

A Pediatric Patient Presenting with Asthma, Subluxations and Scoliosis: A Case Study

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ABSTRACT

Objective: The purpose of this case study is to discuss a case study involving a pediatric female presenting to a chiropractic office with asthma, vertebral subluxations, and scoliosis. Possible mechanisms of how chiropractic adjustments may influence the symptoms of asthma are discussed.

Design: A case study.

Setting: Private practice.

Patient: An eleven-year-old female.

Results: The resolution of asthmatic symptoms, cessation of medication use, and monitoring of a previously undetected scoliosis.

Conclusion: A pediatric female presented with asthma, vertebral subluxations, and scoliosis. Resolution of asthmatic symptoms has resolved without the use of medication by adjusting vertebral subluxations. Scoliosis continues to be monitored as the patient is entering puberty.

Key Indexing Terms: asthma, vertebral subluxation, scoliosis.

INTRODUCTION

The most common chronic condition of childhood is asthma. This inflammatory condition can develop at any age, however the most common presentation is during childhood. In Canada, one in eight children are reported to suffer from asthma. (1)

Traditional medical management has been identification of sensitivities that trigger symptoms, life style changes including the avoidance of triggers, and the use of pharmaceuticals to treat symptoms. In spite of these protocols, asthma rates have quadrupled over twenty years and Canadian hospitals admit over 60,000 patients for asthma treatment. (2) The Association of Chiropractic Colleges (ACC) has stated:

Chiropractic is concerned with the preservation and restoration of health, and focuses particular attention on the subluxation. A subluxation is a complex of functional and/or structural and/or pathological articular changes that compromise neural integrity and may influence organ system function and general health.(3)

The chiropractic management of pediatric patients with the symptoms of asthma, however has met with some controversy due in large part to the lack of published clinical trials reporting chiropractic efficacy. Balon (4) and Jamison (5) have reported the lack of benefit regarding chiropractic intervention and pediatric asthmatic symptoms, however, their interpretation of data has met with disagreement. Trials that utilize sham controls have also been questioned, as the actual benefit of manual therapy may be underestimated. (6) The published works regarding positive outcomes in the chiropractic management of children who have asthma continues to grow in the form of original research, pilot studies , and case studies.

CASE STUDY

An eleven-year-old girl was brought in for a chiropractic assessment by her mother. The mother indicated the child had allergies and asthma, but did “not want her on puffers forever”. Being around pets would trigger asthma symptoms. Medication use of Flovent and Salbutamol had occurred twelve times in the previous six months.

The mother stated that she had to “take it easy” to avoid early labour, however, labour was induced when it was determined that she was nineteen days over the predicted due date. The child was formula fed for one year, at which time cows’ milk was introduced. She had received all childhood vaccinations. Initial symptoms had appeared at three years of age and were reportedly getting worse.

The initial chiropractic examination for vertebral subluxations included assessment of spinal ranges of motion, palpation, strength and flexibility testing, reflexes, surface electromyography (SEMG), thermography and XRAY analysis. While many results were unremarkable, the following was noted:

- Prone leg length discrepancy: 1 inch on right side
- Derefild Leg Test: positive on right side
- Cervical range of motion: reduced to 60 degrees rotation on right
- Visible and palpable right thoracic curvature
- Right rib hump: positive Adam’s test
- SEMG and Thermographic Findings: (see Fig. 1- appendix)
- XRAY Analysis: anterior head carriage, right convex scoliosis (26 degrees)

Suggested course of chiropractic care was full spine adjustments utilizing the Activator adjusting instrument 3x/week for six weeks with a progress evaluation scheduled for visit twelve. \

Adjusted segments varied from visit to visit depending on patient presentation and taking pelvic obliquity and scoliotic curvatures into consideration. Follow up progress evaluation results are as follows:

- Prone leg length discrepancy: not noted
- Derefield Leg Test: not noted
- Cervical range of motion: within normal limits
- Visible and palpable right thoracic curvature
- Right rib hump: positive Adam's test
- SEMG and Thermographic Findings: (see Fig. 2 – appendix)
- XRAY Analysis – not done

