Our Sonic Pathways

By Arden and Jack Wilken, INNER SOUND (Jan 07)

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Abstract

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We avoid the music that makes us uncomfortable because we have difficulty imagining that it can have any benefit. By doing so we do not use its potential to unblock the body to create change.

Music that creates sublime experiences (musical thrills) and music that makes us uncomfortable use the same pathways and mechanisms for activation in the body.

Sound enters through the cranial bones and the hearing mechanism and propagates itself in the form of sound waves through the connective tissue using the water the tissue contains to travel at nearly 5000 feet per second in an up/down direction. Sound waves are also produced internally, and the body uses these for the regulation of more than 50 % of the biological processes through ligand/receptor interaction. The frequencies that activate these processes lie between 20 and 20,000 Hz, the average range of human hearing.

The transmission of both external and internal sound becomes blocked when the connective tissue becomes thicker, inflexible and dry by filling in voids created by incomplete emotional experiences. In bodywork, when this blocked tissue is worked, it heats up and softens and the water is reintroduced. The pain and emotional memory stored in the area is relived. Similarly, sound/music can cause pain or discomfort, and the listener can experience the memory of some emotional trauma. Through conscious listening to sound/music this can be brought to the point of resolution where the pain and the feeling associated with it will dissipate and a change in perception is noted.

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(Case studies and a Listening Exercise are included.)

Key Words
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crystalline structures
hormonal changes
bodywork
resonant frequency

Much has been written about the marvelous and sublime experiences we can have with music, but how are these marvels actually created inside of us?

When we feel musical thrills while listening to music, we experience them simultaneously throughout the body. From this we know that music is in some way traveling through the body and must have a direct mechanism to affect our emotional responses. Drawing on the work of Jacque Benveniste, Candace Pert, and James Oschman we find that these emotional responses are keyed through the ligand/receptor interaction by specific frequencies that have traveled through the connective tissue of the body.

The specific physiological and chemical changes that cause us to experience musical thrills are triggered by certain frequencies that activate either the ligand/receptor interaction or that activate directly the receptor on the surface of the appropriate cells. Music gives us a broad spectrum of frequencies from which the body selects specific ones to activate different responses- in this case what we call 'musical thrills'.

Let us focus for a moment on how sound enters the body.
With the exception of the head most of the body resists the transmission of external sound from entering into it. In a two and one half hour, in depth interview with John Tyrer at Loughborough University, we learned that most of the joints are designed in such as way as to inhibit the transmission of sound from the outside from going deeper into the body; they keep sound from propagating throughout the body.[1] This is equally true for muscles and cartilage. All the changes in mass of these parts of the body dampen the entry of sound into it. In the hearing mechanism the processing of sound- especially as it applies to the geographical location of the source- actually uses this dampening effect of external sound. The fact that certain frequencies are diminished or filtered by the body by the time they arrive to the eardrum is part of how the brain determines where the sound is coming from.

One part of the body that is particularly adapted as a receptor or antenna for external sound waves is the cranial bones.[2] In this sense they are independent of the hearing mechanism. These bones are directly in contact with the cerebral spinal fluid, which encases the central nervous system, and create the possibility for an acoustical coupling between the sound in the air and then sound into the fluid of the body.

Discussions with biophysicist James Oschman suggest that sound does propagate itself in the form of sound waves through the connective tissue using the water the tissue contains to travel at nearly 5000 feet per

second in a more or less up/down direction. If we go a step further to understand why these pathways, the connective tissue, are so available to transmit the sound waves, what we would find is that the body in fact produces its own sound waves. It uses these waves for the regulation of more than 50 % of the biological processes. These sound waves activate the ligand/receptor interaction in very discreet ways. What is not completely understood is the specific pathways between the brain and the chest which is the most likely area where the internal sounds are produced that activate specific frequencies or patterns of frequencies that flow through the body. These inner sounds activate everything from digestion to specific emotions, and hormonal changes. What is more probable is that the crystalline structures[3] that exist in many parts of the body are responsible for the specific vibratory patterns that lend themselves to this activation.

