

Technique

A Review of Torque Release Technique®

Samantha Shriner D.C.

*Private Practice of Chiropractic,
Columbus, OH*

Abstract

Objective: The purpose of this paper is to describe Torque Release Technique® (TRT), a non-linear tonal model of chiropractic founded upon improving well-being and human potential through management of vertebral subluxation.

Methods: Articles and studies were selected that discuss the development, objective, analysis, hypothesis, scientific pathways affected, case studies and outcomes of TRT. The following databases and sources were searched: Scopus, PubMed, and The Index to Chiropractic Literature. Review of TRT seminar notes and a hand search of recovered articles were also done to gather relevant papers from their reference sections.

Results: Four TRT case studies, two public health articles, two TRT review articles, one randomized controlled study, twelve anatomy and physiology articles, one chiropractic text book, one technique website and one set of seminar notes were utilized and reviewed for this paper.

Conclusion: TRT has a basis for research and development of subluxation-based chiropractic care for patients. Case studies and randomized controlled studies exist that demonstrate TRT's effects in improving patient well-being and its relationship to the Brain Reward Cascade. More research is necessary to explore TRT's role in the management of vertebral subluxation and its relationship to well-being and the Brain Reward Cascade.

Key Words: *Chiropractic, Torque Release Technique®, Subluxation, Brain Reward Cascade, Addiction, Integrator, state of well-being, tonal, dura attachments, adjustment, non-linear, human potential*

Introduction

Chiropractic has a multitude of different techniques and methods to reduce neurological interference, also known as vertebral subluxation, in patients. There have been reports of at least 100 various techniques within the chiropractic profession to manage the subluxation.¹ The most popular techniques include Diversified, Extremity manipulating/adjusting, Activator, Gonstead, Cox Flexion/ Distraction, Thompson, Sacral Occipital Technique, Applied Kinesiology, NIMMO/ Receptor Tonus, Cranial, Manipulative/Adjustive Instruments, Palmer Upper Cervical, Logan Basic, Meric and Pierce-Stillwagon, according to the American Chiropractic Association.²

Within the past 20 years, Torque Release Technique® (TRT), a new subluxation-based chiropractic model, has been developed which exploits the neurochemical mechanisms of

well-being and provides an objective means for enhancing it. This is something which the chiropractic profession has touted as a primary objective of care for the last 100 years, but has yet to fully substantiate with scientific research. It is important for the chiropractic profession to continue to produce scientific research to support these claims and to further the advancement of this research.

History

TRT was created by Dr. Jay M. Holder. TRT incorporates several of the most popular fifteen chiropractic techniques and is based upon the chiropractic paradigm of D.D. Palmer who described the chiropractic subluxation as tonal.³ This technique was originally developed from a human population research study exploring well-being.⁴ This study was completed at a residential treatment facility (Exodus Addiction Treatment Center, Miami Florida).

The study was a randomized clinical trial with 98 human subjects, double blinded with a placebo control. Subjects were divided up into three groups. Group one went through standard addiction treatment that includes group therapy, psychotherapy and medical care. Group two went received subluxation-based chiropractic adjustments, using TRT with the Integrator (a hand help adjusting device) in addition to the same standard addiction treatment. Group three was the placebo group which went through the same standard addiction treatment performed in group one and two, but was given placebo chiropractic adjustments by changing the Integrator to impulse without any force or frequency characteristics.

The study assessed the retention rates, nursing station visits, depression and anxiety levels of the subjects.⁵ The retention rates were measured by a Kaplan-Meier survival analysis and anxiety levels were measured by Spielberger State Anxiety scores. Retention rate is important for addiction treatment because those who stay longer in the program tend to stay in recovery longer.⁶ The average retention rate in a study that provided a Community Reinforcement Approach showed a 55% retention rate versus a 40% retention rate for subjects who went through the standard addiction treatment.⁷

The results of the TRT study showed that those subjects who received the standard addiction treatment had a 56% retention rate. The placebo group had a 75% retention rate while those who were receiving chiropractic care via TRT had a 100% retention rate. Not only did group two have 100% retention rate, but they also had fewer visits to the nursing station, decreased depression levels and decreased levels of anxiety, all of which are linked to addiction relapse.⁷

In order to receive Institutional Review Board approval the investigators developed TRT and the Integrator instrument, which provided reproducibility and reliability to the study.³ The Integrator is designed to administer a “toggle recoil” thrust at 1/10,000th of a second, providing for a three-dimensional impulse. The cocking mechanism allows the practitioner to pre-load the device with a pre-determined amount of force. The instrument is equipped with a trip sensor in order to trigger the impulse upon a pre-determined contact pressure. This allows for inter-examiner reliability and reproducibility. The Integrator was the first FDA approved chiropractic adjusting instrument.