At this time, the adjustment schedule continued at 3x/week for 3 weeks and was changed to 2x/week with a complete comparative examination consisting of all previous initial exam testing scheduled for the 24TH visit. The results of this assessment are as follows:

- All physical testing within normal limits
- Dynamometer: left hand: 40 lbs; right hand: 35 lbs (patient is right handed)
- Visible and palpable right thoracic curvature
- Right rib hump: positive Adam's test
- SEMG and Thermographic Findings: (see Fig. 3 – appendix)
- XRAY Analysis: anterior head carriage, right convex scoliosis (20 degrees)

At this time, the adjustment remained at 2x/week for three additional weeks, then was changed to 1x/week for 6 weeks. A right atlas Toggle was introduced into the adjustment protocol.. The 36th visit progress evaluation revealed the following:

- Right thoracic curvature
- Right rib hump: positive Adam's test
- SEMG and Thermographic Findings: (see Fig. 4 – appendix)
- XRAY Analysis: not done

Patient adjustment protocol remained unchanged with a frequency of care reduced to twice per month. A second complete Comparative Evaluation was performed after the 48th visit.

- Right thoracic curvature
- Right rib hump: positive Adam's test
- SEMG and Thermographic Findings: (see Fig. 5 – appendix)
- Xray Analysis: anterior head carriage, right convex scoliosis (25 degrees)

RESULTS

There are many aspects that are worth noting in the case of this little girl. Twenty-nine days, 10 visits after her first adjustment, she received a long-haired cat as a Valentines Day gift. Sbe has been under care for over a year with no reported use of her medication. Though the patient experienced a cold of approximately one week duration, she remains symptom free. Additionally, the maternal grandmother has remarked that she believes her granddaughter is walking better. She had been concerned that the child was pigeon-toed. The scoliosis continues to be monitored as recommended during puberty.

DISCUSSION

Asthma is characterized by hyperactive airways which results in wheezing, coughing and dyspnea. The condition is categorized into two groups. Intrinsic asthma is noted with exposure to aspirin, pollutants, viral infections and during exercise. A subtype of extrinsic asthma, also known as atopic or allergic asthma, is triggered by antigens such as pet dander, dust, pollens and foods. Atopic asthma is the most common presentation. This type usually starts during childhood. Allergic rhinitis, urticaria and exzema often occur prior to the actual attack of asthma.

The mechanism involved in the realization of symptoms appears as a cascade of histochemical events secondary to IgE-mediated hypersensitivity reaction. Presensitized mast cells on the mucosal surface when activated, release a mediator that permits further penetration of antigen to submucosal mast cells. Additionally, parasympathetic vagal receptors are directly stimulated, causing bronchoconstriction. Histamine appears as a primary mediator in the chain of ensuing events and is implicated in broncho-constriction, increased bronchial secretion and increased venular permeability.(6)(7) Other substances released by the mast cells include a mixture of leukotrenes, bradykinin and eosinophilic chemotactic factor.(8)

It is understood that the management of asthmatic symptoms has included the avoidance of triggers that precipitate the asthmatic response. A medical approach to suppress symptomatology has been the patient use of B-agonists. This approach has been a point of criticism. One study in Saskatchewan, Canada stated that some B-agonists were “associated with an increased risk of the combined outcome of fatal and near-fatal asthma, as well as of death from asthma alone”. This study suggested that B-agonists may make asthma worse and that the adverse effects may occur in organs other than the lungs.(9) A subsequent article stated that B-agonists may produce adverse effects and are not recommended on a regular schedule.(10)

Bronfort reported an approximate 20% decrease in the use of B2 bronchodilators when spinal manipulative therapy was performed in addition to medical intervention and suggested the possibility that the effect of the medication may have masked “the specific effect of spinal manipulation”. Quality of life improvements remained at the one year followup.(11)

