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Music and Healing

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Traditional Western medicine has not seriously considered music as a healing medium. The more recent ascendance of holistic medicine is creating a change in the attitude held by practitioners and the public to a position of greater acceptance of music therapy as a healing mode.

In this article the author surveys a selection of research pertinent to the field. Music therapy is first defined, and the healing properties of music delineated. A review of physiological and therapeutic responses to music is followed by various opinions as to which types of music are most appropriate for music therapy procedures.

Throughout history, music has been thought of as a healing force. More recently modern medicine has not looked with favor on such pronouncements. Most medical practitioners do not see music fitting into scientific procedures which have hailed the left-brained mentality over right-brained intuitive faculties. This situation may change with the ascendance of holistic medicine, where the well-being of the total person is pursued.

The discipline of music therapy concerns itself with the remedial and behavioral effects of the use of carefully controlled music. Those who benefit from this therapy are inpatients and outpatients with mental and emotional disorders due to retardation, psychosocial problems and psychiatric illnesses. The music therapist works in institutions with patients in long term treatment or in schools for children with special problems. Clients with disorders such as cerebral palsy, muscular dystrophy, sensory impairments, epilepsy, birth defects and cancer have been helped. Until recent years the goal of music therapy has been to correct the psychological and behavioral imbalances created by these diseases and conditions, making few claims to music's physically healing capacities. The emphasis and even the identity of the field of music therapy is changing due, in large part, to the introduction of holistic medicine and its acknowledgement that the total person — mind, body and spirit — must be brought to the "healing table." Music is the ideal instrument for this change, since it is so intimately

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involved in both our inner and outer lives.

In his hallmark book, *The Magic of Tone and the Art of Music,* Dane Rudyar says, "We usually attempt to control bodily problems from the 'outside' with drugs rather than attempting to employ the individual's built-in capacity for self-regulation. . . . In this regard, proper music can be a most helpful and effective addition." Most thinking people who understand the power of music would agree with this statement. Music therapists must find how to structure and delineate the musical treatment mode to affect a healing end, most particularly, a scientific and repeatable process which can be effectively used by the medical practitioner. This paper does not propose to have delineated such a system which may be premature in light of the information and expertise now at our disposal. Instead a picture will be painted of findings to date. These will include both research and observational reports illustrative, but not exhaustive, of the work that is currently being done in the music and healing field.

WHAT IS MUSIC THERAPY?

A definition of music therapy may help us delineate and clarify the use of music in healing. Music therapy may be defined as the systematic application of music as directed by the music therapist to bring about changes in the emotional and/or physical health of the person. As such, its functional rather than its aesthetic and entertainment aspects are emphasized.

Because music is so much a part of our modern environment, it is considered to be a non-threatening form of sound influence. This availability and acceptance of music provides a positive framework upon which to build further confidence. Effective music therapy is dependent upon the skills of the therapist and upon an understanding of how music may contribute to the healing mode.

What are the characteristics of music which contribute to its therapeutic use?

1. Music is non-verbal. Verbal communication is linear and therefore limited to one level of communication. Music is multi-dimensional, crossing through verbal barriers and providing meaning on several levels simultaneously.

2. Music evokes emotional responses. It is used in love songs, funeral dirges and marches. These are general responses; more specific responses occur within selections or within each individual as music is listened to. Music is considered a mood changer due to its ability to influence our feeling states.

3. Music evokes physiological responses. Rhythm, the energizer of music, is related to heart rate, blood pressure, breathing and the whole multitude of vibrational periodicities that make up the body structures. The tension/release dynamic inherent in Western musical composition further enhance the rhythmic balances desired in good health. The

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newest research in brain hemispheric differentiation and the triune brain (Pearce, 1986) explains the wide dissemination of sound phenomena throughout the body. It is speculated that the production of morphine-like peptides or endorphins may be connected to certain musical experiences.