Holder developed Torque Release Technique® from established chiropractic techniques which have been utilized by the profession for decades. These techniques include Thompson Terminal Point, Van Rump D.N.F.T., DeJarnette’s Sacro-Occipital Technique, Logan Basic, Toftness, Palmer Upper Cervical and Network Chiropractic Spinal Analysis.³ Holder states that the idea of the technique is that every chiropractor, when trained appropriately and adequately skilled, should be able to find the exact same subluxation to adjust -at one given time, on one given person- as any other. This subluxation is known as the “primary subluxation”.

Description and Objective

TRT is a non-linear subluxation based model that was developed out of research. Holder’s goal was to be able to

locate the primary subluxation and make an adjustment that would allow the body to correct it. The protocol of the technique describes non-linear timing meaning that there is only one primary subluxation to adjust at any given moment. Non-linear also means that no one will ever adjust the exact same segments in the exact same order, any three visits in a row, only adjusting a maximum of three segments on any given visit. Practitioners use a bilateral myotatic Achilles reflex and pressure testing while analyzing functional leg-length inequality to obtain the line of correction and to determine if an adjustment was properly received.³

Holder contends that the technique was developed to provide the most efficient means of locating the primary subluxation in a person’s body at any given time. This was accomplished by prioritizing analytic indicators which would eliminate the most common primary subluxations in the least amount of time. Prioritization was determined by statistical data from human subjects. The idea behind a primary subluxation is that at any given moment in time there is only one primary subluxation in the body. All other subluxations and fixations are secondary to this primary. Therefore by reducing the primary subluxation, the remaining secondary and tertiary subluxations dissipate.

This technique is considered to be “tonal” because it relies upon real-time interaction with the nervous system to determine where, when, and how to adjust in order to best reduce abnormal torsional and tensile forces affecting the neuroskeleton as a whole. The primary structures involved in modulating the tension - or “tone”- of the nervous system are the dural attachments to the bony framework encasing the central nervous system. For this reason segments with direct dural attachments are commonly implicated although not always indicated. By removing the neurological interference the brain and spinal cord is able to communicate more effectively with the rest of the nervous system so the person is able to experience a higher state of well-being and human potential.

Technique Based Subluxation Hypothesis

TRT recognizes that both tonal and segmental subluxations are possible, also known as cord pressure and cord tension as described in the Chiropractic Textbook by Stephenson.⁸ Although segmental subluxations are recognized, Holder has explained that they occur less often than the tonal subluxations. This is described best when looking at the anatomy of the spinal cord. The spinal cord is enclosed in the dura matter which attaches at certain points along the spine.

These attachment points are the sphenoid, occiput, C1 (indirect attachment), C2, C5, sacrum and coccyx.⁹ Holder contends that these locations are where subluxations most commonly occur.³ Altered tension on the connections of the dura, also known as connective tissue or dentate ligaments, the vertebrae and surrounding spinal structures,⁹ are what creates this cord tension/ tonal model. According to Harrison’s research, tension on the spinal cord affects somatosensory evoked potentials, neurogenic motor evoked potentials, oxidative mitochondrial metabolism, the cord’s blood supply and perfusion of the spinal cord, brainstem and cranial

nerves.¹⁰ Kent describes in his article that the tonal model recognizes that the body functions as one whole unit.¹¹ One stress on the body can and does affect other parts of the body. If there is an altered tone of the spinal cord, the neurological impulses from the brain do not get transmitted properly to the rest of the body and vice versa.