Several cases of positive outcomes in asthmatic children under chiropractic care utilizing Chiropractic Biophysics Technique (CBP) have been reported.(12)(13)(14) Elster has reported a case of a nine-year-old male under upper-cervical specific chiropractic care who not only experienced a decrease in asthmatic symptomatology, but also in symptoms related to Tourette Syndrome, Attention Deficit Hyperactivity Disorder, depression, insomnia and headaches.(15) Six different chiropractic approaches to the correction of vertebral subluxation were employed during a self-reported asthma study involving 81 children. Improvement was reported in 90.1% sixty days after the initiation of chiropractic care. (16)

Palmer stated that “asthma comes from a luxated dorsal”.(17) Evidence has been presented that addressing subluxations at other vertebral levels by several different techniques also yields positive responses. This necessarily leads to inquiry as to how chiropractic adjustments may influence the resolution of asthmatic symptoms. It has been suggested that regulation of blood flow inflamed tissues may occur with manipulation via the sympathetic and parasympathetics.(18) It has also been suggested that mobilization of the thoracic spine and ribs increases thoracic cage motion allowing for increased arterial supply and lymphatic return for patients who have obstructive airway diseases, including asthma.(5) Ruch has discussed how striated muscle spasm associated with vertebral subluxation coincides with smooth muscle contraction or vasoconstriction promoting inflammatory changes. Irritants such as histamine, lactic acid and bradykinin that are released “can irritate the spinal nerve roots and possibly the paravertebral chain ganglia”.(18) The asthmatic condition may be influenced by these

and other chemicals released when vertebral subluxation is present.(19) Graham and Pistolese exceptionally articulate how the negative effects of vertebral subluxation may play a role in asthmatic symptomatology by discussing the central and peripheral nervous system and their related anatomical structures.(16)

CONCLUSION

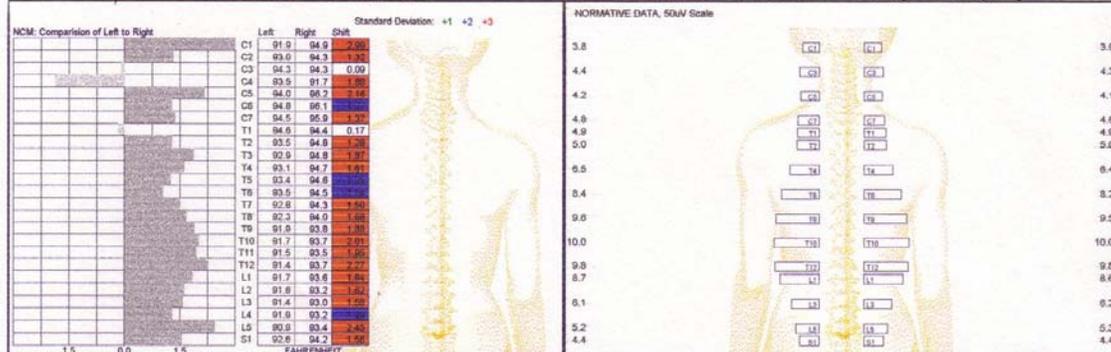
While some may consider the chiropractic treatment of children with asthmatic symptoms as controversial, it is prudent to recognize the growing volume of evidence stating beneficial outcomes when addressing vertebral subluxations in these patients. It should further be acknowledged that a variety of technique approaches have been utilized, which may suggest that a “cookie cutter” approach to an individual or during clinical trials may be inappropriate. Because chiropractors focus on the subluxation and its relationship to preservation and restoration of health, it is paramount that children are a priority regardless of symptom presentation, as non-symptomatic, previously undetected, potentially problematic conditions, such as scoliosis may also be addressed.

