

Music Medicine: Science & Research

Music for Mind, Body, Heart, & Soul

Christine Stevens, MSW, MT-BC, MA

info@ubdrumcircles.com - www.ubdrumcircles.com/musicmedicine

MUSIC MEDICINE

Your Genes on Music

Barry Bittman et al, "Recreational Music-Making Modulates the Human Stress Response: A Preliminary Individualized Gene Expression Strategy." *Medical Science Monitor* 11 (2005): 31 – 40.

Researchers used a puzzle test for stress-induction and caused all 45 gene markers of stress to become activated. Recreational Piano Playing in a group successfully reversed 19 of 45 gene markers of stress compared to only 6 in the relaxation group, and none in the continued stress group.

The Jazz Brain

Charles J Limb and Allen R. Braun, "Neural Substrates of Spontaneous Musical Performance: An fMRI Study of Jazz Improvisation." *PLoS ONE*, 3, no. 2. (2008).

MRIs showed that improvisational piano playing activates the medial pre frontal cortex, an area associated with authentic personality. Simultaneously, much larger frontal cortical areas involved in self-monitoring and judgment, were de-activated.

Rhythm: Medicine for the Body

Drumming strengthens immune system

Journal of Alternative Therapy. Bittman et al. (2001) Composite Effects of Group Drumming Music Therapy on Modulation of Neuroendocrine-Immune Parameters in Normal Subjects.

Drumming reduces employee burnout

Advances in Mind-Body Medicine. Bittman et al. (2003) Recreational Music-Making: A Cost-Effective Group Interdisciplinary Strategy for Reducing Burnout and Improving mood States in Long Term Care Workers

Drumming reduces instrumental anger in adolescents

Creative Musical Expression for Improvement in Inner-city Adolescents Placed in a Court-referred Residential Treatment Program, Bittman et al. *Advances in Mind-Body Medicine*, 2009

Drumming builds social and emotional skills in Students

The Impact of Group Drumming on Social-Emotional Behavior in Low-Income Children, Evidence-based Complementary and Alternative Medicine (eCAM), July, 2010. Ho et al.

Melody: Medicine for the Heart

Newborn Babies Demonstrate Song Recognition

Peter Hepper, “An Examination of Fetal Learning Before and After Birth,” *The Irish Journal of Psychology* 12 (1991): 95–107.

Infants Can Name that Tune in 6-notes

Sandra E. Trehub, Dale Bull, and Leigh A. Thorpe, “Infants’ Perception of Melodies: The Role of Melodic Contour,” *Child Development* 55 (1984): 821–30.

Song-writing Instinct appears as early as 6 months

Peter Ostwald, “Musical Behavior in Early Childhood,” *Developmental Medicine and Child Neurology* 15 (1973): 367–75.

Immune System and Mood Improvement from Singing

Gunter Kreutz, et al., “Effects of Choir Singing or Listening on Secretory Immunoglobulin A, Cortisol, and Emotional State,” *Journal of Behavioral Medicine* 27 (2004): 623–635, accessed August 29, 2011, doi: 0160-7715/04/1200-0623/0

Healthy Heart Results from Singing

Ana Mendes et al., “Effects of Vocal Training On Respiratory Kinematics During Singing Tasks,” *Folia Phoniatica et Logopaedica*, 58, no. 5 (2006): 363–77.

Harmony – Medicine for the Soul

The Neurological Basis of Empathy - Mirror Neurons

Christian Keysers et al., “Audiovisual Mirror Neurons and Action Recognition,” *Experimental Brain Research* 153 (2003): 628–36.

Mirror Neurons at play in Music Bonding

Istvan Molnar-Szakacs and Katie Overy, “Being Together In Time: Musical Experience and the Mirror Neuron System,” *Music Perception* (2009): 489–504.

Singing in Harmony Creates Happiness

Stephen Clift and Grenville Hancox, “The Significance of Choral Singing for Sustaining Psychological Wellbeing: Findings from a Survey of Choristers in England, Australia, and Germany,” *Music Performance Research* 3 (2010): 79–96.

Ensemble Playing in Band Improves Quality of Life

Don Coffman and Mary Adamek, “The Contributions of Wind Band Participation to Quality of Life of Senior Adults,” *Music Therapy Perspectives* 17 (1999): 27–31.

Silence – Medicine for the Mind

Silence Between the Notes Creates Greatest Relaxation

Luciano Bernardi, Cesare Porta, and Peter Sleight, “Cardiovascular, Cerebrovascular, and Respiratory Changes Induced by Different Types of Music in Musicians and Non-Musicians: The Importance of Silence,” *Heart* 92 (2006): 445–52.

Meditation Creates Brain Activation and Deactivation pattern

Rients Ritskes et al., “MRI Scanning during Zen Meditation: The Picture of Enlightenment,”

Constructivism in the Human Sciences 8 (2003): 85–89.

Mindfulness Meditation Quiets the Mind

Richard J. Davidson et al., “Alterations in Brain and Immune Function Produced by Mindfulness Meditation,” *Psychosomatic Medicine* 65 (2003): 564–70.