In contrast, the segmental subluxation that is referred to in TRT, is located on those segments that are not directly attached to the dura of the spinal cord. These segmental subluxations have been found to affect the nerve root. Research has stated that as much as 5-10 mmHg of pressure on a spinal nerve root can actually disrupt venous blood flow to spinal roots and 10 mmHg of pressure decreases action potentials.¹²⁻¹⁴

Based upon these two models of subluxation Holder has developed a non-linear, subluxation based chiropractic model. This model recognizes that the nervous system has the ability to learn, grow, and develop from every new experience it adapts to or recovers from.³

Chiropractic Analysis/ Diagnosis

As discussed earlier TRT was founded upon some of the most popular and oldest chiropractic techniques in the history of the profession. Through these techniques the founders compiled a list of 15 diagnostic indicators of dis-ease and spinal subluxation. The indicators are as follows: palpation, functional leg length inequality based upon the neurological Achilles reflex, abductor tendency/ adductor resistance, foot flare, foot pronation/ supination, heel tension, abnormal breathing patterns, inappropriate sustained patterns of paraspinal contractions, congestive tissue tone, postural faults, Cervical Syndrome Test, Bilateral Cervical Syndrome, Derefield test, abnormal heat/ energy radiation from the body and the Wrong-un Test.

Priority one checks for lateral occiput, lateral sacrum, coccyx and sphenoid. Priority two consists of the subluxations found by performing the Cervical Syndrome Test, Bilateral Cervical Syndrome and the Wrong-un Test. Priority three analyzes the subluxations associated with the Derefield test. The next five priorities go on to check for C2, C7, L3, L5 and any other levels in the spinal column.

The pressure tests are used in order to determine the exact line of correction or “listing” of the neurological interference. This allows the chiropractor to make sure he knows exactly where to apply the force and with which torque component. VanRumpt developed the Directional Non-Force Technique (DNFT) and he observed that when pressure is applied to tissues there is an immediate response to the invading force by the body.¹⁵

He then developed a means to determine the level, location, and listing of a subluxation based upon the body’s response in relation to functional leg length reflex. The adjustment made with the Integrator, as discussed previously, is then ensured to be the correct adjustment, with the correct line of drive with the correct torque component in order to reduce the primary subluxation. This type of adjustment is typically described as a high velocity thrust with recoil but unlike any other

instrument provides a three dimensional thrust in the x, y, z axis, i.e. toggle recoil.

Frequency and Duration of Care

As stated earlier, there are no more than three adjustments given on one particular visit. Depending on whether the patient exhibits acute or chronic symptoms determines how often the patient needs to come in to get checked for neurological interference. Holder states that in acute symptomatic individuals, the patient may come in as many times as desired within a 24 hour period until the symptoms resolve and then slowly reduce care until the patient is holding his or her adjustments and no subluxations are found based upon the previously discussed criteria.³

In a case study by Mahanidis with a patient undergoing depression, the chiropractor used the frequency of three times per week for the first four weeks then reassessed the patient and dropped the visits down to two times per week for the rest of the 14 weeks. Another reassessment was given at week 11.¹⁶ In another paper reporting on 2 cases involving TRT, both care plans consisted of a 12th visit reassessment with one case starting off with 3 visits per week and the other with 2 visits per week.¹⁷

In another case study of a child with autism, the care plan only documented 6 visits within 2 weeks due to the child showing improvement in autistic symptoms.¹⁸ Another case study describing a woman with infertility issues, stated that they had her on 2 times a week for the first 30 days and then 1 time per week for the next 30 days.¹⁹ The randomized clinical study published in Molecular Psychiatry examined a set 30 day residential treatment program on people who have had addiction problems.⁴

Research

There has been extensive chiropractic research regarding neck and low back pain but there is also research that supports the notion that chiropractic is helpful in improving human potential and state of well-being. Holder has conducted research linking subluxation-based chiropractic and well-being via the Brain Reward Cascade.²⁰ This cascade, through a series of linear events, link chiropractic to the emotional state of a patient. The Brain Reward Cascade is the means by which humans experience the feelings of pleasure and reward.

As described by the Brain Reward Cascade model, serotonin secreted by the hypothalamus stimulates the release of enkephalin, GABA and dopamine in the ventral tegmental region and the substantia nigra. These neurotransmitters stimulate pathways in the amygdala and nucleus accumbens which then activate the brain reward center giving the person a sense of well being sense.²⁰ Research has shown that there are dopamine receptor gene variants, DRD2 and DRD4, which have been implicated in what is known as *Reward Deficiency Syndrome*.

