

JUNE 2019

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Clinical Application Using Heart Rate Variability

By: Christopher J. Meyer, D.C.—Gonstead Diplomate
 Greenbay, WI

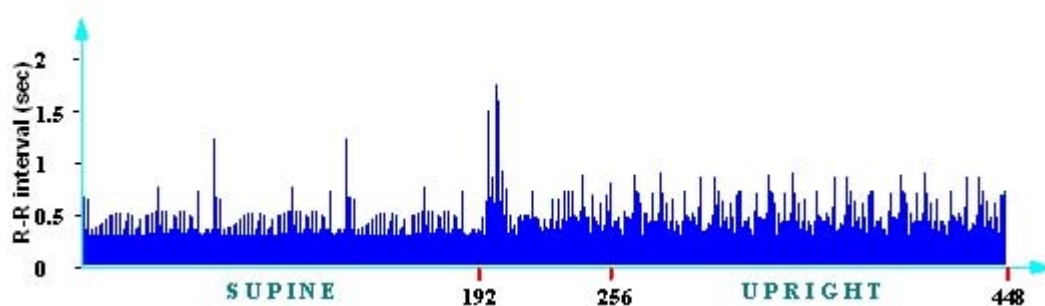
This article is designed as a continuation of the ***Adaptability*** article that appeared in the **February 2019** issue of “***The Scope***” newsletter. (You can read that article on gonstead.com by clicking on the “Members” tab and choosing “Newsletter Archives”.) The Adaptability article introduced HRV as a method of more fully measuring ANS physiology. In this article, HRV is shown as an actionable information source in clinical and personal practice.

HRV What do I do with it?

I have been using HRV in both my personal and professional life for several years. I have found it to be a useful tool in my practice during the initial physical assessment of a new or returning patient, as well as for periodic re-evaluations. It can be performed in about five minutes with the unit that I use: NerveExpress by Intelliwave, Inc. It performs an Orthotest as well as Valsalva and Deep Breathing test, which produce several different views of the function and relative balance of the components of the autonomic nervous system (ANS). My goal is to use this technology to determine which areas of the ANS are dysfunctional, either over or under functioning, and to assess what interventions can assist the body in returning to a state of autonomic balance. Myself and others also hope that this technology can be used to objectively validate the greater effects of the Specific Gonstead Adjustment.

HRV can be a helpful tool and it can also be very frustrating at times. Some patients respond well and we see good improvements in ANS function, and others barely change at all. HRV is very susceptible to confounding variables and noise. Recently, I took a reading on a patient which showed very strange measurements. (figure 1)

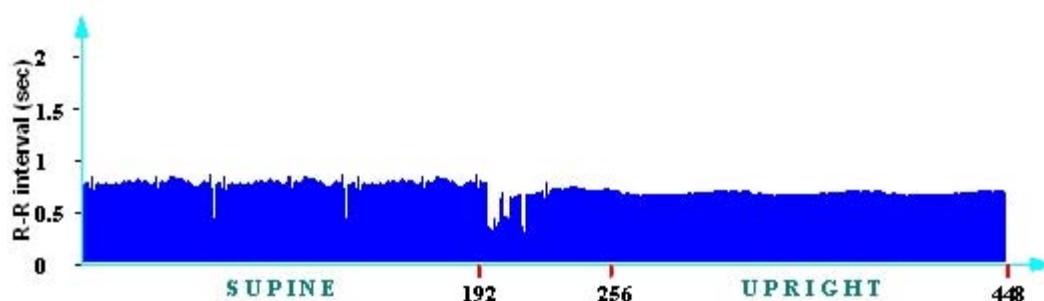
Figure 1



So, I changed the position of the chest belt, tightened it and re-wetted the electrodes. The test results were completely different after re-running it. (figure 2)

(Clinical Application using HRV—Continued on page 2)

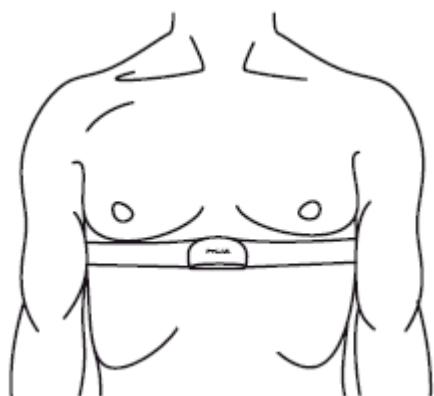
Figure 2



You can see the difference between the first and second heart rate pattern. The first is filled with ectopic beats and noise, while the second is much more uniform. The better of the two scans would still need manual cleaning to remove the small amount of remaining noise for research grade work. This machine does not have that option, so I review the data and determine how much noise is too much. The second scan is good for clinical use. The first scan is garbage, but it serves a useful purpose in that it shows what effect a 1.5 inch difference in position, 2 inches of slack in the belt taken up, and re-wetting the belt can make. (figure 3)

This patient is a large woman with abundant abdominal fat requiring that I position the belt without losing contact. The adipose tissue itself acts as an insulator and makes the reading more difficult to pick up, so these all have to be dealt with. Nevertheless, useable data can be obtained if you are diligent.

Figure 3



Another factor to keep in mind is that the Polar belt can become “polluted” over time by body care products, body oils and other compounds, which raise the resistance of the conductive plastic composition of the electrode. Over time, this will make the belt less and less sensitive and eventually the plastic will get brittle and break. Some will become unusable before they break. It is best to clean the electrodes regularly with soap or detergent (without moisturizers) and water. You can test the belt by checking its resistance with a multimeter if you suspect it may be a source of errors. The two electrodes can be brought into contact to complete a circuit and then the multimeter can test the points that the transmitter will plug into. The resistance across the circuit composed of the conductive plastic should be 500-10,000 ohms, some will increase the resistance to up to 15-20,000 ohms or more and at this point they should be replaced. There is a fellow from Finland who hosts at Youtube channel: Tom Tech who can give you more information on this process:

<https://www.youtube.com/watch?v=QXJ0spt9A1E>

I have worn out two different belts by wearing them 23.5 hours a day for weeks on end. And, I have learned from much trial and error that good data can usually be taken in less than three minutes thus avoiding the introduction of ectopic beats and noise which can contaminate the data. Noise will generally introduce an increase in variability of the signal, which will end up giving you SDNN and other HRV values that are higher than those without noise. In research, data that is not manually cleaned up to remove this noise results in HRV values that are unnaturally high. Dr. Gary Berntson advised us to take this fact into account whenever we read any HRV literature. Review the methods to see how the data was cleaned and whether a proprietary algorithm was used. This is one of the drawbacks of the units that I use. They both use proprietary algorithms. Yet, I feel that useful data can be obtained by taking care in performing the readings and discarding those with obvious noise—of which you will become more discerning with practice.