4. Music stimulates symbolic representation. Images, whether kinesthetic, emotional or visual are a part of treatment in various diseases. Carefully chosen music can effectively enhance the flow of imagery and fantasy or renewal of memories, where clinical situations dictate these as the treatment of choice.

5. The sensory stimulation of music can create synesthesias of other senses. Touch, taste, vision and smell are enhanced when music is deeply listened to, creating a basis for work with the sensorily handicapped.

To note the characteristics of music which contribute to its therapeutic effects is not to form a complete theory or body of data than can explain music's effect on us. The current state of research allows us to be no more specific than to say that "we respond to music by a complex mix of psychological and physiological reactions triggered by numerous aspects of the music itself" (Rosenfeld, 1985, p. 56).

Music is not transmitted to the brain exclusively by the mechanisms of the ear. Music reaches us through the mediums of skin, bones and viscera. The ear is extremely sensitive to vibrations in the air and conveys the patterns of these vibrations in a form that the brain recognizes as sounds and speech. One does not have a similar sensing device in the hand, for example, even though one feels a sensation of sound from the hand when it is struck by sound waves, or a vibration in the chest and thigh areas when one is in close proximity to the heavy low amplitudes of rock or marching music.

We use the terms "touch and sound" and "sound presence" to describe the effects of music on the surfaces, muscle systems, and glandular and chemical functions of the body. In the past we have considered these to be affective responses. Now we realize that by labeling such responses as affective, a separate category has been created where none should exist. In *Beyond Illness*, Larry Dossey illustrates that most physicians believe:

> Disease originates . . . due to breakdown at the molecular level and is, thus, physical by definition. This way of thinking legitimizes certain forms of therapy over others: physicalistic approaches — drugs and surgery — that exert actual physical changes are most valued. Other therapies, such as behavioral modalities, are valuable only to the extent that they bring about demonstrable somatic changes; therapies that "make one feel better" are said to "really not do anything" and are suspected as fundamentally useless. (1984, p. 16)

On the other hand:

> Michael Ruff of the National Institute of Health reminds us that

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> "psychological stress impairs the immune system." Anxiety, therefore, increases our vulnerability to disease. Emotions and feelings are fundamentally biochemical in nature and thus effect the immune system both directly and indirectly. (Dixon, 1986, p.65)

As medicine moves toward holistic approaches that integrate body, mind and emotion, it becomes more like music, which has always concerned itself with a person's total beingness.

When compiling a summary of published research on music in healing procedures, traditional definitions of physical illness and disease are called into question. This paper will review the traditional approach and then continue with studies that show the close connections between body, mind and music.

PHYSIOLOGICAL RESPONSES TO MUSIC

Studies reported in the literature before 1981 "clearly support the hypothesis that listening to music does influence a person's physiological responses. However, the data do not show support for the nature of this influence" (Hodges, 1980, p. 396). A common theme of the early researchers was a comparison of the relative effects of stimulative and sedative music. Stimulative music was defined as that which "emphasizes rhythm rather than melody and is characterized by soft, legato passages with narrow pitch ranges" (Gaston, 1951, p. 43). The often tested hypothesis that stimulative music increases physiological responses, while sedative music decreases them, was not unanimously accepted. Heart and pulse rates, blood pressure, skin responses and muscular/motor responses all show changes in response to music, but in no particular direction. The reasons for this may be threefold: the definitions of stimulative and sedative music may be too general; measurements of the various physiological responses may be unreliable or inaccurate; and variables such as the testing situation, movement on the part of patients, and extraneous sights and sounds, are difficult to control.

More recent studies have recognized the rhythms of the body as being related to the rhythms of the world around us. The three inescapable rhythms in which we live are the rotation of the earth, the moon and the earth around the sun; the three basic environmental periodicities are the daily, lunar-tidal and annual. Biological rhythms have different timing systems. "Bio-function works by oscillation: heartbeat, breathing, transmission of nerve impulses. These impulses are not related to external time but have to do with demands of the body tissues for oxygen" (Ayensu, 1981, p. 53).

