

## A Model for Reframing Chiropractic Care HIO in the 21<sup>st</sup> Century

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### Introduction

For the past 20 years the practice represented in this presentation has been focused on the critical evaluation of the philosophical and scientific tenets formulated by B.J. Palmer while employing a modification of the Sherman College of Chiropractic's (SCC) "Hole in One (HIO) technique."<sup>1</sup> The technique approach, as espoused by SCC involves establishment of patient patterns evidencing suspected subluxation at the Occipital-Atlanto-Axial (OAA) Joint, with a compensatory full spine functional scoliosis. Pattern is established with such tests as Derefield and Prill leg length determinations, surface thermography with the Kale thermometer, soft and hard tissue palpation, as well as range of motion studies and postural measurements. These combined tests are referred to as points of pattern and are done on the first two visits creating the initial pattern that every visit subsequent to the initial adjustment will be compared to.

To determine the direction of osseous misalignment, seated radiographs are examined. A neutral lateral cervical and A to P open mouth are the initial views, with base posterior and Blair protractors or a vertex and nasium when deemed necessary by assessing the first two.

Based on information obtained the initial adjustment is administered with a torqued toggle-recoil pisiform contact on the Atlas transverse process or Axis lamina. Subsequent OAA adjustments are delivered only when the patient exam returns to 8 out of 10 points of pattern. This pattern analysis approach has been determined through observations by the author to provide more objectivity for the practitioner to avoid adjusting full spine vertebral misalignments that are likely to be compensatory to the early onset OAA subluxation. This approach demonstrates that the body has ample ability to autonomously correct misalignment in the lower spine and pelvis when the skull is returned to an easeful posture on the cervical spine. "Toggle-recoil adjustment, given at the *right time, right manner*, and not over-adjusted, permits a normal restoration of a normal quantity of a normal intelligent mental impulse or nerve force flow."<sup>2</sup>

### Purpose

The statistical sample studied in this research examines the author's 21 years of anecdotal evidence supporting that her unique practice approach is cost effective and clinically successful as a model of care for modern times. Last year the preliminary findings using the templates described below provided evidence that statistically supports this method of care. It is anticipated that this trend will continue as more data is collected.

### Methods

#### *Rationale for the development of an assessment model*

This paper presents a model that can be adapted to any office, regardless of adjusting method(s) used, to allow for quantification of outcomes based on chiropractic care. In that regard, this paper reveals a model designed to accumulate findings which can readily be prepared for peer review with the expectation of journal publication.

#### *Physical /Neurological findings*

Although, the author's approach involves a limited number of tests, it is recognized that research data has to be more expansive including physical/neurological findings outside of the parameters of any specific technique assessment. Therefore, a readily accessible Excel designed template<sup>3</sup> is to be employed to gather a broad spectrum of information of information pre and post adjustment.

The method of data collection is based on the binary number system<sup>4</sup> which has been used in a variety of similar studies.<sup>5</sup> The template assesses 75 elements distributed among 9 different tests areas. These areas include: Visual Postural Analysis (VPA), Cervical Range of Motion (CRM), Lumbar Range of Motion (LRM), Spinal Balance & Leg Length (SP-LL), Orthopedic exam(Ortho), Motor strength (MS), Deep Tendon Reflexes (DTR), Superficial Reflexes (SR), and Sensory Testing (ST). the number "1" designates a positive finding among any of these parameters, while a "0" designates no finding. The template is completed at the initial visit and each subsequent re-evaluation period which may be expressed in terms of longevity of care, or following a specified number of adjustments.

