



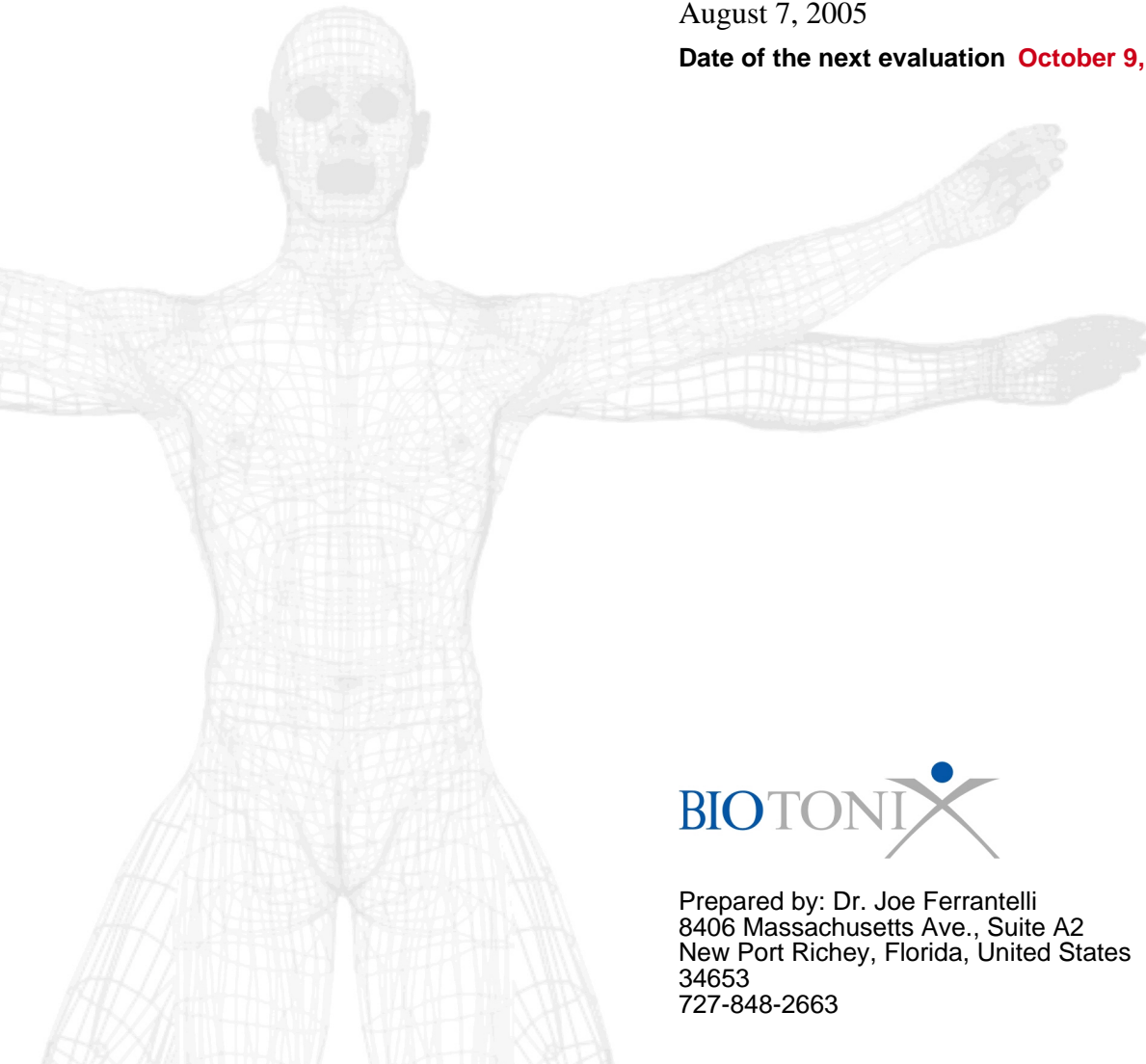
## Progress Report

Prepared for:

**Julie Ferrantelli**

August 7, 2005

Date of the next evaluation **October 9, 2005**



Prepared by: Dr. Joe Ferrantelli  
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727-848-2663

# PosturePrint™ Progress Report

## Welcome

The purpose of this progress report is to inform you of the results of your postural rehabilitative exercise program. The main features of this report include:

- Your current postural alignment.
- The percent change in your postural alignment compared to your initial alignment.
- Your current Posture Index™.
- Recommendations for future postural rehabilitative care.
- Your updated recommended individualized exercise plan.

