Music has power. It moves us emotionally, psychologically, physically, often without us even knowing. Whether it’s moving naturally to the beat of a song while driving to work, or while meditating during yoga practice, music somehow finds a way into our busy lives. Now, thanks to a growing foundation of research, music is rightfully finding its way into clinical practice.

**How Our Brains Change: Neuroplasticity**

Beyond the feelings music evokes in us, the body’s ability to adapt or change to music occurs naturally at a deeper, neurologic level. This well-known and studied adaptability of the human central nervous system (CNS) is called neuroplasticity. This adaptability not only occurs in healthy people, but in those who have neurologic conditions such as Parkinson’s disease, multiple sclerosis, and stroke.

Even with training and skill, the process of patient handling is often unsettling and dangerous to both patient and caregiver. Even as research has shown that patient outcomes dramatically improve if the patient is ambulatory as soon as possible after injury or surgery, the method of patient movement remains firmly affixed in manual lifting.

A major paradigm shift in safe patient handling is long overdue and may be found in the wide-spread implementation of safe patient handling and mobility programs in hospitals and care facilities across the country.

*Continued on page 3.*
What Bohemian Rhapsody Teaches Us

While it was once believed in the early half of the twentieth century that the CNS couldn’t adapt with injury, neuroplasticity is now accepted as an ongoing occurrence that serves as the backbone for medical interventions, evidence-based practice, and medical device development.

Science Behind Music used in Movement Therapy

Over the past few years, the influence of music on the neuromotor system, along with the supporting evidence, has received the attention of researchers, scientists, and clinicians. This non-traditional, “outside the box” treatment intervention is proving to have staggering results on improving gait in people with common neurologic disorders, such as Parkinson’s disease.

Research studies have long supported and clinics have shown how rhythmical beats from metronomes can increase stride length in people with neurological conditions. Only in recent years have other aspects of music, such as the piano, base, and guitar cued at specific moments, been recognized as targeting other and equally important components of walking, such as arm swing, hip rotation, and cervical extension.

How Technology Captures the Effects of Music

Despite how we intuitively know that music impacts the way we move, think, and feel, we live in a time when everything must be backed by science. Fortunately, technology has been developed to make that possible.

For example, rehab technology like the Biodex Gait Trainer 3 enables researchers to study music’s impact on movement and capture necessary supportive data.

The music-enhanced treadmill system allows therapists guided by evidenced-based practice standards to influence change faster and better by integrating music with traditional treatment interventions. Temporal gait parameters are objectively captured in the software, so therapists can easily see their patient’s current status, how much they’ve improved, and what they need to improve upon to reach their goals.

“Thanks to a growing foundation of research, music is rightfully finding its way into clinical practice.”

Conclusion: Moving Music Forward

Music is part of all our lives in one way or another. Yet, the movement changes we see are based on the scientific neuroplasticity principles. Music is intuitive, yet backed by the evidence. Music is natural, yet technology is able to capture objective, measurable outcomes needed to show progress in therapy.

We live in a time of constant change, a time where new therapy interventions such as music are breaking into the treatment scene, having a life-long impact on patients, and influencing neurologic change in ways that some traditional methods of treatment can’t.

Just as Queen took a chance on releasing their unconventional song, “Bohemian Rhapsody,” it is important for us as therapists – correction, our responsibility – to step out of the box and incorporate music into therapy. Our patients need and deserve the best therapeutic interventions available so they can get back to the things they want to do as independently as possible.

www.biodex.com/gait

Ask the expert:

Can you describe a typical gait training session using music?

In order to optimize therapy for a specific patient, we have the patient tap to the rhythm in the tempo of their targeted gait cadence to determine where they perceive the beat, and if they can integrate the beat into their gait pattern. If they do that successfully, we’ll start with that beat when they get onto the treadmill.

Then we’ll see if they can consistently entrain their gait to that beat. If we want to optimize them at a slightly faster tempo, then we can speed up that tempo in real time as the person is walking using our gait training treadmill. Then, we study them and observe their gait for the next few minutes.

There’s an envelope of sound in addition to the rhythmic cue that can also enhance stride length as well as posture. Our gait trainer has music composed specifically for this type of treatment built right into the system, so we can engage these music elements in real time.

Concetta Tomasso, D.A., MT-BC, LCAT
Executive Director and Co-Founder of the Institute for Music and Neurologic Function

“Music is natural, yet technology is able to capture objective, measurable outcomes needed to show progress in therapy.”

www.biodex.com/gait
Making a Case for Patient Safety Programs

**Equipment**
When choosing equipment for an SPHM program, it is important to consider space limitations, patient needs and the types of equipment that will improve both staff safety and patient mobility. Equipment that suits more than one purpose and enhances the recovery process is key to getting the most out of your investment.

**Policies & Training**
Of course, no amount of equipment will ever improve patient outcomes unless personnel are trained in its use. Even then, knowledge may not be enough to convince some healthcare workers of the validity of safe patient handling practices. Facility-wide policies must follow equipment purchase and training if a culture of safety is ever to take hold.

One of the most effective ways these policies and training procedures are established is through the formation of a hospital-wide multidisciplinary team, formed to evaluate the needs of the patients, nursing staff physicians and therapists.

