

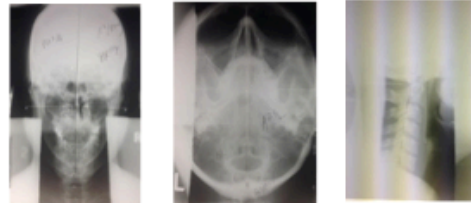
# Standing posture and upper cervical misalignment: -a practice-based retrospective review of 300 cases



Michael Thomas, D.C., Russell Friedman, D.C., Robert Rectenwald, D.C., Virginia Thompson, M.S.

## Introduction

- Standing posture and upper cervical alignment have long been clinically recognized as inter-related factors by orthogonally-based upper cervical chiropractors.
- A practice-based, pre-post-adjustment retrospective study of assessment measures by Quantum Spinal Mechanics chiropractic procedures collected measured aspects of standing posture and orthogonally-based upper cervical radiographs.
- Attempts to describe these misalignment assessments & their relationships in a presenting upper cervical care patient population will help guide future studies.



Nasium, Vertex, Lateral Cervical Pre-Radiographs

## Results

Male	Female	Age (mean)	Caucasian	African American	Hispanic Latino	Native	Asian
194	106	48.29	284	13	1	1	1
yrs							

Change in alignment descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
Leg Change	300	-2.000	.125	-.60625	.342002
Weight Change	300	-74.000	16.500	-9.40033	9.852421
Weight % Change	300	-15.892	.103	-.18560	1.205595
Pelvic Rotation Change	300	-24.000	7.000	-3.89133	3.613805
Fixed Point Change	300	-6.000	9.000	-.61253	1.164690
C1 Lateral Change	300	-7.000	2.250	-1.76275	1.158567
Head Tilt Change	300	-12.250	3.000	-1.73767	1.827810
Odontoid Change	300	-6.500	2.000	-1.25500	1.204730
Body Center Change	300	-6.500	2.000	-1.26667	1.211719
C2 Change	300	-14.500	3.250	-2.71233	2.482423
Lower Angle Change	297	-11.000	5.000	-2.14099	2.021620
Plane Change	300	-5.000	.750	-1.02417	.794814
Atlas/odontoid Change	300	-2.000	.250	-.29583	.476653
Angles (4th) Change	299	-5.750	1.250	-.37458	.604574
C1 Rotation Change	300	-6.000	3.000	-1.55208	1.345804

There appears to be a statistically significant improvement in alignment measures from pre- to post-treatment for each of the variables in this sample at the  $p < 0.05$  level. It may be concluded on average, the intervention resulted in increased alignment for the patients in this sample. Clinical significance is unknown.

	No Change	Improvement	Worsening
Supine Leg	4	295	1
Weight	2	276	22
Weight %	4	273	23
Pelvic Rotation	22	258	20
Fixed Point	68	213	21
C1 Lateral	1	295	4
Head Tilt	9	274	17
Odontoid	47	238	15
Body Center	46	239	15
C2	16	271	13
Lower Angle	21	258	18
Plane Line	55	239	6
Atlas / Odontoid	193	106	1
Angles (4th)	128	165	6
C1 Rotation	16	272	12

These findings require further study to understand why some measures showed no change or worsened.

## Discussion

- Notable changes in patient assessment measured variables have been clinically observed in the pre- and post-data measurements, interpreted as a successful patient intervention.
- Relationships regarding reduction of upper cervical misalignments with return to postural alignment with the vertical axis were examined.
- Identified were a descriptive analysis of the chiropractic realignment data of this patient sample.
- The presence of significant change in alignment pre- to post-treatment was observed.
- Pre- to post-intervention assessments were analyzed to detect decreases or increases or no change in misalignment variables.



Pre- adjustment



Post-Adjustment

## Conclusion

- More study needed to resolve clinically apparent observations of assessments and relationships ,
- Studies to resolve reliability & validity of the assessment measures are needed.
- Comparison of significant assessment changes to Quality of Life measures may reveal clinical significance of changes.

## Methods

- Assessment measurement, data double entry verified, of 300 randomly selected case files from 2009-2011 were analyzed.
- Data Recorded
  - Standing posture data included: bilateral weight balance, pelvic anteriority/posteriority and C7/T1 spinous movement in the frontal plane, were recorded.
  - Orthogonally-based upper cervical radiographs with defined radiographic measures of the upper cervical spine and skull were used
  - Statistical analysis compared datasets to determine if any associations or correlations were present.



Modified Anatomometer with lasers