In your first report, the definitions of normal and abnormal human posture were defined and presented. We provide these definitions again for your review. In normal posture, the head, ribcage, and pelvis are perfectly centered on each other. Optimal postural balance is shown by the alignment of the postural parts along the black vertical line in figure 1. From the front, the spine is perfectly aligned with gravity but from the side, the spine has three curves that support your body weight and allow for movement. A person with abnormal posture will have altered spinal alignment and function (Figure 2). The postural exercise program that you should have just completed emphasized correction of your abnormal posture.

Normal ●●

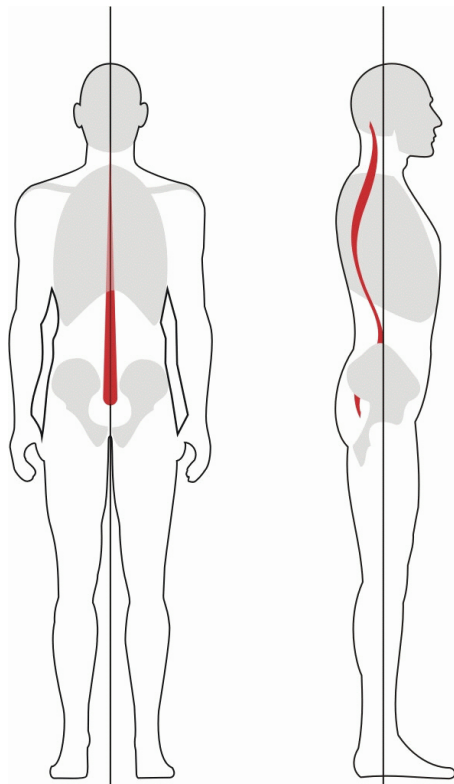


Figure 1.  
Optimal Human Posture and Spinal Alignment.

●●● Abnormal

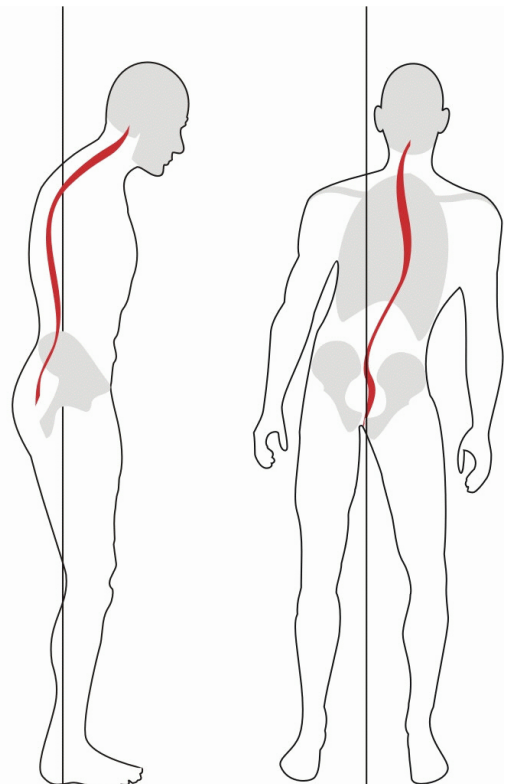


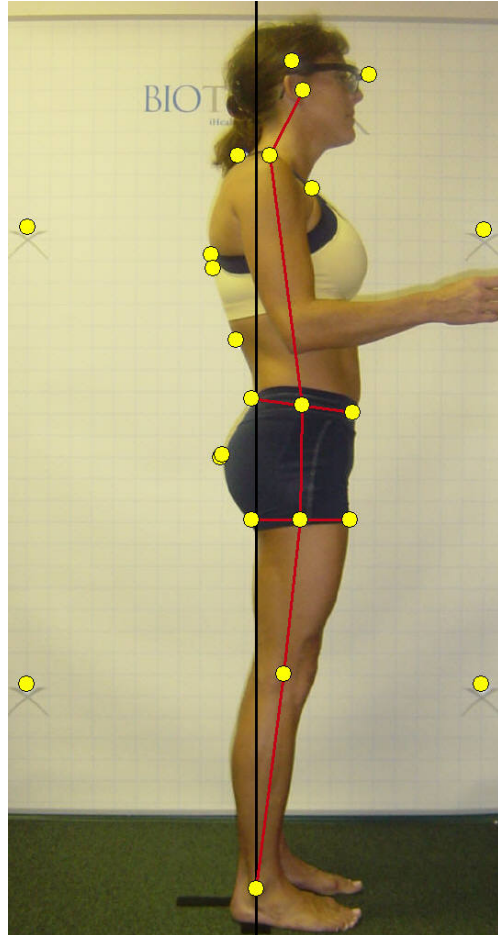
Figure 2.  
Abnormal Posture and Spinal Alignment. Here it can be seen that "Posture is a window into the shape of the spine".