#### *Self Assessment of Domains of Health*

Since substantial anecdotal progress reported by patients and substantiated by 20 years of solid patient referrals building this practice serving three generations of families, the Health Related Quality of Life (HRQL) Survey developed by the Departments of Anatomy and Epidemiology, University of California, Irvine has

been chosen due to its sensitivity to measuring effect size, or sensitivity to magnitude of change.<sup>6</sup>

The survey records patients' self assessments in the following domains of health: Physical State, Mental/Emotional State, Stress Evaluation, Life Enjoyment, and Overall Quality of Life. A sixth domain is referred to as Wellness which represents the summation of the five domains of health. This survey is accompanied by software that scores the surveys based on Likert scale methodology<sup>7</sup>

The accumulation of practitioner assessments (physical, neurological template) accompanied by the HRQL provides a two tiered ongoing assessment of patient changes, and how these changes may be related to the patients perceptions of their respective health and wellness.

## Results

Changes in assessment scores for 18 individuals over three assessment visits using the physical neurological excel template are depicted in figure 1. Assessment 1, the Baseline is when the initial adjustment is delivered so that is the pre or before data. The group as a whole had a score of  $9.3 \pm 2.5$  out of a possible 18 before the adjustment and that number dropped to  $2.8 \pm 2.2$  on the first reassessment which is one week later and stayed at 2.8 on the second reassessment which was four to twelve weeks later. This data shows that postural and range of motion improvements were maintained without any further intervention by the chiropractor. See Table 1 for mean changes and to see that applying the paired t-test lends reliability to these numbers.

Changes in HRQL survey scores are depicted in Table 2 for 16 of the 18 individuals. 2 participants were dropped because we neglected to give them the survey before the adjustment was delivered. This template shows improvement in patient self assessment when all four domains are combined as a Wellness Co-efficient. Cohen's d shows the adjustment had a large effect on self perceived physical state and a moderate effect on overall quality of life as well as a moderate effect when all four domains are summed. However the domains of mental emotional state, stress evaluation, and life enjoyment did not pass the paired t-test with scores of .09, .08 and .09. It will be interesting to see how further collection of data on these individuals changes the effect size of these 3 domains.

## Conclusions

1. This paper demonstrates a methodology that will allow quantification of otherwise anecdotal information.
2. The practice observations that 7 to 12 office visits over a 12 month period averaging 1 to 3 adjustments establishes a stable correction of an early life onset of OAA subluxation and is a viable and desirable mode of chiropractic care.
3. It is believed that integration of such a model will allow for establishment of a measurable data base of outcomes and afford practitioners the opportunity to publish their respective finding in peer reviewed journals.
4. This Model seeks to add credibility to the assessments and methods following BJ Palmer's theory of constants and variables to minimize intervention and maximize health. This is anticipated to be a positive factor in advancing the profession to the forefront of Public Health Services.

## References

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Table 1

Assessment <sup>1</sup> (N = 18)	Baseline	Reassessment 1	Reassessment 2
VPA Possible score (6)	4.8 ± 1.1	1.1 ± 1.0	0.94 ± 0.94
CRM Possible score (6)	3.2 ± 1.4	1.0 ± 1.0	1.1 ± 1.1
LRM Possible score (6)	1.6 ± 2.1	0.78 ± 1.5	0.72 ± 0.83
Total (18)	9.3 ± 2.5 <sup>4</sup>	2.8 ± 2.2 <sup>5</sup>	2.8 ± 1.7 <sup>6</sup>
P < 0.05 <sup>3</sup>	(0.00) BL-1		(0.00) BL-2

1. Three assessment categories with individual possible of scores of 18 were assigned a value of "1" for a positive finding or "0" for no positive finding. The N for the group was 18
2. VPA (visual postural analysis), CRM (cervical range of motion), and LRM (lumbar range of motion)
3. P < 0.05, paired t-test, two tailed repeated measures
4. First reassessment visit significantly lower values than baseline values
5. Second reassessment visit significantly lower than baseline visit
6. No significant differences between first post baseline reassessment and second post baseline reassessment

Figure 1- Change in Assessment Scores for Eighteen Individuals Over Three Assessment Visits

