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### Music Therapy (MT) Research Sheet

**ALL (1-14) ARE EXPLAINED IN DETAIL STARTING ON pg 2**

Music has been clinically proven to:

1. PROVIDE A POSITIVE DIVERSION FROM NEGATIVE EMOTIONS – NOT COMPATIBLE WITH WORRY
2. ALLOW THE MIND AND BODY TO RELAX AND ACT AS A NON-ANALGESIC SLEEP AID (with no side effects)
3. INCREASE THE POSITIVE EFFECTS OF MEDICATIONS
4. DECREASE THE PERCEPTION OF PHYSICAL AND EMOTIONAL PAIN
5. DECREASE BLOOD PRESSURE, HEART RATE AND RESPIRATION RATE WHILE INCREASING OXYGEN TO THE BLOOD
6. DECREASE STRESS LEVELS (increasing endorphin levels, our body's natural opiates)
7. BOOST OUR IMMUNE SYSTEM – AFTER A 30 MIN MUSIC EXPERIENCE ENZYMES IN OUR SALIVA, THAT AID IN DIGESTION (thus boosting our immune system), ARE PRODUCED, NAMELY IMMUNOGLOBULIN A (IgA); ALSO PRODUCED, INTERLEUKIN 1 WHICH IS A PROTEIN THAT ALSO AIDS IN FORTIFYING IMMUNE RESPONSE
8. AID IN TISSUE REGENERATION (repair)
9. AID IN SURGERY SETTINGS BY: DECREASING THE AMOUNT OF ANESTHESIA NEEDED; DECREASING BLEEDING AND SPEEDING UP RECOVERY TIME
10. PROVIDE REALITY ORIENTATION AND OFFER A POSITIVE DIVERSION FOR THOSE EXPERIENCING HALLUCINATIONS OR DELUSIONS
11. BE AN EFFECTIVE “HELPER” DURING EXERCISE/FITNESS TIMES BY ACTING AS A MOTIVATOR, POSITIVE DIVERSION FROM EXERTION, PACE SETTER, ETC.
12. REDUCE THE CONDITIONED SIDE EFFECTS OF CHEMOTHERAPY, i.e., NAUSEA AND VOMITING
13. ACT AS AN EMOTIONAL STIMULUS, ELICITING INSTANT FEELINGS AND EMOTIONS (primary cognitive experience)
14. INCREASE COGNITIVE (brain) AND PHYSICAL ENERGY AND DECREASE FATIGUE

***\*\*\*The above mentioned benefits of music are more readily attainable when we utilize music in a purposeful manner, i.e., preferred music used often with no or minimal distractions.***

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## Music Therapy (MT) Research Sheet

Music has been clinically proven to:

### 1. PROVIDE A POSITIVE DIVERSION FROM NEGATIVE EMOTIONS – NOT COMPATIBLE WITH WORRY

First, an aspect of music that I see affect people often, no matter what the age, is that of music being a primary cognitive experience. What this means is that when we hear music we have no control over the feeling and emotions it gives us. All sensory experiences are like this. When we hear, see, smell, feel and taste things, again, we have no control over the feeling and emotions sensory experiences give us. For example... if we are in a mall and a fragrance that reminds us of our grandmother gets our attention, whether we want to think of our grandmother or not, we will think of her. We can not control the thoughts that come about due to the sensory experience. With this in mind, if you want to use music listening as a positive diversion from worry listen to your favorite music, with no distractions - a lot!

And second, to perceive anything (stressful thoughts, pain, etc.) we have to utilize many neural pathways. If we are utilizing many neural pathways to attend to, and perceive positive emotions from a favorite piece of music, we leave less neural pathways to perceive stress, pain or worry.

### 2. ALLOW THE MIND AND BODY TO RELAX AND ACT AS A NON-ANALGESIC SLEEP AID (with no side effects)

First, non-analgesic means: not drug like.

And second, music has been clinically proven to induce a relaxation response, i.e., decreased stress hormone, lower blood pressure, slower brain wave activity, decreased heart rate, etc.

\*\*\*Again, when someone uses preferred music in a purposeful manner as described above.

And lastly, music used in this manner will produce no negative side effects.

### 3. INCREASE THE POSITIVE EFFECTS OF MEDICATIONS

First, for medication to benefit us it has to be properly absorbed. And for absorption to be maximized it has to stay in our system and/or gut the longest amount of time possible.

Did you ever experience or hear someone say, for example, "with the funeral last week I was so stressed the everything went right through me..." When we are stressed out and our metabolism is in a heightened state our bodies do expel toxins faster (all medications are toxins) and digestions is sped up, ultimately not allowing medications to be fully absorbed. When all this happens, often times more medications are administered, allowing for more negative side effects, etc, etc, etc.

So, when we can be more relaxed, medications will stay in our system longer. When meds stay in our system longer more will be absorbed. When more is readily absorbed they become more effective. When they are more effective less medication is required. When less medication is given side effects are minimized and recovery

time is sped up. It doesn't matter what we do to relax, but music is a great way to do it.

