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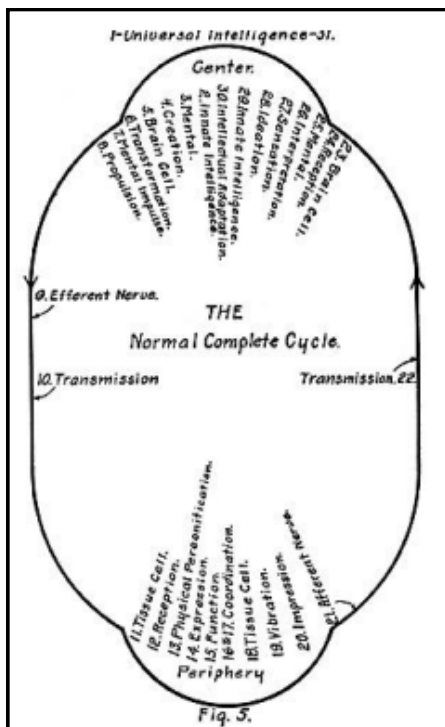


Causation or Correlation?

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The concept of causation or correlation is not a new one and it is certainly not new to Chiropractic. Still, the entire world (including Chiropractors) struggle with the concept, or at least struggle with applying it to themselves or their beliefs.

Merriam Webster defines Causation as: **a**: the act or process of **causing** and **b**: the act or agency which produces an effect. Another way to explain it would be if *this*, then *that*. Principle 17 of the 33 principles states, 17. **Cause and Effect** – Every effect has a cause and every cause has effects. It is simple logic and the idea of cause and effect can be found everywhere. In philosophy, law, physics (which is everywhere in the physical world), computer programming, and on and on. It is a basic form of logic and one of the foundational components of existence.



Correlation, on the other hand, is much less rigid. Merriam Webster defines Correlation as: the state or relation of being correlated. *specifically*: a relation existing between phenomena or things or between mathematical or statistical variables which tend to vary, be associated, or occur together in a way not expected on the basis of chance alone. The important part is the nature of the correlation.

In our practices, we have patients who present with symptoms, symptoms they do not like. Symptoms are merely physiology, which would appear at the bottom of the normal complete cycle as coordination or incoordination at steps 16 or 17. When we don't like the physiology it is a complaint or symptom. For example, we all have a blood pressure. It is either normal, high or low. Two of those are symptoms while one is considered normal. This may seem unnecessary to say, but all of our physiology is in our bodies. All of our patients have bodies and therefore have physiologies and if you have a physiology it is changing. You may see where I am going with this...

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In the Chiropractic profession, we tend to associate any improvement with the patient's physiology that occurs after the adjustment WITH the adjustment. Sure, there is a temporal association or correlation but that is not causation.

In order to begin to associate causation, Chiropractors must look at their indicators of subluxation and their accuracy and validity. I will address these ideas in the near future but for now, I want to stick with the big picture. For Gonstead Chiropractors we use Dr. Phyllis Marham's diagram to determine the presence of Subluxation. We use the history (Symptoms/Physiology), Instrumentation, X-ray, Visualization, Static and Motion Palpation to determine if there is a subluxation present. For us to say that the change in physiology is due to the adjustment, then ideally all of our indicators MUST change. If they do not then logic dictates that one of two three things has happened.

1. Our indicators are accurate and valid and the change in physiology was not caused by or related to the adjustment.
2. Our indicators or not valid or accurate or
3. The chiropractor is not proficient at the use of the 6 tools of analysis.

There are no other options and this is the problems with most of our chiropractic research papers and case studies. As a whole the chiropractic profession tends to overlook the indicators of subluxation as a criteria to intervene and that they must be gone if the change was caused by the adjustment.

Now lets look at this paper from Dr. Fedorchuk and our CBP friends. First lets look where it was published, the *Journal of Molecular and Genetic Medicine*! This is not a rinky dink journal. Equally important is that this is not a pain, physical medicine, PT or chiropractic journal. This shows that good research and case studies can get published in high value journals!!!

