Orthopedics and Rheumatology
Open Access Journal
ISSN: 2471-6804

Opinion
Volume 20 issue 2 - July 2022
DOI: 10.19080/OROAJ.2022.556032

Ortho & Rheum Open Access J
Copyright © All rights are reserved by Stan Pierce Jr

Altering Biomechanical Alignment Using Sound Wave Technology from the EPIC Technique Spinal Procedure

Stan Pierce Jr*

Brain health, Craniocervical, Life University, Sherman College, USA

Submission: June 29, 2022; **Published:** July 07, 2022

***Corresponding author:** Stan Pierce Jr, DC, Brain health, Craniocervical, Life University, Sherman College, USA

Keywords: Sound Wave; Technology; Craniocervical; EPIC; Spinal Biomechanics

Introduction

Spinal biomechanical alignment is now able to be altered through the use of unique sound wave technology. This paper will correlate recent studies demonstrating the ability of sound wave to carry mass, how the EPIC technique spinal procedure uses a sound wave impulse to create measurable changes in spinal alignment, and the clinical safety and efficacy of this approach.

Sound Waves Carry Mass

In 2015, scientists from the Department of Mechanical Engineering at the University of Bristol provided the first demonstration of the ability to levitatate and manipulate multiple objects simultaneously through the use of sound. This led to them to surmise that, in the near future, surgeons may use "acoustic tweezers" to trap and manipulate selected objects within tissue [1]. In 2019, researchers at the University of Oregon published an article in the Physical Review Letters titled "Gravitational Mass Carried by Sound Waves" in which they show that sound waves do carry mass – in particular, gravitational mass [2].

In 2020, researchers at the Institute of Theoretical Science also at the University of Oregon published an article in Physical Review Research titled "Sound waves move matter" where they consider a wave packet moving in the Z direction with an amplitude that is independent of the X and Y, in which they analyze that at second order in an expansion around small-amplitude vibrations, there is a small net motion of material, and thus mass, that is generated as a straightforward consequence of Newton's laws [3]. With sound wave therapies currently being used to break up kidney stones, called lithotripsy, in physical therapy for the treatment of soft tissue injuries, in the treatment of prostate cancer [4], and in the treatment of Alzheimer's disease [5], it is possible that the use of sound wave treatment may enter into the realm of altering joint biomechanics.

Use of Sound Wave in Spinal Care

The EPIC technique spinal procedure is an approach in the spinal care industry that utilizes a sound wave treatment technology to alter the biomechanical alignment of the craniocervical junction. The protocols of the EPIC technique spinal procedure were published in OROAJ in 2021 [6]. Whereas abnormal biomechanical spinal alignment (aka. spinal subluxation) in the craniocervical region has been correlated to altering neurologic dysafferentation and cranial hemodynamics, this condition has the potential to directly and/or indirectly contribute to the possible negative sequalae of many different conditions. Through a neurovascular examination, the EPIC technique spinal procedure can ascertain the presence of craniocervical subluxation, followed by acquiring multi-dimensional radiographic images for structural analysis. Using digital radiographic analysis, the EPIC technique acquires an epigenetic profile of structural asymmetries as well as a multi-directional biomechanical malposition profile of the spine, combining both profiles to ascertain the exact degrees for realignment. These coordinates are then calibrated into the Integrity Genesis instrument, an FDA-registered 3-axis sound impulse generator device (Figure 1), by angulating the instrument on the calculated coordinates, aka "vectors".

The instrument stylus is targeted just off the skin over the C1 cervical transverse process (Figure 2). The device is activated to initiate an electromagnetic solenoid to strike the stylus on the opposing end, transferring the motion energy into a compressive wave that travels down the stylus and releases as an instantaneous sound impulse.