A recognition of the correlation between the rhythms of the body and those in music serves as a basis for promising research into music's effect on a person. A technique called entrainment utilizes these rhythms by causing periodic phenomena to "time lock." For example, musical tempi may be synchronized with the physical/biological state; when entrainment is complete, physical change is caused by musical variations. Human

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characteristics other than body rhythms, such as mood states, are influenced by and influence body imbalances. Entertainment can therefore utilize both the tempo and the mood of music to effect change in mood and body rhythms.

In a study of entrainment, Rider (1985) used different types of music and imagery to reduce pain and affect muscle relaxation. Of the five independent variables, the entrainment music in which the prevalent mood shifted from tension to relaxation was significantly most effective in reducing pain and electromyographic (muscle tension) levels. The entrainment music contained both synthesized and acoustic guitar and exhibited a definite shift from unpleasant to pleasant.

Another currently considered audioanalgesic effect involves endorphin production through thrill response. Goldstein, of the Stanford Addiction Research Center, used music chosen by the subjects to induce "musical thrills." It was suggested that these musically induced highs may be caused by the release of endorphins into the bloodstream on musical command. To test his hypothesis, Goldstein injected several subjects with naloxone, which blocked the endorphin effect. Naloxone did appreciably lessen the thrills of some listeners. In a subsequent study, Goldstein (1982) asked 250 people what gave them the greatest thrill. All but 4% of the respondents mentioned music.

Spintge reported that music to reduce anxiety and pain in dental surgery patients reduced blood levels of the stress hormone ACTH, but raised levels of the endogenous opiod beta-endorphin (Harvey, 1985).

The auto-conditioning effects of music in childbirth were reported by Clark, McCorkle and Williams (1981) in the study of 50 women at the University of Kansas Medical Center. With the music therapist in attendance, patients listened to pre-selected musical works throughout labor and delivery. The authors found that music can have many functions in prepared childbirth. Music has the potential for becoming an effective attention-focusing stimulus, thereby increasing pain tolerance. Certain musical pieces can be intrusive, can penetrate the listener's awareness and hold attention enough to distract the listener from external and internal discomfort. Music also has excellent potential to be a conditioned stimulus for relaxation. Repeated audition of specific music in the pre-labor classes, while in a state of muscular relaxation, can provide a carry-over to the birth itself. Research has demonstrated that classical music evokes greater enjoyment and interest with repeated hearings, while popular music declines in effectiveness with repetition (Downey and Knapp, 1927).

The use of Guided Imagery and Music (GIM) in six preliminary music sessions encouraged prospective mothers to focus on imagic representations of possible fears and pleasures relating to both childbirth and their new roles as mothers. Music can reinforce the breathing patterns learned in childbirth preparation classes. The breathing becomes, in part, a physical response to the rhythm and tempo of the music. Experimental data suggest that women who participate in this music therapy protocol experience significantly more positive perceptions of their childbirth experiences than

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their non-music therapy counterparts.

Research by Hanser, Larson and O'Connell at the University of the Pacific emphasized the autoanalgesic effect of music and cued rhythmic breathing, assisting the women to relax by prompting positive associations with music. The study yielded dramatic results "in that 100% of the experimental mothers displayed fewer pain responses while music was playing during labor" (1983, p. 57).

THE SELECTION OF MUSIC FOR HEALING

The type of music used in the above mentioned studies is of particular importance. In the study by Clark, McCorkle and Williams, music appropriate for imagery induction was chosen by the researchers. On the other hand, the music therapist developed individualized music programs based on the mother's preferences and on observations of the tempo and pace of her breathing in the study by Hanser et al. Musical excerpts of gradually faster tempi were recorded to correspond with the prospective mother's breathing rates.

