

Drum Circle Research



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Drumming Strengthens Immune System

Composite Effects of Group Drumming Music Therapy on Modulation of Neuroendocrine-Immune Parameters in Normal Subjects (2001) *Journal of Alternative Therapy*. Jan, 2001. p. 38-47. Bittman BB, Berk LS, Felten DL, Westengard J, Simonton OD, Pappas J, Ninehouser M

- **N=111 non-drummers. Tested five conditions: Listening Control, Drum circle, Impact Drumming, Shamanic, Composite Drumming**
- **Natural Killer NK cell activity was boosted in subjects who drummed compared to controls.**
- **Natural Killer cell activity stimulated by Cytokines (Interleukin II and Gamma Interferon - Helper (Th1) cells) was boosted in subjects who drummed compared to controls.**
- **Drumming changed cellular biology and reversed the stress response.**

Drumming Reduces Employee Burnout

Recreational Music-Making: A Cost-Effective Group Interdisciplinary Strategy for Reducing Burnout and Improving Mood States in Long-Term Care Workers (2003) *Advances in Mind-Body Medicine*. Fall/Winter, 2003. p.4-15. Bittman MD, Karl T. Bruhn, Christine Stevens, MSW, MT-BC, James Westengard, Paul O Umbach, MA

- **N=112 employees in Long Term Care. Interdisciplinary teams drumming once a week for one hour for a 6-week series.**
- **Significantly decreased burnout on Maslac Burnout Scale.**
- **Improved employee mood states by 46% on POMS Profile of Mood States – sustained effect of 62% six weeks post intervention.**
- **Economic Impact – saved \$89,000 for typical 100-bed medical facility through employee retention and reduced turnover.**
- **Total annual savings to the industry based on an 18.3% decrease in turnover at every long-term care facility is therefore projected at \$1.46 billion.**

Drumming Reduces Nursing Student Burnout

Recreational Music-Making: An Integrative Group Intervention for Reducing Burnout and Improving Mood States in First Year Associate Degree Nursing Students: Insights and Economic Impact. (2004) Bittman et al. *International Journal of Nursing Education and Scholarship*. Vol. 1 Article 12.

- N = 75 first year associate degree nursing students.
- **Improved mood states by 28.1% on POMS Profile of Mood States.**
- Economic Impact projections – retention of 2 students annually per a typical 105-student program, resulting in a **projected annual savings of \$29.1 million to US Nursing Schools.**
- **Projected cost savings of \$322,000 for the typical acute care hospital, and more than 1.5 billion for the US healthcare industry.**

Keyboard playing Reverses Stress on Genomic Level

Recreational Music-Making Modulates the Human Stress Response. Bittman et al. (2005) *Medical Science Monitor*.

- Applied Biosystems and Yamaha.
- Reversed **19 of 45 gene markers** of stress response versus 6 of 45 in resting control and 0 of 45 in continued stress condition.
- First study to develop an **individualized genomic stress-induction signature.**

Drumming strengthens Immune System in Japanese employees

Recreational music-making modulates natural killer cell activity, cytokines, and mood states in corporate employees. Wachi, et al. (2007) *Medical Science Monitor*. 13(2): p. 57-70.

- N = 40 Yamaha employees.
- The RMM group demonstrated enhanced mood, lower gene expression levels of the stress-induced cytokine interleukin-10, and higher NK cell activity when compared to the control.