APPENDIX: Fig. 1

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 Age 12

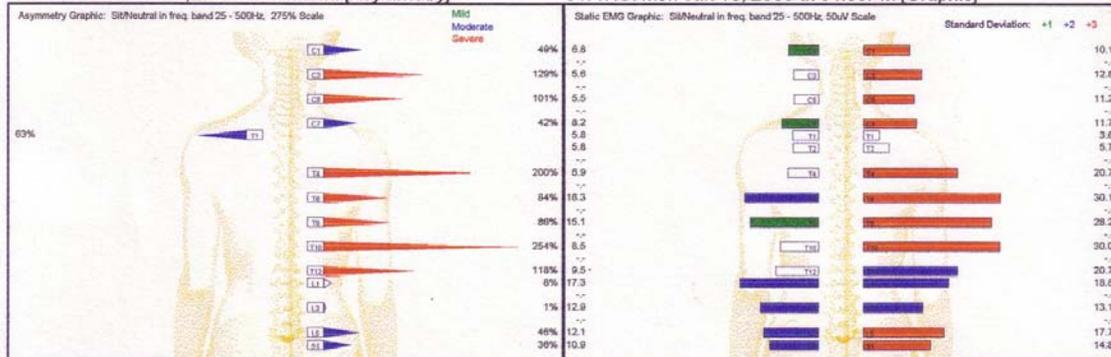
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STATIC: Mon Jan 13, 2003 at 04:00PM [Asymmetry]

STATIC: Mon Jan 13, 2003 at 04:00PM [Graphic]



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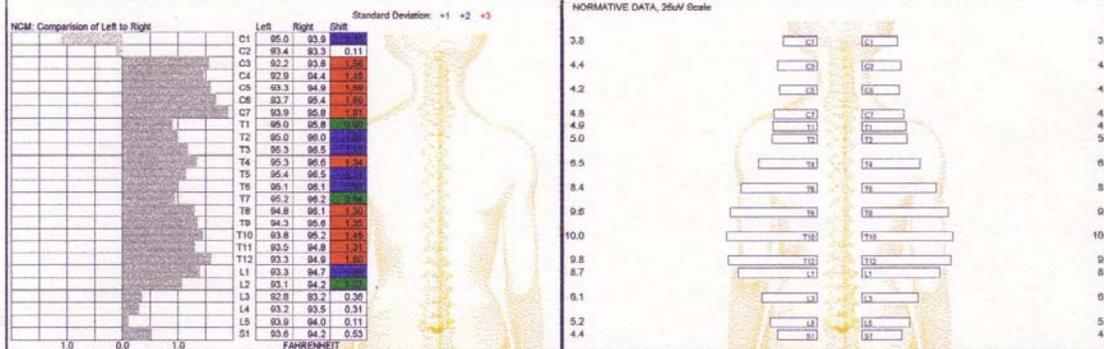
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APPENDIX: Fig. 2

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 Toronto
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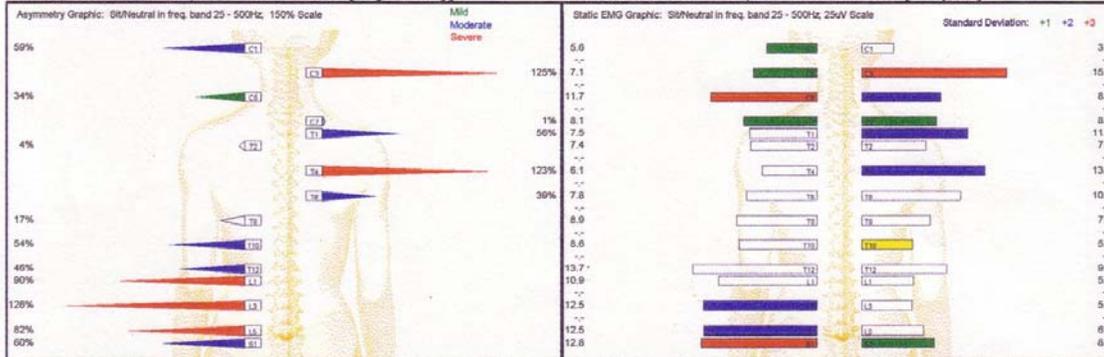
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APPENDIX: Fig.3

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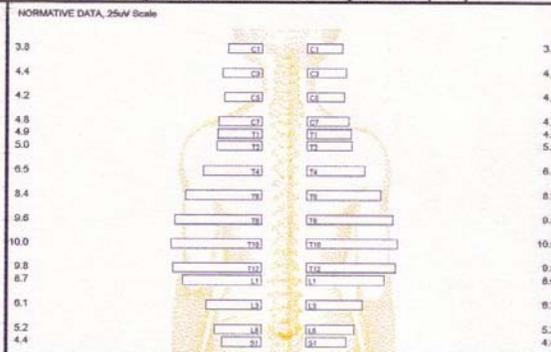
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NCM: Comparison of Left to Right