Now lets look at the study itself. The patient, a 35-year-old white woman presented with chronic neck and midback pain for 5 years following a motor vehicle collision as well as nocturnal polyuria (Pain and polyuria are abnormal physiology seen at the bottom, steps of the Abnormal Complete cycle). Examination and radiography revealed forward head posture and loss of cervical lordosis (CBP indicators of vertebral subluxation) consistent with vertebral subluxation. Patient telomere length was derived from nucleated white blood cells obtained from a blood test. Quality of life measures were determined by the Short-Form 36 health survey and heart rate variability was measured.

This is important. They did a great job of using symptoms/physiology not commonly associated with chiropractic as well as using objective measures used by researchers and physicians across many fields to document the particulars of this patients life and case. They also did a great job of measuring and detailing the misalignments that CBP attributes to subluxation. This is very important part of the scientific process because if cause and effect are in play, which they always are, in order for the improvement in physiology to be attributed to the correction of subluxation, the indicators of subluxation must also be improved or corrected altogether.

They then detailed their adjustment procedures, which would be different than ours. The patient was seeing 36 visits over five months per CBP technique protocols and incorporated mirror image exercises, adjustments and traction. They took care to mention that the patient did not change her lifestyle during her chiropractic care so there was no other variable that the improvements could be attributed to. The patient reports that her neck and back pain were improved. HRV was measured again and improved and on the SF36 form her quality of life improved in all domains. Her cervical curve improved significantly as well. She was now pain free and able to sleep through the night without having to wake and urinate.

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Measurement	Normal values	Xray 1 values	Xray 2 values
C1 to Horizontal	-29.0°	-20.2°	-25.0°
RRA C2-C3	-10.0°	-2.2°	-6.1°
RRA C3-C4	-8.0°	-9.9°	-9.6°
RRA C4-C5	-8.0°	-0.3°	-6.9°
RRA C5-C6	-8.0°	-1.5°	-1.0°
RRA C6-C7	-8.0°	-4.9°	-3.4°
RRA C7-T1	-8.0°	-11.9°	-8.0°
ARA C2-C7	-42.0°	-18.8°	-27.0°
Tz C2-C7	0.0 mm	24.0 mm	17.7 mm
RRA: Relative rotational angle; the angle between the lines tangent to the posterior vertebral body margins of adjacent vertebrae in the sagittal view; ARA: Absolute rotational angle; the angle between the lines tangent to the posterior vertebral body margins of the limits of a spinal region (cervical, thoracic, or lumbar) in the sagittal view; Tz: Translation in the z axis; the distance of translation of one vertebra with respect to another in the sagittal view			
Table 2: Posture ray® emr initial visit versus after 36 visits radiographic analysis.			

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Here you can see the significant improvement in nearly all of the X-ray parameters use to determine the presence of subluxation. This is not uncommon. The exciting part of this study is that there was an 8.23 percent increase in telomere value from 73 to 79. As this is a single case study causation cannot be determined here. There is a correlation in this case and it is strengthened by the fact that the patient did not change her lifestyle and continued to drink several Mountain Dew sodas each day. In many chiropractic studies the patient also it changes their lifestyle which would represent a confounding variable, but that did not happen in this study. For me, the most exciting thing about this study is that someone is finally looking beyond pain and into our deeper Physiology in such a way that hopefully we'll get the rest of the world looking more strongly at chiropractic.

My parting thoughts are these: Do regular progress exams. Measure as many things as you can. There are many low tech (low cost) objective measures that you can do that easily improves the marketability of your care for the patient. Please re-read my last sentence. You are not marketing your care, your patients should be. When you can show them simple and easy to explain results that can easily be attributed to your care, they will promote you. **THAT** makes a difference. Chiropractic is about restoring normal function, document it, show it to your patients, publish it and watch chiropractic grow! ✨