



Human Spirit Seems To Be the Key to Make Humanity Associated With Co-Existing Music for Long History

Yoshioka A¹, Bando H^{1,2,*}, Nishikiori Y¹ and Bando M¹

¹Integrative Medicine Japan (IMJ), Shikoku Island division, Tokushima, Japan

²Tokushima University / Medical Research, Tokushima, Japan

*Corresponding author: Bando H, Shikoku Division of Integrative Medicine Japan (IMJ), Tokushima, Japan; E-mail: pianomed@bronze.ocn.ne.jp

Received date: 09 February 2025; Accepted date: 20 February 2025; Published date: 26 February 2025

Citation: Yoshioka A, Bando H, Nishikiori Y, Bando M (2025). Human Spirit Seems To Be the Key to Make Humanity Associated With Co-Existing Music for Long History. *SunText Rev Neurosci Psychol* 6(1): 183.

DOI: <https://doi.org/10.51737/2766-4503.2025.083>

Copyright: © 2025 Yoshioka A, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Modern humans emerged tens of thousands of years ago, and art began in paintings for the Lascaux caves, and music for percussion rhythm, leading to art therapy and music therapy. The relationship among brain, mind, spirit, art, music and human spirit seems to be the key to make humanity and music co-exist together. Humans have found music as psychological feeling as happy, fearful, sad or spiritual. Music has inherent complexity with multifaceted matters, and music listening to preferred music or relaxing music will give psychological benefits associated with certain responses. Consequently, music can improve human cognitive functions including attention span, memory, and behavioral augmentation.

Keywords: Lascaux caves; Art therapy; Music therapy; Human spirit; Preferred music

Commentary Article

Looking back at human history, our ancestors appeared roughly several million years ago, and modern humans emerged tens of thousands of years later [1]. Art began with the discovery of paintings in the Lascaux caves. It is believed that music first developed from the rhythm of percussion instruments and the intonation of the human voice, resulting in some kind of melody [2]. In modern times, art and music are essential to our lives. By adding art and music to medical and healthcare practices, art therapy and music therapy can be provided to clients and patients who need treatment.

Concerning everlasting human spirit, ancient Confucianism and Daoism have been evaluated as milestones, which has transcended across long time, space and various culture. The relationship between brain-mind-spirit and sound-tone-music have been discussed for long, and human spirit seems to be the key to make humanity and music co-exist together for long history [3]. In the light of integrative aspects, several factors are indispensable including kindness, sincerity, and creativity for significant, powerful and fantastic lives in each person. Continuing lifelong

development, responsiveness, flexibility and proactivity will be highlighted for supporting musical and meaningful lives which can promote for prosperous lifepath.

The author and collaborators have continued medical research for Integrative Medicine Japan (IMJ) [4]. IMJ has several divisions in Japan, among which we have managed various activities in Shikoku Island division of IMJ [5]. They included art therapy, music therapy, combined treatment of complementary and alternative medicine (CAM), and Hinohara-ism philosophy by New Elderly Association (NEA) [6]. Among several types of activities, art therapy seems to be most enjoyable and useful measure [7]. When considering music as a subject of medical research, there are the following approaches. The first is research into so-called music therapy, which utilizes music in medical treatment. The second is research into illnesses and injuries specific to musicians. The third is research into the use of medical techniques to improve the skills of musicians. These three approaches are recognized [8].

Humans have found music as psychological feeling as happy, fearful, sad or spiritual [9] (Figure 1). Historically, they have recognized music as excited, soothed or various feeling.

Psychological responses to music have been related with some perspectives. They include early expression, universality and domain-specificity. Music has inherent complexity for itself, and then the simple definitions cannot be decided. It includes multifaceted matters and music listening will give neurological and psychological benefits associated with certain responses [10]. As acoustic stimulus, music or ambient noise may affect psychological and physiological well-being or health for humans [11]. Auditory intervention can affect any organism, which influences gene expression, immune responses, neural circuitry and neurotransmitter regulation. For safer and cost-effective intervention, music therapy has been recognized as substantial potential for treating various neurological situations.

psychological	musical	physiological
<ul style="list-style-type: none"> • happy • fearful • sad • spiritual 	<ul style="list-style-type: none"> • preferred • relaxing • inspiring • calming 	<ul style="list-style-type: none"> • aerobic • anaerobic • mixed • stretch

Figure 1: Three aspects for selecting music types.

