

Music Therapy and Pregnancy

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Full Text: INTRODUCTION Music Therapy is a relatively young field that was organized during the 1950s in the United States of America. It belongs to the behavioral sciences and therefore is based on a scientific approach. Its primary goal is to help clients use the expressive experiences of music to improve or enhance their level of physical, psychological and socio-emotional functioning. Most frequently, a music therapist works within an interdisciplinary team. It is our hope that this will also be realized within the birthing scenario of the future, so that the music therapist will interact directly with the obstetrician, the nurse, the midwife, the neonatologist and the anesthesiologist. Currently there are some cases in which a music therapist is working with an obstetrician. Music therapy is thus beginning to emerge as another discipline that offers assistance to pregnant women. In general, we have found that music therapy treatment during pregnancy guides future parents, and mothers in particular, to connect and bond with their babies in a different way. This bond is conscious and strengthened by using the effect of music engaged with therapeutical activities within a group context. This kind of treatment improves the quality of pregnancy, labor, and birth because it lowers the mother's level of anxiety as well as neonatal stress. It also eases pain during labor contractions and birth. From the therapeutical point of view, the future mother becomes much more involved in the three fundamental areas of her pregnancy: physical, psychological and emotional states. The baby will be drawn to the melodies that will be remembered in utero, and these will stimulate its neural axis. Music will also enhance active movement of its limbs thus improving oxygen intake via a general increase of the exchange of fluids. These movements also produce a relaxed condition in the future mother, which enables further connection to her physical sensations produced by the baby. Music works as an interactive neurotransmitter affecting the cellular system and the hypophysis of the fetus. This sets a track of a variety of sensations that will be recorded by the fetus and remind him of the pleasant experiences he lived while in utero. PSYCHOPROPHYLACTIC MUSIC THERAPY The work with pregnant women can be termed psychoprophylactic music therapy. This term involves two specific aspects of treatment, the pleasure and the therapeutic areas. It is very important to bear in mind the difference that exists between these two areas because during treatment our activities and aims will be different. For example, a mother who will have to undergo a cesarean operation because she has been diagnosed with a placenta previa should not receive the same treatment as a future mother who has no foreseeable complications, or another mother who is going to have a premature baby because of an overweight or high blood pressure problem. For this reason, we divide future mothers into three groups according to commonly shared characteristics. The criteria placing her in a particular group depends on the information received during an individual interview or sometimes on medical advice. After the interview, we make a personal file where we gather all the information regarding her pregnancy including personal data. Details include the week of her present pregnancy, expected date of birth, prescribed medication, any special circumstances that require special care, as well as previous pregnancies. Additional information may include whether this pregnancy was produced as a result of a fertilization treatment. As previously stated, groups are divided into three categories: normal pregnancies, high-risk pregnancies and special pregnancies. It is quite different to work with an homogeneous group of pregnant women (with similar characteristics) than with an heterogeneous group. For example, women who have received a fertilization treatment and are 40 or 42 years old, perhaps this being their last chance to become a mother, and women who are 20 to 22 years old who are going to have their first baby. Likewise, it is not therapeutic to have in the same group a mother who is expecting triplets, an adolescent of 14 years of age, and

one with hearing problems because in such cases the activities would be entirely different for each one of them. Therefore, the activities and the subjects, as well as the therapeutic approach would be quite different for each of them.

Normal Pregnancies Generally, normal pregnancies do not show any type of obstetrical complications, mothers and babies are in excellent health, and only need continued optimal care for the normal development of pregnancy.

High Risk Pregnancies These pregnancies require special care because of the danger of abortion, bleeding, the need to stay in bed and the need of medicine in order to continue the pregnancy. In many cases, the treatment is carried out at the patient's home or in a hospital because they should not move.

Special Pregnancies Special pregnancy groups consist of overweight women, women who have hearing problems, multiple pregnancies, pregnancies achieved through assisted fertilization or in-vitro fertilization, and women under 15 or over 40 years of age. Since groups never exceed more than ten pregnant women, we can give them personal assistance and attention. They come to music therapy sessions once a week and they see us more often than they see their obstetrician. This creates a strong bond between client and therapist. In some cases, the music therapists assume the role of doulas in a hospital setting.

