

Original article

Bioceramic resonance induced extrasensory perception or altered state of consciousness: A pilot study of Taiwan

Ting Kai Leung^{a, b, c*}^aDepartment of Radiology, Taoyuan General Hospital, Ministry of Health and Welfare, Taoyuan, Taiwan^bGraduate Institute of Biomedical Materials and Tissue Engineering, College of Biomedical Engineering, Taipei Medical University, Taipei, Taiwan^cCollege of Health Care and Management, Kainan University, Taoyuan, Taiwan

Background: Bioceramic resonance (BR) is a technology already applied to clinical medical services, it may help us gain knowledge on consciousness and cognitive neuroscience. Our knowledge of consciousness is far behind other divisions of neuroscience.

Objective: This study aimed to evaluate the effect of BR on perception, state of consciousness, and the related mental activity.

Methods: BR was applied on 155 adult subjects of Chinese who lived in Taiwan; they received questionnaire assessment of consciousness change or subjective response before and after using BR system. Further observations of selected cases were conducted for follow-up BR experiment. Precise descriptions and statistical analysis were performed on the results.

Results: Through the application of BR, participants (n = 155) reported specific perceptions, which include: (a) improvement in their sleep quality; (b) subjective sensation through certain parts of the skin; (c) deep swirling and light/color visualizations; and, (d) more intriguing cases involved candidates who had inexplicable phenomena with audio-visual experiences, such as rotating 'mandala'. In this study, we explain how BR affects different candidates with variable extrasensory perception experiences and alters state of consciousness.

Conclusions: It is attempted to hypothesize that the BR effect may correlate with Jungian concept and the possibility of instrumentalization on psychotherapy. We conclude that BR is a non-invasive method, with potential benefits to neurological and psychological fields.

Keywords: Bioceramic resonance, extrasensory perception, consciousness, mandala.

Bioceramic is a kind of material with an energy field that can be enhanced by sound resonance, the characteristics of bioceramic material belongs to a new concept of physics of weak force fields.^(1, 2) Bioceramic also facilitates the breakup of large clusters of water molecules by weakening the hydrogen bond; this is one of the key mechanisms of bioceramic on biological-physical and physical-chemical processes.⁽²⁾ We also used Bioceramic

resonance (BR) to produce different beats of tempo measured in beat per second (bps), which help amplify the effect of bioceramic material.⁽³⁾ Research results show remarkable both physical and physiological effects. Weakening of hydrogen bonds, improved microcirculation, better absorption of bioceramic-treated water, speeding up the healing mechanisms in tissue damage, enhanced plant growth, and many more physical-biological effects⁽³⁾ have been observed in the laboratory and clinical practice.⁽²⁻⁸⁾ Innovation and development of BR, based on the technology of bioceramic, has now advanced from laboratory research towards clinical applications, including rehabilitation of brain infarction, therapies of insomnia and migraine and related chronic sympathetic nervous system disorders. Our previous results have already proved that treatment with BR has been reported with

*Correspondence to: Ting Kai Leung, Department of Radiology, Taoyuan General Hospital, Ministry of Health and Welfare, No.1492, Zhongshan Rd., Taoyuan Dist., Taoyuan City 330, Taiwan.

E-mail: hk8648@tmu.edu.tw

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mental illness, such as alleviate drug withdrawal symptoms of overdoses on amphetamine and hypnotic drugs.⁽⁷⁾ A previous study also proved BR significantly improved psychological related sleep quality, induced a change of electroencephalogram (EEG) pattern and enhanced specific locations of brain activation, recorded by functional magnetic resonance imaging (MRI).⁽⁸⁾ In this study, we describe our observations and categorize the subjective responses of our candidates based on their different levels of extrasensory perception experiences.

Materials and methods

Bioceramic resonance

The bioceramic powder used in this study (obtained from the Bioenergy Laboratory, Bioenergy Development Ltd, Taoyuan, Taiwan) was composed of micro-sized particles produced from several ingredients mainly different elemental oxides (Figure 1). Ten percent of the bioceramic powder⁽²⁻⁸⁾ is mixed with silicone rubber to produce sheet membrane with characteristics of spongy density (capable of sound transmission) and translucent for light transmission. The device of BR is capable of producing beats of < 20 tempo per second for resonance effect⁽³⁾ (Figures 1 - 2).