We are currently experiencing a global increase of interest in the Gonstead method of chiropractic—and not necessarily among chiropractors! Therefore, The Gonstead Clinical Studies Society has published an official Position Statement outlining who qualifies for attendance at a Gonstead Technique Seminar.

You can read the Gonstead Clinical Studies Society Position Statement on our website <https://gonstead.com/seminars/> and here:

Gonstead Clinical Studies Society Position Statement

Regarding the teaching of seminars to non DC's and students not enrolled in an accredited chiropractic college:

Whereas a Non DC is a person or health care provider who has not graduated from a Council on Chiropractic Education (CCE), Europe Council on Chiropractic Education (ECCE), or Chiropractic Council on Education Australasia (CCEA) accredited chiropractic college or University, or has a DC degree but is not licensed and/or any other health profession including but not limited to , Physical Therapists, Traditional Chinese Medicine, Medical Doctor, Doctor of Osteopathy, Massage therapist, Acupuncturist, Naturopath and Bone setters

And Whereas a Chiropractic student is one that is currently enrolled, has an active student ID and studying the Chiropractic curriculum at a fully accredited Chiropractic college or Chiropractic University accredited by the CCE, ECCE, CCEA

And Whereas the GCSS strongly opposes the teaching of any method of Chiropractic, especially the Gonstead Method of Chiropractic to any Non DC or any Non Chiropractic student or any student not actively enrolled in a CCE, ECCE, CCEA Chiropractic College

And Whereas the GCSS is a research, teaching, education and promoting organization of the Gonstead Method of Chiropractic we take a clear and necessary stand against educating Non DC's and Non Chiropractic students most importantly because this puts the public at risk as well as Chiropractic as a profession at risk

Therefore, any GCSS member teaching seminars must request verification of doctor of chiropractic or qualifying student via copies of doctorate degree or student identification card

Therefore the GCSS will not recognize any hours taken during any of these seminars and will not be able to be used for any GCSS certification

Additionally any GCSS member that knowingly teaches/holds seminars to Non DC or DC's from a non-accredited college as well as any students, other health care practitioners, lay people etc. as described above will be given a warning in writing

Additionally if there is a second offense they will be removed from the membership for one year and if their seminar is advertised with any GCSS publication it will be removed for one year

Finally if it occurs a third time the GCSS member will lose their GCSS membership permanently.

Gonstead Chiropractic Making the world a better place one spine at a time through the Gonstead community of doctors and those patients seeking the best chiropractic care in the world! The GCSS Executive Office receives telephone calls from the general public looking for Gonstead doctors all over the world. If you are a member we can help make the connection between Gonstead Doctor and patient. All too often we receive calls from patients looking for Gonstead doctors in areas where we have no referrals. If you know a Gonstead doctor who is NOT a member, please encourage them to check-out gonstead.com and become one. We know there are more Gonstead doctors out there but we don't know who and where they are..Thank you for your support! ♦

Congratulations New Gosntead Diplomates!



Brittany Sedar, DC

Dr. Brittany Sedar was raised in Las Vegas, NV where she completed her educational requirements before attending Palmer College in Davenport. Between her first two trimesters at Palmer she spent breaks shadowing Gonstead doctors and became interested in pursuing the specific analysis of the Gonstead System. While attending Chiropractic school, Dr. Sedar was an intern with the Troxell Intern Program and Dr. Richard Burns. Upon graduation in October 2015, she began work as an associate with Dr. Josh Lawlor in Park View, IA and continues to practice there to this day. She took additional training with Dr. Herb Wood and his bootcamp series after graduation. She assists Dr. Lawlor with the Troxell Intern Program and is an instructor with GMI. Dr. Sedar felt preparing for the Diplomate exam undoubtedly strengthened her knowledge of the Gonstead System. She is looking forward to learning more, and will continue to teach the system to Chiropractic students and doctors.



Jennifer Liu, DC

Owner and Chiropractor at Element Chiropractic Wellness, the goal of Dr. Liu and her practice is to actively help her patients reach their fullest health potential and get back to the joy in their life! In addition, she enjoys giving back through nonprofit work with Tanaka Chiropractic Missions, where she helps organize and participates in overseas trips to provide chiropractic care to under-served communities. These trips have made a profound impact on her path as a chiropractor and she takes each experience to heart. Dr. Liu enjoys spreading her zeal for quality Gonstead chiropractic care, whether on a mission trip or at her practice in Santa Clara, CA.



Alan Wu, DC

Dr. Alan Wu D.C., obtained his Molecular Cell Developmental Biology Degree from UCLA in 2004 and finished his doctor of chiropractic training with honors in 2011. Dr. Wu D.C. was connected with Gonstead technique since the first quarter of school and has been deeply involved since then. He was Gonstead club president from 2009-2010 in Cleveland Chiropractic College in LA and was president in 2010-2011 in Life Chiropractic College West. After graduating from Life West, he was still involved with the Life West Gonstead club as a guest lecture for workshops. Dr. Wu D.C. also completed the Functional Medicine University program and has been integrating nutrition with Gonstead specific chiropractic for maximizing patients' health. Currently, he practices and owns two Gonstead exclusive clinics in San Francisco and Campbell, California. With strong roots as a Taiwanese, his ultimate goal is to help legalize the chiropractic profession and open a Gonstead Specific Chiropractic school in Taiwan.