This syndrome is characterized by a deficiency of dopamine in particular regions of the limbic system. As a result, persons with Reward Deficiency Syndrome don’t get that “feel good” sense.²⁰⁻²² These genes have been linked to people who have

addictive syndromes such as alcoholism, attention deficit hyperactivity disorder, compulsive overeating, pathological gambling or violence and personality disorders.²⁰ Research also shows that even though alcohol or addictive drugs act on different parts of the Brain Reward Cascade, they have the same outcomes on the dopamine reward centers in the brain. Therefore many patients end up self-medicating in order to stimulate the pleasure sites of the brain.²⁰

Research shows that proprioceptive stimulus into the nervous system actually triggers the mechanoreceptors to send information via afferent neurons into the dorsal column of the spinal cord. The spinothalamic tract carries this information superiorly to the vermis of the cerebellum which then carries the information to the thalamus and hypothalamus which have effects on the limbic portion of the brain, also known as the “reward center”, as described earlier.²³

This portion of the brain controls the release of dopamine which is involved in regulating a state of well-being.²⁰ By giving a proprioceptive input via a chiropractic adjustment, the neurological research suggests the ability to alter a person’s state of well being by stimulating a person’s cortical brain. The major findings in the research reported by Haavik-Taylor was that spinal manipulation of dysfunctional joints resulted in attenuated cortical (parietal N20 and frontal N30) evoked responses.^{24, 25}

Another study actually linked the cerebellum and personality, aggression, and emotion.²⁶ This also linked psychosis, and schizophrenia in particular, with cerebellar structural abnormalities.²⁶ A paper by Schmahmann states, “The activation of midline cerebellar structures on functional imaging studies of autonomic behaviors including hunger, thirst, and pain, as well as in states of panic and sadness, has added to the clinical evidence characterized by the CCAS implicating the midline cerebellum in the regulation of autonomic function and emotion”.²³

Even though there has been one randomized control study, multiple case studies, involving this technique, and multiple physiological research studies conducted to evaluate its premise, more scientific research needs to be completed to substantiate the evoked cortical responses of the chiropractic adjustment and their effect upon well-being and human potential.

Training, Education and certification

TRT consists of a certification program which requires you to attend two seminars plus one hands-on workshop training session followed by a certification test. The seminars are a 15 hour classroom training session discussing the technique protocols, research and philosophy behind the technique. These seminars are also accepted as Continuing Education credit in certain states. As of July 2012, Life University is the most recent to offer TRT in its curriculum.

Due to previous research mentioned above and the success of Janet Reno and the Miami Drug Court to significantly reduce the drug-related criminal re-arrest rate, grants have been approved in certain states, including Louisiana and Texas, to pay for the educational cost, equipment, and training fees for

chiropractors who wish to obtain a certification in Torque Release Technique® and assist in rehabilitation programs for the addicted.

Conclusion

TRT, the Integrator, and Holder have made advancements for the chiropractic profession, its science, its philosophy, its art, and its patients. The case studies, literature review and randomized control study show that Torque Release Technique® has been shown to be beneficial in improvement of certain medical conditions such as infertility, autism, addictions, ADHD, depression, and other Brain Reward Deficiency Syndromes. It is important to continually strive for excellence and continue to gain more scientific knowledge for the chiropractic profession on how vertebral subluxation and its correction affects the state of well-being and human potential.