# Report of your postural findings

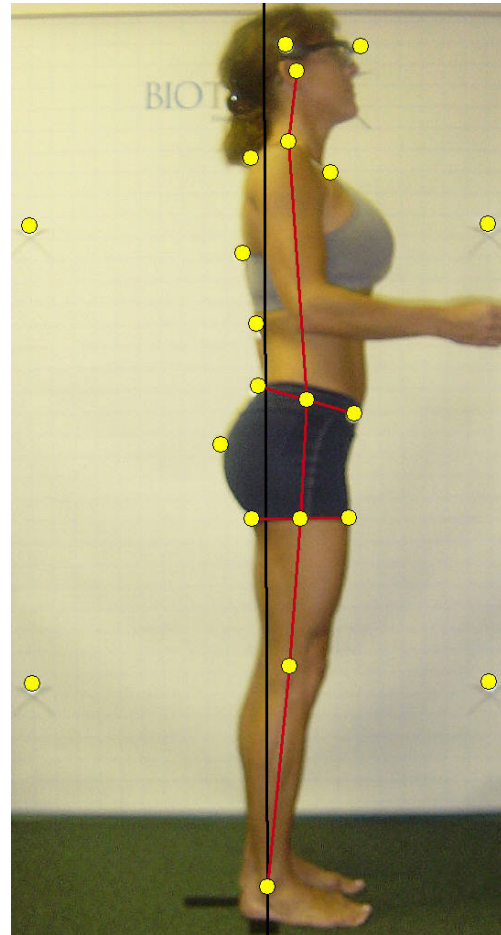
Previous Evaluation May 7, 2005

Current Evaluation August 7, 2005

View From The Side



Follow-up View From The Side



> >> Table 1.

## Your Postural Displacements From the Side

Body Region	Rotation X-axis (flexion or extension)		Translation Z-axis (forward or backward)	
	Before	After	Before	After
Head	5.4° Flexed	WNL	2.1 in Forward	0.5 in Forward
Ribcage	WNL	3.8° Extended	1.3 in Backward	0.2 in Forward
Pelvis	WNL	6.8° Flexed	2.9 in Forward	2.5 in Forward

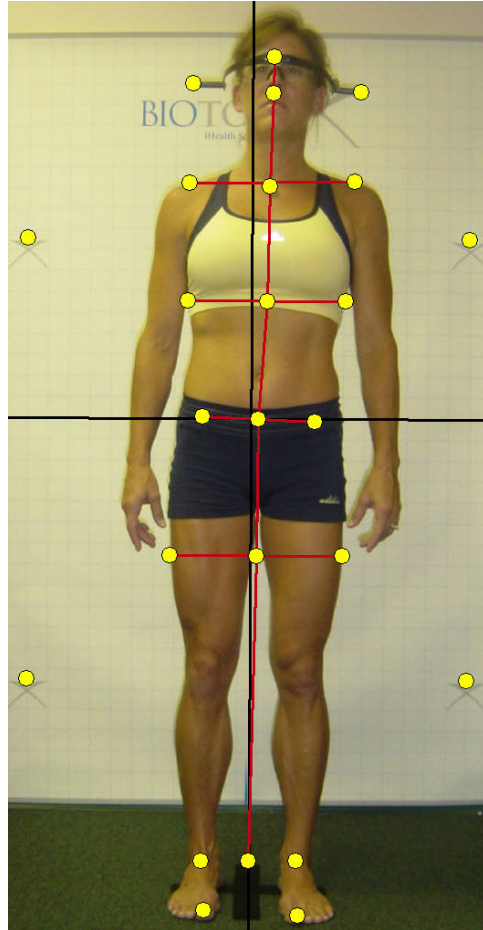
Note: Optimal Posture is WNL.