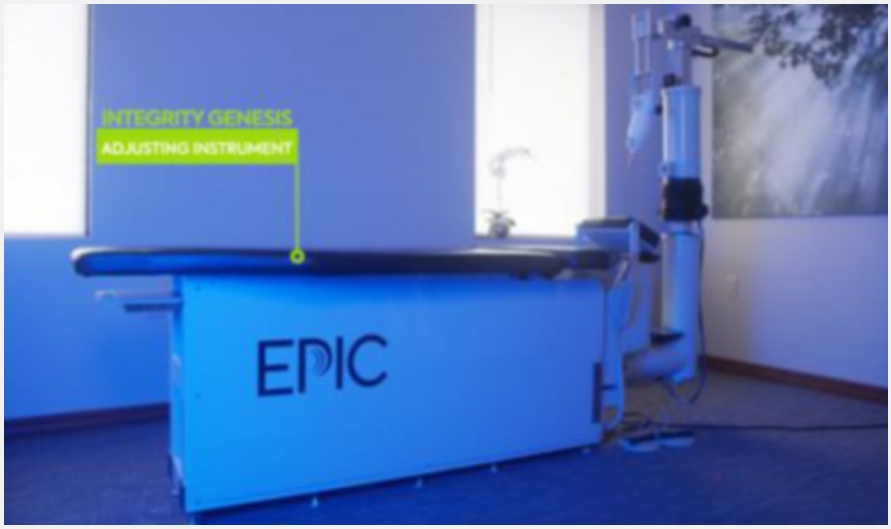

Figure 1

Figure 2

With the cervical vertebral transverse process being at an average minimum depth of ¾"-1", there is no direct contact between the stylus and the vertebra. Any force transmission would have to travel through an approximate 1" of soft tissue to affect the osseous structure. A digital force evaluation performed with the testing agent set at 1" from the stylus tip revealed that the Integrity Genesis instrument generated a Z-axis linear force of .03-.04 *m/s*2 acceleration (Figure 3) when aimed directly over the testing agent. The sequence of 5 measured strikes in (Figure 3) demonstrates measurably increased Z-axis force on strikes 1 and 5 when the instrument was placed over testing agent on the headpiece, with strikes 2, 3, and 4 having the instrument turned counter-clockwise 90 degrees away from testing agent (strike 2), clockwise 90 degrees from testing agent (strike 3), and opposite direction from testing agent (strike 4). It should be noted it was reported in an article in Arthritis Rheumatology in 2007, that the coefficient of friction of cartilage surfaces in a diarthrodial synovial joint (as is the craniocervical junction) is only 0.001µ [7].

With researchers White and Panjabi noting that the maximum lateral displacement of the top cervical vertebra is only approximately 1/8" [8], it is therefore feasible to consider that a linear acceleration force generated by the mass displacement of a sound wave generated by the Integrity Genesis solenoid strike could be enough force to create a movement of the vertebra resulting in a reduction of the biomechanical displacement. It is also feasible that a specific degree of application of this linear force displacement could create an inverse movement of the cervical vertebra to cause a directional reduction of the biomechanical malposition.

How to cite this article: Stan Pierce Jr. Altering Biomechanical Alignment Using Sound Wave Technology from the EPIC Technique Spinal Procedure. Ortho & Rheum Open Access J. 2022; 20(2): 556032. DOI: 10.19080/OROAJ.2022.20.556032

