AJER ASIAN JOURNAL OF EMERGING RESEARCH
eISSN:2664-5211 | pISSN:2663-4988

Research Highlight

CELLO TIMBRES: AN ADVANCED MUSICAL THERAPY

Zunaira Mahmood
Department of Basic Sciences,
ACE College for Women, Faisalabad, Pakistan

Key words:
Musical sound | musical timbre | classical opuses | auditory musical waves | electron microscopy | guinea pigs | musical therapy | cello timbres

Music is considered as food to soul and is popular among all age groups around the globe. Different traits of musical sound are known as musical timbre[1]. They can be similar to viola, cello, violoncello, piano, trumpet as well as human sounds etc. It is well known that musical intonations are utilized dependant on all classical opuses, musical styles as well as musical characters which points out the meaning of musical sentences.

Music possesses variable effect on its listeners which can depend on the theme of the musical compositions played with stringed, wind or keyboard instruments, quality of as well as type of music. However, the effects of auditory musical waves (employed in the musical compositions) have not investigated on the ultra structural level till now. Scientists have studied the impacts of musical intonations on living things particularly on plants *(Allium cepa)* since several years[2]. In China, Turkey and India, it is observed that music plays a fundamental role in treating the illness. The effects of music treatment are better in neuropathies and depressions[3].

Accordingly, scientists decided to conduct a new study in order to examine the effects of musical sound from cello, piano as well as trumpet on the skeletal muscle cells by employing electron microscopy and to offer the suitable timbres in the compositions, used for musical therapy[4].

For this purpose, research team selected 20 guinea pigs and divided them into four groups with 5 pigs in each group. First group was the control group. While, for 10 days, groups 2, 3 and 4 were subjected to Mozart and Vivaldi played with cello, piano and trumpet respectively for 6 h in a day with 15 min intervals. After 10 days, biopsy materials of skeletal muscle from these pigs were taken and analyzed[3].

During this experiment, reversible changes including vacuolization, swelling of mitochondria, strained myofibrils and destruction, amplification of chromatin material, activation of nuclei as well as nucleoli were observed in the piano group. On the other hand, scientists noted permanent and degenerative changes (nuclei with rough chromatin, smashing and loss of nuclei and organelles, smashing of shortened and strained myofibrils) in trumpet group. However, the macromolecules of the muscle

eISSN:2664-5211 | pISSN:2663-4988

cells taken from cello group were usually normal as in the control group. These results show that cello timbres are similar to human voice as they affect better on skeletal muscle cells. Conclusively, cello timbres can be employed in musical therapy.

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