# Report of your postural findings

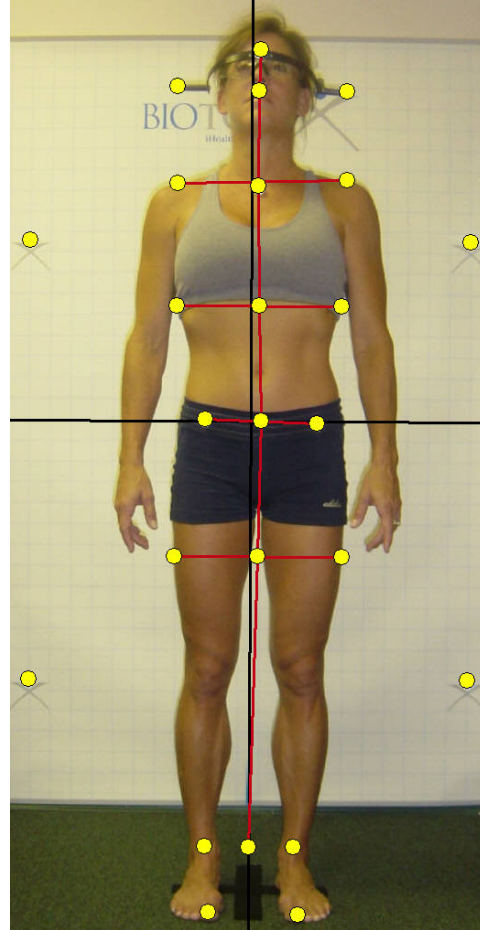
Previous Evaluation May 7, 2005

Current Evaluation August 7, 2005

View From The Front



Follow-up View From The Front



> >> Table 2.

## Your Postural Displacements From the Front

Body Region	Rotation Z-axis (left or right lateral bending)		Rotation Y-axis (left or right turning)		Translation X-axis (left or right side shift)	
	Before	After	Before	After	Before	After
Head	3.6° Left	WNL	WNL	WNL	0.5 in Left	0.4 in Left
Ribcage	WNL	WNL	WNL	WNL	0.7 in Left	WNL
Pelvis	WNL	WNL	WNL	WNL	0.5 in Left	0.6 in Left

Note: Optimal Posture is WNL.

# Posture Index™

The Posture Index is a simple yet scientific approach to categorize the severity of your identified postural displacements. The posture index is also a way of tracking any change in your posture displacements over time. The Posture Index is a composite number representing the amount of displacement of each region (head, thorax, and pelvis) of your body. Every displacement of each region has been categorized into Grades 1-6 (rotations) and Grades 1-7 (translations) based on the amount of the displacement (where Grade 1 is slight displacement, ..., Grade 6-7 is a severe maximum displacement). The higher the point value, the more severely displaced your posture is. The following categories represent the severity of your postural displacements:

1. Slightly Displaced = 1-10,
2. Significantly Displaced = 11-20,
3. Moderately Displaced = 21-30,
4. Seriously Displaced = 31-40,
5. Severely Displaced = 41-96

## Table of Grades for Posture Index™

■ Previous Posture Index™: May 7, 2005

■ Current Posture Index™: August 7, 2005

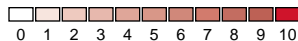
Region	Rotations						Translations				Previous Total Per Region	Current Total Per Region
	Rx Before	Rx After	Ry Before	Ry After	Rz Before	Rz After	Tx Before	Tx After	Tz Before	Tz After		
Head	1	0	0	0	1	0	3	2	6	2	11	4
Ribcage	0	2	0	0	0	0	2	0	3	0	5	2
Pelvis	0	4	0	0	N/A	N/A	0	1	3	3	3	8
	1	6	0	0	1	0	5	3	12	5	19	14

**Current Total Posture Index™: 14**

**P.I. = 14 , SIGNIFICANTLY DISPLACED**

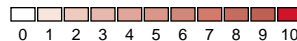
# Pain Scale

0: No pain, no disabilities; 10: extreme pain, bed ridden



May 7, 2005

Chief Complaint: Low Back Pain  
Chief Complaint: Neck Pain



August 7, 2005

Chief Complaint: Low Back Pain  
Chief Complaint: Neck Pain

# Your abnormal postures, their consequences & the need for continued

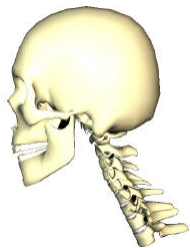
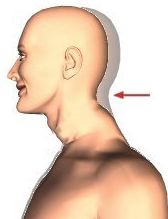
When you stand up perpendicular to the surface of the earth, gravity is not the only force placed on your spine, pelvis, and legs. Because muscles have to contract to hold you up, the compressive forces of your postural muscles are added to the weight of the body parts above any location in your spine. Engineers term these forces as loads. These loads cause stresses (force per unit area) on your spinal tissues. The more abnormal your posture and spinal alignment is, the more abnormal are the loads and resultant stresses applied to vertebrae, discs, ligaments, muscles, blood vessels, spinal cord, nerves, pelvic bones, and leg bones.[1-10]

In anatomy and physiology, there are two important laws that are concerned with stresses: Wolff's Law and Davis' Law. Wolff's Law states that bone remodels to stress and Davis' Law states that soft tissues (discs, ligaments, blood vessels, muscles, and nervous structures) remodel to stress.[11-13]

Posture can be considered as a "window into the spine", because specific abnormal postural displacements are associated with specific spinal positions.[14-17] A simple example is, if you have head tilt in your upright posture (termed head lateral flexion in anatomy), then your spine will have predictable movements as seen on a front view x-ray of your neck. If this abnormal posture is left uncorrected, then your neck vertebra, discs, ligaments, blood vessels, muscles, and spinal nerves will be under constant asymmetrical stress side-to-side. Due to Wolff's Law and Davis' Law, these structures will adapt by having pathological changes.