Again, it is most probable that there is a neurological connection between the brain and the crystalline structures that are located in the upper chest. This process can not be completely neurological.[4] The synaptic reactions would be too slow to activate the majority of these interactions; emotions and other similar changes for example, because they require simultaneous action in our bodies at a cellular level. (Remember our experience of musical thrills.) Pert also speaks about a communication system that is present in the body, distinct from synaptic pathways or the circulatory system, which activates these processes. Another piece of the puzzle comes from Jacques Benveniste MD, who researched for 15 years on the specific frequencies that activate these processes. His research shows that all of these frequencies lie between 20 and 20,000 Hz, which coincides with the average range of human hearing, further supporting the importance of external sound on our internal workings.[5]

In order for these sounds or sound patterns to travel through the body, the pathways need to be flexible and easily vibrated. For this to happen the tissue making up the pathways need to be both thinly distributed and have the capacity to maintain a certain amount of water.

What happens, however, is that this network of tissue often becomes blocked. This can happen when the body attempts to defend itself by filling in voids created by incomplete emotional experiences. An example of this would be where a small child is frightened by something. Involuntarily he starts and contracts the diaphragm. If he receives what he needs in the moment in the way of emotional support or comfort, he will relax and the diaphragm will return to its rest position. If however, he continues to contract his diaphragm, the connective tissue in and around this muscle will thin in the areas where he has pulled it away. The body's response to this thinning is to fill it in with more connective tissue. In a month long Postural Integration training, Jack Painter, the creator of this bodywork technique, described the tissue at this point as 'thicker, inflexible and dry'.[6] This thickened and dry tissue is now a blockage in this part of the body. As this area is forced to move, it heats up and softens, and as it does so water is reintroduced. As well, the reliving of the emotional situation or memory stored in the specific area being worked is well documented.

With this model for the transmission and function of sound in the body, it is logical that external sound would not only utilize the same pathways as internal sound, but also be able to unblock these pathways because of higher volume/amplitude. This is much the same way that blockages can be released in bodywork, which instead of vibration use physical pressure to clear the pathways.

The body can be viewed as a vibratory system. Every vibratory system has a resonant frequency, the frequency at which it will begin to vibrate with the smallest amount of amplitude. A classic non-physiological example is the Tacoma Narrows Bridge in Washington State USA known as "Galloping Gurdy". The wind, matching the bridge's resonant frequency, caused it to vibrate so violently that it collapsed in the late 1940's.

The body can be seen as one vibratory system or can be divided into many smaller systems. When we divide it into smaller systems each division will give us a specific resonant frequency for that part. When the blockages occur, that part of the body becomes the equivalent of a separate system because it no longer moves freely. However, it still maintains its resonant quality. If we pass a broad spectrum of frequencies

through the body- one example would be music- then the frequencies that match the resonant quality of the area that is blocked, will have the maximum possibility to create movement, to start this area vibrating again. When this happens, the pain or other discomfort that is experienced is because this area is beginning to vibrate again under the influence of its resonant frequency. The subsequent experience of the emotion is based on the memory that is stored or trapped in the tissue that has become dry and blocked.

At the end of this article, we have provided instructions for a music exercise that you can use for yourself, at home. As emotions become unblocked through the use of the resonant frequencies indicated, you may experience physical and emotional discomfort as the blocked area begins to vibrate again. Following the instructions will give you empowerment over these symptoms.

After nearly 30 years of experience and research in the field of sound therapy and therapeutic music what is clear to us is that a very similar phenomena that we have described that happens in body work can happen with sound. Sound/music can cause a pain or other uncomfortable sensation in a very specific location in the body, and with that sensation the listener may experience the memory of some emotional trauma that was stored from the past. By the use of sound/music this can be brought to the point of resolution where the pain, for example, will disperse and the feeling associated with it will also go away. With sound or music it may require from one to many sessions before this release actually occurs. This often leads to a change in the person's perception of their world or reality.

We have seen this unblocking process as a regular occurrence in our work both with individuals and groups who have come specifically to use sound and music to create change. We have also seen this phenomenon in presentations of our work in more public venues where the people attending have not been told before hand what they might expect. In all the above situations people have reported on a regular basis the same types of experience as in the case studies below.

We suggest that the reason most people in our culture have not experienced the phenomenon of pain or discomfort from listening to music is because normally they listen to music they like, and this music does not in fact touch the blockages stored in the connective tissue. It is the music that people will reject or say, "it's not for me", or, "it's not good music" that will create this kind of reaction.