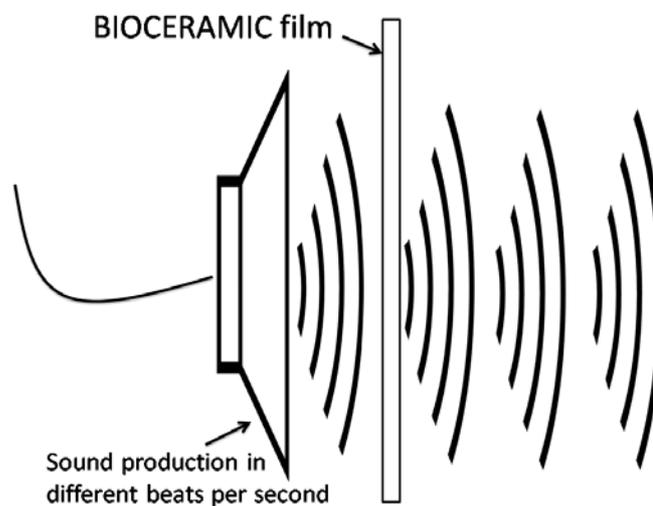


Figure 1. Conceptual drawing of BR production and propagation.

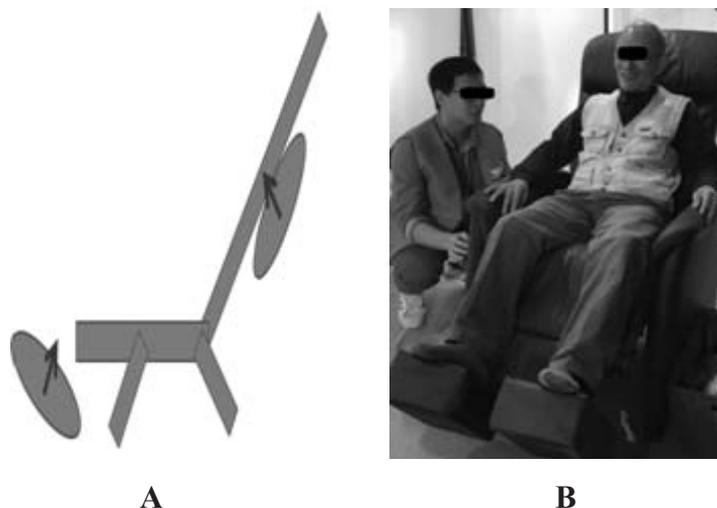


Figure 2. Conceptual drawing of BR platform (A) with BR outputs on skin surface of posterior trunk of thoracic-lumbar spine levels and bilateral feet plates (solid arrows) and (B) the picture of corresponding experimental BR platform.

Study subjects

There were 155 Chinese adult subjects (91 females and 64 males, with age range 22 to 76-year-old), who lived in Taiwan and consented to participate in these experiments offered by our hospital, from March 2015 to June 2016. The candidates were screened; those with clinical mental illness, or on medications having hallucinatory side effects, or deprived from sleep were not admitted into our trials. The study protocol has been approved by the Human Subjects Ethics Committee of Ministry of Health and Welfare (approval number: TH-IRB-0016-0011).

Questionnaire assessment of subjective response by using BR system

Volunteer candidates received the BR experiment protocol using the BR system for 20 minutes and were asked to pay attention on any sensations they may experience. A questionnaire was used to qualify the different levels (0 - 4) of subjective responses to BR system (Table 1). The candidates were asked to rate themselves on a level of 0 to 4 according to which descriptions closely allied to what they had experienced. Only the highest extrasensory perception level (level 4) was choosing to receive a follow-up BR experiment. Those volunteer candidates who selected 'level 0' or 'level 1' on the questionnaire of BR effect, were classified as negative of 'extrasensory perception or altered state of consciousness' (NPC) group and the ones selected 'level 2', 'level 3' or 'level 4' were classified as positive of 'extrasensory perception or altered state of consciousness' (PPC) group. Amongst the volunteer participants, only the highest extrasensory perception level (level 4) was chosen to receive a follow-up BR experiment.

