CASESTUDY

How Biodex programs give UHS Pruitt the "clinical advantage"

UHS Pruitt Corporation

BIODEX
Biodex Medical Systems, Inc.
20 Ramsey Road, Shirley, New York, 11967-4704, Tel: 800-224-6339 (*Int'l 631-924-9000),* Fax: 631-924-9338, Email: info@biodex.com, www.biodex.com

A UHS Pruitt therapist uses the visual feedback on the BioStep to help his client understand her abilities. Printouts are used to track progress toward a goal.

UHS Pruitt Corporation

UHS Pruitt is a progressive chain of SNFs located in Georgia and North and South Carolina. Pruitt Corporation currently manages directly and through affiliates, 56 nursing homes, four personal care centers, a management company, three pharmacies, a hospice with eight offices and a separate inpatient unit, a care management company, and four certified home health agencies.

Pruitt began to expand their rehabilitation programs in 2007 when they started using the Biodex Fall Risk Screening and Conditioning Program. Twenty-seven (27) of their facilities incorporated the Biodex Balance System into their testing / treatment routines, and that number continues to grow today.

Recently Biodex spoke with Jonathan Day, PT at Pruitt to learn how he uses the Biodex Balance System in treating a wide range of pathologies.

Q: What is the range of patients that you routinely treat with your Biodex systems?

Jonathan Day, PT: We treat patients recovering from trauma, stroke, heart attack, hip and knee replacement, and Parkinson's disease, to name a few. Right now, several of my patients are rehabilitating after falls that resulted in vertebral compression fractures. That's fairly common among people who are thin and frail. They have a higher probability of suffering vertebral fractures when they fall.

Q: How do you rehabilitate fall patients?

Day: I find a lot of falls result from patient weakness, so we focus on strengthening of the legs. I typically combine exercises on the Biodex Balance System with weights on the legs, both from a sitting and standing position. Once a day, they get physical therapy and occupational therapy.

Q: How do you initiate therapy with fall patients?

Day: We start with an OT approach, discussing their fall. Sometimes there are home safety issues, or the patient's making bad decisions.

For example, they may be very careful in the bathtub, but then, when we ask them to put on their pants, we see them trying to do it standing up.

After a hospital stay of a week, most have lost much of their strength and endurance. At first, the exercises may be as simple as sitting down and standing up. We progress pretty quickly to the Biodex BioStep elliptical trainer,

Jonathan Day with patient on the Biodex Gait Trainer. He uses the print-outs to show patients their progress toward set goals.

which is good for both endurance and strengthening as well. We like the elliptical for those with compression fractures because their physicians frequently don't want them to use their arms. The BioStep can be operated with the legs only, without incorporating the arms. It lets us begin immediately rebuilding their endurance.

Q: And thus, through the use of the Balance System and BioStep, you're strengthening their lower extremities?
Day: Yes, because in many cases it's weakness of the lower extremities that resulted in their first fall, and puts them at risk for falling again.

Q: Beyond the fall patient, what are some other diagnoses for which you might use the Balance System?
Day: To be honest, it could be anyone. It's not based on age and it's not based on diagnosis – it's based on need. Clearly, if they have a history of falling, no matter what particular diagnosis led to their admission, we use the Balance System.

Beyond fall patients, another type of patient we use it for are orthopedic patients. We have a male patient who, despite several weeks of therapy, is still at 50% weight bearing on one leg because of an ankle fracture. He was admitted following discharge for trauma. He had a hip fracture, two wrist fractures and the ankle fracture. The ankle is turning out to be the last to heal. The Balance System gives us the ability to work specifically to the weight-bearing percentage his orthopedist had ordered. I can't overestimate the value of knowing exact percentage of weight bearing in cases like this. Not knowing exact weight-bearing percentage slows down recovery, and can even impact outcome. Most people have no idea what 25% or 50% weight bearing feels like, especially if they are in pain from surgery or injury. The visual feedback of the Balance System helped this elderly man understand what percentage of weight bearing on his ankle was safe – rather than depending on discomfort for an indication.