The following are case studies from various situations we have had since 1978 when we first began working in the field of sound therapy and therapeutic music. (We estimate that we have worked directly, either individually or in a group, with over 15,000 people from a single session to long-term personal processes lasting for several years.)

Case 1

Demographic information:

The subject was a 49 year-old, single English woman who had lived in Australia and Spain for 15 years. She had returned home to the UK 7 years ago because of family tragedy. She was the office manager in a law firm in London.

Presenting problem

She was experiencing episodes of strong feelings of grief and guilt triggered by visual images which reminded her of some of the circumstances of deaths in her family.

Setting and music heard

During a course with 8 other participants she listened through speakers to a series of 3-minute musical excerpts including Gregorian Chant, Renaissance and Baroque music. (She normally avoided listening to any kind of classical music.) During Handel's Alleluia Chorus, *Messiah* she experienced pain deep in the center of her chest, had memories of family funerals- particularly of her younger sister, felt intense grief and had tears. This reaction lasted for 10 to 15 minutes.

Results:

In the hours following this experience she reported that she felt more at peace and calmer than she had 'in a long time'.

Follow up:
As she was reluctant to listen to the Handel excerpt again, we prepared for her a 38 minute piece of music made up of many different short tracks including several melodic string pieces to continue to resonate the areas touched by the Handel. Over the next several months she listened nearly every day with headphones to this music. We saw or talked to her every couple of weeks and she said she felt a lessening of pressure and tightness in her chest and did not feel the deep pain again. In her words she felt the grief and guilt were 'melting away'. She also said that they were not triggered so frequently. Nine months after the initial pain experience she said that she had moved on from her family tragedy. At this point she decided to try the Handel excerpt again and found it quite beautiful. She experienced no pain or memories.

Case 2
Demographic information:
The subject was a 36 year-old Spanish woman living in Barcelona with her boyfriend. She was working as a translator and secretary.
Presenting condition:
She was interested in personal development.
Setting and music heard:
In a course with 12 other participants she listened through speakers to a series of 3-minute musical excerpts including Gregorian Chant, Renaissance, Baroque music, Classical and Romantic music. During "Hagen and male chorus" from Act 1 of Wagner's Opera *Das Rheingold* followed by 3 minutes of the Aria- "Vissi D'arte" from Puccini's Opera *Tosca* she experienced sharp pain in the back of her neck and shoulders with the memory of her parents arguing when she was 13.
Results:
While talking about her experience and the memory she felt a release in her neck and the pain went away.
Follow up:
She became aware of feelings of resentment from when she was 13. At that time her parents divorced. She decided she wanted to work more with the music of Wagner on an on-going basis at home. We suggested she start by listening for only a few minutes at a low volume to the *Das Rheingold* excerpt. When she did this she immediately felt her neck become tense. We had her stop and relax and then start listening again. The same thing happened so we suggested she wait a day and try again. She tried again the next day and found she could listen a few minutes more before her neck tightened. She stopped, tried to relax and began listening again. She continued this process over the course of about 10 days until she was able to listen to the entire first act with no neck tension. In her words she felt as if a great weight had been lifted from her shoulders and that her resentment towards her parents was less. She was considering talking to them about what she was feeling about the past. She had never done this before.

Case 3
Demographic information:
The subject was an 8 year-old German boy living with his father and mother near Frankfurt. He had a sister a few years older.
Presenting condition:
His was unable to express his feelings.
His parents were concerned because he was very timid and quiet.
Setting, music heard, etc.:
At a health exhibition he attended a one-hour music experience with his parents through speakers of 8 different pieces both abstract and melodic, using either solo piano or strings with harp and woodwind sounds.
Results:
On the way home in the car after the concert he suddenly began to express to his Father what he felt about his father's behavior. He had never expressed any of his feelings before.

Follow up:
The following day his Mother brought him to our stand and told us what had happened and said that her son had very specifically asked to come to see us. He wanted to have more music. She also said that he had been very restless during the concert, an unusual behavior for him. We gave him a 15 minute piece of music similar to one of the abstract piano pieces of the night before and suggested he listen to it whenever he wished- while studying, in bed, with or without headphones. We received a note several months later from his mother saying that he showed a marked improvement in his shyness and ability to communicate what he felt.