Observations of selected cases for follow-up BR experiment

Some cases of extrasensory perception level 4, were selected for follow-up BR experiments, and the operation periods were last for 30 minutes. We also observed for the possibility of cumulative responses or changes of the subjective levels of extrasensory perception experience.

Statistical analysis

Statistical evaluation between NPC and PPC groups were determined by 'The Chi Square Goodness of fit' test, the test is to compare the observed sample distribution with the expected probability distribution,

to determine how well theoretical distribution fits the empirical distribution. $P < 0.05^*$ and $P < 0.001^{**}$ are considered significant difference and very significant difference, respectively.

Results

There were 155 questionnaires gathered on the BR experiments using BR system, it found extrasensory perception levels of 2 - 4 of subjective response to BR (described in Table 1) occupy 48.7%, 8.7% and 6.0% of different extrasensory perception levels (from 0 to 4) (Table 2). By using 'The Chi Square Goodness of fit' test, there is highly statistically significant difference between the groups of NPC and PPC ($P < 0.001^{**}$). Since our volunteer candidates were all excluded from past history of major mental disease of neurological or psychiatric disorders drug abuse and sleep deprivation, this statistical result leaves us a question on how to explain BR can evoke a minor percentage of 'positive perceptual illusion' or 'hallucination effect on mentally healthy participants. Seven selected cases of extrasensory perception level 4 (described in Table 1) of subjective response to BR were described on Table 3. In particularly, four out of the seven selective level 4 cases (57.1%), had visualized different forms of rotating 'Mandala' symbols (described below). Amongst them, we also pick up the most special case example (Miss Wu) who was establish her to have a relationship with Taoism and frequently experienced lucid dreams and extrasensory perceptions since she was 19-year-old. She received 6 different consecutive BR experiments, who begun with a series of visual sensations, include seeing bright colors, such as purple, orange, blue, yellow, green, white and red and rotating 'mandala' (Figure 3A). A visual perception of different scene of backgrounds, such as green bamboo forest and image of a stone cave appeared in front of her. She also seen an ancient Chinese appeared old man (as a stranger) in different times of BR experiments, the old man telepathically input into her mind with message (Figure 3B). The meaning of message is 'You are me, and I am you in many generations ago'. The old man also had two other companions, who also practicing a traditional Chinese swordplay, and Miss Wu had interactions with them. After the experiments, Miss Wu was incidentally found the drawing of the old man with two companions were appeared in a photo album while she visited the Taoist temple which belonged to her religion.

Table 1. Descriptions of different extrasensory perception levels (0 - 4) to help qualify candidates' response to BR system.

Level 0	No recognizable change/difference at all.
Level 1	Felt relaxation and had a comfortable rest/sleep that night.
Level 2	Noticed unusual sensations on the skin, such as increased vibrations, slight electrical sensations running through body (particularly through meridian channels), itchiness, a pleasurable lightness, etc.
Level 3	Sensations at deeper levels; a sense of movement or spinning (sometimes starting at the base of the spine or pelvic area and moving up; had visual phenomena like seeing one or more particular color or light.
Level 4	More involved audio-visual phenomena, such as dream-like visions; feeling of being 'out-of-body'; clairvoyant or intuitive insights; interaction with a conscious body, etc.
Supplement	Briefly describe any additional reactions, experiences or phenomena in this space.

Table 2. Statistics on different extrasensory perception levels of subjective responses to BR system from 155 questionnaires.

	Number of cases	Percentage by total questionnaires received
Level 0		26.7% (50)
Level 1		10.0% (10)
Level 2		48.7% (73)
Level 3		8.7% (13)
Level 4		6.0% (9)

Table 3. Selected level 4 cases of follow-up BR experiments.

