

Pain Management and Music: A Select Bibliography

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Cepeda, M. S., Carr, D. B., Lau, J. and Alvarez, H. **“Music for pain relief.”** *Cochrane Database of Systematic Reviews 2*, Article No. CD004843, 2006.

This meta-analysis review from the Cochrane Collaboration identified 51 studies involving 3663 subjects. “In the 31 studies evaluating mean pain intensity there was a considerable variation in the effect of music, indicating statistical heterogeneity.... After grouping the studies according to the pain model, this heterogeneity remained, with the exception of the studies that evaluated acute postoperative pain. In this last group, patients exposed to music had pain intensity that was 0.5 units lower on a zero to ten scale than unexposed subjects.... Studies that permitted patients to select the music did not reveal a benefit from music; the decline in pain intensity was 0.2 units,.... Four studies reported the proportion of subjects with at least 50% pain relief; subjects exposed to music had a 70% higher likelihood of having pain relief than unexposed subjects.... Three studies evaluated opioid requirements two hours after surgery: subjects exposed to music required 1.0 mg (18.4%) less morphine...than unexposed subjects. Five studies assessed requirements 24 hours after surgery: the music group required 5.7 mg (15.4%) less morphine than the unexposed group.... Five studies evaluated requirements during painful procedures: the difference in requirements showed a trend towards favoring the music group.... **AUTHORS' CONCLUSIONS:** Listening to music reduces pain intensity levels and opioid requirements, but the magnitude of these benefits is small and, therefore, its clinical importance unclear.” [p. 1; Abstract]

Good, M. and Ahn, S. **“Korean and American music reduces pain in Korean women after gynecologic surgery.”** *Pain Management Nursing* 9, no. 3 (September 2008): 96-103.

In this study out of Case Western Reserve University [from the abstract:] ...73 South Korean women on a preoperative unit were assigned by day of the week to receive music (n = 34; 47%) or no music (n = 39; 53%). The music group chose among Korean (ballads and religious and popular songs) and American (soft slow piano and orchestra) music and heard it for 15 minutes at four time points (postoperatively), whereas the controls rested in bed. They marked VAS Sensation and Distress of Pain scales before and after each test. The two groups were similar on pretest pain. When controlling for pretest pain, MANCOVA indicated that there was significantly less posttest pain in those with music plus analgesics than those with analgesics alone at three of the four tests: p = .04 to .001. Two-thirds in the music group (n = 21; 62%) chose Korean music and one-third (n = 13; 38%) chose American, with no difference in pain: both were effective....

Good, M., Anderson, G. C., Ahn, S., Cong, X. and Stanton-Hicks, M. **“Relaxation and music reduce pain following intestinal surgery.”** *Research in Nursing & Health* 28, no. 3 (June 2005): 240-251.

This randomized controlled trial of 167 patients used 3 nonpharmacological interventions: relaxation, chosen music, and a combination of the two. Participants were evaluated during ambulation and at rest on postoperative days 1 and 2, and pain was assessed using visual analog scales. “Multivariate analysis of covariance showed significantly less post-test pain in the intervention groups than in the control group on both days after rest and at three of six ambulation post-tests (p = .024-.001), resulting in 16-40% less pain. Mixed effects after ambulation were due to the large variation in pain and difficulty relaxing while returning to bed; but post hoc explorations showed effects for those with high and low pain. These interventions are recommended along with analgesics for greater postoperative relief without additional side effects.” [p. 240; Abstract]

Igawa-Silva, W., Wu, S. and Harrigan, R. **“Music and cancer pain management.”** *Hawaii Medical Journal* 66, no. 11 (November 2007): 292-295.

This review out of Stanford University concludes that studies have shown that music therapy can “provid[e] patients with an alternative effective means by which to reduce their subjective experiences of pain” [--from the abstract] The authors note the role of attention states and the cognitive-affective dimensions of pain perception.

McCaffrey, R. and Locsin, R. **“The effect of music on pain and acute confusion in older adults undergoing hip and knee surgery.”** *Holistic Nursing Practice* 20, no. 5 (2006): 218-224. Quiz on pp. 225-226.

This randomized controlled trial of 124 participants indicated “a reduction in acute confusion and pain and improved ambulation and higher satisfaction scores in older adults who listened to music” [p. 225; Abstract].

Mitchell, L. A. and MacDonald, R. A. **“An experimental investigation of the effects of preferred and relaxing music listening on pain perception.”** *Journal of Music Therapy* 43, no. 4 (2006): 295-316.