The benefits of near normal posture are obvious. It is advisable to continue to seek corrective care until your posture, and thus your spinal alignment, is as close to normal as humanly possible. As examples of your remaining abnormal postures and spinal positions, your largest displacements in each region (head, rib cage, and pelvis) are illustrated below with their typical spinal positions.

+TzH



When your head shifts forward (translates) in the lateral view, the natural curve (lordosis) of your neck vertebrae is altered into a slight "S"-shape. This creates compression stresses on the front of the lower neck vertebrae and increased muscle effort to hold up your head.

-RxT



When your rib cage bends backward (extends) in the lateral view, the natural curve (lordosis) of your low back vertebrae is increased. This creates compression stresses on the posterior low back structures. These abnormal stresses can be vastly increased when any additional backward rib cage shift is present.

+RxP



When your pelvis bends forward (flexes) in the side view, there are large compression stresses applied to the hip. Additionally, there will be large efforts required by the posterior leg and buttocks muscles.

# Treatment Log Book

Julie Ferrantelli

Date of the next evaluation **October 9, 2005**

Reps. and Tempo (3 x 10 rep. Tempo: 2-2-2)

3x10 rep. means:

- 3 times in one day you must do 10 repetitions of the exercise






Tempo: 2-2-2 means:

- The first number represents the time in seconds to get to the movement

- The second number represents the time in seconds to hold the contraction

- The third number represents the time in seconds to return to the initial position no rest between the

## Session 1




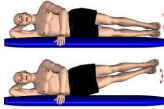

Exercise Name	Image	Week 1	Week 2	Week 3																					
<b>1 - Posterior head translation</b>  10x10 rep. Tempo: 2-8-2		<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7
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<b>2 - Head translation exercise - R side stand</b>  10x10 rep. Tempo: 2-8-2		<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7
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<b>3 - Seated posterior translation of the thorax</b>  10x10 rep. Tempo: 2-8-2		<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7
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<b>4 - Left leg raise side lying, knee straight</b>  10x10 rep. Tempo: 2-8-2		<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7
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<b>5 - Supine straight leg raise causing posterior pelvic translation</b>  10x10 rep. Tempo: 2-8-2		<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7	<table border="1"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td></tr> </table>	1	2	3	4	5	6	7
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# Treatment Log Book

Julie Ferrantelli

Date of the next evaluation **October 9, 2005**

## Session 2



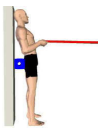


Exercise Name	Image	Week 4	Week 5	Week 6
<b>6 - Isometric posterior head translation</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>7 - Resisted cervical translation exercise - R side</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>8 - Standing posterior translation of the thorax</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>9 - Side-lying straight leg raise causing right pelvic translation</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>10- Standing posterior pelvic translation</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7

# Treatment Log Book

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## Session 3

Exercise Name	Image	Week 7	Week 8	Week 9
<b>11- Resistance posterior head translation</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>12- Resisted cervical translation exercise - R side</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>13- Resistance standing posterior translation of the thorax</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>14- Standing, left side leg raise with band</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
<b>10- Standing posterior pelvic translation</b>  10x10 rep.      Tempo: 2-8-2		1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7

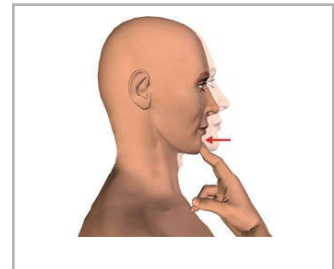
# Your updated Mirror Image® Exercises to correct your abnormal

The exercises you will be asked to perform are called Mirror Image® Exercises because they exactly reverse your abnormal postural displacements. Mirror Image® Exercises will stretch muscles that are shortened and contract lengthened muscles, allowing postural change toward normal position. This allows the spine and nervous system (the master control system of the body) to function at its optimum. Besides the benefits derived from any exercises program, your Mirror Image® Exercise protocol will be comprehensive in as much as they are designed to restore your body to normal alignment while moving your joints (Figure 2).

