

Forty-hertz light and sound, gamma waves, and increased glymphatic circulation: Implications for cranial therapeutic approaches: A commentary [Abstract]

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Indexing terms: Chiropractic; SOT; Alzheimer's disease; glymphatic; light therapy; sound therapy; 40Hz.



Objective:

Objective: To discuss new findings on the treatment and prevention of Alzheimer's disease and its implications on the possibility of enhancing cranial therapeutic approaches.

Commentary:

Recently it has recently been discovered that light and sound that pulses at a 40-hertz frequency will stimulate gamma wave production in the cerebral cortex leading to increased glymphatic circulation. Generally glymphatic circulatory activities predominately occur when we are at sleep. Amyloid plaque build up in the brain has been attributed to incidence of Alzheimer's disease and the current research is suggesting that increasing glymphatic circulation will reduce the plaque accumulation as well as prevent its deposition.

There are various types of devices being developed to help patients explore using 40-hertz light and sound frequency such as the utilisation of eye wear that flashes a light and has a plug for ear phones as well as iPhone applications that allow you to play memory games (e.g. Sudoku) on a screen that flashes at 40-hertz and makes an accompanying 40-hertz sound. It is likely in the near future we will see increased options that are more comfortable for patient usage, since improved glymphatic circulation has been demonstrating improved general cognitive function.

It is important to consider the issues of sleep deprivation in our aging population particularly those with airway compromise causing them sleep apnea or those with urinary track issues causing them to awaken regularly to urinate. It is possible that these complex issues are

interwoven with adversely affecting the deep sleep necessary for gamma wave production and the necessary glymphatic circulation that helps with movement of fluid and reduction of plaque and catabolic end product build up in our brain and associated tissues.

Conclusion:

Due to the low risk nature of the 40-hertz light and sound therapy this may be something worthy of experimenting with patients dealing with cognitive issues. This can be utilised while they are receiving cranial treatment as well as given to them for their home brain rehabilitative exercises. There may be issues with the flashing light with patients that have a history of epilepsy so we may see some contraindication considerations as this intervention becomes more widespread and accepted.

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About the practitioner



Charles L Blum DC, CSCP is in private practice *Santa Monica, California* and past president of SOTO – USA, now their research chair. He serves as Adjunct research faculty at *Cleveland Chiropractic College* and associate faculty at *Southern California University of Health Sciences* teaching the SOT Elective. Dr. Blum is a Certified SOT Cranial Practitioner, and on the peer review board of the *Journal of Craniomandibular and Sleep Practice* (CRANIO), *Association of Chiropractic College Conference Peer Review Committee*, *Journal of Contemporary Chiropractic*, *Asia Pacific Chiropractic Journal*, and *Journal of Chiropractic Medicine*. He has lectured nationally and internationally, has written various SOT related texts, compiled SOT and cranial related research, and has extensively published in multiple peer reviewed indexed journals and at research conferences from 1984 to the present.