FETAL HEARING Before explaining the practice of music therapists, it is important to understand how fetal hearing functions. The hearing system of the fetus is physically developed at approximately four and a half months; it then starts catching the sounds, inner sounds first then the outer. Through sound, the fetus receives the richest and most varied information. According to Deliege and Sloboda (1996), the early research in the 1970s describes the womb as noisy, between 72 and 96 dB. But more recent investigation using hydrophones has indicated the contrary, placing the womb in a relatively quiet space, especially when the mother is calm and there are no abdominal gurgles, ranging between 50 to 60 dB. The internal fetal and maternal noises are comprised of respiratory, movement, gastrointestinal, cardiovascular and laryngeal sounds, mostly in the lower frequencies between 500 to 700 Hz. Among these sounds, the mother's heartbeat is a predominant feature. The external sounds include all those in our daily environment, including music, all of which stimulate the fetal auditory system. The mother's voice is unique in that her speech and songs stimulate her unborn baby, both through bone conduction internally and by airborne sound waves. The father's voice is known only by the airwave resonance and therefore remains less intimate than the mother, but can be bridged if he consciously devotes time to bond with his baby. This can be achieved by talking in close proximity to the skin of the womb, touching and caressing it, and singing. For our purposes, it is also important to remember that sound energy dissipates more quickly in the air than it does in most solid mediums. Solids and liquids are better transmitting mediums than air because they are denser and have an elastic quality. Altogether, the sounds that are present throughout the 24 hours may range between 30 to 96 dB. As far as frequencies are concerned, there are some sounds provided by musical instruments whose frequencies are below the 500 Hz. range. This frequency creates a vibration that produces a physical sensation felt by the fetus and the mother body but are more difficult to hear. On the other hand, there are also frequencies that are better "heard" but not "felt" which are at the other end of the Hz. spectrum, whose vibrations are not so strong. In our work, we select music whose vibratory frequencies can be "felt" and also "heard" by the fetus. In some of the relaxation exercises there is a sensation felt by the mother through the music and the baby receives directly the emotional sensation produced by the sound on its mother. Continuous use of relaxing music with different exercises allows her to bond more deeply with her baby. In turn, the baby will develop a memory track for this music that will acquire increased meaning after birth. As a point of reference, the normal ear generally can detect sounds ranging from 16 to 20,000 hertz. The piano's lowest keys measure 27.5 hertz and the highest at 4,186 hertz. According to Tomatis, the higher sound frequencies, those between 3,000 to 8,000 hertz, generally resonate in the brain and affect cognitive functions. The middle frequency, sounds between 750 to 3,000 hertz, stimulate the heart, lungs and emotions while the low frequencies, between 125 to 750 hertz, affect physical movement. Hearing is the only sense that connects the baby with the "outer world" and it is also the sense that we can stimulate the most. It is possible to see very small babies capable of mental associations and relationships long before logical expectations. For example,

the capability of associating melodies with the intrauterine experience and the ability to focus attention or to recognize voices. Using sonograms, we have been able to check how the fetus reacts to this type of musical stimuli. We apply directly on the mother's belly different kinds of music using two small speakers placed according to the position of the fetus. Our first conclusion is that in all cases, there was a 10 to 15 % increase in the heart rate of the fetus produced simultaneously as the stimulus. We also discovered that when the fetus recognizes the music, it produces sucking, intra uterine breathing movements, closing and opening of the eye lids, moving the head as if responding to the sound source and moving its upper and lower limbs slowly. The only change we noticed when the music was not recognized by the fetus was an increase in the heart rate. All these signs show good fetal vitality, and they also let us know whether the fetus has hearing problems or not, even as early as the seventh month of pregnancy. This information has been obtained with the assistance of an obstetrician, and verified by using over 40 hours of ultrasound recordings of music applied to the womb of pregnant women.

