



Benefits of Music Therapy to Recovering Stroke Patients

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Everyone has one song that can spark emotions, change their mood or bring back memories of an event in their lives. Imagine driving your car on a Sunday afternoon then your favourite song comes into play on the radio station. You always feel like singing along loudly or stopping the car to dance to your favourite song. Music can brighten our days and cheer us up when we are at our lowest. Music can transport us back to our childhood, our wedding day or even when we met our spouses. Music has therefore been studied as a form of therapy in stroke patients due to its potential to recover motor skills, speech and even emotions to cope up the stroke conditions. It has been applied as add-on therapy to conventional or standard treatment for stroke to speed up recovery. Stroke is among the top ten leading causes of death. It is as a result of obstruction of blood flow to the brain denying it oxygen and nutrients. Consequently, the part of the brain affected produces effects such as paralysis, loss of speech, and memory. Music has shown the potential to aid in recovery of these losses.

Globally and in Europe, stroke is among the leading causes of death. 10.8% of the 56 million deaths that occur annually are as a result of stroke. Most of the deaths occur in developing countries which accounts for 85%. Women are at a higher risk; approximately one in every five women (20-21%) compared to one in every six men (14-17%). This is according to a 2006 study [1]. Stroke is due to blockage of a blood vessel that carries oxygen and nutrients to the brain. This can be due to a clot. It can also be caused by rupture of the blood vessel resulting in bleeding. There are three different types: ischemic stroke due to blood vessel obstruction, hemorrhagic stroke due to rupture of the blood vessel and transient ischemic attack (TIA) due to a temporary clot. Effects on one side of the brain produce neurologic effects on the opposite side of the body. For instance, if the right brain is affected, the left side of the body will be paralyzed, vision and memory will be affected, and one will develop quick inquisitive behaviour. If the left side is affected, right side of the body will be paralyzed; speech and language will be affected and develops cautious type of behaviour (American Stroke Association, 2018) [2].

Stroke can be treated and prevented using drugs and surgery to repair ruptured vessels. However, for optimal recovery there are rehabilitation centres that provide specific therapies: speech therapy helps with understanding and communication, physical therapy helps relearn movement and coordination, occupational therapy enables one to carry out daily activities and support groups help cope up with mental problems such as depression after stroke. As an add-on to conventional therapy, music has shown potential to speed up recovery not only in communication but also emotional well-being and motor skills [3].

Music helps stroke patients to communicate and participate by singing. Besides, music therapies help patients sing which enables them to restore their language. Some patients are also made to play light instruments or dance with the aim of restoring their motor skills. A research done by Sarkamo to show benefits of music therapy, involved sixty stroke survivors where a third of patients were made to listen to music and another third to an audio book and the remaining third acted as a control group. All the groups were receiving the standard treatment as a baseline. The group that listened to music showed better verbal scores, better attention scores and improved mood. He concluded that music activates the pleasure and reward systems in the brain which is the core of music-based therapy. Music enhanced cognitive and neural recovery [4].

Another research to show benefits of music therapy to improve mood, anxiety and emotions in accepting an illness involved a fifty-year-old female patient who had suffered an ischemic right hemisphere stroke and was undergoing rehabilitation. She took part in ten sessions of individual music therapy intended to improve her mood and help her accept her condition. She was made to fill in questionnaires designed from clinical psychology before and after therapy. The results showed not only a decline in her anxiety and a reduction of negative emotions but also an increase in acceptance of the stroke condition. Interestingly, the results also showed that as she was listening to music, she experienced movement in her hemiplegic arm. The study recommended further research on a larger group of stroke patients to establish if music can trigger movements in hemiparetic limbs [5].

In an article 'Healing through Music' by American Stroke Association, "music goes beyond tunes and words to the ears' ' because music can improve one's balance as well as gait and speech. Music can increase attention, focus and help in the reorganization of motor movements. It states that since stroke damages prime function (ability to plan and execute function), by playing a music instrument one recognizes existence of the affected limb and this increases the likelihood of moving the affected limb at will. The article goes further to highlight the relationship between music and speech. By singing a song, the words of the song are carried over to normal speech; a mechanism called parallel mechanism. Songs from childhood are easier to sing because of predictable lyrics (American Stroke Association, 2018) [6].

Neuroimaging studies in humans and animals have tried to explain the mechanism by which music cause changes in the brain. By listening to sweet or pleasant music, the brain regions especially cortical and subcortical regions that include "striatum, nucleus accumbens (NAc), amygdala, insula, hippocampus, hypothalamus ventral tegmental area (VTA), anterior cingulate, orbitofrontal cortex and ventral medial prefrontal cortex" are activated. Dopamine is released by ventral tegmental area. Aversive stimuli and pain suppression are due to VTA-NAc responses which explain the benefits of music on coping with depression. The hypothalamus and locus coeruleus account for arousal. The dopaminergic-mesocorticolimbic system is instrumental for emotion, motivation and executive functioning [7].

Music has been studied and explored as a form of therapy and has shown great benefits to recovering stroke patients. Individually selected music has been used to improve mood and acceptance of the stroke condition by patients. Playing light instruments has great benefits in relearning the motor skills while singing along to songs helps recover language and speech. Music targets the reward areas of the brain which accounts for the motivation and emotional aspects that help cope up and aid recovery. Lost memories can be recovered by music. Music as an add-on therapy to conventional therapies has helped speed up recoveries of stroke patients.

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