	Left	Right	Shift
C1	94.1	94.8	0.64
C2	92.1	94.4	2.34
C3	92.9	93.5	0.63
C4	92.9	94.8	1.91
C5	93.8	94.8	1.00
C6	94.0	95.3	1.30
C7	93.2	94.7	1.44
T1	93.9	94.2	0.30
T2	93.0	94.4	1.40
T3	93.7	95.0	1.30
T4	93.7	95.5	1.77
T5	94.3	95.8	1.52
T6	94.2	95.6	1.37
T7	93.8	95.4	1.60
T8	92.8	94.9	2.11
T9	92.5	94.2	1.71
T10	91.9	94.4	2.47
T11	91.6	93.9	2.24
T12	91.9	93.9	2.00
L1	91.8	93.6	1.80
L2	91.5	93.1	1.60
L3	91.5	92.9	1.40
L4	91.3	92.8	1.45
L5	91.3	92.6	1.30
S1	89.5	91.9	2.38

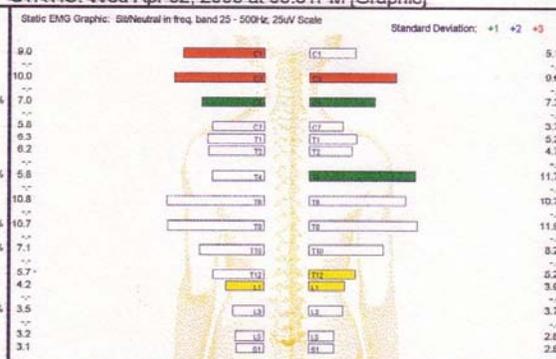
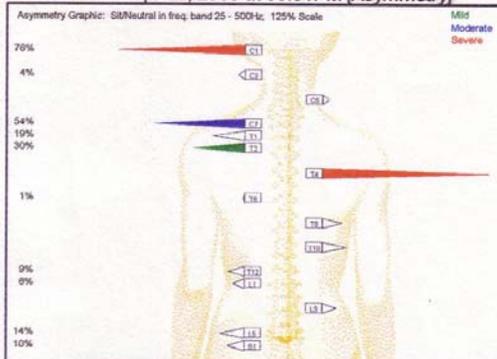
Standard Deviation: +1 +2 +3

FAHRENHEIT



STATIC: Wed Apr 02, 2003 at 03:31PM [Asymmetry]

STATIC: Wed Apr 02, 2003 at 03:31PM [Graphic]



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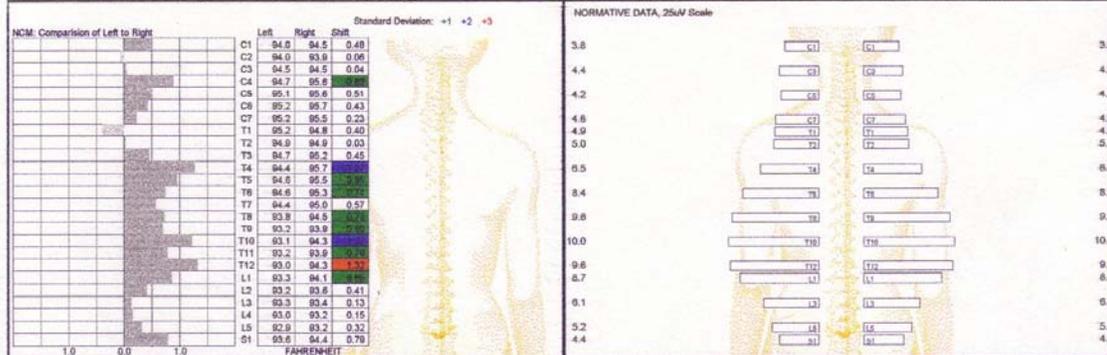
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APPENDIX: Fig. 4