#### 4. DECREASE THE PERCEPTION OF PHYSICAL AND EMOTIONAL PAIN

First, if we are experiencing physical or emotional pain we have to utilize many neural pathways to feel that pain. Similarly, when we engage in music listening to act as a positive diversion from pain, for us to attend to the music we again have to utilize many neural pathways to attend to that music... leaving less (neural pathways) to perceive pain. Neural pathways are microscopic nerve endings all through our body that ultimately connect to our brain. An example I'll use here is let's say we were on our couch with a splitting headache and someone at our door said that a youngster on a bike was just struck by a car outside. Most of us, getting up off the couch, going outside where neighbors and paramedics would be attending to the youngster, would not feel the pain in our head anymore. Why? Because we would be utilizing many neural pathways to perceive the commotion outside (task at hand) leaving less to perceive pain.

And second, regarding music's psychophysiologic effects, Helen Bonny, PhD (as cited in Tsao et al., 1992), alludes to studies with coronary intensive care patients finding that those who listened to sedative music increased their tolerance for pain and decreased their need for pain medication. Ms. Bonny's explanation for this: "sedative music is capable of stimulating the brain to produce peptides which are natural pain killers."

\*\*\*For more in depth information about music therapy and pain management go to the resource center at the bottom left of the home page at: [musicfromthestart.com](http://musicfromthestart.com).

#### 5. DECREASE BLOOD PRESSURE, HEART RATE AND RESPIRATION RATE WHILE INCREASING OXYGEN TO THE BLOOD

As a reminder, for any of these benefits to be ideally achieved by purposefully using music, preferred music and listening to that specific music enough to develop a conditioned response are the two important keys to success.

The big implication for this #5 and #6 below is the fact that music has been clinically proven to induce a relaxation response, i.e, decreasing heart rate, blood pressure, respiration rate and brain wave activity. Also, a relaxation response measures decreased levels of stress hormone. Researchers essentially measure this by putting vital sign apparatus on individuals. After listening to preferred music the above listed results are common.

Increasing oxygen to the blood happens because the person relaxes. When a relaxation response is achieved not only do our muscles relax but our veins and arteries do also. This results in more blood flow thereby increasing oxygen levels in the blood. Increased body temperature occurs for the same reason. \*\*\* Ever have to kick off covers in the winter after you've been asleep for a while?

#### 6. DECREASE STRESS LEVELS (increasing endorphin levels, our body's natural opiates)

#5 above addresses stress levels.

#### 7. BOOST OUR IMMUNE SYSTEM – AFTER A 30 MIN MUSIC EXPERIENCE ENZYMES IN OUR SALIVA, THAT AID IN DIGESTION (thus boosting our immune system), ARE PRODUCED, NAMELY IMMUNOGLOBULIN A (IgA); ALSO PRODUCED, INTERLEUKIN 1 WHICH IS A PROTEIN THAT ALSO AIDS IN FORTIFYING IMMUNE RESPONSE

Similar to the music research on stress, after individuals listened to personally chosen, preferred music, the above mentioned enzymes that boost immune response were produced and measured.

## 8. AID IN TISSUE REGENERATION (repair)

This research, called "cymatics" or the science of sound and vibrational healing, was first conducted by Hans Jenny, a Swiss physician and natural scientist. Simply explained, he found that when a powdery substance spread on a taut, rubber membrane was subjected to sound (vibrations) it vibrated into tissue like, cellular like structures. Therapy apparatus' have since been developed, using sound, for ligament and tissue repair. \*\*\*[See this article about cymatics.](#)

## 9. AID IN SURGERY SETTINGS BY: DECREASING THE AMOUNT OF ANESTHESIA NEEDED; DECREASING BLEEDING AND SPEEDING UP RECOVERY TIME

First, referring back to #3, i.e., "music has been clinically proven to - increase the positive effects of medications.." for medication to benefit us it has to be properly absorbed. And for absorption to be maximized it has to stay in our system and/or gut the longest amount of time possible. So, when we can be more relaxed, medications will stay in our system longer. When meds stay in our system longer more will be absorbed. When more is readily absorbed they become more effective. When they are more effective less medication is required. When less medication is given side effects are minimized and recovery time is sped up. It doesn't matter what we do to relax, but music is a great way to do it.

Decreased bleeding occurs when an individual relaxes. For example, a relaxation response causes decreased heart rate therefore decreased bleeding.

## 10. PROVIDE REALITY ORIENTATION AND OFFER A POSITIVE DIVERSION FOR THOSE EXPERIENCING CONFUSION, HALLUCINATIONS OR DELUSIONS

As a reminder, an aspect of music that I see affect people often, no matter what the age, is that of music being a primary cognitive experience. What this means is that when we hear music we have no control over the feeling and emotions it gives us. All sensory experiences are like this. When we hear, see, smell, feel and taste things, again, we have no control over the feeling and emotions sensory experiences give us. For example... if we are in a mall and a fragrance that reminds us of our grandmother gets our attention, whether we want to think of our grandmother or not, we will think of her. We can not control the thoughts that come about due to the sensory experience. With this in mind, preferred music listening, used as a positive diversion from confusion, hallucinations or delusions, works nicely.