Music therapy has two main categories, which are active interventions and passive interventions. When people listen to classical music, natural sounds, or Western music, it may bring patient feel reduced anxiety, leading to decreased heart rate, blood pressure and cortisol levels. The previous report can give the comparison of Indian music, Western music, classical music and natural sounds. In addition, it may clarify the influence of classical structure and human body for music therapy [12]. Cross-modal influences of music were studied for neural entrainment for individualized music in patients with consciousness disorders [13]. It was conducted using phase-amplitude coupling (PAC) measurement. Furthermore, preferred music (PM) and relaxing music (RM) were assessed for the effect of individualized music. PM, RM and other factors are summarized in Figure 1. As a result, individualized music may be served as potential therapeutic measurement for consciousness disorders through cross-modal influences. They were proved to rely on enhanced theta and gamma PAC for consciousness-related network.

Music has been present in all societies with universal acoustic features. It is processed by certain human neural circuits, which is no matter how the person has musical training before or not [14]. By artificial deep neural network which would model auditory processing in the brain, some units synchronized to music can automatically develop for detecting natural sound, even if with or without music experience [15] (Figure 2). Music would be the complex phenomenon associated with combination of multiple brain areas and neural connections. Music listening can improve

human cognitive functions such as attention span, memory, and behavioral augmentation [16]. For medical rehabilitation, music-related measurement has higher prevalence of success for the treatment of anxiety and depression. It has also higher successful ratio even in neurological disorders for the cases regaining the body integrity after a stroke episode.

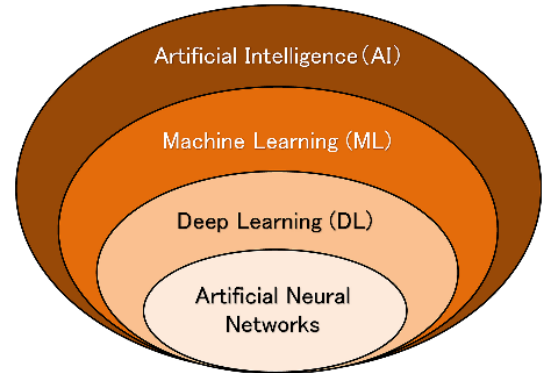


Figure 2: AI and artificial deep neural network.

The characteristics of mental representations of music rhythm from 15 countries were analyzed [17]. As a result, different integer ratios were various across the groups, and they reflected local musical practices. These suggested the common feature of music cognition, where discrete rhythm categories exist for small integer ratios. Precise synchronization and related rhythm interaction in music may influence various human behavior [18]. Temporally aligned rhythm in short seconds for time period has been regulated by neural pacemakers. On the other hand, the interactions with long time period have existed as more than 24 hours, which can originate for biological clocks. When people listen to music, we usually predict about what kind of melody will come next [10]. Such enactive aspect for future prediction has brought more comprehensive understanding for music processing in the brain, associated with functions of emotion, action and learning.

By cross-sectional investigation, several differences of brains were identified between musicians and non-musicians [19]. They included especially related regions for motor control and auditory function processing. As some predictors for musical learning success, the microstructure of arcuate fasciculus, elevated brain activation for auditory and motor systems during listening, and functional connection between auditory and motor systems. From these, the musical brain has been a product of both training practice and human neurodiversity. Music has been evaluated for powerful tool for welfare of captive animals that are especially farm animals, associated with enriching life environment. The efficacy of adequate sound simulation for captive animals were investigated [20]. Emotions seem to be functional status of the organisms associated with physiological neural processes, behavioral changes, contextual perception, influences for various aspects and well-being.



In summary, recent perspectives have been introduced concerning the relationship among music, humanity and medical practice. It has long history and includes various related factors of integrative medicine, psychosomatic medicine art therapy and music therapy. This report will be hopefully useful for future medical research and practice.

Conflict of Interest

The authors declare no conflict of interest.

Funding

There was no funding received for this paper.