Information of cases	Description of the BR experimental results	Religious background	History of mental illness
30-year-old Female	She reported a 'crawling and pin-pricking sensation' phenomenon and occasionally visualized colors (yellow, green and purple) and rotating 'Mandala'. Her response to the BR3 included quicker and enhanced visualization of different colors. She experienced a transient out of body sensation and then came back. She also "saw" the face of an old man in profile.	Had close association with temple of Taoism in her youth	—
33-year-old Male	He began with 'crawling and pin-pricking sensation' phenomenon - sensation of flow on skin along upper limbs and up to his head. After 3 sessions with the BR, the subject experienced different color sensations and rotating 'mandala'. After that, he visualized a beautiful garden with railing. He tried to go across the railing into the garden, but he failed.	As a youth, this man's family followed the Taoist religion	—
48-year-old Female	She began with 'crawling and pin-pricking sensation' phenomenon and rotating 'mandala'. And then felt swirling sensation within her body; she then visualized different color (yellow, green and purple). When using BR system, she experienced an 'out of body' for a short duration and quickly came back.	Follows no religious beliefs (but was told by a Chinese physiognomist she had close relationship with Buddhism	—

Table 3. (Con) Selected level 4 cases of follow-up BR experiments.

Information of cases	Description of the BR experimental results	Religious background	History of mental illness
50-year-old Female	She physically felt a driving force like that of swirling and her head moved in a rhythmic circular rotation; she then visualized different colors and light; she also “saw” her internal body – her blood vessel and nerves on her arms through a transparent skin. She also described numerous tiny moving strips or fibers that construct framework with different colors and also a central line on her body. She also visualized shadows of moving objects standing beside of her while she received BR treatment.	Close relationship with temple of Taoism in her adult age	
39-year-old Female	She initially visualized colored lights of green, yellow and purple. She also felt an internal swirling force inside her body and rotating ‘mandala’. On the BR platform many different pictures and scenes were visualized, include an old fashion Chinese ring (green jade with sculpture), a lying old lady and a boy. But she did not understand the meaning on these images.	Close relationship with temple of Taoism in her adolescence	–
42-year-old Female	She began sensing a flowing current sensation on her hands and smelling flowers. During her session with the BR system she heard two different human voices asking her (in Chinese): “why are you here?”. Her head also began moving to and fro and then she experienced a transient out-of-body phenomenon.	–	–
55-year-old Male	He first visualized some geometric figures, and then, fell asleep for a while. He then fell temporarily to a state where he did not hear the rhythmic sound beats from BR; he reported seeing a yellow light spot on a triangle pyramid.	Elder in a Christian church	–

Table 4. Case example of Miss Wu who received 6 different consecutive experiments.

Experiment number	Subjective description
1 st session	While receiving a session with the BR using the BR system on the radial pulse, the subject, with eyes closed, had a visual sensation of seeing a dynamic rotating ‘Mandala’ (Figure 3A) and other bright colors, such as purple, orange, blue, yellow, green, white and red. After that, a scene with background of green bamboo forest, bamboo house and a bamboo table unfolded in her mind’s eye. Three men wearing apparel from ancient China appeared. The three old men all had kind facial expressions and manner. The subject noted their hairstyle was long and tied up in a bun; they wore gray robes; there was a feeling of peace and tranquility. Those images and scenes were not familiar to this candidate, and she had no idea where they could have come from, either from a dream or any other situation.

Table 4. (Con) Case example of Miss Wu who received 6 different consecutive experiments.

