Module Four
Part three
4.3

Neurotransmitters
and Music Therapy
Music is nonverbal so it can move through the brain's auditory cortex directly to the center of the limbic system. This system governs emotional experiences and basic metabolic responses such as body temperature, blood pressure and heart rate. It can help create new neuropathways in the brain, as well.
Neurotransmitter: A chemical that is released from a nerve cell which thereby transmits an impulse from a nerve cell to another nerve, muscle, organ, or other tissue. A neurotransmitter is a messenger of neurologic information from one cell to another.
Neurotransmitters are chemicals made by neurons, or nerve cells. Neurons send out neurotransmitters as chemical signals to activate or inhibit the function of neighboring cells.

Within the central nervous system, which consists of the brain and the spinal cord, neurotransmitters pass from neuron to neuron. In the peripheral nervous system, which is made up of the nerves that run from the central nervous system to the rest of the body, the chemical signals pass between a neuron and an adjacent muscle or gland cell.
TYPES OF NEUROTRANSMITTERS

● Acetylcholine
● Norepinephrine
● Dopamine
● Serotonin
● Glycine, Glutamic and Aspartic Acids, and Gamma-Amino Butyric Acid (GABA)
● Peptides
Music can activate the flow of stored memory and imagined material across the corpus colossum (the bridge between the left and right hemispheres of the brain), helping the two to work in harmony.

Music can stimulate the immune system.

Music can excite peptides in the brain and stimulate the production of endorphins (natural opiates secreted by the hypothalamus), which produce a feeling of natural euphoria, shifting mood and emotion.
How Does Music Do This?

- Music does this by entrainment which, in the context of psychoacoustics, concerns changing the rate of brain waves, breathing, or heartbeats from one speed to another through exposure to external rhythms.
Music assists these medical conditions

- Scientific studies have shown the positive value of music therapy on the body, mind, and spirit of children and adults.
- Researchers have found that music therapy used along with anti-emetic drugs (drugs that relieve nausea and vomiting) for patients receiving high-dose chemotherapy can be effective in easing the physical symptoms of nausea and vomiting.
- When used in combination with pain-relieving drugs, music has been found to decrease the overall intensity of the patient's experience of pain and can sometimes result in a reduced dependence on pain medication.
Music acts directly on the neuro-vegetative system (hypothalamus, hypophysis, suprarenal glands) to produce neurotransmitters. Music can reactivate those functions which due to some pathologies have been altered, giving a balance back to the body and the mind.
IN CONCLUSION

• The close link between the auditory cortex, music, and the brain (specifically the neurotransmitters) is being shown in many research studies.

• Learning how to use our bodies’ natural response system could reduce the population’s dependence upon possibly harmful drugs currently prescribed.

• Music Therapy is an art, as well as a reputable science, based on research about music and the brain.