Music and medicine have often gone together as vocation and avocation. Dr. L'Echevin, a French surgeon, is also a conductor, pianist and double bassist. In his recently published book, *Musique et Medecine,* he tells of an experiment in a Japanese factory involving 120 working mothers who were nursing. One group listened to Western classical music, the second to jazz and pop; some through earphones, some through speakers. The group listening to classical music through speakers was found to have a lactation increase of 20%; the increase was 100% with earphones. Lactation in the second group went down by 20% and 50%, respectively (Zwerin, n.d.).

Selection of the most appropriate music for healing purposes is an ongoing debate. In 1983 the author conducted a study in two hospital intensive coronary care units using sedative-type music. Patients were given a choice of either classical or popular music in 20-minute taped programs. Nurse evaluators looked for changes pre-to post-music in heart rate, blood pressure, need for pain medication and, on an emotional rating scale, for relief from anxiety and depression. A significant reduction in heart rate and lowered systolic and diastolic blood pressure, greater tolerance of pain and suffering, and lessened anxiety and depression were noted at the conclusion of each music program. An unexpected finding was a strong preference in both patient and nursing staff for the classical music program over the popular one. Patients in a weakened state responded less to music which was familiar and preferred in everyday life. It was concluded that severe illness creates a right brain propensity for reception of meaningful stimuli. Great music that has lived through time is more readily accepted on physical and intuitive levels.

Research on the music-assisted imagery process called Guided Imagery and Music (GIM) found that personal music preferences were not usually applicable or healing when used in therapeutic settings. In GIM the client

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is encouraged to relax into a deeply altered state and, as the specially programmed classical music plays, s/he is asked to allow images relating to personal issues to emerge. These images are related to the therapist who helps bring about synthesis and resolution. Although this process was designed to foster personal growth in psychological and spiritual dimensions, occasional healings of a physical nature do occur (Bonny, 1978).

During a GIM workshop experience a patient named Robert noticed an abrupt change occurring in his heart rhythm. He said that he felt a few thumps, and that his rhythm was regular thereafter. His doctor verified that in the past he had suffered from recurrent episodes of atrial flutter which had been converted to regular sinus rhythm with cardioversion and drugs. After the music session, however, the cardiogram was normal, showing the presence of regular sinus rhythm and, untypically, there was no recurrence of the atrial flutter. The doctor volunteered EKG documents verifying the change in Robert's condition with the accompanying note, "My communication with you does not intend testimonial... but is merely a statement of documented fact. It is most impressive, however" (A.E. Bacon, personal communication, July 12, 1979).

With the success of taped music in the coronary care unit of the hospital, the anesthesiologist requested music for the surgery areas, since patients are anxious before and after surgical procedures. Classical music tapes were played over loudspeakers in the pre-op areas and through headphones in the operating rooms. In the recovery room, the music was changed to stimulative, or more active tempos, to encourage return to normal consciousness. Patients reported substantially reduced pre- and post-operative pain and anxiety, and anesthesia requirements were reduced. (Bonny & McCarron, 1984, p. 57)

Other studies indicating successful use of music in hospital settings include:

> Music used as part of a comprehensive pre-operative teaching session for pediatric patients. The children who received music therapy before medication were rated as showing less anxiety for the surgical procedure. (Chetta, 1981)
>
> Studies by MUZAK report a significant reduction in stress for 286 pre-operative patients, and a highly consistent reductive effect on systolic and diastolic blood pressure, pulse rate and respiration rate. (MUZAK, n.d.)
>
> A study at the Sloan-Kettering Cancer Center in New York found that music produces physical and emotional changes in hospitalized cancer patients. It was demonstrated that live music affects hospitalized patients significantly more than does tape-recorded music of the same material. (Bailey, 1983)

Brain hemispheric studies show that both cortical and subcortical areas are involved in music making and listening. "When subcortical areas are damaged or disconnected from the cortical area, patients rarely care about music" (Rosenfeld, 1985, p. 54). Emotional response mechanisms are

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severed, and music, the language of emotions, cannot be appreciated. Studies of hemispheric differentiation have indicated that most people, with the exception of trained musicians, process music through the right temporal lobe. (Hodges, 1980, p. 202)

For stroke victims, specially prepared music can play an important part in recovery. Melodic Intonation Therapy was developed at Boston University School of Medicine to enable stroke victims to learn to speak again.