Experiment number	Subjective description
2 nd session	Another session after two months using the BR system on radial pulse. At this time, she saw a large purple swirl with seven small swirls at the peripheral of the large one. And once again, an incredible feeling was experienced as she visualized the same bamboo forest and bamboo house, as well as the three old men.
3 rd session	Twelve days after, BR experience of using BR system on radial pulse. There was a feeling of heat on back of body, an experience of internal rotation slowly ascending from a low to high levels, accompanied with bloating and feeling of heat also noted on head and face. There was a flash of white light that appeared distantly on her visual field and then an image of a stone cave appeared in front of her. When she looked inside, there was a stone bed; the area was clean and quiet. However, there was an absence of people surrounding the scene.
4 th session	One month later, a stronger BR system of BR was used on her contacting the skin surface of the inner part of her wrist. At that time, she manifested a faster and stronger rising swirl sensation. There was no visualization of light and color, but a force or power kept pushing her head from side to side, that could be visually observed by onlookers. She experienced wonderful feelings of well being which was followed by a scene of a narrow and curved road access to the same bamboo house and green bamboo forest behind. She then found the three old men she had recognized from a previous vision. A voice then was telepathically input into her mind from one of the old men. He “spoke” in ancient Mandarin Chinese, saying “In years gone by, I was you and you were me.” (Miss Wu grew up in southern Taiwan and her primary language is Taiwanese Min Nan language, yet she understood.) The three old men walked along the lake and took a boat ride. She drew the picture of the scene from memory to describing it (Figure 3B).
5 th session	One month later, she received the experiment again using BR system, treating her wrist pulse for 30 minutes. Within the first 20 minutes, she experienced an inexplicable emotional reaction, with tears automatically coming from her eyes. After that, her upper body started to rotate automatically, and she was slowly falling into a vortex. There then appeared a picture of the stone cave with a stone seat or bed that she envisioned in the third experiment. The place was clean and quiet. Then she saw an old man who was wearing ancient clothes, similar to the three old men she saw previously, but there is no waist belt and his hair was disheveled. At that time, she began to suffer nausea and started to hiccough continually. She immediately turned off the power to the BR machine and stopped the session. During the following two days, she reported she had an uncommonly good appetite and she found the food more delicious.
6 th session	Using the BR system, candidates immediately felt internal swirling or vortex from feet to her head, accompanied by visions of red-purple vortex elevation. She then had an out-of-body experience. The picture of bamboo forest was seen again and sound of Zen was heard. The three old men had also appeared to her and one of the old men was practicing a traditional Chinese sword-play. She enjoyed the environment and tried to play with the old men.
Follow-up message	One week later, on the Chinese New Year celebration she visited her fellow Taoist brothers and sisters at their monastery in southern Taiwan. They did not know about Miss Wu’s experiments at our laboratory. During their conversation, her fellow devotee showed her a photo album with drawings and pictures recording the history of their particular Taoist monastery and how it was moved to Taiwan from Mainland China. She was suddenly shocked when she found a picture of an old man looking exactly like the one she saw in the stone cave during the BR experiment. This person also told her that the old man is their ancestral teacher of Taoism who had lived a few centuries ago in Mainland China. And she also learned that the old man always had two companions and they had lived together.

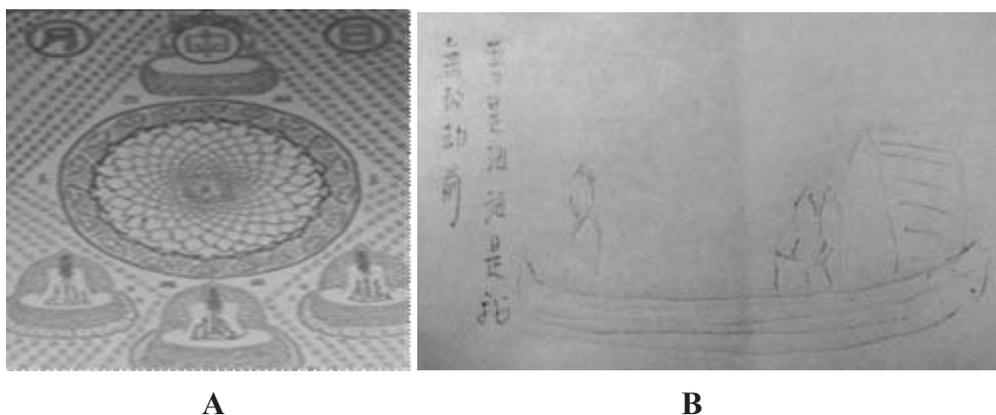


Figure 3. She draw the image of ‘mandala’ (A) and a picture to record the three old men took a boat ride and the message telepathically input into her mind as ‘(written in Chinese) (B), that she visualized during the BR experiment.