RELAXATION THROUGH MOVEMENT

We have created a technique called relaxation through movement (RTM). RTM is the awareness of hearing music and creating movements with the arms as if reflecting this music in the air, trying to achieve an active musical meditation directed towards the different sensations in the womb. Most frequently it is used while sitting or in a reclining position. To achieve most effective results, we divide pregnancy into three periods: * First period: conception to four and a half months * Second period: from four and a half to the seventh months, when the baby rotates and the so called internal rotation takes place. * Third period: from the seventh month to birth (end of pregnancy). Each period of pregnancy has its particular music and themes that supports the ongoing transformation of mother and child. Music has also specific characteristics, for example, music that is performed only by string instruments. This medium has a very good conduction quality traversing through the abdominal wall and vibrating through the amniotic fluid. Intensity and awareness are qualities that increase from period to period, paralleling the development of the baby in utero. We work from general themes to more specific ones towards the end of pregnancy. During the first period, we begin the focus on bonding and establishing a connection with the life that is developing within, exploring qualities of beauty, love, creativity, and others. There is also a conscious effort to sensitize the body, to bring more awareness to it. In the second period we introduce activities that will empower mothers to believe in their ability to give birth naturally, if they so choose. The connection of body, mind and feelings is another important aspect at this time, a theme that continues until the end of pregnancy. The last period is very active for both mother and child, preparing for birth, facing the questions of mothering, pain, and other issues that arise. Since music has lasting effects, its continuous sounding in the psyche, often in the subconscious after frequent listening, provides the same effect as experienced originally. The RTM technique includes guided imagery with the music focusing on subjects dealing with typical pregnancy fantasies. This preparation for mothers through music has no stimulus response criteria, in other words, we are not looking for a fetal response to a stimulus but are rather trying to provide a pleasant feeling through the mother experience. In providing her with a musical environment imbued with qualities of beauty, calm and joy, her endorphin levels are likely to rise and thus affecting her baby favorably. The encouragement and enjoyment the mother receives during this time also gets her more involved with the care of her pregnancy and becomes more connected to her baby. The hyper-sensibility and vulnerability of pregnant women is a very important factor, which can be relieved by a group setting. The value of such groups lies in the exchange of experiences with the other mothers during the sessions providing support, reassurance and insight for one another. As music therapists, we work with three basic premises: * The transmission of the vibration from the stimulus to the fetus * The fetus's hearing capabilities * What the future mother transmits while listening to music We try to combine the exercises for optimum benefit. For example, the last period of pregnancy, when the hearing of the baby is most developed is also the time when the fetus responds most actively, even to the father's voice. Therefore, it is during this time that directed communication through music is optimal. The RTM technique through movement is very helpful in reducing the level of stress produced by labor, because the relaxation is not

achieved through a passive conditioning, it is rather active and selfinitiated. It is equally effective in other positions such as lying down and walking. Music may be used during labor in numerous ways. Recorded and specially prepared tapes with music selected by the parents can be of great assistance to the mother during each stage of labor, thus lowering her anxiety level, relieving her stress and tension, focusing her attention inward, supporting her breathing patterns, and changing her state of consciousness. A music therapist accompanying the mother to the hospital or birthing center may also provide live music for the same purpose. Finally, the mother own voice is the most suitable instrument to express her own process, and her love, through humming, toning, chanting and singing, which in turn can be supported and encouraged by the music therapist. The choices of available music offer many possibilities. The benefits of Baroque and Classical music are widely known, especially the slow movements to which babies have responded positively. One can find selective music from almost every major composer, compositions which may not be well known, and this is for the better, as familiar music often brings recollections of events and feelings that may interfere with the intended work. The lullaby is a genre of music all of its own, which should be reintroduced into our lives as it provides great pleasure and soothes infants after birth, especially if sung while the babies were in the womb. The genres of music to be avoided during pregnancy are rock, opera and jazz. Reports of mothers having to leave rock concerts because the babies became agitated in the womb have been acknowledged in the research literature. This also applies to any loud sounds. In general, jazz music is not suitable during pregnancy because of the rhythmic displacements we call syncopation, however, there are always exceptions. Grand opera is too dramatic and may cause more irritation than pleasure. These musical genres may bring pleasure to the parents but they will not be appropriate for fetal nurturing. The greatest benefit to the babies in utero will be derived from live music. The mother's voice is the first choice, as it is the most soothing and stimulating to her baby, followed by the father's voice. In the future we need to focus more on the voice because it is the most musical instrument we possess. All great conductors have always conveyed their feelings of the music to their players not by explaining but by singing a phrase or the passage in question, precisely because a physical instrument is already once removed from its true source, the voice. Playing an instrument can become mechanical and frozen. The voice, like the personality, develops patterns of sounding, limiting its expression. We need to free the voice of these constraints so that the body and the personality can express themselves fully and genuinely. Future mothers are introduced to toning and chanting. These styles of singing are good vehicles for the mother to express an extensive range of emotions from fear to joy and pain, besides helping her focus and relax. Toning is the extended breath and sound on one tone while chanting includes simple melodies contained within a small range of pitches with no meter. Instrumental improvisation during group sessions will provide a creative and supportive environment to both parents. At least half of the music to which babies are exposed to in the womb should be performed live. After the birth, the parents may welcome their baby by singing their special womb song. A new stage in their lives take place when the mother first holds the baby against her chest and the child hears the heartbeat. There is an immediate recognition of this rhythm and the baby calms down because he knows this sound; he has listened to it for a long time in the womb. The baby also starts connecting the sense of smell with the breast and his mom. The senses of touch, smell and sound become more alive. When the baby opens his eyes and meets his mother gaze and hears her voice, he recognizes the special inflections of her language, the inner bond has now emerged into his outer world. Whenever the music formerly heard in the womb is now played in his new environment, the baby will be at ease, the comfort of the known will bring him peace and with it pleasure. **WORKING AIMS** As music therapists, we strive towards the following aims regarding future mothers and their unborn babies to: * allow the development of an early awareness of the intra uterine connection. * stimulate the baby with pleasant sensations and experiences through the mother. * develop and enjoy a deeper connection between mother and child. * reduce the levels of anxiety. * help reduce perinatal stress by providing the newborn with a familiar sound which was experienced in utero before birth. * prepare women for labor and birth with different psycho- musical techniques. * obtain further relaxation during