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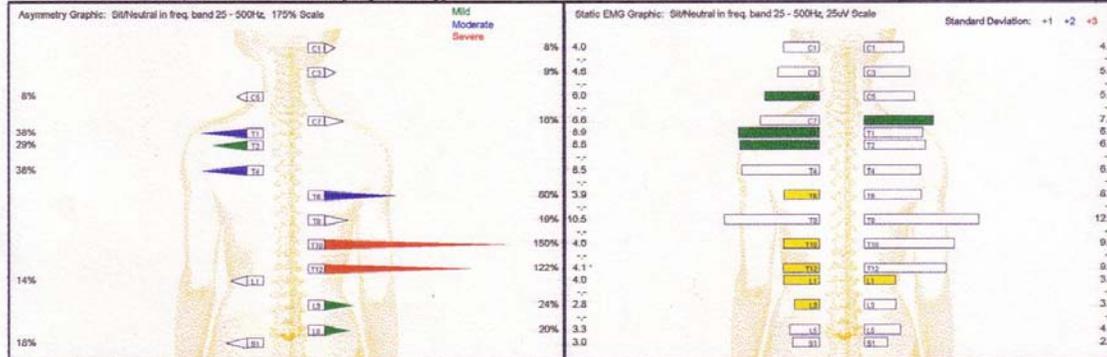
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STATIC: Thu Jun 12, 2003 at 03:19PM [Graphic]



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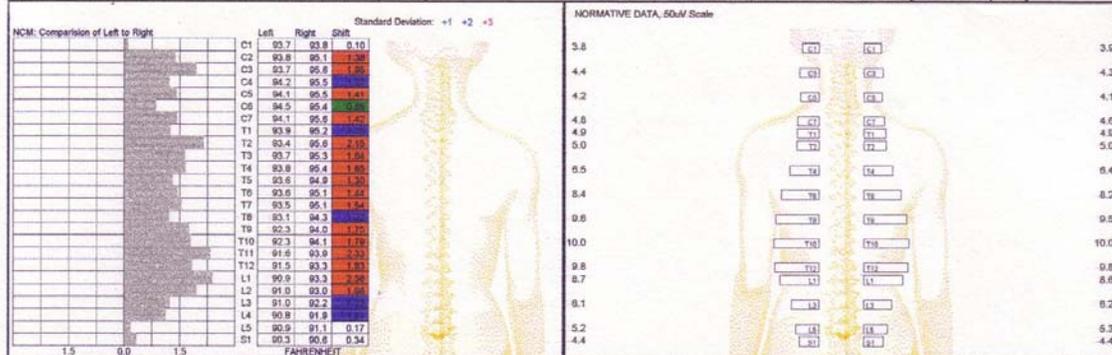
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APPENDIX: Fig. 5

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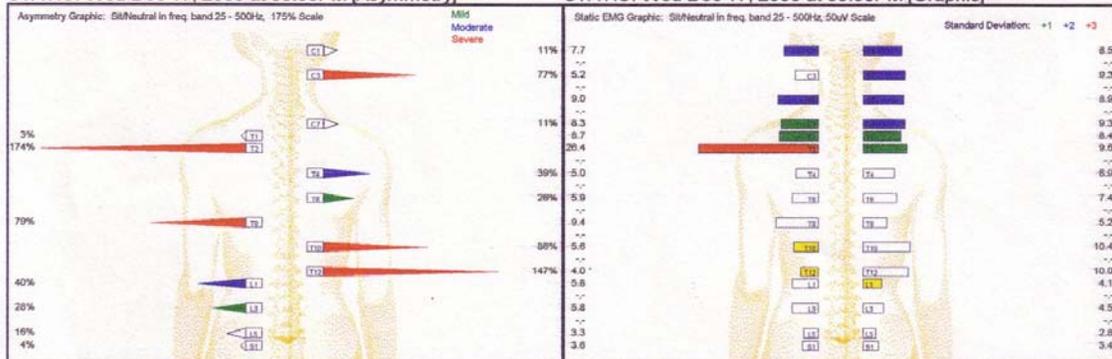
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