Discussion

According to our result, as high as 57.1% of the selective extrasensory perception level 4 cases, had visualized different forms of rotating ‘mandala’ symbols. ‘Mandala’ is originated from Sanskrit, with the meaning an image of a ‘circle’ surrounded by a ‘square’. It is usually act as a spiritual and ritual symbol in Hinduism and Buddhism, representing the universe.⁽⁹⁻¹⁰⁾ However, it also shared with Tibetan Buddhists, Navajo (Native American) Indians and Christian mystics (e.g. Hildegard of Bingen).⁽⁹⁻¹⁰⁾ Besides, it also appears with psychedelic experiences, especially with dimethyltryptamine providing materials such as lysergic acid diethylamide (LSD), marijuana, magic mushrooms, ayahuasca and other compounds.⁽¹¹⁾ From point of view of famous psychoanalyst, Carl Jung, who had special interest and broad knowledge of Indian philosophy. He described those ones who have the ability to visualize mandala symbols during psychedelic experiences, reflects a psychological need that strives for ‘wholeness’, ‘integration’ and ‘order’. Jung CG. tried to explain phenomenon of mandala symbols visualized during Buddhist meditations, the status of Tibetan monks who sink deeply into the unconscious mind that they feel compelled to paint and draw mandalas and drug-induced mandalas visualization, may probably a phenomenon of collective unconsciousness. Jung CG. and his followers also applied this concept of psychotherapy on psychiatric patients by performing active imagination or creation of mandalas. It may come out with positive results, such as better of emotional control, stress managing and feeling holistic well-being.⁽¹²⁾

There are some limitations in this study. Experimental bias are not able to completely avoid, and the major limitations of this study include: (1) our results are based on subjective perceptions of different candidates; 2) the lack of objective detecting device for data collection; and, 3) the descriptions of their perceptions were not standardized, and were variables; this was as a result of their different education backgrounds.

Conclusion

BR may help us gain more knowledge of consciousness and related division of neuroscience. BR may also help strengthening the concept of Jungian psychotherapy, to become more evidence based and instrumentalization.

Acknowledgements

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Conflict of interest

The authors, hereby, declare no conflict of interest.

References

1. Movaffaghi Z, Farsi M. Biofield therapies: biophysical basis and biological regulations? *Complement Ther Clin Pract* 2009;15:35-7.
2. Zhang L, Chan P, Liu ZM, Gasbarri M, Lin MT, Chen CW, et al. Evaluation of reflexology by “BIOCERAMIC Resonance” Operation producing weak force field during simultaneous acupoint stimulation of urinary bladder point on subject’s ear resulting in electric

- current change on urinary bladder reflex point on subject's hands, and related new research finding. *Acupunct Electrother Res* 2016;41:207-24.
3. Leung TK, Chan WP, Tai CJ, Cho TP, Yang JC, Lee PT. Bioceramic resonance effect on meridian channels: A pilot study. *Evid Based Complement Alternat Med* 2015;2015:769546.
 4. Leung TK, Gasbarri M, Tai CJ, Chan WP. Application of photoluminescent bioceramic material for different chronic illnesses by selecting "trigger points" and "propagated sensation along meridians" phenomenon. *Chin J Integr Med* 2015 Jul 4. doi: 10.1007/s11655-015-2285-0.
 5. Leung TK, Lin MT, Chen CA, Hsu CY, Lin SL, Chen CW. The analysis of normalized effects on meridian current level after the photoluminescent bioceramic treatment on acupuncture points. *J Altern Complement Med* 2015;21:472-9.
 6. Leung TK. In vitro and in vivo studies of the biological effects of Bioceramic (a material of emitting high performance far-infrared ray) irradiation. *Chin J Physiol* 2015;58:147-55.
 7. Leung TK, Lee CM, Gasbarri M, Chen YC. Base on concept of traditional Chinese medicine: Experimental studies on efficacy of BIOCERAMIC Resonance to alleviate drug withdrawal symptoms. *J Tradit Complement Med* 2018;9:257-62.
 8. Zhang L, Chan P, Liu ZM, Tseng YL, Chen CW, Lin MT, et al. A technology developed from concept of acupuncture and meridian system, the clinical effect of BIOCERAMIC resonance on psychological related sleep disturbance with findings on questionnaire, EEG and fMRI. *J Tradit Complement Med* 2017; 8: 289-95.
 9. Jung CG Mandalas. Appendix to Concerning Mandala Symbolism. In: *Collected works, Vol 9 Part 1: The archetypes of the collective unconscious*. London: Routledge and Kegan Paul; 1959.
 10. Jung CG *Memories, dreams, and reflections*. New York, NY: Vintage Books;1962.
 11. Jacob MS, Presti DE. Endogenous psychoactive tryptamines reconsidered: an anxiolytic role for dimethyltryptamine. *Med Hypotheses* 2005;64:930-7.
 12. Potash JS, Chen JY, Tsang JP. Medical student mandala making for holistic well-being. *Med Humanit* 2016;42: 17-25.