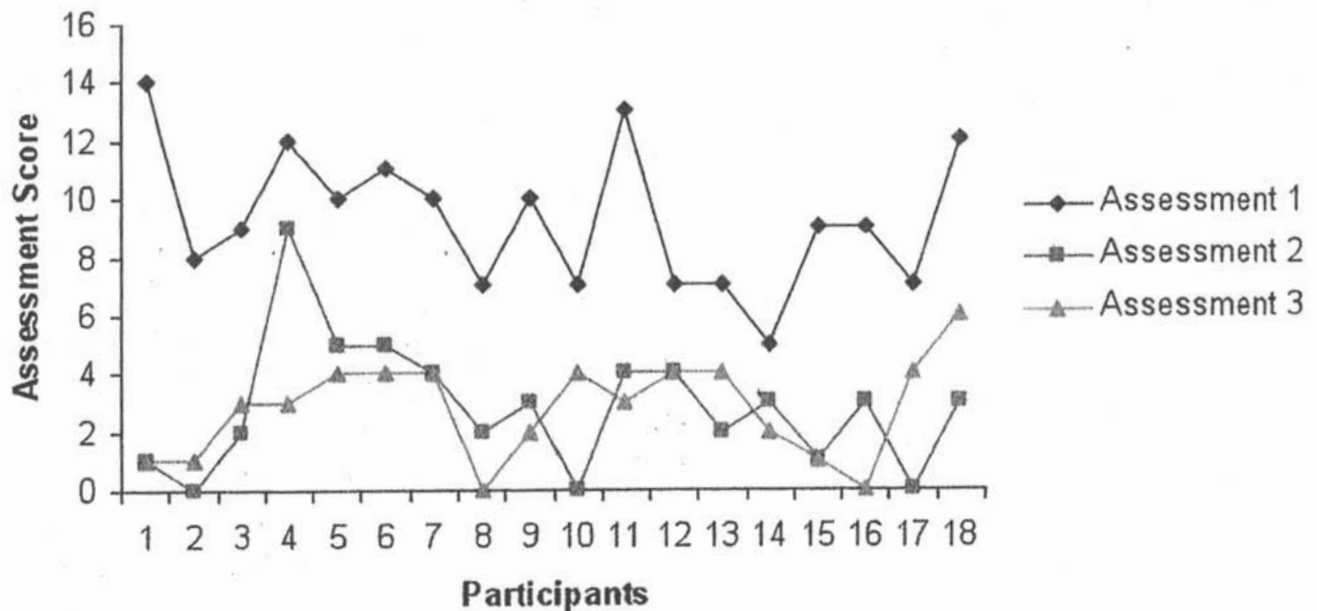


Figure 1 shows three assessment visits for 18 individuals. The scores are a sum total of positive findings for 3 assessment areas including VPA, CRM, and LRM. Changes were significantly lower for the second and third assessments compared to the first ( $p = 0.00$ ). The second and third assessments were not significantly different. Refer to Table 1.

**Table 2**

Domain <sup>1,2</sup> (N = 16)	Baseline	Reassessment (1 to 3 months)	Effect Size Cohen's d	p < 0.05 paired t-test
Physical State (10 items)	0.56 ± 0.12	0.66 ± 0.14	0.83	0.00
Mental Emotional State (10 items)	0.55 ± 0.17	0.61 ± 0.11	0.35	0.09
Stress Evaluation (10 items)	0.62 ± 0.16	0.68 ± 0.09	0.38	0.08
Life Enjoyment (11 items)	0.37 ± 0.12	0.33 ± 0.07	0.33	0.09
Overall Quality of Life (14 items)	0.65 ± 0.11	0.71 ± 0.10	0.55	0.00
Wellness Coefficient (Summation of All Domains)	0.50 ± 0.11	0.57 ± 0.06	0.64	0.00

**\*Sixteen participants are described in Results (Mean age = 42 years, 78 % females, 22% males)**

**\*\*Methodology after Blanks et al, JVSR, 1997**

**1. All domains plus wellness coefficient were assessed collectively, paired t-test p < 0.05, and Cohen's d for clinical effect (mean 1 – mean 2 / sd of mean 1; .2 = small effect, .5 = moderate effect, .8 or greater = large effect)**