Q: Who are the kinds of patients for whom you use the Biodex Gait Trainer?
Day: Typically we use it, along with the Balance System, for orthopedic patients – specifically, patients who have undergone total knee or hip replacement.

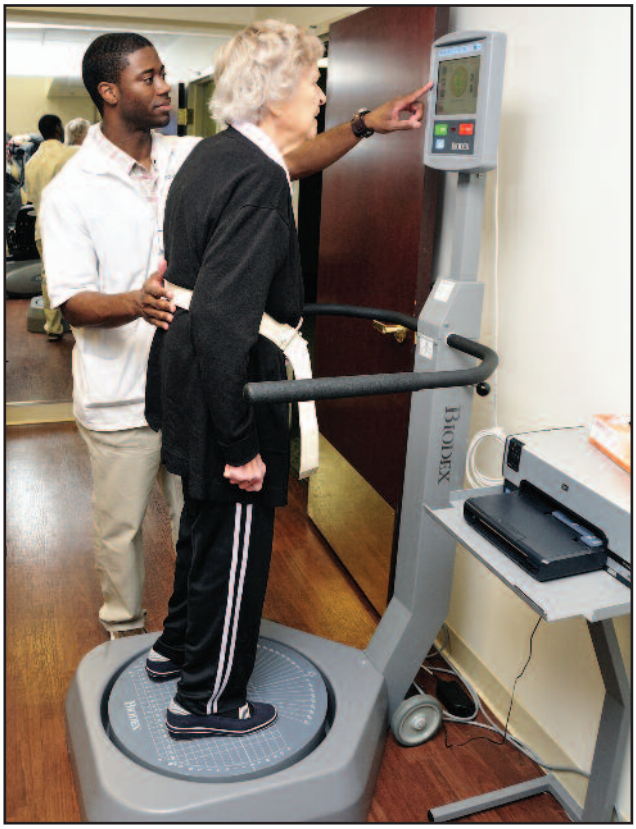
After hip or knee surgery, most surgeons want their patients to put as much weight on the operated limb as the patient can tolerate. The right kind of stress actually enhances bone healing. Without guided rehabilitation, many patients – perhaps, most – favor their un-operated leg. If they would walk like that for perhaps six to eight weeks until the pain subsided, they would develop bad gait patterns. Months later, such people are still displaying a short step length, which can increase their risk of a fall. And when they have to walk long distances, they're limping.

The Biodex BioStep is good for both endurance and lower extremity strengthening.

The Balance System's graphics display helps patients learn how to equalize their weight on both legs so that they're not favoring the un-operated side. Its software provides visual feedback, based on age and gender, as to normal balance. I can show them where they are in respect to normals.

The Gait Trainer has a graphics display that demonstrates when patients are walking with an uneven gait, and encourages them to take greater step length with the surgery or trauma-affected leg. It shows them where their foot's supposed to strike and where it actually is striking. Once a week, we can print out that information and keep it in the patient's chart.

I use those printouts to help the patient understand his or her progress toward a goal – their foot placement accuracy was at a specific point in week one, and another in week two, showing week to week improvement. It gives the patient a feeling that they are making progress. It also becomes a document I can show to family and doctors, to explain that, even if the patient may still be in pain, they're making progress.



The Biodex Balance System SD improves weight-shifting capabilities in all axes.

Q: How do you use the Biodex equipment to rehabilitate cardiac patients - post-MI or post-cardiovascular surgery?

Day: Our goal with these patients is to increase their endurance. Early in the rehab, within the 30 days of surgery or MI, we use the BioStep elliptical trainer, without patients using their upper extremities - just their legs. We typically start at a resistance level that enables them to go for eight minutes. We then might increase the time to 12 minutes. Or we may start with a resistance level of one, and bump it up to level two, and slowly increase their endurance that way.

We use the same kind of calibrated increase in speed on the Gait Trainer. Our objective with both machines is the same: increase the patient's endurance. Initially, many cardiac patients are afraid to do more than lie in bed or sit in a chair. It takes some effort to persuade some that they really can do what they need to do.

Q: What other patients do you routinely rehabilitate with the Biodex systems?