In a Pueblo, Colorado Nursing Home, Jack Stucki uses relaxation, pink sound, music and healing suggestions to create a healing climate for stroke and arthritis victims. His purpose is to help patients change their reactions to stress, and to encourage them to use body parts which were once paralyzed. He uses feedback equipment to encourage clients to move muscles. Muscle movement triggers electronic impulses, which are changed by an oscillator into tones. These tones give the client positive reinforcement, prompting him/her to maintain movement, and allowing the self-generated music to continue. Pink sound, a variation of white noise which uses selected frequencies in a wave-like sound sequence, is combined by a mixer with self-generated tones, taped music and the therapist's voice to provide a very successful treatment milieu (Stucki, 1979).

THE USE OF MUSIC TO PREVENT ILLNESS

This paper has summarized research studies which demonstrate the use of music in the alleviation of physically and emotionally generated human illnesses. Most of the music procedures utilized have been the more passive ones, which include listening to musical phenomena. We must now address prevention. Can music performance and listening preserve health, even extend life? A study of the life spans of major symphonic conductors seems to imply longevity for that profession. John Diamond states that 80% of conductors are still alive and working at age 70. He concludes "a conductor is thus vigorously tonifying certain energy systems by the gestures he makes each day (Diamond, 1979, p. 157), at the same time that he is being flooded by the healing qualities of the music."

Exciting new theories which explore the neurophysiology of emotion in music performance are being uncovered by Manfred Clynes, an inventor, neurophysiologist and concert pianist. Clynes' book, *Sentics, the Touch of Emotions,* outlines a biological basis for communication of emotion through musical expression. Music involves expressive forms in time, and every good composer uses a wide range of essentic forms in his/her musical expressions. Clynes defines essentic form as "the biologically given expressive dynamic form for a specific emotion" (1985, p. 3). A performer's technical ability is gauged by his/her ability to reproduce the precision of these essentic forms in musical performance. Clynes proposes, "For each primary emotion — love, hate, anger, joy, grief — there is an innate brain program which provides a 'command shape' for all expressions of that

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emotion. Contours so formed become essentic forms and show stability and constancy" (Jonas, 1972, p. 41). These forms are the key to one's ability to communicate feelings precisely to another human being. In performance, emotional affect may pass through the musicians' fingers, pressure and breath to become a palpable essence for the listener, particularly so if the sentic cycles of the composer are faithfully reproduced. In reference to the healing aspect of his theory, Clynes states, "The release of specific neurochemicals in the brain associated with essentic forms of basic emotions may produce changes in the organism which depend on the context in which essentic form is viewed" (1985, p. 13). In Clynes' work there is a promise of startling new insight into the microstructure behind the emotional components of music, which could have interesting repercussions on the healing field.

New Age music strives to a relaxing musical mood, and much is written about its healing effects. After a few hearings, however, the sameness of its dynamics, the lack of reaching a climax or resting point, and the unvarying rhythms, can become irritating rather than restful. In an article entitled, "Muzak for a New Age," *Newsweek* reported, "Converts to New Age music are first dazzled, then disappointed. People hear this nice soft music, and they think, 'wow, this is beautiful,' but they reach a point when they say, 'Where's the real music?' " (Barol, Uehling & Raine, 1985, p. 68).

No definitive studies have determined which type of music has the greatest healing qualities. Before this can be accomplished, the variables within music and how they specifically affect certain people must be further delineated. These variables are diverse, people's taste in music is diverse, and habitual listening postures have much to do with the final effects of music stimuli on body, mind and spirit.