labor. * allow and support expressions of pain whenever they surface. * achieve further awareness of physical sensations. * nurture mother and child with qualities such as beauty, joy, and love. * create a holistic physical, emotional, mental and spiritual environment for the emerging family. * foster creativity and imagination. All this will help future mothers and their babies during pregnancy and birth because all of the above mentioned factors are fundamental to this process. Women's attitudes towards birth will be more open and empowering.

THE ARTS AS AN HOLISTIC PARADIGM The arts in general have always been regarded as media of expression for a given culture playing a specific function. In the past, they were held in high esteem often associated with healing, religion and rituals of passage from birth to expiration. They held meaning in daily life and were fully integrated in the spectrum of one's life span. Through time we have lost this connection, the gifts, the meaning, their value. As we have entered the new millennium we are rediscovering the need we have for the arts in order to become whole again. Reflecting our modern world of specialization, individualism, political, economic and social instability, we are in need of finding our true selves. In search of meaningful paths, the arts are becoming windows for self-exploration as seen, for example, in the numerous drumming circles that have been burgeoning around the country and music therapy becoming a closer ally of the medical establishment. This process stimulates our creativity and imagination enriching our lives and giving us a feeling of vitality. It is this synergistic quality of the arts that heals us and gives us a sense of well being. This is a holistic paradigm.

Music, as mentioned earlier, is an expressive and communicative art. It has the power to evoke deep nonverbal feelings, and in order to process these it is sometime helpful to explore other artistic mediums. Movement and color are of particular significance in this regard, although in our work we also include poetry, myths and modeling in clay. Movement is life, for all that is living vibrates, which is motion. In the work with pregnant women, the most meaningful movement emerges from their creative impulses being improvised in the moment, supported by music. For those who are self-conscious in the beginning, guidance is given through simple folk dances, belly dance movements, mirroring movement with a partner, etc. Through shared movement in a group, the mother pleasure, self-confidence and body image are increased. Self-expression by the mother through movement will often lead to deeper bonding and dialoguing with her baby. This kind of activity may also support the integration of body, mind, and feelings. Color vibrates in wave lengths as well, it is more abstract and subtler than sound. Color, in the form of light, is part of the electromagnetic spectrum, that includes x-rays, ultraviolet and infrared rays, radio and television rays. I am referring to the color spectrum as seen through a prism revealing the seven basic colors of the rainbow. Color has been observed to relieve tension and anxiety as well as to increase energy levels (Birren). Transformation and stimulation through color in pregnancy is predominantly experienced by mandala drawing and in the use of large colored silk scarves. As this is a new area of development, therefore, there is no data other than anecdotal evidence. Many philosophers throughout history, such as Sir Isaac Newton, have intuitively believed that there is some correspondence between color and music. The Pythagorean theory of color and music, though controversial, suggests that the vibrational frequencies between the seven spectrum colors have a correspondence in the seven notes of the scale starting from middle "c" on the keyboard. In other words, middle "c" correlates to the color red, "d" with orange and so on. Therefore, when color and music are used together, their vibrational energy is increased and intensified. Fabien Maman, a musician, composer, acupuncturist and bioenergetician, in his Academy of Sound, Color and Movement, has obtained positive benefits using the color and sound correspondences as mentioned above. However, research is needed to validate this energy field theory.