The Comparative Evaluation finds your remaining postural displacements after completing a 9-week course of treatment and exercises. It is important to determine a percentage of correction of the beginning abnormal postural positions, find any over-corrections, and determine any postural positions that were overlooked on the first evaluation. Your Comparative Evaluation provides you and your healthcare provider the necessary updated information to determine a corrected individualized exercise program based on measured data.

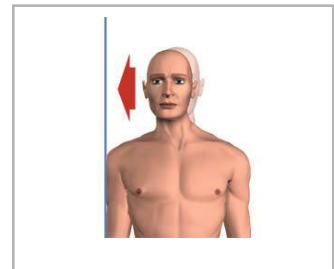
## 1 - Posterior head translation

Standing straight with your back touching a block against a wall. Push your head backward as far as possible. Do not tilt forward or back. Do not round your shoulders.



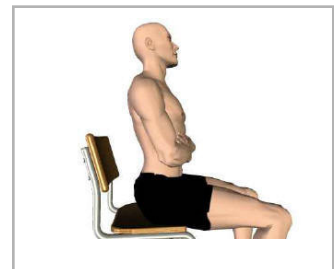
## 2 - Head translation exercise - R side stand

Stand with the RIGHT shoulder against a wall. Try to touch the RIGHT ear straight to the wall. THE HEAD MUST NOT BE ROTATED OR TILTED (check in a mirror for proper position). The head and neck are held in this position.



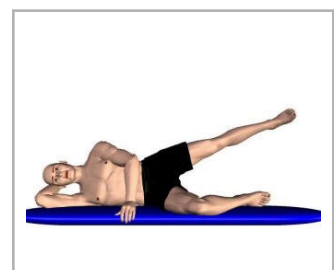
## 3 - Seated posterior translation of the thorax

Sitting straight on the front edge of a chair with your feet on the floor. Place your hands lightly across your stomach. Push your chest straight backward. Let your shoulders roll forward slightly. Let your chest bend slightly forward. Do not shift or bend your head.



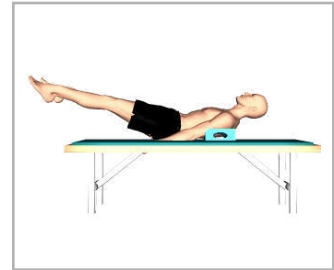
## 4 - Left leg raise side lying, knee straight

Lie on your right side with the top leg straight and aligned with your hips and torso. The right leg is bent at the hip and knee. Rest your head on your right arm. Slowly raise the left leg. Maintain stable hips and a straight knee throughout the movement.



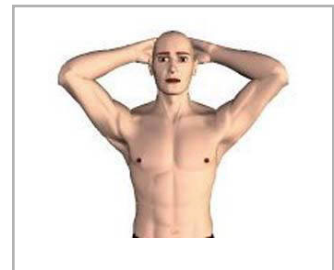
### 5 - Supine straight leg raise causing posterior pelvic translation

Lying on your back with your arms along your side. Place a small block under your rib cage. With your legs straight, raise your feet and legs 12-18 inches off of the ground. Hold this position. Point your toes downward by contracting your calf muscles.



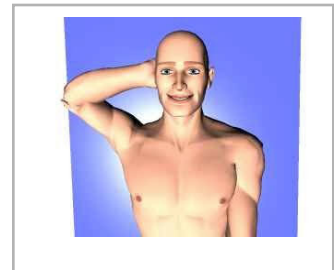
### 6 - Isometric posterior head translation

Sitting straight with your hands folded on the back of your head. Against the resistance of your hands, push your head backward in a straight line. With your hands, do not allow your head to shift forward.



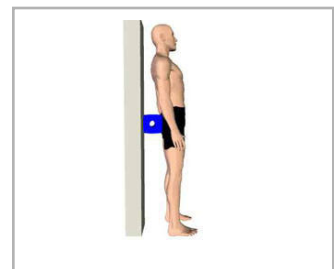
### 7 - Resisted cervical translation exercise - R side

Lay supine on the ground. Put the RIGHT hand on the side of the head at the ear level. Move the head toward the right while your hand offers a resistance. The head must not be rotated or tilted (check in a mirror for proper position).



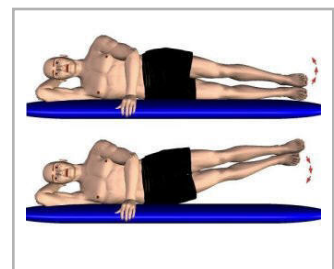
### 8 - Standing posterior translation of the thorax

Standing with a block placed in behind your hips and thighs. Keep your feet exactly below your hips. Push your back straight into the wall. Let your shoulders roll forward slightly. Bend your chest slightly forward. Do not bend or shift your head.