This British study of 54 participants examined perception and tolerance of experimentally induced cold pressor pain by 54 participants listening to a) white noise, b) specially designed relaxation music, and c) their own chosen music. “While listening to their own preferred music, male and female participants tolerated the painful stimulus significantly longer than during both the relaxation music and control conditions. However, only female participants rated the intensity of the pain as significantly lower in the preferred music condition. Both male and female participants reported feeling significantly more control when listening to their preferred music. It is suggested that personal preference is an influential factor when considering the efficacy of music listening for pain relief.” [--from the Abstract]

Mitchell, L. A., MacDonald, R. A. and Brodie, E. E. **“A comparison of the effects of preferred music, arithmetic and humour on cold pressor pain.”** *European Journal of Pain* 10, no. 4 (2006): 343-351.

This British study compared the effects of music to cognitive distraction (i.e., mental arithmetic) and humor upon involving 44 participants who underwent cold pressor stimulation by means of a circulating and cooling water bath. Specific music was selected by the participants. “Preferred music listening was found to significantly increase tolerance in comparison to the cognitive task, and significantly increase perceived control in comparison to humour. Ratings of pain intensity did not significantly differ. The results suggest preferred music listening to offer effective distraction and enhancement of control as a pain intervention under controlled laboratory conditions.” [p. 343; Abstract]

Mitchell, L. A., MacDonald, R. A. R. and Knussen, C. **“An Investigation of the Effects of Music and Art on Pain Perception.”** *Psychology of Aesthetics, Creativity, and the Arts* 2, no. 3 (August 2008): 162-170.

The authors examined the effects of preferred music, visual distraction, and silence on pain perception. Visual distraction was provided by participants' choice of painting from a selection of 15 popular artworks. Eighty participants (43 females) underwent 3 trials of cold pressor pain induction with measurement of tolerance, pain intensity, perceived control, and anxiety, and a music listening patterns questionnaire. Preferred

music was found to significantly increase tolerance and perceived control over the painful stimulus and to decrease anxiety compared with both the visual distraction and silence conditions. Pain intensity rating was decreased by music listening when compared with silence. During the music condition, frequent listening to the chosen piece in everyday life was found to negatively correlate with anxiety level, and extent of knowledge of the lyrics further positively correlated with tolerance of the stimulus and perceived control. That general importance of music in everyday life also correlated with perceived control reiterates the importance of relationship and familiarity with favorite music as key to its therapeutic effect. There was no relationship between structural features of the selected music and any of the significant effects. It is suggested that preference may render music with different structural aspects functionally equivalent.

Nilsson, U. **“The anxiety- and pain-reducing effects of music interventions: a systematic review.”** *AORN Journal* 87, no. 4 (April 2008): 780, 782, 785-794 and 797-807.

Half of the 42 reviewed randomized controlled trials of the effects of music interventions in perioperative settings showed positive effects of music intervention on reducing patients' anxiety and pain.

Richards, T., Johnson, J., Sparks, A. and Emerson, H. **“The effect of music therapy on patients' perception and manifestation of pain, anxiety, and patient satisfaction.”** *MEDSURG Nursing* 16, no. 1 (February 2007): 7-14. Quiz on p. 15.

This review article identified 9 studies of the effect of music on pain, 4 of which “indicated that music therapy is significantly more effective in lowering pain than no intervention” [p. 9]. The authors consider possible explanations for why the 5 other studies did not show a significant effect. They conclude: “...music may be beneficial in reducing pain in a variety of situations, particularly during minimally invasive procedures” [p. 13]. The effects of music on anxiety and patient satisfaction are also addressed.

Siedliecki, S. L. and Good, M. **“Effect of music on power, pain, depression and disability.”** *Journal of Advanced Nursing* 54, no. 5 (June 2006): 553-562.

This randomized controlled trial of 60 participants with chronic non-malignant pain found: “The music groups had more power and less pain, depression and disability than the control group,.... The model predicting both a direct and indirect effect for music was supported.” The authors conclude: “Nurses can teach patients how to use music to enhance the effects of analgesics, decrease pain, depression and disability, and promote feelings of power.” [p. 553; Abstract]

Tse, M. M., Chan, M. F. and Benzie, I. F. **“The effect of music therapy on postoperative pain, heart rate, systolic blood pressures and analgesic use following nasal surgery.”** *Journal of Pain & Palliative Care Pharmacotherapy* 19, no. 3 (2005): 21-29.

This study from the Hong Kong Polytechnic University involved 57 patients. “Music was played intermittently to members of the experimental group during the first 24 hour postoperative period. Pain intensity was measured using the Pain Verbal Rating Scales (VRS). Significant decreases in pain intensity over time were found in the experimental group compared to the control group ($p < 0.0001$). In addition, the experimental group had a lower systolic blood pressure and heart rate, and took fewer oral analgesics for pain.” [p. 21; Abstract]