Jason Baker, DC

Dr Jason Baker attained the top rank of Eagle Scout in the Boy Scouts of America. He was a member of active duty Army for four years, living in Texas, Germany, and Bosnia. He was honored to be part of the last class of students who learned under Dr John Thatcher, with weekly training sessions at Dr Thatcher's office all through chiropractic college. He has owned 2 busy chiropractic practices, 6 years in Rochester, MN, and 10 years in St Cloud, MN. He also has a Diplomate in Philosophical Chiropractic Standards (DPhCS), which is our profession's highest level of chiropractic philosophy certification. In his free time, he enjoys lifting weights, running, traveling, watching movies, and running obstacle races like the Tough Mudder and the Rugged Maniac!



Jeff Lawlor, DC

Jeff Lawlor: The GCSS Gonstead Diplomate test challenged my skills, helped re-calibrate what is off in my application and forces you to revisit your understanding of the Gonstead method at both basic and advanced levels. I received very helpful feedback and critique through this exam. I want to encourage anyone thinking about taking the exam to pursue it, because it will sharpen their skills and who doesn't need that?!



Gonstead Meeting of the Minds-XVI

“Heart Rate Variability & Advanced Case Management”

October 26—27, 2019

Saturday, October 26, 2019

“HRV acquisition, interpretation and application for Gonstead chiropractic” What is Heart Rate Variability and why is it important? HRV metrics-what are we measuring? HRV neurology and spinal effects, HRV measurement, case studies, demonstration and Q & A. **Daniel D. Lyons, D.C.**

“Sympathetic-parasympathetic dominance and its connection to heart rate variability” Observations of eye accommodation in nearsighted patients and determining sympathetic-parasympathetic dominance and its connection to heart rate variability. Whole body effect of subluxation on the human nervous system. **Dennis M. O’Hara, D.C.**

“Advanced Case Studies: Acute Low Back Pain” Two low back cases, complete with examination, x-ray findings, diagnosis, treatment regimen and prognosis. Presentation of the specific methodology for evaluating the sacroiliac joint, including physical exam and motion palpation findings for review and discussion. **J. David Currie, D.C.**

“Research Review” A discussion regarding existing and upcoming scientific literature and developments that affect the chiropractic practice. Discussion to center around factors related to how projection error on plain film radiography may serve as a confounder to the clinician and ways that these confounders may be better understood especially as related to the pelvis. **Roger Coleman, D.C.**

Sunday, October 27, 2019

“Pulse Wave Technology” What is Pulse Wave and how is it relevant to my practice? How monitoring your patient’s Pulse Wave profile can benefit case management. **Perry Chinn, D.C.**

“Advanced Case Studies” This presentation will show severe cases exhibiting various states of paralysis, how to find and confirm the source and the expected results with the correct x-ray analysis and specific Gonstead spinal adjustments. **Steven M. Rindal, D.C.**

“GCSS College of Fellows Panel” Speakers will join to form a panel and discuss their clinical applications of the concepts presented during the weekend. Panel will direct for discussion comments and questions posed by doctors in attendance. A statement may be formed regarding any commonalities, consensus as well as distinctions between those doctors having many years of chiropractic clinical expertise.



Who Can Attend The Meeting of the Minds is an opportunity to learn from many of the Gonstead system’s longest practicing and accomplished Doctors. Because it is a participatory event, MoM is open to GCSS Fellows, Diplomates, Diplomate-candidates, and Gonstead chiropractors who have been in practice at least 20 years. **However**, if you have between **10 and 19 years in practice** and are not yet a Gonstead Diplomate you may attend Meeting of the Minds **ONE** time. Attendance at future meetings requires a Diplomate Application. Membership with the GCSS is not a pre-requisite. Visit <https://gonstead.com/> for registration, suggested hotels and more information.

Sponsored by the Gonstead Clinical Studies Society

Hosted by Life University

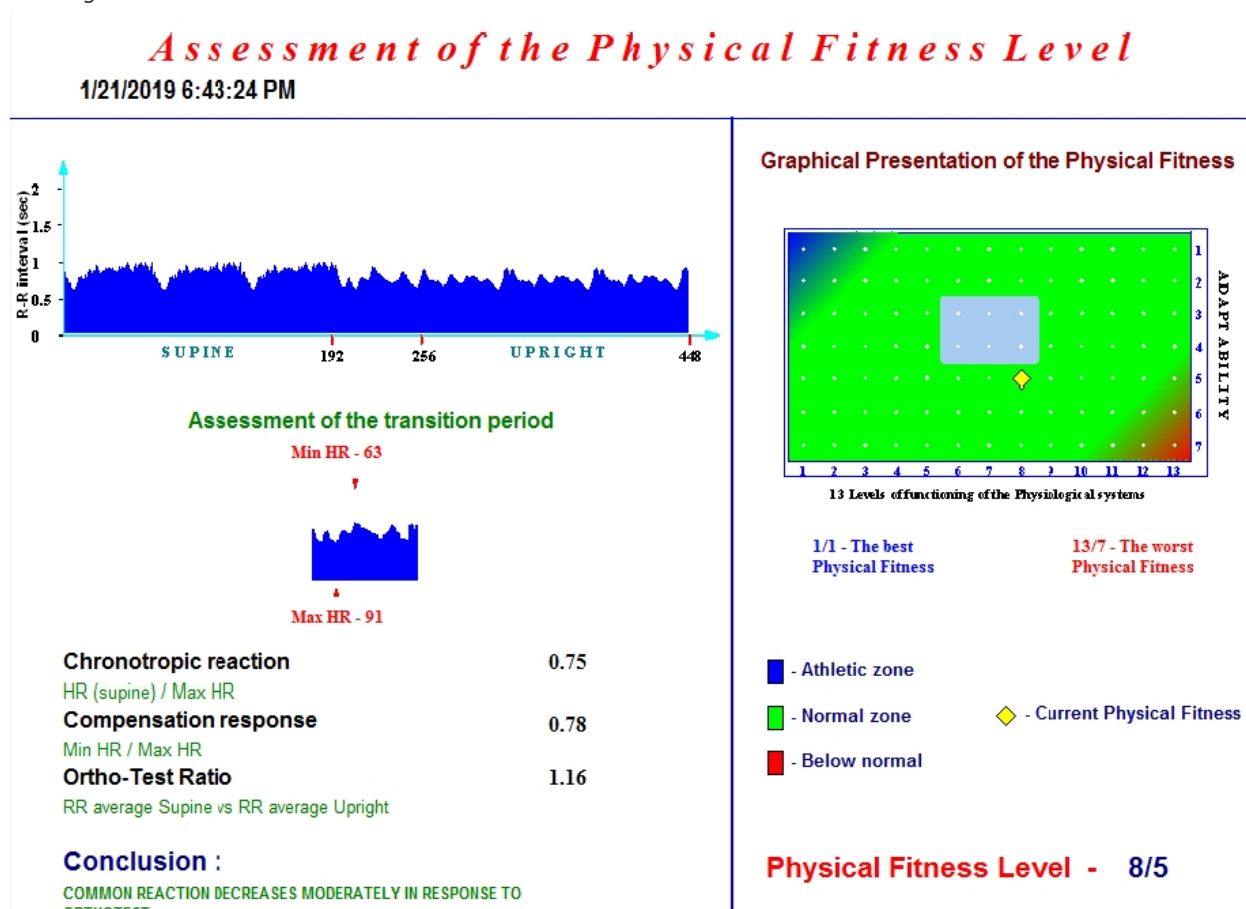
The beautiful campus is located at 1269 Barclay Circle, Marietta, GA 30060

