

# Balance and Vestibular Center relies on the Biodex Balance System SD to retrain the Vestibular System

Gothenburg Memorial Hospital - Gothenburg, NE



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Biodex Medical Systems, Inc.

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## Gothenburg Memorial Hospital

Gothenburg Memorial serves a small-town community of roughly 4,000 people, providing 28 acute/skilled-care beds, therapy service, and outpatient services. Daup, who holds a Bachelors Degree in Occupational Therapy from Creighton University and a Masters Degree in Business Administration from the University of Colorado at Colorado Springs, is part of a small rehabilitation department which consists of two physical therapists, one PTA and a technician. “We’re a small, tight-knit group,” said Daup, who has been on staff since 2007, “but we really work well as a team and take pride in being an important part of our local community.”

One tool that Daup depends on in the Balance and Vestibular Center is the Biodex Balance System. He and his staff use it primarily with the geriatric population, mainly in the area of balance rehabilitation and fall prevention.

“I have eight or nine active patients right now,” revealed Daup, “most coming in three times per week for treatment. Each was referred by a primary care physician or by a neurologist. Depending on what deficits and functional problems people have when they arrive, we design a personalized program to address their needs. The Biodex Balance System allows us to focus on a variety of pathologies that utilize the Balance System including static and dynamic balance, weight shifting, increasing limits of stability, and improving reaction time. But, from time to time, there are patients who show up with pathologies that can be much more involved, presenting real challenges even to a highly experienced staff.

Case in point: a woman patient suffering from Meniere’s disease who has been coming to the center on and off for the past two years. “Meniere’s disease attacks the vestibular system primarily on one side but can affect both sides on approximately 20% of the population,” explained Daup. “Our interior balance mechanism is comprised of three subsystems: inner ear or vestibular system, proprioception of lower extremities, knees and ankles, plus the visual system. People who suffer from this disease have difficulty walking straight. Many complain of walking into doorways, for example. They need assistive devices to walk throughout the community. Sometimes they will have attacks where they can’t stand up at all.”

Daup and his crew used the Biodex Balance System to help retrain this patient’s vestibular system, and met with very good results. Relying on the Balance System’s graphic display to provide instant visual feedback, they concentrated on helping the patient immediately correct her movements during the course of training activities programmed into the system.

“With seriously involved patients like this one, we typically start with some basic weight-shifting activities,” continued Daup. “As people age their limits of stability dramatically decrease, meaning their ability to shift their weight away from standing up straight diminishes over time, especially as they become less active. So, we start with some basic weight-shifting activity to increase their limits of stability and center of gravity, and systematically progress from there.”

With the Meniere’s disease patient, Daup and crew started off as above to involve the vestibular system and then had the patient progress to performing mCTSIB testing exercises in which her other two subsystems were prevented from offering more than minimal balancing aid. In one exercise, she was asked to stand on a piece of foam while on the Balance System to reduce reliance on her proprioceptive system. Next, she had to perform activities with her eyes closed to eliminate reliance on her visual system. The idea behind mCTSIB testing is to isolate the vestibular system so that the patient can focus on relearning their balance using what should be the primary means of accomplishing the task.

“Her progress has been fantastic,” stated a very satisfied Daup. “This patient is now to the point where she is able to walk some days with a single point cane and on other days with no assistive device at all. She has not had a fall in over a month! That’s outstanding for a patient with her pathology.”



Alan Daup, OTR/L, MBA,  
Gothenburg Memorial Hospital, Gothenburg, NE

At the time of this interview, the patient was in her second round of treatment at Gothenburg Memorial. The first round lasted a total of two-and-a-half months. When the patient was dismissed from her initial program she was not having any falls, was experiencing no balance issues, and was able to resume her daily activity both inside and outside the house.

Following a second attack from her disease several months later, the patient returned for therapy at the Balance and Vestibular Center and began working through the process again with great success.

“Unfortunately,” explained, Daup, “Meniere’s is a chronic disease that continues to attack patients without a specified period of occurrence. We have no way of knowing when her next debilitating attack will occur. It might come six months - or six years - down the road. The best we can do is to work hard to help improve her quality of life between attacks and, in this regard, the Biodex Balance System has really been a tremendous help.”

*“It’s really a rewarding experience when you talk to patients and know you have the tools to really make a difference in their lives” said Alan Daup, OTR/L, MBA at Gothenburg Memorial Hospital. “We are very fortunate to be able to offer high tech rehab modalities here in rural Nebraska.”*



Patient with Meniere’s Disease trains on the Biodex Balance System.

In addition to testing and training patients on the Biodex Balance System, Daup uses it to provide reports that give objective data with visual feedback to the referring physicians. He also retests individuals every two or three weeks so that he is able to provide both patient and physician with a comparative scale, showing their initial report compared to their current progress.

“I think with anything new there is always a little intimidation, fear of the unknown you might call it,” said Daup. But once patients get on this device and begin to realize what it can do for them, they look forward to each and every session. The Balance System SD is very easy to operate, and it has evaluation modulations and tailored training protocols that allow patients to work on specific balance deficits identified by testing. I rely heavily on the results of the evaluation modules in determining how to develop an individualized treatment protocol for each patient.”

In terms of offering advice to other clinicians on incorporating the Biodex Balance System into their programs, Daup notes that it is important to not limit yourself in terms of diagnosis when it comes to deciding if the Balance System can be helpful for a particular patient.

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“You can use this system for more than simple balance applications,” he stated. “For example, we get quite a few high school kids with high ankle sprains that could benefit from strengthening exercises and increased range of motion exercise on the Balance System. The Balance System can be used with a wide range of patients for various pathologies including Parkinson’s disease, stroke (CVA), multiple sclerosis, neuropathy, history of falls, post knee or hip replacement, post ACL repair, sprained or fractured ankles, BPPV (positional dizziness), training of high level athletes and performance artists and more. So it is important to keep an open mind to the possibilities. It’s a win/win product from both a clinician and patient standpoint, and the Biodex customer support that comes with this device is an additional plus.”

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