



Julia Priest, M.S., M.Mus., Director

[www.MusicAndMovementOfNewton.com](http://www.MusicAndMovementOfNewton.com)

[Julia@MusicTogetherNewton.com](mailto:Julia@MusicTogetherNewton.com)

(617) 410-MUSE; (617) 410-6873

## Economic and Biopsychosocial Health Benefits of Making Music

**Economic Impact:** Drumming reduces caregiver burnout, improving caregiver mood and reducing employee turnover. The parameters investigated included: emotional exhaustion, depersonalization, personal accomplishment, tension/anxiety, depression/dejection, anger/hostility, vigor/activity, fatigue/inertia, confusion/bewilderment. Economic-impact analysis projected cost savings of \$89,100 for a single typical 100-bed facility, with total annual potential savings to the long-term care industry of \$1.46 billion. Bittman et al., *Advances in Mind-Body Medicine*, 2003.

Since 2005, the VA has more than doubled the number of music therapists at its clinics because the treatment reduces symptoms of PTSD. Swanson, *Time*, 2010.

**Bio:** A review of 23 studies covering almost 1,500 patients found that listening to music reduced heart rate, blood pressure and anxiety in heart disease patients (Bradt & Dileo, "Music for stress and anxiety reduction in coronary heart disease patients," review, Temple U. Boyer Research Center, 2009).

In a reversal of the stress response, drumming increased Natural Killer Cell activity stimulated by cytokines Interleukin II and Gamma Interferon-Helper Th1 cells. Bittman et al., *Journal of Alternative Therapy*, 2001.

Group singing stimulates the secretion of the protein Immunoglobulin-A, enhancing immune function. Beck, *Music Perception*, 2009.

Humming increases nitric oxide exchange in the paranasal sinuses. Maniscalco, *Eur Respir J* 2003.

Vibrations at 30 Hz, the lowest B on the piano keyboard, for a minute at a time (vibroacoustic therapy) helped patients with Parkinson's Disease to walk faster, with bigger steps, less rigidity, and less tremor. *NeuroRehabilitation*, December, 2009.

After exercise, runners cooled down and recovered more efficiently by listening to music at 140 bpm: they walked more steps, with less feeling of exertion, and cleared lactic acid more rapidly from their muscles. Eliakim, *Journal of Strength & Conditioning Research*, 2013.

Music enjoyment is a predictor of exercise compliance. Karageorghiou, *The Sport Journal*, 2003.

Brain imaging suggests that music-making stimulates activity all over the brain, in both hemispheres, in all systems and networks. Meister et al., *Cognitive Brain Research*, 2004.

Professional pianists have a larger corpus callosum, allowing more neural communication between sides of the brain. Haslinger, *Human Brain Mapping*, 2004.

**Psychosocial:** Music relieves the pain-anxiety-tension spiral, even making it easier for children visiting the emergency room to tolerate having an IV placed. (*JAMA Pediatrics*, July, 2013).

Listening to music was found to be more effective than prescription drugs in reducing anxiety before surgery. *Trends in Cognitive Sciences*, April, 2013.

After keyboard lessons, active older American volunteers had significantly increased human growth hormone (HGH) production over controls. HGH is associated with higher energy, better memory, and greater sexual function. Koga Tims, *American Music Teacher*, 2001.

Patients in hospice who took guitar lessons with music therapists reported relief from persistent pain. *Progress in Palliative Care*, July, 2013.

People with music training distinguish speech in noisy situations better than non-musicians. Kraus; and the superior auditory processing of pitch persists even with age-related hearing loss. Shahin, *Frontiers in Psychology*, 2011.

Adults age 60 to 85 without previous musical experience exhibited improved processing speed and memory after just three months of weekly 30-minute piano lessons and three hours a week of practice, whereas the control group showed no changes in these abilities (Kraus & Anderson, *Hearing Journal*, 2013).

Vietnam veterans in an improvisational hand-drumming therapy program modulated their misdirected, exaggerated, or unrecognized emotions. In expressing and controlling their feelings, the men reported a sense of connectedness and group mission. Burt, *Music Therapy Perspectives*, 1995.

Alzheimer's patients who drum can connect better with loved ones. The predictability of rhythm may provide the framework for repetitive responses that make few cognitive demands on people with dementia (Clair et al., *Journal of Music Therapy*, 1995).

After exercise with music, dementia patients speak more fluently than they do after exercise without music. Emery, *Heart and Lung*, 2004.

Music engages areas of the brain which are involved with paying attention, making predictions and updating events in our memory. Menon, *Neuron*, 2007.

Cornell food scientists found that playing soft music (and dimming the lights) during a meal can help people slow down while eating and ultimately consume less food. Wansink et al, *Psychological Reports: Human Resources and Marketing*, 2012.

At Ryerson University in Ontario, adult volunteers participated in 13-week choral sessions with an hour of ear-training homework. There has been “significant improvement” in speech perception in noise, and in pitch discrimination which is thought to be a foundation for discriminating speech in noise. Caveat: it may be complicated to tease out the benefits from pure music practice from mood and social benefits; also those who agree to participate in the study may already have more musical background or interest than those who don't (referral bias). Russo, *SMART Lab Blog*, 2015.

Instrument play leads to better structural integration as well as functional improvements even in adult brains. Wan & Schlaug, *Neuroscientist*, 2010.