How to use HRV

I use HRV several different ways. In the office I use it as a physical evaluation tool to assess the ANS functional state of my patients when they first come in for care and then on re-exams. Over time, I look for any trends or changes in ANS function that indicate improvement in Parasympathetic (PSNS) or Sympathetic (SNS) functional capacity, or any lack of change in ANS function.

The Nerve Express unit has a Fitness Score that indicates a target zone for healthy individuals (figure 4)

Figure 4



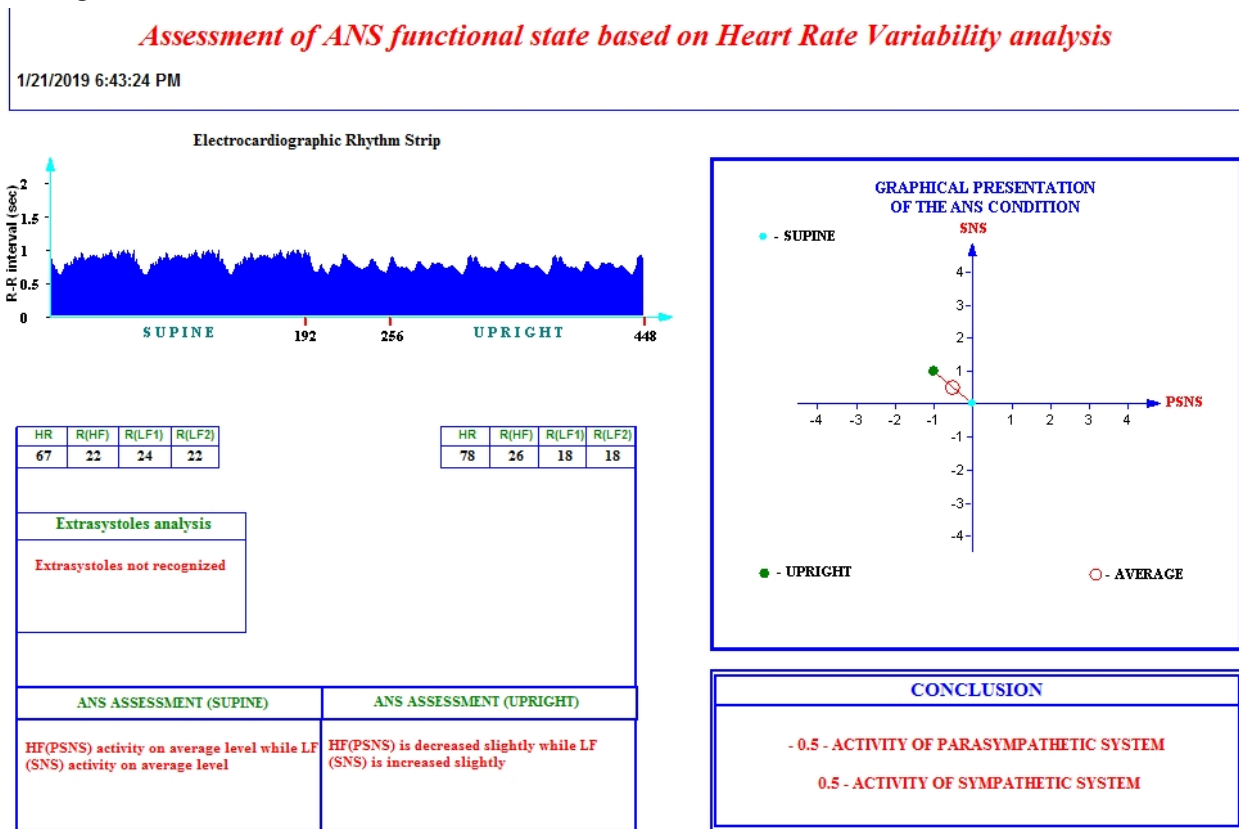
as well as a graphical presentation of the ANS condition on an X-Y coordinate system, with the SNS function being displayed on the Y axis and the PSNS on the X axis. (figure 5)

This device has greatly increased in price since I purchased it ten years ago, but is more useable than other devices. It can allow a good amount of data to be gathered in six to eight minutes and so is useful for clinical evaluations.

<http://nerveexpress.com/>

I have also been using the Elite HRV App on my Samsung phone for my personal use. (figure 6) It has taken more than two years of constant working and tinkering with the App to learn how to get the most information. My conclusion: The most useable information is acquired by performing a consistent 2.5-minute 'Morning Readiness' daily snapshot. The routine is setup so that there are as few confounding variables as possible. Typically, I will do the scan after using the bathroom and before eating or drinking anything. My 2.5 minute reading is taken lying down and after a short rest period to slow the heart rate (usually a minute or less) while maintaining a normal breathing pattern and avoiding movement.