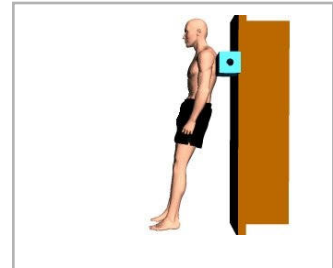
### 9 - Side-lying straight leg raise causing right pelvic translation

Lying on your right side with your head resting on your arm. Raise both legs 12 inches towards the ceiling. Keep knees straight.



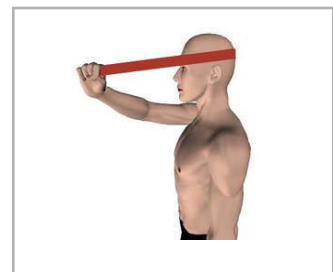
### 10 - Standing posterior pelvic translation

Place a small block between your rib cage and the wall. Standing with your bottom and head against a wall. Walk your feet out in front of you 12-18 inches. Stand on your tiptoes by contracting your calf muscles. Let your body slide up the wall a few inches. Rock your pelvis backward. Do not bend the knees and do not move your body away from the wall.



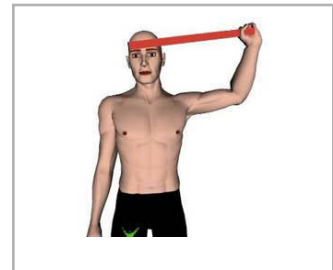
### 11 - Resistance posterior head translation

Standing or seated upright with a bungee strap attached to your head. You must have slight tension on the bungee cord in the neutral posture. Shift your head straight backward against the tension in the bungee cord. Do not tilt your head forward or back.



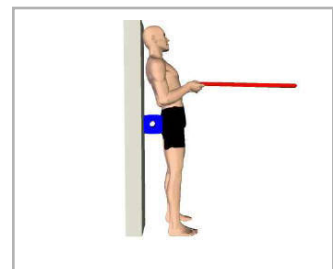
### 12 - Resisted cervical translation exercise - R side

In a standing position put an elastic band around your head. Move the head toward the right while you offer a resistance with the left hand, which is holding the elastic band. The head must not be rotated or tilted (check in a mirror for proper position).



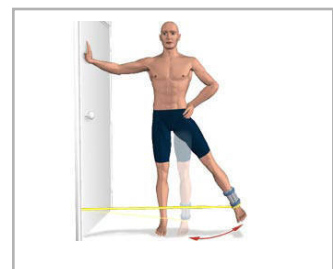
### 13 - Resistance standing posterior translation of the thorax

Standing with a block behind your hips and thighs with your feet exactly under your pelvis. Grasp the bungee strap with your hands on your stomach. Push your chest backward. Let your shoulders roll forward slightly. Let your chest bend slightly forward. Do not bend or shift your head.



### 14 - Standing, left side leg raise with band

Stand with your right shoulder next to a wall or stationary object on which one end of an elastic resistance band can be securely attached. Place the other end of the elastic around your left ankle and stabilize yourself. Make sure there is sufficient tension in the band. Against the resistance, lift the left leg out toward the left side. Return slowly to the starting position.



# Important Information

The findings in this PosturePrint™ are intended to provide a biomechanical assessment of your posture and to suggest an individualized exercise program to help you correct the postural deviations identified. To ensure that the suggested exercise program is right for you, the PosturePrint™ must be reviewed and approved by your Healthcare Provider. This will be indicated by his/her signature below. Once your Healthcare Provider has signed your PosturePrint™, he/she should discuss it with you and advise you on how to perform your personalized exercise program. These exercises are intended to help you achieve a better, more natural posture. The PosturePrint™ is not intended to diagnose serious neck or spinal diseases or injuries nor are the recommended exercises intended to treat such conditions.

If you experience any unusual pain while performing the recommended stretching and exercise routines, or if you suspect that you have an injury or disease affecting your neck or spine, notify your healthcare practitioner immediately.

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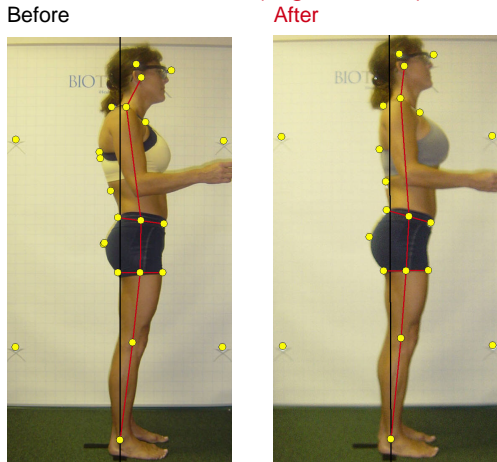
Evaluator: Dr. Joe Ferrantelli  
Advanced Chiropractic Associates  
8406 Massachusetts Ave., Suite A2  
New Port Richey, Florida, United States  
34653  
727-848-2663

