



# Treatment of a 33 year old female presenting with bilateral toe walking and mild scoliosis throughout entire spine: A case report

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**Objective:** The objective of this report is to offer information on treatment of successful correction for toe walking in a 33 year old female utilising holistic chiropractic methods and other neuromusculoskeletal treatments.

**Clinical Feature:** A 33 year old female presenting for chiropractic care with unresponsive bilateral toe walking and mild scoliosis of entire spine due to gait disturbances in an interdisciplinary clinic.

The patient had previous bilateral surgery of calf muscles ~ she was not sure which muscles were cut; she had scars on both calves. She had stated it was several years prior with no successful result for this condition.

**Intervention and Outcome:** Treatment consisted of 'low force techniques', sacro-occipital technique, cranial techniques and one visit to a pelvic floor physical therapist to address spinal, lower extremity, and postural imbalances, as well as abnormal placement of coccyx, possibly contributing to the patient's toe-walking and difficulty with balance.

**Conclusion:** This case demonstrates a conservative, effective treatment for people of any age presenting with toe-walking/gait disturbance, particularly when surgery, physical therapy and other methods were unsuccessful and are no longer welcomed by the patient.

**Indexing terms:** Chiropractic; low-force; SOT; toe-walking; adult.

## Introduction

**T**oe walking is a condition seen in children and adults often times associated with a neuropsychiatric diagnosis or developmental delays. It is typically addressed with casting or surgery which is often not permanently successful. (1)

The patient presented with 'toe and ball of foot only walking' since a young child. Her stance showed forward bending at the waist, she could not stand up completely straight and when she did stand she needed to hold out her arms to balance herself so as not to fall forward. X-rays showed mild to moderate scoliosis throughout the entire spine.

The balls of her feet were severely calloused and chaffed. The patient also noted she had difficulties with her partner regarding lack of orgasm during

*... Chiropractic has many paradigms for patient care and this Case Report describes a low-force approach to a patient presenting with life-long toe-walking for which surgical intervention had been unsuccessful. ...'*



sexual encounters, even when stimulated. She was quite distressed about this.

The patient did not report any deficits regarding poor motor skills however, deficits displayed by toe walkers in previous reports suggests their poor motor skills are due to alterations in brain regions responsible for the cognitive organisation of motor perception and learning. (2)

This case report has value given the literature is scant; searching revealed I only one other report on similar gait disturbances which demonstrates other alternative methods to correct this type of gait disturbance using conservative care when surgery did not help. (2)

The purpose of this paper is to demonstrate how SOT/Cranial work and other Chiropractic techniques, coupled with trigger point therapy and other soft tissue methods corrected and terminated toe walking in a 33 year old female after she had tried many other methods including surgery which had shown to be unsuccessful.

## Case Report

### *Patient assessment*

Patient Characteristics: mA 33 year old female with long standing toe-walking (ever since she can remember) presented to my office for remedy of her condition. Care commenced on 30<sup>th</sup> August 2023. She attended twice a week for the first year.

X-rays showed severe inward facing misalignment of her coccyx and mild to moderate scoliosis.



### *Examination*

#### Cervical Spine/Neck:

INSPECTION/PALPATION: Torso torque to R), head is centred. High R) shoulder. Stands on toes, has difficulty being still., some unbalance issues. MM spasms in all areas of spine on various levels. Scars on both calves.

RANGE OF MOTION OF NECK: Diminished: Flex ~ 20%, Ext ~ wnl, Rot: R) ~ wnl, L) ~ 20% pain in R) neck, Lat Flex: R) ~ 20%, L) ~ 20%..

#### Lumbar Spine/Lower back:

RANGE OF MOTION: Diminished: Flex ~ wnl, ext: 0...wobbly, Lat Flex: 30% bilat. Stands w/ flexion normally & on toes. balance is not stable.

#### General Examination:

Neck (dull) & low back (dull/feels swollen) pain most prominent today however ~ upper traps, shoulders ~ sometimes sharp, sometimes achy, knees & hip pain intermittently get sharp pains. No regular HAs. TMJ popping regularly. Vertigo & tinnitus intermittently ~ w/ some stretches or sometimes upon awakening.

Trauma ~ fender-benders ~ 3, several yrs ago.

Serious illness ~ covid, mild autism/toe walking. Mental health

Allergies ~ dairy, gluten, bees

Surgeries ~ legs to stretch tendons, liposuction to tummy/low back, wisdom teeth.

Medications: Taking Nitroglycerin 0.4 %, Ointment 1 inch Rectal every 12 hours as needed for up to 3 weeks , taking diazepam 5mg Tablet 1 tablet as needed Orally twice daily as needed , Taking WFP Thyroid Support - - Take 4 capsules by mouth daily (as noted by her nurse practitioner/MD).