CONCLUSION Music is a vehicle of consciousness. The auditory consciousness is our first awareness as our sense of hearing is the first to fully develop in utero and is the last to relinquish its role during our earthly existence. Barbara Crowe, a music therapist, makes the following observations: ... to hear is to be, it is a fundamental awareness of being. We are born listeners and we remain switched (on) listeners continuously throughout our lives, we never shut our ears like we shut our eyes. The world of sound is as old as humanity. Music sums up the experience of listening and communicating in sound. Music becomes a world for the knowing of consciousness. Further on, she comments:

Auditory consciousness is a multidimensional awareness of time and space, a nonlinear reaction that is unitary in nature. The consciousness of listening is continuous, ever present and unavoidable. It is an awareness of wholeness and simultaneously of the relationships inherent in sound and particularly music. Music, in its fluid nature, is like a river that waters the valleys, our daily consciousness; has great depth in the ocean, our unconscious and subconscious selves; and bestows a greater vision from the mountain peaks, our super consciousness. Another quality that is unique to music is that it gives focus to the present moment, to the here and now. This present awareness can be capitalized by pregnant women when giving birth and tuning into their own processes. Unborn babies nurtured with music during pregnancy by their parents participate in this fluid quality that music bestows on us all. Upon birth, these babies appear to be alert and aware but we really don't know how prenatal and perinatal babies experience music. There are more questions than answers in this regard. But above all, these babies are nurtured consciously with love and this alone makes them special. In the womb song we have created a modern ritual of welcome to their earthly life. In the original lullabies and rocking motions we have provided for their emotional support. In the last decades of this century important ground work has been laid in the pre and perinatal field with the research of Thomas Verny, David Chamberlain, Michel Odent, and so many others. Prenatal and perinatal psychology has established itself and opened windows through which we can look at ourselves in our earliest humanity, namely the pre-nate as a sentient and intelligent being. The windows are growing larger to include the exploration of our spiritual selves. And as we move forward in this unknown territory, we will probably find that science, art and religion will one day converge into a larger understanding of consciousness which will encompass them all, without creating a separation between them. The reintroduction and involvement of the arts during pregnancy is reminiscent of the practice of ancient traditions such as the Japanese Tai-kyo, the "Tranquility Centers" of the Chinese, and the "Thought Rooms" of the Hindus. In our present worldly circumstances each couple individually is called upon to create in their own homes a center for peace and joy during the period of gestation; and the responsibility of practicing the arts lies with them. Our role is to support and encourage this exploration and celebration of ushering into this world babies that are truly conscious.

POSTLUDE: FINAL WORDS When a mother sings to her baby a lullaby, she is not only sheltering him and providing for his safety and transmitting her love, she is also conveying to him what we human beings cherish as most essential: Our folklore, race, warmth, word, gesture, purity, silences, essences, sense of time and space, song, rhythm, gesture, and our body's touch. As well as: the beginning of education; the basis of our moral and ethical principles; the very essence of our life. We are strengthening an eternal link. We are transmitting feelings that have passed from one generation to another. We are transmitting the history of our humanity and we are not even aware of it.

References

Bassano, Mary (1992). *Healing with Music and Color*. York Beach: Samuel Weiser, Inc.

Birren, Faber (1978). *Color and Human Response*. New York: Van Nostrand Reinhold Company Inc.

Campbell, Don (1997). *The Mozart Effect*. New York: Avon Books.

Childs, Marshall R. Prenatal Language Learning. *Journal of Prenatal and Perinatal Psychology and Health*, 13 (2), 99-121.

Crow, Barbara. (1999). "Music and Consciousness: Implications for Music Therapy Practice." Paper presented at the 9th World Congress of Music Therapy conference, November 1999, Washington D.C.

Deliege, Irene and Sloboda, John, Eds. (1996). *Musical Beginnings*. Oxford University Press.

Hall, Manly P. (1982). *The Therapeutic Value of Music, Including the Philosophy of Music*. Los Angeles: Philosophical Research Society, Inc.

Helene, Corinnne (1983). *Healing and Regeneration Through Color*. Marina del Rey: DeVorss & Company.

Maman, Fabien. (1997). *Healing With Sound, Color and Movement*. Poland: Tamado Press.

Mathieu, W.A. (1991). *The Listening Book*. Boston: Shambhala Publications Inc.

Wagner, Michael J. (1976). *Introductory Musical Acoustics*. Florida: The Faculty Press.

Vinogradov, Sophia, M.D. and Yalom, Irvin D., M.D. (1989). *Concise Guide to Group Psychotherapy*. Washington, DC: American Psychiatric Press, Inc.

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