Consisting of nursing staff, physicians, occupational therapists, physical therapists and key decision makers, this team should:

- Source effective safe patient handling equipment that adequately meets the hospital or care center’s needs
- Create a No Lift Policy that meets the needs of the patients while addressing safety concerns of the staff
- Design an ergonomic assessment protocol for patient care
- Define patient handling criteria and decision making models that empower medical staff on an SPHM program’s use

Not only have each of these aspects been shown to have a statistically significant impact such as a program’s effectiveness, they have also had an impact on healthcare workers’ view of the program overall.

**Progress patients safely from Mobility Assist → FreeStep SAS**
Create a safe ambulation environment for both therapist and patient

For weak or unstable patients, Mobility Assist is the perfect precursor to FreeStep ambulation.

950-570 Mobility Assist
Includes rechargeable battery, battery charging cable, stabilization strap and one safety harness.

www.biodex.com/mobilityassist

According to OSHA mechanical devices for SPHM make patients feel more comfortable and secure.
Zero in on Balance Deficits

In practice, the patient stands on the Balance System™ SD and is asked to shift their weight left and right. The Balance System can capture, quantify and document any overcompensation. As a result, therapists can determine if an inappropriate response is a unilateral strength issue, or an initiation or stabilization issue.

The training exercises of the Balance System SD are geared to improve strength, range of motion, gait and balance for those patients suffering from neurological involvement associated with Parkinson’s, Stroke or Peripheral Neuropathy.

Attract New Patients
Ask about the Marketing Support available for the Biodex Balance System SD.

950-440 Balance System™ SD, 15.6” Display, 115 VAC
Includes: Printer, printer stand and CTSIB Indexed Pad.

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SHOW THE NUMBERS

Position Your Clinic as a Partner for Value-Based Care

PROVE that your therapy programs and technology get patients better, faster.

Biodex technology provides positive outcomes, accelerates rehabilitation and reduces readmission. DOCUMENTED.

Contact Biodex today and ask us how.

View sample reports:
www.biodex.com/reports/balance

CASE STUDY

Body In Balance Steps Up Mobility with Biodex Balance Technology

Physical therapist Eleanor “Ellie” Hagan and her husband Dan founded Body In Balance in Linwood, NJ – one small room for treatment, and another for exercise. As a sole practitioner at the time, Ellie needed to find an efficient way to rehab a wide range of patients while standing out from competitors.

She selected the Biodex Mobility package of devices. Assessment using the Balance System SD became an important first step to determine the right treatment program for each patient.

Studies show that balance training, strengthening and flexibility exercises not only improve mobility, but also reduce the risk of falling. The clinic began using the Biodex Balance System SD to assess and correct balance dysfunction in every patient.

Testing with the Biodex Balance System has helped PTs determine the precise visual, muscular and neurological issues that contribute to a patient’s poor balance. Since most patients with neurological involvement present with balance issues, these assessments help set a growing patient population with Parkinson’s or stroke on the right treatment path.

Ellie explains, “We start by assessing their risk of falling by examining their lower body strength, balance and aerobic endurance. These three factors often determine whether an individual with balance and gait issues can safely remain independent in their home and community.”

Poised for further growth

Today, Body In Balance has grown their clientele significantly, and have expanded to dominate two floors of the original building where they launched their practice. With a variety of options for patients, enhanced by Biodex technology, Body In Balance is more than equipped to improve lives in their community.

Read full case study:
www.biodex.com/casestudy/body-balance-bsd

Take Therapy to New Heights with Vibrotactile Feedback

Did You Know…

To enhance spatial awareness for jet pilots, sensors were embedded into their flight suits? Since then, vibrotactile technology has been adapted to balance rehabilitation with excellent results.

Learn treatment strategies for applying vibrotactile feedback in therapy using balance technology.

www.biodex.com/vibrotactile
Evidence-Based Rehabilitation

Patients are counting on you... 

Biodex offers the continuum of products to treat patients from any starting point – at maximum efficiency, with documented outcomes.

FINANCE TO OWNERSHIP

Music Moves Me
Parkinson's Program

Help patients with Parkinson’s disease improve ambulation, increase function and reduce the risk of fall. With more than 60,000 new Parkinson’s cases reported annually, Biodex Balance & Mobility devices can help this growing, and underserved population. Intense exercise has been shown to slow the progression of symptoms.

Includes:
- **950-194** medBike® Whole Body Cycle
- **950-440** Balance System™ SD
- **950-400** Gait Trainer™ 3 Treadmill
- **950-413** Music-Assisted Therapy

Finance combination for 60 months. 
Ask about term details. 
Freight calculated separately.

Balance Challenge
Fall Risk & Mobility Program

The Balance Challenge is an six-week program designed to improve balance and mobility. The program starts with a risk-factor screening which includes:

**Balance Assessment** - Analytical balance testing compared to universally accepted normative data and medical protocols, consistent with the American Geriatric Society Clinical Practice Guidelines.

**Chair Stand Test** - Assess lower leg strength.

**Six Minute Walk Test** - Assesses distance walked over six minutes as a sub-maximal test of aerobic capacity/endurance.

Includes:
- **950-560** Sit2Stand™ Squat-Assist Trainer
- **950-440** Balance System™ SD
- **950-240** BioStep 2™ Elliptical Ergometer

Finance combination for 60 months. 
Ask about term details. 
Freight calculated separately.
Harvest the Power of Music
for Movement Disorders

NEW Gait Trainer™ 3
with Music-Assisted Therapy

See inside for the NEW Gait Trainer™ 3 enhanced with neurologic music.