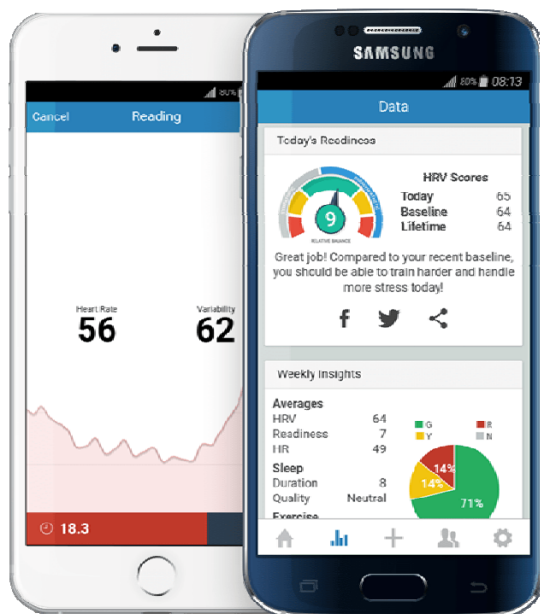
Figure 5



With a consistent data set of 140 days in a row at present, I can begin to determine which of many variables have an effect on my ANS. So far, the biggest variables have been sleep and alcohol use. I suspect there is an inflammatory effect from alcohol that negatively effects my nervous system. Also, one of the best methods I have found to improve

my HRV morning readiness score is to get more sleep. I have been a night owl most of my life but am getting to bed earlier since seeing how much of a positive effect sleep has on my ANS function.

Figure 6



Other things that I have found to be supportive in increasing HRV, at least in the short term, is the practice of cold showers. I can see an increase of 15-20 points in a low morning HRV score by simply ending my shower with a minute of soaking cold water. I have also been experimenting with beginning the shower with cold switching to warm and then finishing with cold again. I suspect the body may habituate to any stimuli over time, so it may be good to mix it up and not do the same thing every time. I am still collecting data on this practice and will report when I know more.

I suspect there is an element of Trigeminal Nerve stimulation and the diving reflex neural pathways that are similar to the calming effects that can be obtained by splashing cold water on your face, or submerging

(Clinical Application using HRV—Continued on page 8)

(Clinical Application using HRV—Continued from page 7)

your face in a basin of cool water. The following links dive deeper (pun intended) into this area of research. There appears to be 2 very different responses by the ANS to cold water applied to the face vs cold water applied to the body but not the face and head.

<https://www.physiology.org/doi/full/10.1152/physiol.00020.2013>

<https://www.physiology.org/doi/full/10.1152/advan.00045.2002>

[utm_source=TrendMD&utm_medium=cpc&utm_campaign=Advances in Physiology Education TrendMD 0](https://www.physiology.org/doi/full/10.1152/advan.00045.2002?utm_source=TrendMD&utm_medium=cpc&utm_campaign=Advances+in+Physiology+Education+TrendMD+0)

As a side note, there are striking similarities and overlap seen in the prior article on the diving reflex with the work of Dr. Steven Porges and Poly Vagal Theory.

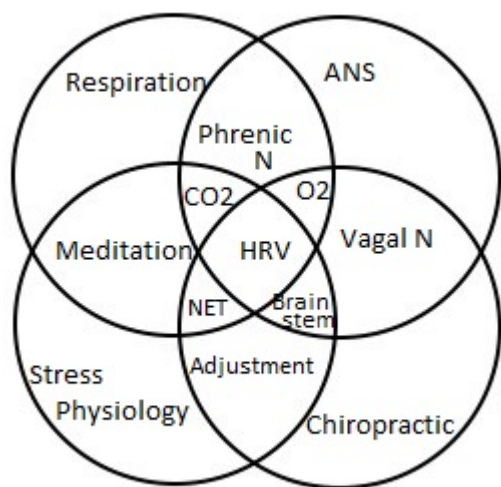
My suspicion is one of the benefits of the cold shower may be the control that one must exert over the vagal and phrenic nerves in order to control the reflex to shout and hyperventilate. The act of controlling one's breathing must play a role in this neural pathway change, and much like meditation, I suspect there is a toning effect on the phrenic and vagal pathways as well as on the sympathetic spinal motor nerves as pertain to breathing control as well. There is some promising research regarding ANS functional improvement and Inspiratory Muscle Strength Training IMST that shows a clinically relevant relationship between five minutes a day (thirty breaths) of IMST exercise a day for six weeks lowering systolic blood pressure by twelve points.

<https://www.sciencedaily.com/releases/2019/04/190408161643.htm>

<https://www.healthnutnews.com/quick-breathing-technique-lowers-blood-pressure-in-minutes/>

It is fascinating to see the connection between the act of influencing breathing through conscious control of physiology via the nervous system and the effect it has on the ANS and multiple other body systems. The whole field of research on Mindfulness Meditation is dependent on this link which greatly overlaps with the neural circuits and feedback loops that HRV is measuring. (figure 7)

Figure 7



To what extent is an adjustment in the thoracic spine influencing not only the disc and spine and nerves, but also the spinal sympathetic chain, the respiratory reflex, the diaphragm, the lungs and heart and the entire respiratory process? If a person cannot breathe, they will be in a highly SNS dominant physiology, so if they can breathe more freely post adjustment, does this allow an increase in PSNS function to be expressed? Is this a possible means by which adjusting in the "Sympathetic System" has a "Parasympathetic" effect?

Other tools:

The Oura Ring is another device for gathering HRV data but I don't have direct experience with it at this time. <https://ouraring.com/>

I know other practitioners who use the Oura Ring and report that they are very helpful in evaluating their sleep quality. It also records HRV values through the day and night. My friends have switched from using the Elite HRV to this platform and have found it to be better for their bio monitoring. One friend found that his sleep and HRV scores went up when he switched from a Ketogenic diet to re-incorporating some complex carbohydrates to his diet prior to bed. His body responded better and his sleep improved after making this change. HRV data was able to provide quick feedback allowing him to see how this simple change effected his physiology.