And if you remember our discussion regarding physical or emotional pain, we said that we have to utilize many neural pathways to feel that pain. Similarly, when we engage in music listening to act as a positive diversion from confusion, hallucinations or delusions, for us to attend to the music we again have to utilize many neural pathways to attend to that music... leaving less (neural pathways) to perceive hallucinations or delusions. Neural pathways are microscopic nerve endings all through our body that ultimately connect to our brain. Often, with this in mind, the purposeful use of music can divert attention away from confusion, delusions and at times, hallucinations. Hallucinations are more difficult to control.

## 11. BE AN EFFECTIVE "HELPER" DURING EXERCISE/FITNESS TIMES BY ACTING AS A MOTIVATOR, POSITIVE DIVERSION FROM EXERTION, PACE SETTER, ETC.

For this, apply all of #10 to this, i.e., music being a primary cognitive experience and that of music occupying many neural pathways, leaving less to perceive (in this case) stress, exertion, etc. Also, just like we might dance to the beat of music... Use preferred music (listening) of specific speeds or tempos to exercise, run or walk to.

## 12. REDUCE THE CONDITIONED SIDE EFFECTS OF CHEMOTHERAPY, i.e., NAUSEA AND VOMITING

First we must understand what conditioned side effects are. When individuals receive chemotherapy for cancer treatment the medicine is very strong and toxic. Due to its toxicity people (often) actually get sick, often experiencing nausea and vomiting. Our bodies, out of survival, always tries to expel toxic agents for our protection. That's why when people drink alcohol too much they throw up. If the person receiving the chemo, lets say, does so in a room that has turquoise walls, after they have gotten sick a few times from the chemo, they might start to feel sick upon entering the room, or might start to feel sick simply seeing the color turquoise. Smells work the same way. Why? The person now associates the color turquoise or the smell of the room with getting sick. That is what conditioned side effects are.

With regard to preferred music listening, days or weeks before chemo therapy starts (if possible), listen to your prepared music purposefully and with no distractions. The idea is to start associating your wonderful music with comfort and good feelings which will hopefully override the physical conditioned side effects that could occur from the actual chemo therapy experience. Listen to your music 2-3 times per day, with no distractions (the same music) days/weeks prior to chemo, during and after the treatments. \*\*\*This strategy will not be as effective if you wait to use your music after you are getting sick, i.e., with no prior use before the treatments started.

## 13. ACT AS AN EMOTIONAL STIMULUS, ELICITING INSTANT FEELINGS AND EMOTIONS (primary cognitive experience)

As mentioned a few times thus far, an aspect of music that I see affect people often, no matter what the age, is that of music being a primary cognitive experience. What this means is that when we hear music we have no control over the feeling and emotions it gives us. All sensory experiences are like this. When we hear, see, smell, feel and taste things, again, we have no control over the feeling and emotions sensory experiences give us. For example... if we are in a mall and a fragrance that reminds us of our grandmother gets our attention, whether we want to think of our grandmother or not, we will think of her.

So, consider identifying favorite music of yours that you know you have personal, positive associations with and listen to it as needed and often.

## 14. INCREASE COGNITIVE (brain) AND PHYSICAL ENERGY AND DECREASE FATIGUE

In the early 1960s the prominent French ears, nose and throat doctor Alfred Tomatis was called to investigate incidences at European Monasteries where it was reported that monks were experiencing depression, being less productive, sleeping more than usual, etc. Other doctors tried things that did not work. When Tomatis decided to consider what in their lives had changed recently he found that a lot had indeed. In the early 1960s the Vatican II charter had modified the church customs and traditions from age old formal Latin practices to more modern ones. Tomatis found that one age old ritual, chanting (Gregorian Chant – sacred vocalizing with no instruments), was now done much less than previously. When Tomatis had the monks go back to their daily chanting practices they were all amazed to see their reported symptoms subside. They reverted back to their high energy, highly productive and spiritual selves, and went back to being able to function nicely on moderate amounts of sleep. So Tomatis went about finding out why vocalizing for many hours per week was so energizing. Through his research he found out that our brain receives 80% of its sensory energy from sound. And particularly our own voice, with its rich mid range frequencies, charge or energize our brain similar to how an alternator charges a car battery. Consider this... what is the classic characterization of an opera singer, one who vigorously uses their voice daily? They usually are very energetic, erect, confident, boisterous and with loud, clear voices. Now, what is the classic characterization of someone who is depressed? In a depressed

person we often see someone who is slumped, tired, un-enthused and with a soft, monotone voice.

So our own voice, live music (particularly Mozart) or recorded music listening, in that order, are the sound sources that energize us.

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