Case 4
Demographic information:
The subject was a 62 year-old American woman, married with 2 grown children. She was a school nurse.
Presenting problem:
She suffered from poor self-esteem and was not happy in her work.
Setting and music heard:
In an individual therapy session she listened through headphones to 20 minutes of a 58-minute long textured, abstract music piece using strings and electronic piano sounds.
Results:
She said afterwards that she had had pain in both knees that came and went while listening with no memories. In her words afterwards, she felt 'more hopeful'.
Follow up:
She wanted to continue to listen to the music at home so we suggested she listen to the entire 58 minutes with headphones while sitting or lying 3 to 4 times a week. After listening in this way for 1 month she said she had greater flexibility in her knees, no more experiences of pain, and felt calmer and more positive about herself.

Case 5
Demographic info:
The subject was a 48 year-old Dutch male, married with 2 young children.
He worked as a project manager.
Presenting problem:
He was unhappy in his job and was on sick leave due to stress.
Setting and music heard:
In an individual therapy session he listened through headphones to 15 minutes of abstract piano music.
Results:
Afterwards he felt light-headed and a little nauseous. He sobbed for several minutes and then talked about what he referred to as 'painful childhood memories' from approximately ages 6 to 7.
Follow up:
He took the music home and listened every day with headphones for 6 months. After about 1 month of listening he reported that the uncomfortable sensations had not returned and that his head was much clearer. He continued listening because he felt less stress when he did so.

Case 6
Demographic info:
The subject was a 25 year-old English woman living with her boyfriend in London. She was unable to work. We do not know her educational background.
Presenting problem:
At a health exhibition in London a young man came to our stand and told us about his girl friend who was in a catatonic state. She was unable to care for herself in any way. She had to be fed, bathed and her clothes changed. She was completely bed-ridden.
Setting and music heard:
We gave him 15 minutes of abstract piano music and recommended that he play it at a low volume through speakers placed near his girl friend 5-6 times a day.

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Results:
After 6 weeks she sent a letter saying, "the music called me back from where I was. I was feeling great sorrow and pain in my heart. I am now able to be in the world again."
Follow up: She emerged from her catatonic state and was able to live her life under normal circumstances.

The Conscious Use of Music- Listening Exercise (Time: ~15 minutes)

Sometimes we feel great rejection for certain types of music or instruments. These are usually caused by blockages in the connective tissue, which do not allow sound waves to flow through us. This exercise can help to begin to clear those blockages and reestablish a natural movement.
Posture: Sit straight but relaxed in a comfortable chair with your eyes closed. Have your feet on the floor with pillows or cushions, if needed. It is better not to lie down or cross your arms or legs.

1. Start by listening for 5 minutes to your favorite music at whatever volume you like.
2. Next, put on at a **low** volume the music you have had a strong reaction to. While you listen, breathe deeply and be open to the movement and feelings created by the music. Put aside your musical expectations and any judgment you might have about the music. Listen for about 5 minutes, if you can, and allow the music to flow through you. If the uncomfortable sensations become too strong, simply stop listening and go on to step 3.

Variation: for rejection to strongly rhythmic music such as rock, put the music on at a **low** volume and stand about 12 feet (3 ½ meters) away from the speakers. Allow the music to enter your system and slowly walk closer to the speakers letting your body move or sway spontaneously. After a minute or so, back away until your body stops the spontaneous movement. Then move forward again, then back. Continue until 5 minutes have elapsed. Proceed to step 3.

3. Play again your favorite music at whatever volume you wish until you feel centered again.

Afterwards, briefly make a note of any physical sensations, feelings, memories, and thoughts, images or emotions you experienced. This will help to complete the listening exercise for you.
Note: Repeat the exercise as often as needed until you are able to feel the music's effect without discomfort.

Conclusion:
Music that creates sublime experiences such as musical thrills and music that makes us uncomfortable both use the same pathways and mechanisms for activation in the body. However, based on our cultural focus and relationship to music, we avoid the music that makes us uncomfortable because we have difficulty imagining that it can have any benefit for us. By avoiding this music we do not use its fullest potential to help us unblock the body to create change.

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