(Clinical Application using HRV—Continued on page 9)

(Clinical Application using HRV—Continued from page 8)

There is a great quote from David Deutsch in the book *“The Beginning of Infinity”* where he says that we as a civilization do not need better and smarter people in positions of power and influence, but simply better feedback systems. This way, when we are in error, we can quickly make changes and then get feedback, and then make more changes and so on . . . I feel that HRV is one of those tools for providing feedback.

The developers of the Elite HRV App, state that HRV is the best noninvasive test for determining your overall health and wellness status. This is a bold statement, but they may indeed be correct. I have not yet found a better and easier test that gives me the amount of information that this tool provides. The present problem is sorting through the sheer amount of information for the most useable/actionable parts.

How a specific adjustment affects HRV is still an open question. You can look at it over a time frame of minutes, hours or days. The longer the time period, the more other variables will begin to intrude on the effect that we hope to link to the adjustment intervention. We have yet to come up with experimental methodologies to allow us (with measurable uncertainty or certainty) to measure what affect a specific adjustment has on ANS physiology at a given time interval. Right now, I am using the HRV tools I have to do a quick and dirty reconnaissance of the ANS territory with the goal to do deeper more localized study of any anomalies or notable findings with the higher resolution that is available with research grade equipment. I think that right now the best use of my resources is to get a greater sense of the “lay of the land” so to speak. I hope to gather more reading in order to learn more, which will allow me and others to come back in the near future to study more deeply what is found of interest.

This is a time of making connections between many seemingly different fields of clinical and research science. The more you look, the more interconnected things become. I encourage each of you to look into HRV and the vast sea of research and publications that have already been done. And, ask yourself how we can make valuable discoveries by using this tool in our own practice of Gonstead chiropractic.

Future ideas:

Adjustment of specific subluxation(s) and its observed effect on HRV, in different time intervals. The methodology for determining the subluxation and performing the adjustment will need to be standardized and controlled, and this is an area that certainly needs to be worked out.

HRV reducers: Air Pollution, Alcohol, Stress, Lack of Sleep, Subluxation, Injury, SNS activation, Respiratory Distress, Means of modifying HRV via life style: Diet, Exercise, Sleep, Social Contact, Stress reduction, Adjustments, Breathing work, IMST, DeFlame nutrition, Cold Showers, Omega 3 oils, Meditation, Shinrin Yoku, Carbohydrate intake modification or restriction, Ketogenic Diet.

HRV is a means of measuring the Vagal component of the ANS, there is more to the ANS for us to discuss, and other reflex arcs that can be evaluated apart from that which HRV measures:

- Pupillometry: CNs II Optic, III Oculomotor
- Pulse Wave Velocity: Cardiac Vagal ANS loop
- Rectal/Vaginal sensors for Biofeedback: Sacral ANS loop
- Special Visceral Efferents: Facial Sensation: CN V Trigeminal, Facial Expression: CN VII Facial N. Pharyngeal Arches: CN IX Glossopharyngeal N, X Vagal N. SCM and Trapezius Muscles: CN XI Spinal Accessory N.
- General Visceral Efferents: (To smooth muscle, cardiac muscle and glands) CN III Oculomotor N, CN VII Facial N, CN IX Glossopharyngeal N, CN X Vagal N,
- Gastric Motility: CN X Vagal N
- Special Visceral Efferents and Social Engagement: PVT of Steven Porges and Rosenberg’s work
- Adverse Childhood Experiences (ACE’s) study
- Uses of HRV: Athletic training, HIIT training and avoiding overtraining. Food Sensitivity testing, Interpersonal dynamics, drug uses screening, deception detection. Mental status testing/screening for high responsibility position: Air traffic controller, pilot, nuclear reactor manager. Psychophysiologic research, Marketing research, Military screening tool

(Clinical Application using HRV—Continued on page 12)

2019 Gonstead Seminars & Workshop Schedule

The following schedules are subject to change. Consult each organization to register and confirm dates.

(This schedule will be updated as new seminars are announced)

June 15-16, 2019	Dr. Andrea Cecchi Seminars, Seminar #2	Torino, Italy
June 22, 2019	Dr. Currie Cervical Chair part 1, Intro to Pelvic Adjusting	Bournemouth, UK
June 29-30, 2019	Dr. Currie Cervical Chair parts 1 & 2, Lumbars part 1	Ramstein, Germany
June 30, 2019	Dr. Plaugher Chiropractic Practice Seminar	San Francisco, CA
July 6-7, 2019	Dr. Currie Cervical Pelvis and Sacrum, Finding Subluxations	Shanghai, China
July 12-14, 2019	Dr. Wood Seminars Davenport Series #5, Seminar 6	Davenport/Parkview, IA
July 13, 2019	Dr. Richard Thornton Seminars Thoracic Spine & Rib Adjusting	Concord, CA
July 13-14, 2019	Dr. Andrea Cecchi Seminars, Seminar #3	Torino, Italy
July 19-21, 2019	Dr. Wood Seminars Hayward Series #8, Seminar 5	Hayward, CA
July 19-21, 2019	Mark Werking-Pediatric Extremities	Peoria, IL
July 20-21, 2019	GMI/Extremities	Mt. Horeb, WI
July 26-28, 2019	Dr. Wood Seminars Port Orange Series #3, Seminar 5	Port Orange, FL
July 27, 2019	Dr. Currie Mastering Lumbar Adjusting	Hayward, CA
August 2-4, 2019	Dr. Wood Seminars Hayward Series #8, Seminar 6	Hayward, CA
August 10-11, 2019	Gonstead Seminar, Inc.	Australia
August 23-25, 2019	Dr. Wood Seminars Boiling Springs Series #5, Seminar 4	Boiling Springs, SC
August 30-31, 2019	Gonstead Seminar, Inc.	Mt. Horeb, WI
August 31-Sept 1, 2019	Dr. Currie Cervical Chair parts 1 & 2, Lumbars part 1	Valencia, Spain
September 20-22, 2019	Dr. Wood Seminars Port Orange Series #3, Seminar 6	Port Orange, FL
September 21-22, 2019	Dr. Andrea Cecchi Seminars, Seminar #4	Tornio, Italy
September 21-22, 2019	GMI/Cervical Chair	Mt. Horeb, WI
September 21, 2019	Dr. Richard Thornton Seminars Lower & Upper Cervical	Rocklin, CA
September 21-22, 2019	Dr. Currie Pelvis and Sacrum, Finding Subluxations	Kuala Lumpur, Malaysia
September 28, 2019	Dr. Currie Mastering Pelvic and Sacrum Adjusting	Hayward, CA
October 26-27, 2019**	Gonstead Meeting of the Minds-XVI Read more	Marietta, GA
October 4-6, 2019	Dr. Wood Seminars Boiling Springs Series #5, Seminar 5	Boiling Springs, SC
October 19-20, 2019	Gonstead Seminar, Inc.	Barcelona, Spain
November 8-9, 2019	Gonstead Seminar, Inc.	Chicago, IL
November 9-10, 2019	GMI/Pelvic Bench	Davenport, IA
November 22-24, 2019	Dr. Wood Seminars Boiling Springs Series #5, Seminar 6	Boiling Springs, SC
December 7, 2019	Dr. Richard Thornton Seminars Lower & Upper Cervical	Concord, CA
December 14-15, 2019	Dr. Currie Lumbars parts 1 & 2, Cervical Chair part 1	Mexico City, Mexico