REFERENCES

Andrews, D.H. (1966) *The symphony of life.* Lees Summit, MO: Unity Books.

Ayensu, E.S. (1981) *The rhythms of life.* The Smithsonian Institution, New York: Crown Publications.

Bailey, L.M. (1983) The effects of live music versus tape-recorded music on hospitalized cancer patients. *Music Therapy: Journal of the American Association for Music Therapy, 3* (1), rom 17-28.

Barol, B., Uehling, M.D., & Raine, G. Muzak for a new age. *Newsweek,* May 13, 1985.

Bonny, H.L. (1978) *Facilitating GIM sessions.* GIM Monograph #1, Baltimore, MD: ICM Press.

Bonny, H.L. (1983) Music listening for intensive coronary care units. *Music Therapy: Journal of the American Association for Music Therapy 3* (1), rom 4-16.

Bonny, H.L. & McCarron, N. (1984) Music as an adjunct to anesthesia in operative procedures. *Journal of the American Association of Nurse Anesthetists, 52,* February, 55-57.

Chetta, H.D. (1981) The effect of music desensitization on operative anxiety in children. *Journal of Music Therapy, 18* (2), 88-100.

Clark, M.E., McCorkle, R.R. & Williams, S.B. (1981) Music therapy-assisted labor and delivery. *Journal of Music Therapy, 18* (2), 88-100.

Clynes, M. (1974) The pure pulse of musical genius. *Psychology Today,* July.

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Clynes, M. (1985). On music and healing. *Music in Medicine, Proceedings of the 2nd International Symposium on Music and Medicine,* Luderscheid, W. Germany

Diamond, J. (1979) *Your body doesn't lie.* New York: Warner Books.

Dixon, B. (1986) Dangerous thoughts: How we think and feel can make us sick. *Science, 86,* April, 63-66.

Downey, J.E. & Knapp, G.E. (1927) The effects on a musical programme of familiarity and of sequence of selections. In M. Schoen (Ed.) *The effects of music.* New York: Harcourt, Brace and World, Inc. (1984).

Dossey, L. (1984) *Beyond illness.* New Science Library, Boston and London: Shambhala Publications.

Gaston, E.T. (1951) Dynamic music factors in mood change. *Music Educators Journal, 37,* 42-44.

Goldstein, A. (1982) Brain frontiers. *Omni Magazine,* October, 112.

Hanser, S.B., Larson, S.C. & O'Connell, A.S. (1983) The effect of music relaxation on expectant mothers during labor. *Journal of Music Therapy, 20* (2), 50-58.

Harvey, W.A. (1985, August) *Utilizing Medicine as a Tool for Healing.* Paper presented at the Symposium for Music and Medicine, New York.

Hodges, D.A. (Ed.) (1980) *Handbook of music psychology.* Lawrence, Kansas: National Association for Music Therapy.

Jonas, G. (1972) Manfred Clynes and the science of sentics. *Saturday Review,* May, 40-41.

Muzak, (n.d.) *Music in the Preoperative Holding Area* (Music Research Note 51). Omaha, Nebraska: St. Joseph Hospital, Creighton University.

Pearce, J.C. (1986) *Magical child matures.* New York: Bantam Books.

Rider, M.S. (1985) Entrainment mechanisms are involved in pain reduction, muscle relaxation, and music-mediated imagery. *Journal of Music Therapy, 22* (4), 48-56.

Rosenfeld, A. (1985) Music, the beautiful disturber. *Psychology Today,* December, 48-56.

Rudhyar, D. (1982) *The magic of tone and the art of music.* Boulder and London: Shambhala.

Stucki, J. (1979) Music therapist works to promote self-healing. *Denver Post,* June 8.

Zwerin, M. (n.d.) Noting the effects of music on the body (Review of *Musique et Medecine). International Herald Tribune.*

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