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Commentary

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Certain frequency music has attracted attention for possible effective healing

Abstract

Music has various power for human body and mind. For 12 music tone, two types of scales are Pythagorean Tuning (just intonation) and equal temperament. This minute difference may generate human feeling for music. Music with 528Hz frequency has been in focus as healing music, which is called as "solfeggio frequency music". Certain frequency music has been known such as 96, 432, 528, 639, 852 Hz, that contributes reducing tension and anxiety. It seems to show beneficial efficacy, but scientific evidence is not enough. Similar to former Mozart effect, further accumulation of evidence and research development will be expected.

Keywords: music with 528Hz frequency, solfeggio frequency music, Music therapy, Mozart effect, Hinohara-ism

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Hiroshi BANDO,[1,2,3] Akiyo Yoshioka,[1,3] Masahiro Bando,[1,2] Yu Nishikiori[1,3]

[1]Shikoku Division of Integrative Medicine Japan (IMJ), Tokushima, Japan
[2]Tokushima University / Medical Research, Tokushima, Japan
[3]Shikoku Music therapy Association, Tokushima, Japan

Correspondence: Hiroshi Bando, Medical Research, Tokushima University, Nakashowa 1-61, Tokushima 770-0943, Japan, Tel +81-90-3187-2485, Email pianomed@bronze.ocn.ne.jp

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Commentary

This article is concerning the current topics as to music therapy. The author is a physician, pianist, and music therapist, associated with continuing various activities for long, in which we held two national conferences on music therapy in Japan until now.[1]

The common question has been raised about the power of music. Listening to music can contribute to the well-being of both of the healthy people and those with illness.[2] In the light of music therapy, the relationship among music, listener's mood and researchers' evaluation are related to the "iso-principle".[3] Music preferences are related to differences in person's history, upbringing environment, and personality.[4] For brain anatomy and physiology, there is cerebral neocortex on the outside and limbic system on the inside. The latter activates the related function to provide pleasant feeling, which is called the "reward system". Therefore, we can feel a strong sense of euphoria and elation through the presence of music. It involves increasing levels of dopamine that brings the feeling of happiness.

For well-known basic harmony, A Dur has three tones consisting of A, C#, E. There are two types of music scales of 12 tones. One is Pythagorean Tuning (just intonation) for 440, 550, 660Hz, and another is Equal Temperament method for 440, 554, 659Hz, respectively.[5] Concerning C#, difference of 4Hz seems to be moderately large when harmony of A, C#, E is presented. For equal temperament note, music scale shows geometric series with $^{12}\sqrt{2}$ (\sqrt[12]{2}, nearly1.059).[6] Consequently, these information of musical 12 tones may be involved in the minute differences of musical composition and presentation, as well as human feeling for music.

High-frequency sound is known to stimulate dopamine synthesis, suppressing the activity of sympathetic nervous system.[7] In addition, high-frequency music can stimulate parasympathetic nervous system, with reducing various stressful response. Then, stress-decreasing efficacy of music was investigated for autonomic nerve and endocrine system.[8]

In recently years, music with 528Hz frequency has been in focus as healing music. The standard tuning is usually 440 Hz for a' of the musical note, which is situated about the middle of the 88 keyboards in the piano (Figure 1). As calculation, multiplying 440 by 1.2 gives 528. Standard musical scale does not have 528Hz in the keyboard. However, impressive phenomenon can be found. When changing tune from 440Hz to 444Hz in a', the tune of c'' will become from 523.25 Hz to 528.01 Hz. Generally speaking, such specific type of music including 528Hz has been called as "solfeggio frequency music".[9] A variety of efficacy have been observed for solfeggio frequency, but their scientific evidence has not been fully clarified yet. Several studies have been accumulated so far.

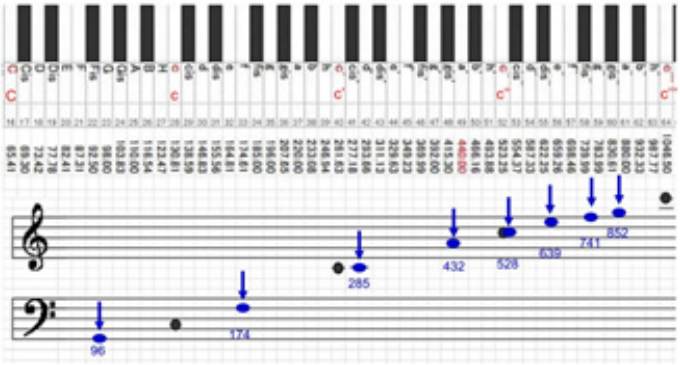

Figure 1 Relationship of solfeggio frequency and music scale.

For the session of music therapists, music listening has been common method among various treatments. In order to examine the model's performance for various songs, a confusion matrix was plotted. It included four factors of calm, happy, energetic and sad.[10]

Human feeling and musical characteristics can influence one another. As everything has its own vibration, music therapy for sound healing may focus on specific their frequencies. They are known as solfeggio frequency that shows a beneficial efficacy on human body and mind. They have been utilized for various ceremonies and rituals from ancient India until medieval European period. Some researchers recently started to investigate the related-mystery, including solfeggio matters.[9] These perspectives have been introduced after 1970s. Some frequencies are known to raise certain vibrations presenting some therapeutic efficacy (Table 1).

Table 1 Certain frequency and its possible function

Hz	Possible Function
96	Helps people to eliminate feelings such as fear, guilt, and grief moods
174	Brings the expansion of consciousness and foundation of evolution
285	Helps expansion and promotion of consciousness from multidimensional realms
432	Clears negativity and triggers a positive change, and slows down the heart rate
528	Known as love frequency, with awareness, transformation and DNA repair
639	Reinforces relationships and connections and increases empathy and harmony
741	Known as detoxifying frequency, and helps solving problems
852	Contributes beneficial function for spiritual self-fulfillment

Among them, frequency of 528Hz has attracted attention. After listening the music with 528Hz frequency, stress-related cortisol and Chromogranin A were remarkably decreased, whereas happiness-related oxytocin was remarkably increased.[9] It is the recognized evidence for effects of reducing tension and anxiety. For another analysis, music with 528Hz has reduced the toxic influence of ethanol, that is the main element of alcoholic beverages.[13] Furthermore, it can induce total reactive oxidative species (ROS) in the brain.[14]

Regarding these topics on frequencies, continuous accumulation of evidence would be required. Formerly, similar situation was found about Mozart effect.[15,16] After the report of Rauscher et al., various reports have been followed associated with lots of research and studies.[17–19]

Conclusion

In summary, some perspectives for solfeggio frequency were introduced. It may show beneficial efficacy on human body and mind. The power of music can contribute people's wellness and happiness with the philosophy of Hinohara-ism by supreme physician, Shigeaki Hinohara who worked until 105years old.[20] Further development of frequency will be expected for future research and evaluation.

Acknowledgments

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Conflicts of Interest

None.

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