This annual event is sponsored by the GCSS and takes place in various cities in the US. The purpose of the Meeting of the Minds is to create a forum for a serious discussion of specific aspects of the Gonstead System. Each year the meeting has a different topic for discussion with guest presenters, speakers, panels, and research updates. This year's title is **"Heart Rate Variability and Advanced Case Management" and takes place at Life University, in Marietta GA. Register at <https://gonstead.com/gonstead-meeting-of-the-minds-registration/>

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Gonstead Seminar of Chiropractic
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Thank you very much to the following people for contributing to Gonstead chiropractic research.

These visionary doctors, organizations, and lay people know the value of chiropractic research.

Chiropractic research is necessary to advance and document the benefits of chiropractic.

If you would like to join these future-thinking individuals, contact GCSS. 888-556-4277 or 831-476-1873

Research Mission Statement

To advance the knowledge
and clinical application
of the science, art, and
philosophy of chiropractic
based upon the
Gonstead System of Chiropractic.

GCSS Mission Statement

To perpetuate the teachings of
Dr. Clarence S. Gonstead, fund
chiropractic research, and encourage
cooperation and camaraderie
amongst all who practice the
Gonstead technique.
The G.C.S.S. endorses G.M.I., the
Gonstead Seminar, Inc. as well as
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(Clinical Application using HRV—Continued from page 9)

- Means of altering HRV as observed by other HRV users in clinical practice
- Stress and HRV
- The link between Cranial Nerves: IX, X, XI, The nuclei of origin are the same for all 3 (Nucleus Ambiguus) and Nuclei of Efferent are the same as well (Solitary Nucleus)
- HRV and Senescence paper
- Palo Alto Homeostatic Capacity Prize

Addendum:

There is some question as to which method of recording R-R intervals for HRV analysis is the best. And there is also the very big difference in the resources required to use the different methods in both time and monetary costs. The gold standard is the multiple lead ECG (3 to 6 leads) that has the sensors physically glued to the skin with a gel electrolyte coated electrode. This gives the readings with the least noise but are the most expensive and take the most time to get the data. And on top of that it will still have to be manually cleaned. Examples are the Nerve Express ECG unit or the Mind Ware units. <https://www.mindwaretech.com/>

The second level down regarding quality of reading is the Holter style chest monitor such as Polar makes, and which is used by the basic level Nerve Express unit or Elite HRV App. This has more noise, is hard to (impossible to) manually clean the data, but which is much easier to use in terms of convenience and time. They are less expensive as well. This is the method I use now clinically and personally.

The third level down is the photoplethysmography sensor that is applied to an extremity, i.e. finger cuff, wrist, watch or ring type, and uses a beam of IR light to take the R-R intervals. There is an increased likelihood of errors due to the distance from the heart and the fact that other variables can intrude on the physiology that you want to most directly measure, the CNS function. The more layers between what you desire to measure and the data you take, the more likely errors will accumulate.

Now that I have stated all of this, there is debate about whether the Holter belt, wrist and finger photoplethysmography sensors are really that inferior to the gold standard ECG data.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4751190/> This paper analyses the differences in the end result of HRV data obtained by three different methods. It concludes that the end results are only marginally different between the three methods. As far as clinically vs potentially, some research-based data gathering may be largely functionally equivalent.

There is a chapter on remote monitoring in the *Handbook of Psychophysiology*, which asserts that the very act of taking a blood pressure changes the blood pressure in ways that are not able to be compensated for fully. There is a goal in the field of psychophysiology to develop ways to assess ANS function without touching a person potentially from a distance, or even from video recordings. This would allow more accurate measurements to be made of the ANS and how the body reacts free of the variables introduced by the tools used to make the measurements themselves. Motion Microscopy aka Eulerian Video Magnification (EVM) <https://www.extremetech.com/extreme/149623-mit-releases-open-source-software-that-reveals-invisible-motion-and-detail-in-video> is one of these promising technologies that we may be using in the future. This video shows it's potential: <https://www.youtube.com/watch?v=kztqmhX-dpY> The field continues to change as the technology develops. Stay tuned for more changes. In the meantime, let's use the technology that is available now to see the effect that our work has on both our patients and ourselves. Start working with this technology and upgrade when time and money allow. Start playing with it in your own practices and in your own life and see what you can discover. ♦

Gonstead Meeting of the Minds-XVI

"Heart Rate Variability & Advanced Case Management"

October 26-27, 2019

Sponsored by the Gonstead Clinical Studies Society
Hosted by Life University on their beautiful campus located at 1269 Barclay Circle, Marietta, GA

A Huge “Thank you “ to the Troxell Interns!

The Extravaganza is made possible with the invaluable work of these intrepid interns. Lindsey Sneary your great leadership as the Head Intern was evident throughout the weekend!