Clinical exam including range of motion, posture and gait analysis, palpation, and reflex point analysis were taken.

### *Diagnosis*

The following working diagnoses with their coding were documented:

- ▶ Segmental Dysfunction of Coccyx ~ M53.3
- ▶ Segmental and somatic dysfunction of lumbar region - M99.03 (Primary)
- ▶ Segmental and somatic dysfunction of sacral region - M99.04
- ▶ Segmental and somatic dysfunction of cervical region - M99.01
- ▶ Segmental and somatic dysfunction of thoracic region ~ M99.02
- ▶ Scoliosis ~ M41.9
- ▶ Idiopathic toe walking ~ R26.89
- ▶ Muscle spasm ~ M62.838
- ▶ Soft tissue disorder ~ M79.9

## Treatment/Intervention

Treatment consisted of a Chiropractic technique informally learned in Chiropractic college from a classmate. For the purposes of this study, this is called '*Low Force Technique*.' It consists of gentle realignment of the entire spine using a force that is not defined by an audible/cavitation and is applied with my right thumb and middle finger contact to the patient's vertebra on either side of the transverse process.

Tissue tension is applied inferior to superior, with a straight arm of the same hand while the opposite and utilises a medium force slide down it to apply the force to the selected vertebral segment. A vertebral segment is considered subluxated when there is reduced intersegmental motion, increased local paravertebral muscle tension, and/or an indication of sensitivity (verbal or body apprehensive cue) by the patient upon palpation. This was performed with the woman lying prone as low force technique was applied on both articular processes of various vertebrae in the lumbothoracic region and to her *gastrocnemius* and *soleus* bilaterally.

Due to the unusual tension in the *gastrocnemius* and *soleus* muscles, trigger point therapy to the *gastrocnemius* and *soleus* muscles as well as her hamstrings bilaterally was also administered until relaxation was obtained. Various home stretches were shown and advised as well and the patient was very compliant to utilise them.

As treatments continued we noticed that she was continually walking with more visible plantar extension and foot surface contact.

Other methods of intervention consisted of stretching the *gastrocnemius* muscles while the patient was lying supine and lifting the entire lower extremity by the heel of the foot and pulling it forward, thereby putting it into extreme plantar extension, this was done bilaterally on occasional treatment visits.

It was believed that these various treatment methods may have contributed to facilitating the correction of her toe walking, though clearly more study is needed to see if this can be generalised. During this time SOT pre and post assessments for pelvis and cervical spine balancing could be performed. (3)

## Outcomes

After two months of one to two Chiropractic treatments per week the patient was able to stand flat footed with some forward torso bending for the first time in her life. Her gait still consisted of toe walking but with some intervals of full foot walking as well.

After eight months of one to two weekly Chiropractic treatments she has attained proper gait mechanics and only goes to her toes/balls of her feet out of habit on occasion.

I propose that with regular Chiropractic visits with this Low Force Technique as the intervention the current clinical condition of the patient can become ongoing. I note that home stretches form part of her treatment plan and need to continue.

## Discussion

As with any case report it is difficult to generalise the findings of any intervention due to being unable to rule out the placebo or ideomotor effect, regression to the mean, or other common confounders.

Toe walking tends to occur for reasons related to underlying neuromusculoskeletal conditions and in this case I believe the patient's coccyx displacement may have been related to her gait/toe walking disturbances; the nerves in that area are directly related to the lower extremity and interference to these nerves would most likely cause muscle spasms to the areas such as *gastrocnemius* and *soleus* as well as the Achilles tendon complex.

## Conclusion

This case demonstrates positive clinical outcomes can be associated with a low-force patient intervention.

Since the patient's feet were not directly treated it is more likely that the treatment was successful due to its effect on the *gastrocnemius* and *soleus* as well as Achilles tendon complex patterns. There seems to be many variations and studies for this condition including chiropractic treatments for it. (4, 5)

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**Cite:** Stowell LM. Treatment of a 33 year old female presenting with bilateral toe walking and mild scoliosis throughout entire spine: A case report. *Asia-Pac Chiropr J.* 2025;6.1. [www.apcj.net/papers-issue-6-1/#StowellToeWalking](http://www.apcj.net/papers-issue-6-1/#StowellToeWalking)

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### *About the Chiropractor*



**Lisa M Stowell, DC** focuses on the safest and most natural approach to chiropractic care utilising cutting edge techniques such as SOT (sacro-occipital technique). She incorporates 'Food First' as part of her approach to customise personal dietary needs as well. Besides head, neck and low back pain, Dr Stowell addresses conditions such as diabetes, fibromyalgia and even depression and fatigue. Dr Stowell has been published in an international, peer-reviewed chiropractic journal as well as accepted for presentation at 2024 ACC-RAC Conferences and the SOT Research Conferences.