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# Summary

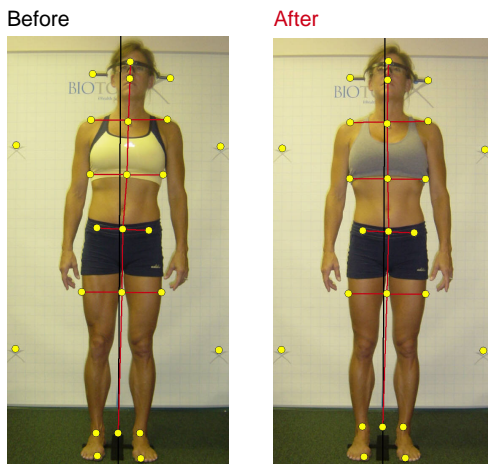
## View From The Side (Right Lateral)



Body Region	Rotation X-axis (flexion or extension)		Translation Z-axis (forward or backward)	
	Before	After	Before	After
Head	5.4° Flexed	WNL	2.1 in Forward	0.5 in Forward
Ribcage	WNL	3.8° Extended	1.3 in Backward	0.2 in Forward
Pelvis	WNL	6.8° Flexed	2.9 in Forward	2.5 in Forward

Note: Optimal Posture is WNL.

## View From The Front



Body Region	Rotation Z-axis (left or right lateral bending)		Rotation Y-axis (left or right turning)		Translation X-axis (left or right side shift)	
	Before	After	Before	After	Before	After
Head	3.6° Left	WNL	WNL	WNL	0.5 in Left	0.4 in Left
Ribcage	WNL	WNL	WNL	WNL	0.7 in Left	WNL
Pelvis	WNL	WNL	WNL	WNL	0.5 in Left	0.6 in Left

Note: Optimal Posture is WNL.

## Table of Grades for Posture Index™

Region	Rotations						Translations				Previous Total Per Region	Current Total Per Region
	Rx Before	Rx After	Ry Before	Ry After	Rz Before	Rz After	Tx Before	Tx After	Tz Before	Tz After		
Head	1	0	0	0	1	0	3	2	6	2	11	4
Ribcage	0	2	0	0	0	0	2	0	3	0	5	2
Pelvis	0	4	0	0	N/A	N/A	0	1	3	3	3	8
	1	6	0	0	1	0	5	3	12	5	19	14

## Exercises

- 1- Posterior head translation
- 2- Head translation exercise - R side stand
- 3- Seated posterior translation of the thorax
- 4- Left leg raise side lying, knee straight
- 5- Supine straight leg raise causing posterior pelvic translation
- 6- Isometric posterior head translation
- 7- Resisted cervical translation exercise - R side
- 8- Standing posterior translation of the thorax
- 9- Side-lying straight leg raise causing right pelvic translation
- 10- Standing posterior pelvic translation
- 11- Resistance posterior head translation
- 12- Resisted cervical translation exercise - R side
- 13- Resistance standing posterior translation of the thorax
- 14- Standing, left side leg raise with band

Guidelines for evidence based medical and chiropractic care include postural evaluation as a primary physical examination procedure to be performed on presenting patients[1,2]. For example, in the 5th edition of the AMA guides to the evaluation of permanent impairment, standing posture evaluation is recommended as part of a comprehensive but focused spine-related physical examination of the cervical, thoracic, and lumbar spines[1]. According to the Mercy Center Guidelines[2], Measures of Position or Clinical Anthropometry include "Automated Posture Measures"; where automated measurement of posture is defined as "quantifying position in three dimensional space..." At the time the Mercy Center Guidelines[2] were written, accurate automated postural measurement tools were not readily available for clinical use. Still, postural evaluations were considered to be important to perform, practical, safe, and received a rating of "Promising". Promising was defined as, "Given current knowledge, this appears to be appropriate for the given indication in the specified patient population."[2]

Recently, several well designed studies have found standing upright posture to be highly repeatable, with a method error of 1.0° to 3.0° in both the sagittal and coronal planes[3-7]. Computerized postural assessment, such as PosturePrint™, allows for reliable, objective and quantitative evaluation of postural impairments so that improvement or worsening from normal can be documented reliably and accurately. In today's evidence based health care arena it is unacceptable to evaluate patients with non-objective measures without quantification of findings. It is for this reason we quantify a patient's presenting postural abnormalities with the PosturePrint™.

## References

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