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# Music listening to facilitate relaxation and promote wellness: Integrated aspects of our neurophysiological responses to music

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**Abstract**

Wellness as a movement for both healthy persons and those with diagnosed diseases has been growing in both popularity and acceptance by consumers and the health industry. Wellness in part includes an individual's positive attitude towards, and active engagement in the health environment in which they function. A focus of wellness can include techniques and methods that people can use in their lives to combat stress and facilitate relaxation. Music as a sound medium has been used as part of wellness programs in a variety of ways, including as a sonic background for relaxation experiences. In this article, the role of music listening to positively affect neurophysiological and emotional responses related to relaxation is examined. Neurological bases of music listening and sound processing are reviewed, with emphasis on how music is processed by the limbic and related biological systems, including endocrine and hormonal responses. Suggestions for how consumers may use music listening in their own wellness and relaxation regimens are provided, including descriptions of which music to consider, where to obtain it, and how to use it.


*Keywords:* Listening; Music; Neurophysiological; Relaxation; Wellness

As noted by Taylor (2004), Harvey in 1987 described the interrelationship of music, mind, and medicine in what would become known as biomedical music therapy, stating: "1) The center of control for the human organism is the brain; 2) Music is processed by the brain and through the brain, after which it can then affect us in many ways; 3) Music can have a positive effect upon both neural functions and hormonal activity and, as such, can facilitate the healthy functioning of the body's own immune and regenerative processes" (Harvey, 1987, pp. 73–74).

One aspect of healthy functioning is wellness. Wellness has been described in part as a positive attitude towards, and active engagement in, one's personal health environment (Benson & McDevitt, 1989; Corbin, Welk, Corbin, & Welk, in press). It has been suggested that a positive attitude and state of mind may enhance wellness and a sense of well-being, in turn positively affecting one's physical health (Ghetti, Hama, & Woolrich, 2004; Pinel, 2006). Wellness involves the creation of homeostasis for the individual by finding a balance between both internal and external environments (Edlin & Golanty, 1992). As a lifestyle model, it has become an important aspect of the contemporary health movement, with consumers, health providers, insurers, and entire communities becoming involved in its acceptance and growth (Patel, Koegel, Booker, Jones, & Wells, 2006; Sharon & Donahue, 2006; Smith & Llloyd, 2006).

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The uses of music therapy to positively affect physiological functioning as included in a wellness model have been discussed and reviewed by a number of authors (Crowe, 2004; Crowe & Scovel, 1996; Dileo, 1999; Hanser, 1999; Hanser & Mandel, 2005; Harvey, 1992; Hirsch & Meckes, 2000; Keegan, 2003; Lane, 1994; Maranto, 1992; Scheve, 2004; Standley et al., 2005; Taylor, 1997, 2004). Music therapy as a professional health treatment modality may require that services be provided by a credentialed music therapist (Bruscia, 1998; Hanser, 1999; Maranto, 1992). However, consumers may also benefit from using music on their own as part of their personal wellness routines and practices (Ghetti et al., 2004). In addition, allied professionals such as creative arts therapists, nurses, music practitioners, and others may also use music in various ways to help their clients derive wellness benefits from engaging in music-based experiences (Pratt, 2004; Roskam, 1993).

One focus of wellness is often stress management and relaxation (Corbin et al., in press). This can be the case whether the consumer is relatively healthy or has a diagnosed medical condition (Deng & Cassileth, 2005; Fouladbakhsh, Stommel, Given, & Given, 2005; Mandel, 1996; Patel et al., 2006; Sagar, 2006; White, 1992). Music-based interventions related to wellness, stress reduction, and relaxation can include a variety of experiences ranging from active and expressive activities such as singing and playing instruments to receptive and passive activities such as music listening (Davis, Gfeller, & Thaut, 1999; Hanser, 1999; Hanser & Mandel, 2005; Maranto, 1992; Scheve, 2004). The focus of this article is the receptive use of music listening to help the client consumer derive wellness benefits by facilitating relaxation, regardless of their existing state of health. The purpose of this article is to give these consumers and allied health professionals such as creative arts therapists a basic overview of how music listening can positively affect human physiology related to relaxation and stress management as part of an overall wellness model.

## The roles of music listening

Davis, Gfeller, and Thaut (1999) described a number of ways in which music listening may enhance relaxation. One use is listening to music as a masking agent to cover over unwanted environmental stimuli, such as background sounds in a hospital, that might induce stress or prevent relaxation (Curtis, 1986; Radocy & Boyle, 2003). Another use is to provide distraction from other foci of awareness such as existing stress or physical pain (Clair, 1996; Dileo, 1999; Evans, 2002; Good, 1995; Krout, 2000; Kwekkeboom, 2003; Robb, 2003; Standley et al., 2005). Both of these effect areas (masking and distraction) may co-exist with physiological effects of music listening, and may be beneficial to the listener in enhancing their own relaxation process. For example, some recordings designed for relaxation combine nature sounds such as ocean waves with music, with the nature sounds designed to mask existing ambient noise (Krout, 2005).

Another function of music listening may be to provide competing stimuli for other peripheral nerve impulses such as those related to pain that may travel to, and be processed by, the brain via the spinal cord. This is related to what has been termed the gate control theory of pain (Albert, 2002; Melzak & Katz, 2004; Moreno, 2004; Padhi, 2005; Schwoebel, Coslett, Bradt, Friedman, & Dileo, 2002). This theory suggests that pain impulses travel from the site of an injury via the spinal cord to the brain, where the actual pain perception is processed (Melzak & Wall, 1982). Neural gates in the spinal cord may be opened or closed to varying degrees, thus letting more or fewer of those pain impulses through to the brain (Sarafino, 2005). If gates are closed as a result of several factors, then the perception of the pain may not be as great. One of these factors in closing gates may be messages descending from the brain through the spinal cord through what are termed efferent (descending from the brain) pathways. These descending messages may include the effects of processes in the brain resulting from listening to relaxing music. As a result, a positive and relaxed state of mind enhanced by music listening may therefore result in fewer pain impulses reaching our conscious awareness (Crowe, 2004).

## Music and emotions—an introduction

When we consider the relationship of the mind and body in terms of wellness and desired physiological states such as relaxation, we are in part delving into the science of psychoneurimmunology (Crowe, 2004; Scartelli, 1987). As noted earlier, it has been postulated that music stimuli processed by and through the brain can have a positive effect upon both neural functions and hormonal activity, including emotional responses involved in these processes (Schneck & Berger, 2006). Indeed, the neurological pathways for sound sensation that carry the music impulses from the environment through the hearing system to the brain and our conscious awareness also allow music to have an