References

1. Bergmann TF. Various forms of chiropractic technique. *Chiropr Technique*. 1993; 5:53-5.
2. American Chiropractic Association (Internet). Arlington (VA): Claim Adjuster Index (CAI) No 7 Chiropractic Techniques. 2003 Aug (Cited 2011 Jun 13). Available from: <http://www.acatoday.org/pdf/PDR/ChiropracticTechniques.pdf>
3. Holder, J. Torque Release Technique. Seminar notes. 2011.
4. Holder J, Duncan RC, Gissen M, Miller M, Blum K. Increasing retention rates among the chemically dependent in residential treatment: auriculotherapy and subluxation-based chiropractic care. *Molecular Psychiatry*. 2001 Feb; 6(s1).
5. Blum K, Holder JM. The handbook of abusable drugs: Amended. Gardener Pr: April 1997.
6. Zhang et al. Does retention matter? Treatment duration and improvement in drug use. *Addiction*. 2003 May; 98(5):673.
7. Garcia-Rodriguez O, Secades-Villa R, Higgins ST, Fernandez-Hermida JR, Carballo JL, Errasti Perez JM, Al-halabi Diaz S. Community Reinforcement Approach (CRA) for cocaine dependence in the Spanish year outcome. *Public health system:1. Drug and Alcohol Review*. 2010 Sept. 29.
8. Stephenson RW. *Chiropractic Text-book*. Davenport, IA: Palmer School of Chiropractic, 1927.
9. Humphreys B, Kenin S, Hubbard B, Cramer G. Investigation of connective tissue attachments to the cervical spinal dura mater. *Clin Anat*. 2002;15:182-185.
10. Harrison D, Troyanovich SJ, Harrison DE, Janik TJ, Murphy DJ. A Normal Sagittal Spinal Configuration: A Desirable Clinical Outcome. *J Manipulative Physiol Ther*. 1996 July/Aug; 19(6): 398-405.

11. Kent C. Models of Vertebral Subluxation: A Review. *J Vert Sublux Res* 1996; 1(1):11-17).
12. Sharpless SK. Susceptibility of spinal roots to compression block. In: Goldstein M, ed. *The Research Status of Spinal Manipulative Therapy*. Bethesda, MD: DHEW publication (NIH) 76-998. 1975.
13. Konno S, Olmarker K, Byrod G et al. Intermittent cauda equina compression. *Spine* 1995; 20(1):122.
14. Rydevik BL. The effects of compression on the physiology of nerve roots. *J Manipulative Physiol Ther* 1992; 15(1):62.
15. D.N.F.T. Seminars (Internet). D.N.F.T. Chiropractic. Beverly Hills (CA); (cited: 2011 Jun 13) Available from:
<http://www.nonforce.com/articles/descriptive.html>
16. Mahanidis T, Russell D. Improvement in Quality of Life in a Patient with Depression Undergoing Chiropractic Care Using Torque Release Technique: A Case Study. *J Vert Sublux Res*. 2010, January 31; 1-6.
17. Anderson-Peacock, E. Reduction of Vertebral Subluxation using Torque Release Technique with Changes in Fertility. *J Vert Sublux Res*. 2003 July 19; 1-6.
18. Hoffmann N, Russell D. Improvement in a 3 ½ year old Autistic Child Following Chiropractic Intervention to Reduce Vertebral Subluxation. *J Vert Sublux Res*. 2008 March 24; 1-4.
19. Nalder A. Torque Release Technique in the Clinical Management of Infertility Related to Cultural or Religious-Based Lifestyle. *J Vert Sublux Res*. 2003 Nov 16; 1-3.
20. Blum K, Braverman E, Holder J, Lubar JF, Monastra V, Miller D, Lubar JO, Chen T, Comings D. Reward Deficiency Syndrome: A Biogenic Model for the Diagnosis and Treatment of Impulsive, Addictive and Compulsive Behaviors. *J Psychoactive Drugs*. 2000 Nov; 32(s)
21. Koob G.F., Bloom F.E. Cellular and molecular mechanisms of drug dependence. *Science*. 1988; 242(4879):715-23.
22. Clolinger C.R. Neurogenic adaptive mechanisms in alcoholism. *Science*. 1987; 236(4800): 410-16.
23. Schmahmann J, Sherman J. The Cerebellar Cognitive Affective Syndrome. *Brain*. 1998; 121:561-579.
24. Haavik-Taylor H, Murphy B. Cervical Spine manipulation alters sensorimotor integration: A somatosensory evoked potential study. *Clin Neurophysiol*. 2007; 118(2): 391-402.
25. Taylor HH, Murphy B. Altered sensorimotor integration with cervical spine manipulation. *J Manipulative Physiol Ther*. 2008 Feb; 31(2):115-26.
26. Heath R.G., Franklin D.E., Shraberg D. Gross pathology of the cerebellum in patients diagnosed and treated as functional psychiatric disorders. *J Nerv Ment Dis*. 1979; 167(10): 585-592.