favorite sport of tennis,” Brownlee says.

Brownlee says most patients who are appropriate to use the **SaeboFlex** see some gains. She’d like to see additional research comparing the benefits of **SaeboFlex** with devices such as the Hand Mentor and Bioness.