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Music Can Relieve Pain and Stress

Presented by:

“The power of music to integrate and cure. . . is quite fundamental. It is the profoundest nonchemical medication,” said noted author and neurologist Oliver Sacks. More research shows music may indeed have curative properties, including relieving physical pain and stress.

The University of Utah Pain Research Center conducted experiments to determine the ability of music to alter psychological responses to pain. The people that participated in the study were classified as suffering from higher levels of anxiety about pain than the general population. When they listened to music while receiving low level shocks via electrodes attached to their fingers, participants reported feeling less pain, and those with the highest levels of anxiety benefitted the most. Scientists believe music reduces pain by competing with the same sensory pathways, and this may allow music listeners to divert their focus from pain and engage in more pleasurable stimuli like music.¹

It appears music impacts the anterior cingulate cortex (ACC) - a part of the brain involved in registering physical pain. As well, this area also influences the autonomic nervous system, which explains why music study participants also saw decreases in their blood pressure and heart rate.

In the Utah pain study’s conclusion, the research authors’ remarked,

“Engaging in music listening can reduce responses to pain, depending on the person: people who are anxious and can become absorbed in activities easily may find music listening especially effective for relieving pain.”¹

Not Just for Adults

Adults are not the only group that benefit from music. Several studies reveal children also respond positively to music when dealing with pain and stress. An overview of this topic was published in *Ambulatory Pediatrics* and researchers reviewed many music therapy studies and concluded this therapeutic tool was effective in reducing levels of anxiety and pain with children facing medical or dental procedures.²

Another related study looked at children who underwent lumbar puncture - a procedure used to draw cerebrospinal fluid from the spine, usually for medical analysis.



QUESTION:

Scientists believe music...

- A) Competes with pain sensory pathways
- B) Numbs brain cells
- C) Reduces oxygen to the brain

ANSWER:

- A) Competes with pain sensory pathways

QUESTION:

Music can decrease...

- A) Blood pressure
- B) Body weight
- C) Bone density

ANSWER:

- A) Blood pressure

TRUE OR FALSE:

Pain relief from music only affects adults

ANSWER:

False - Children also benefit

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The study recruited 40 children between the ages of 7 and 14. Half the kids received no exposure to music while the other half listened to music before and after the lumbar puncture procedure. The children who listened to music rated their pain and anxiety lower than the control group. The researchers also saw heart rate, blood pressure and respiratory rate decrease compared to the children who did not listen to music.³

Music's Influence on Specific Health Problems

Scientists have also looked at how music influences pain and stress in a number of specific diseases and conditions.

Knee Osteoarthritis

This health condition causes degeneration of cartilage in the knee joint and is a significant cause of disability in North America. Surgery may be required in severe cases. The journal *Clinical Rheumatology* published a study evaluating the effect of music on patients with knee osteoarthritis undergoing a joint lavage treatment. Patients who listened to music just prior to the procedure showed reductions in anxiety and an increase in pain tolerance compared to patients not exposed to music.⁴

Cancer

When it comes to cancer, researchers discovered patients listening to pre-recorded music or engaging in music with trained therapists endured considerably less anxiety and were likely to also see a boost in mood and overall quality of life.

Although the amount of pain varied from one individual to the next, the study reported that “75% of cancer patients had at least some response and 47% had a moderate or greater response.”⁵

Heart Disease & Stroke

Undergoing serious surgery often causes major physical and mental stress in patients. Stress can increase the risk of complications. Research evaluated by a Cochrane Systematic Review showed the patients receiving treatment for coronary heart disease who listened to pre-recorded music reported less anxiety. This reduction in anxiety may have been responsible for a decline in the patients' heart rate and blood pressure, both of which were also tested.

Another Cochrane Systematic Review looked at the benefits of music therapy in the rehabilitation of stroke patients. Damage to the brain caused by stroke can make it difficult for patients to move their bodies and limbs. Improvement in movement was seen in stroke victims who underwent a type of therapy known as rhythmic auditory stimulation (RAS), which includes exposing the stroke patients to music of a specific tempo. When compared to patients who only received movement therapy, the RAS patients boosted their walking speed by 14 meters per minute, took longer steps and improved arm movement.⁶



Quote to Inspire

“There's nothing like music to relieve the soul and uplift it.”

Mickey Hart

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