Day: Another group is those with Parkinson's disease. Typically, we start with the Balance System. Patients with Parkinson's disease often have weight-shifting issues. They get rigid. The Balance System will help them enhance their ability to shift their weight. Beyond the Balance System's weight-shifting exercise, the System offers maze control games, and we use them to enhance their weight shifting capabilities in all axes.

Parkinson's patients also have freezing issues - it's hard for them to initiate steps. Therapy with the BioStep and the Gait Trainer helps break that rigidity.

Still another group of patients we see are those with COPD - chronic obstructive pulmonary disease. Again, the BioStep elliptical is good for improving endurance for that condition. To handle these patients on the elliptical trainer, we've had to accommodate different levels of oxygen supply. Many patients with COPD or cardiovascular disease need supplementary oxygen in order to exercise sufficiently to improve their endurance, and the elliptical is a good exercise for them.

We now have a patient with COPD who is recovering from a fall, in which he broke his arm. He is able to exercise on the elliptical using just his legs, and an oxygen concentrator.

Q: How do you establish a therapy plan for a patient like that - trauma superimposed on COPD?

Day: Ideally, we lay out a plan in collaboration with the patient's physician. If that's not possible, we simply do a detailed evaluation and customize our approach to the results of that evaluation and our experience. Before coming to Brookhaven, I had 10 years of physical therapy experience, four in the rehabilitation department of a major Texas hospital. So I've seen a great variety of patients in all stages of recovery.

Before patients are admitted here at Brookhaven, their family usually visits. And when they take an admission tour, we show them the Biodex systems.

They often ask me, "Can he or she really use this equipment?" We can't really answer that question on the spot. I usually say, "We'll progress them to that equipment, if they're able." And we go beyond the Biodex equipment.

Q: How do you rehabilitate stroke patients?

Day: When patients experience a stroke, they often have only minimal use of their affected side. The challenge is getting them to use their affected extremities. The BioStep elliptical can help them start using that affected side, even if "use" is just holding onto the hand grip or giving a little push with the affected leg. A lot of stroke patients believe they can't use their affected side. But once you get them in the arm-leg rhythm of the elliptical, they're using that affected side, and over time, they're gradually getting stronger.

Q: When stroke patients are on the BioStep, can you tell whether they're using both legs, or just the unaffected one?

Day: Yes. If they attempt to pedal with just the unaffected leg, the weak leg will internally rotate, meaning it just kind of flops. The elliptical is no easy machine - most people need to use either both legs or the arms to operate it. Many post stroke patients can't get it going with just their legs - they need at least some push of the arms. Difficulty on the BioStep can indicate they need additional help.

Q: Do you use the Gait Trainer with stroke patients?

Day: Yes, mostly with high-level stroke patients who are able to ambulate, but have an unsteady gait. There are safety concerns with letting them go back home walking by themselves with such a gait, because they're at increased risk of a fall. As we discussed with other patients, the Gait Trainer will help normalize that gait.

Many stroke patients display toe drag on their affected side. They have strength in their larger muscles, but not in the tibialis anterior muscle needed for dorsiflexion. As a result, they're unable to pick up their foot for a step, and frequently try to compensate with circumduction - swinging the affected leg in an arc, so their toe doesn't drag on the ground. That's a dangerous kind of gait, because it can easily lead to a fall, especially on uneven surfaces.

Q: Do you have any therapy to specifically address the dorsiflexion issue?

Day: We use a combination of bands and electrical stimulation. We call the process "neuromuscular re-education."

Q: Roughly how much physical therapy does a typical Brookhaven patient get each Day? - Each week?

Day: We see patients for therapy a maximum of two and a half hours a day - 75 minutes of physical therapy and 75 minutes of occupational therapy. Sometimes patients have to work up to the max - perhaps 50-minute sessions of PT and 50 minutes of OT - and when they can tolerate more, we'll increase it.

Our normal length of stay can range from a week to 90 days, but our average is probably around 31 days of rehab.

For more information on Biodex Physical Medicine & Rehabilitation equipment, please contact:

Don Gronachan
Vice President, Physical Medicine Sales
(631) 924-9000, x2275
Email: dgronachan@biodex.com

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