Front Row: SeungJin “SJ” Lee, Lindsey Sneary, Allie Misner, Anne Clendenen **Middle Row:** Stephanie Zellar, Amel Nuhanovic, Emily Molnar, Halee Ternes, Angel Bruecker, Hailey Eckstein, Cambry Rattay **Back Row:** Logan Clarahan, Kurt Urbin, Skylar Vieselmeyer, James Determan

FOR SALE

Concord, CA

Established Gonstead Practice For Sale. never thought I'd be selling this “Goldmine”, but it's time to retire. 34 year old Gonstead practice, built by the Doctor who, literally, wrote the book on cash practice. This thriving practice is going strong and stands as an example to anyone desiring a back to basics, low overhead, high patient retention, sustainable practice. Doctor is retiring at the top of his game, and will stay for easy transition. Patients are well-educated in philosophy , willingly follow their treatment plans, and pay out of pocket. This results in about 99% referral and 1% from our high converting website. Website has SEO experts, email marketing, social media marketing, interactive e-learning and ROI reporting. Unique, free-standing landmark building on very visible corner of high traffic, main thoroughfare between housing and public transit station; ample parking; very large sign; draws patients from 20-30 mile radius. Updated interior for efficient patient flow; procedures and computer software in place for very simple one CA system. Neuropatholator

software for constant patient education and creating a referral army outside the office. Office is located in a transportation, business and entertainment hub of the San Francisco Bay area. Easy access to downtown San Francisco, ocean, mountains, wine country, large concert venue, thriving business districts within 25 mile radius and good mix of long time as well as young residents. Please contact Dr. David Abblett 925-827-5600

EMPLOYMENT

Augusta, GA

Great Opportunity in Augusta, GA for a new chiro graduate who has studied the Gonstead technique. We are expanding our office to a brand new location. Please text Dr. Eric Larson at (706) 627-7053 for more information. <http://larsonchiropracticevans.com/>

Oklahoma City Metro Area, OK

Oklahomans need more Gonstead trained chiropractors. Hi, I'm Dr Daniel Prince and I'm looking for the right person to join our team. If you're looking for employment and/or mentorship in the Oklahoma City Metro then this could be your opportunity. If you want to join an established office that's proven, professional and proficient in the Gonstead System then give me a call at 405-757-2079 Email me at dan@princechiropractic.com. You don't have to start from scratch, take out a business loan or learn many of my lessons the hard way. I know what it's like to look for Gonstead opportunities upon graduation and worry about my future. If you're willing to learn, humble, hungry and people smart then I'll teach you and pay you handsomely if you're willing to put in the work. The great thing about mentoring is you get to begin where I am now. Give me a call and help me meet a growing need for Gonstead chiropractic in our community.

Toledo, Ohio

After 35 years in practice, I am looking for the right candidate to train up to take over my office. My practice is 100% cash (except for Medicare). We have a waiting list family practice and do holistic care, with a substantial nutrition component. (See our website, abachiropractic.com) You will be paid a healthy percentage of your collections plus ½ as much again as credit toward the practice purchase price when you buy me out. The plan is to sell the practice to you in 3 to 5 years after you start, and my wife and I will stay on and rent space from you for several more. We are located in one of the strongest chiropractic states in the country (broad scope of

(Classified—Continued on page 14)

(Classified—Continued from page 13)

practice), and in one of the best mid-sized cities in the country to live, (low housing costs and many top 10 attractions). Please send your curriculum vitae/resume and a letter of intent to Dr. Mike Pickens at info@abachiropractic.com then we will talk.

Denver, CO

Gonstead Chiropractic wanted for associate position with long term opportunities. Great opportunity excellent base pay plus incentives. Looking for someone inspired about chiropractic and willing to learn and grow. Contact Coralyn at 303-940-7167 or email

admin@gonsteadfamilywellness.com

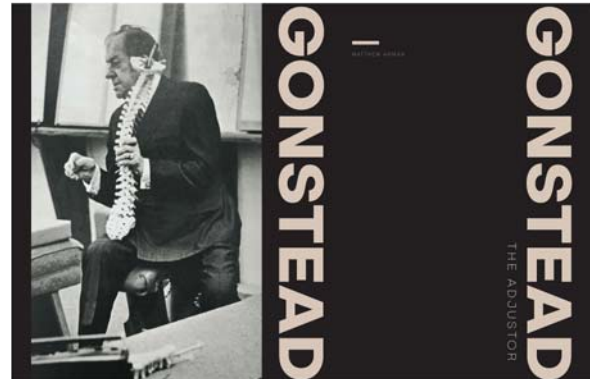
Geneva, IL

Chiropractic Associate Opportunity in Greater Chicago Area! Immediate Opening for Licensed DC as an Associate With Option to Buy a Thriving Chiropractic Business! Gonstead experience or willingness to learn desired. Doctor has been practicing for 28 years and has taught multiple associates how to run a successful practice! Suburban Practice Located in Town of Geneva, IL (Less Than 1 hr From Downtown Chicago) This is no dead-end Associate opportunity! The practice owner is looking for candidates who are interested in transitioning to a sale AND financing may be available for the right candidate. So, if you've been looking for a chance to work at an established, vibrant clinic that will lead to ownership rather than opening your business from scratch or being stuck in a dead-end job, this is it! Doctor willing to stay on and work as associate-NO Risk of Losing Patients for New Buyer. Dr. David Ginsberg has been practicing Gonstead for 28 years. Has taught, lectured and co-authored Chapter in Textbook of Clinical Chiropractic (The purple book). Send resume to daveg@kidchiro.com. Phone: 630-232-6400

Forest Lake, MN

Lakewoods Chiropractic (located just 30 miles north of the Twin Cities) has a full-time associate position available in our thriving family-based wellness center. Qualifications: The ideal candidate leads a healthy lifestyle and is a very energetic, passionate, principle-based, outgoing, has excellent communication skills and exceptional clinical, diagnostic, adjusting skills. Compensation: The position provides a competitive base salary (commensurate with experience) with generous bonus plan; paid malpractice insurance, holidays and vacation. The possibility of a future partnership is also available for

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the right candidate. To apply for this position: Please submit your cover letter and resume to Cary Gerard carygerard@yahoo.com

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