References

1. Hawkins J. A General History of the Science and Practice of Music: 2024; 24. ISBN: 978-3-36861-798-8. Outlook Verlag GmbH publishing, Frankfurt, Deutschland. 2024.
2. Vereshchahina-Biliavska OY, Cherkashyna OV, Moskvichova YO, Yakymchuk OM, Lys OV. Anthropological view on the history of musical art. *Linguistics and Culture Review*. 2021; 5: 108-120.
3. Fung CV. Recapturing an Everlasting Human Spirit in Music Education. *Milestones in Music Education 1st Ed.* (Ed) Randles C. 2023. Imprint Routledge. 272.
4. Bando H, Yoshioka A, Nishikiori Y. Recent Advances of Art Therapy with Clinical Benefits. *SunText Rev Arts Social Sci*. 2024; 5: 180.
5. Yoshioka A, Bando H, Nishikiori Y. Recent Topics for Music Therapy and Related Development. *J Health Care and Research*. 2024; 5: 53-56.
6. Bando H, Yoshioka A, Nishikiori Y. Pursuit of Human Happiness by Hinohara-ism of New Elderly Association (NEA) and Japanese Concept of Harmony "Wa". *Global J Arts Social Sci*. 2024; 6: 204.
7. Versitano S, Butler G, Perkes I. Art and other group therapies with adolescents in inpatient mental health care. *Internat J Art Ther* 2023; 29: 80-87.
8. Nishikiori Y, Bando H, Yoshioka A. Recent Advances for Music and Art Therapy with Aging and Neuropathology. *Global J Arts Social Sci*. 2024; 6: 212.
9. Singh M, Mehr SA. Universality, domain-specificity and development of psychological responses to music. *Nat Rev Psychol*. 2023; 2: 333-346
10. Vuust P, Heggli OA, Friston KJ, Kringelbach ML. Music in the brain. *Nat Rev Neurosci*. 2022; 23: 287-305.
11. Chen Y, Sun J, Tao J, Sun T. Treatments and regulatory mechanisms of acoustic stimuli on mood disorders and neurological diseases. *Front Neurosci*. 2024; 17: 1322486
12. Pingle YP, Ragha LK. An in-depth analysis of music structure and its effects on human body for music therapy. *Multimed Tools Appl*. 2024; 83: 45715-45738.
13. Xiao Q, Zheng X, Wen Y, Yuan Z, Chen Z, Lan Y, et al. Individualized music induces theta-gamma phase-amplitude coupling in patients with disorders of consciousness. *Front Neurosci*. 2024; 18: 1395627.
14. Kim G, Kim DK, Jeong H. Spontaneous emergence of rudimentary music detectors in deep neural networks. *Nat Commun*. 2024; 15: 148
15. Choi RY, Coyner AS, Kalpathy-Cramer J, Chiang MF, Campbell JP. Introduction to Machine Learning, Neural Networks, and Deep Learning. *Transl Vis Sci Technol*. 2020; 9: 14.
16. Toader C, Tataru CP, Florian I-A, Covache-Busuioc R-A, Bratu B-G, Glavan LA, et al. Cognitive Crescendo: How Music Shapes the Brain's Structure and Function. *Brain Sciences*. 2023; 13: 1390.
17. Jacoby N, Polak R, Grahn JA, Cameron DJ, Lee KM, Godoy R, et al. Commonality and variation in mental representations of music revealed by a cross-cultural comparison of rhythm priors in 15 countries. *Nat Hum Behav*. 2024; 8: 846-877.
18. Greenfield MD, Honing H, Kotz SA, Ravignani A. Synchrony and rhythm interaction: from the brain to behavioural ecology. *Philos Trans R Soc Lond B Biol Sci*. 2021; 376: 20200324.
19. Olszewska AM, Gaca M, Herman AM, Jednoróg K, Marchewka A. How Musical Training Shapes the Adult Brain: Predispositions and Neuroplasticity. *Front Neurosci*. 2021; 15: 630829.
20. Zapata-Cardona J, Ceballos MC, Rodríguez Bdj. Music and Emotions in Non-Human Animals from Biological and Comparative Perspectives. *Animals*. 2024; 14: 1491.