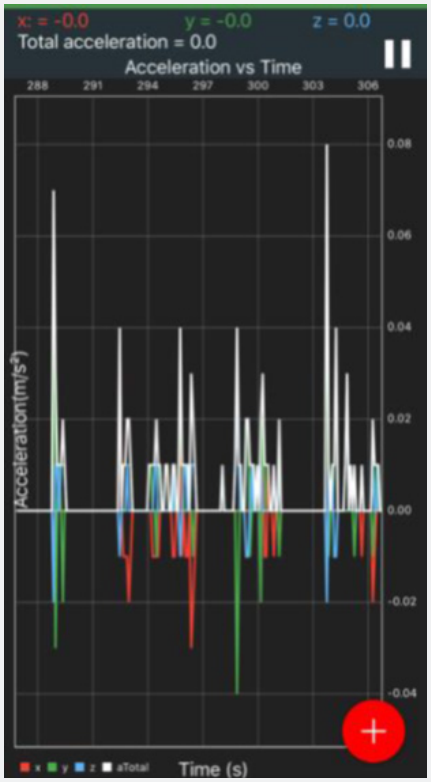

Figure 3

Figure 4

How to cite this article: Stan Pierce Jr. Altering Biomechanical Alignment Using Sound Wave Technology from the EPIC Technique Spinal Procedure. Ortho & Rheum Open Access J. 2022; 20(2): 556032. DOI: 10.19080/OROAJ.2022.20.556032

Safety and Efficacy

With the EPIC technique spinal procedures being performed in the spinal joint's normal range of motion using a low-amplitude, non-contact force, the soft tissue integrity and neuro-vasculature of the craniocervical region would be highly unlikely to be negatively affected by EPIC spinal care. The use of a gentle sound wave treatment would therefore be very safe. Comparison of pre-treatment biomechanical lateral displacement of the C1 vertebra around the Z axis measured on digital radiographs, and post treatment biomechanical lateral displacement of the C1 vertebra measured on digital radiographs immediately following the procedure, demonstrated an average 52% reduction in lateral biomechanical displacement around the Z axis in a select group of over 2,000 cases. Improvements of the associated neurovascular dysfunctions and symptomatology were seen in each of these cases following EPIC treatment.

It is also worth noting that the biomechanical reductions from the Integrity Genesis sound wave impulse were equally effective even when the angular targeting to the C1 vertebral transverse process required the force to be sent through the mastoid process or ear cartilage (Figure 4), and at all various customized angles measured from each patient's radiographic analysis including Z impulse vectors over 50 degrees and even <0-degree Z vector settings.

Conclusion

The use of EPIC technique sound wave procedure to improve craniocervical biomechanical malalignment syndromes (aka. spinal subluxations) is a safe and effective way to non-invasively treat associated neurovascular dysfunctions. It is likely that future research will reveal additional correlations and opportunities for the use of sound wave treatment procedures in the health care space.

References

1. A Marzo, S Seah, B Drinkwater, D Sahoo, B Long, et al. (2015) Holographic Acoustic Elements for Manipulation of Levitated Objects. Nature Communication 6: 8661.
2. A Esposito, R Krichevskey, A Nicolis (2019) Gravitational Mass Carried by Sound Waves. Phys Rev Lett 122: 084501.
3. D Soper (2020) Sound Waves Move Matter, Physical Review Research 2: 013258.
4. M Brubaker (2022) Alternative Approach Uses Sound Waves to Treat Prostate Cancer. UC San Diego Health, USA.
5. Noninvasive Brain Wave Treatment Reduces Alzheimer's Pathology, Improves Memory in Mice, (2019) National Institute on Aging, USA.
6. S Pierce (2021) Scientific Rationale, Clinical Protocols, and Positive Patient Outcomes of the EPIC Technique Spinal Procedure. OROAJ 555969.
7. Gregory D Jay, Jahn R Torres, David K Rhee, Heikki J Helminen, Mika M Hytinnen, et al. (2007) Association Between Friction and Wear in Diarthrodial Joints Lacking Lubricin. Arthritis Rheumatology 56(11): 3662-3669.
8. A White, M Panjabi (1990) Clinical Biomechanics of the Spine. (2nd Edn).

This work is licensed under Creative Commons Attribution 4.0 License
DOI: 10.19080/OROAJ.2022.20.556032

Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
  (Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission
https://juniperpublishers.com/online-submission.php

How to cite this article: Stan Pierce Jr. Altering Biomechanical Alignment Using Sound Wave Technology from the EPIC Technique Spinal Procedure. Ortho & Rheum Open Access J. 2022; 20(2): 556032. DOI: 10.19080/OROAJ.2022.20.556032