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CLINICALEVIDENCE
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Advanced Biostructural Correction™ and its impact on Pulmonary Function:
A case report

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Narrative: Chronic lower back pain (CLBP) is a prevalent condition that impacts various health aspects, including respiratory function. This case study examines the effects of Advanced Biostructural Correction™ in a patient with CLBP, aiming to assess changes in pulmonary function.

A detailed evaluation was performed using spirometry to measure respiratory parameters before and after a series of chiropractic treatments that targeted spinal realignment. The results demonstrated significant improvements in forced vital capacity (FVC) and peak expiratory flow (PEF), highlighting the potential of this type of chiropractic care in enhancing respiratory efficiency through improved posture.

This study underscores the importance of integrating postural assessment in the management of patients with respiratory symptoms and suggests broader consideration for Advanced Biostructural Correction™ in research and practice.

Indexing Terms: Chiropractic; subluxation; ABC™; Advanced Biostructural Correction; Chiropractic Case Report; Pulmonary Function

Introduction

Chronic lower back pain (CLBP) is a pervasive condition that affects a significant portion of the global population, with studies estimating that up to 80% of adults experience lower back pain at some point in their lives. (1)

This condition not only leads to discomfort and disability but also imposes a significant burden due to medical expenses and lost productivity. (1) The aetiology of CLBP is often multifactorial, encompassing structural, biomechanical, neurological, and psychological components, (1) and patients have been seeking chiropractic care for the management of CLBP. (2)

The relationship between posture and respiratory function is well-documented, yet often overlooked in clinical assessments of musculoskeletal

> *... incorporating postural assessment and correction into the standard care regimen could enhance the effectiveness of treatment protocols not only for musculoskeletal disorders but also for respiratory conditions'*

pain, including CLBP. Poor posture, particularly in the thoracic and lumbar regions of the spine, can significantly impact the mechanics of breathing. (3) For instance, thoracic kyphosis and forward head posture can diminish lung capacity and restrict diaphragmatic movement, leading to reduced respiratory efficiency and potentially exacerbating the symptoms of existing respiratory conditions. Understanding these interactions is crucial for effective treatment planning and improving overall patient outcomes.

Advanced Biostructural Correction™ (ABC™) is a full-body, manual, protocol-based adjusting method, developed by Jesse Jutkowitz DC. (4) ABC™ focuses on detecting and correcting misalignments that the body cannot self-correct using full spine 'meningeal releases', specific Anterior-Posterior (A-P) spinal adjustments and adjustments to the pelvis, feet and fibula heads. (4) In the Asian pacific region, there are over 100 practitioners mainly in Australia and New Zealand, but also with practitioners in Singapore and the Philippines. (5)

Recent literature has begun to explore the link between spinal alignment and pulmonary function more rigorously. (6) Studies have shown that interventions aimed at improving spinal alignment, can lead to measurable improvements in respiratory parameters such as forced vital capacity (FVC) and peak expiratory flow (PEF). However, comprehensive case studies focusing on the direct impact of specific chiropractic interventions on both spinal posture and respiratory function are scarce.

The objective of this study is to explore the effects of *Advanced Biostructural Correction*™ focused on postural correction on pulmonary function in a patient with chronic lower back pain, aiming to provide a deeper understanding of how ABC™ care can benefit respiratory metrics and overall health.

Case report History

Patient profile

A 37-year-old male desk worker presented with chronic lower back pain persisting for over five years. He described the pain as dull and intermittent, worsening significantly during periods of prolonged sitting, which his job frequently necessitated. His BMI measured 25.

His activity level consisted of a weekly exercise regimen of 3-5x per week moderate intensity weight lifting along with cardiovascular high intensity interval training (HIIT).

The patient's pain severity during prolonged sitting was quantitatively measured using the Visual Analogue Scale (VAS), where he reported an intensity of 4-6/10. When low back pain occurs, he also experiences shortness of breath.

He was reviewed by his family physician and was accepted as normal. He was prescribed pain medication but the medications provided minimum help. The exercise eases the symptoms. He then sought chiropractic care of his low back pain (Timeline, Figure 1).

At the initial chiropractic examination, the postural assessment revealed increased thoracic kyphosis at 45° (> the normal range of 20-40°), forward head posture at 15° anterior translation of the cervical spine, and lumbar hyperlordosis at 60° (>normal range of 30-50°) (Figure 2A). The orthopaedic and neurological examinations revealed normal, but muscular palpation indicated tenderness in the paraspinal muscles, tightness in the pectoral muscles and hip flexors, and weakening of the rhomboids, lower trapezius, and gluteal muscles. Spinal joint dysfunction was identified at C6/7, T2/3, T7/8, T11/12, L3/4, and L4/5.

These imbalances likely exacerbated both the patient's back pain and his restricted chest wall expansion. Spirometry was used to assess the impact of postural irregularities on lung function and indicated respiratory restriction in FEV1, FEV1/FVC ratio, and PEF. (Table 1).

Fig. 1: Timeline

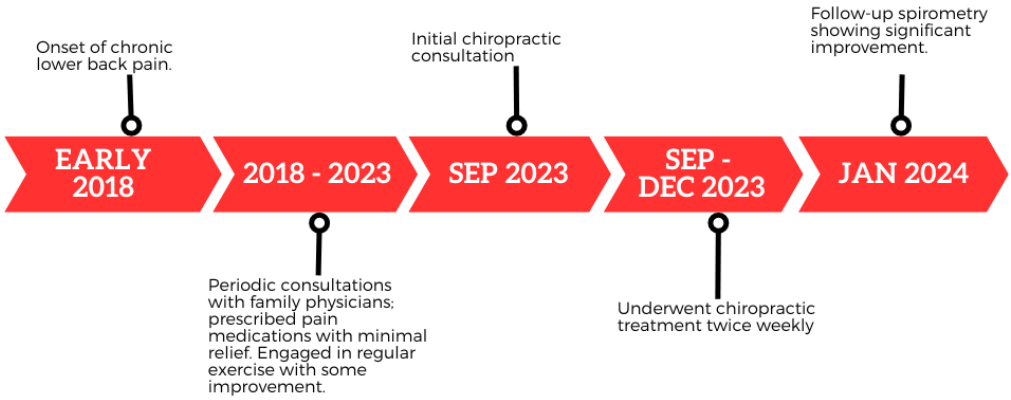

Table 1: Spirometry was also performed and the results showed considerable improvements across all parameters, reflecting the normal function. The Forced Vital Capacity (FVC) remained relatively stable, experiencing a minor decrease from 96% to 95% in 12 weeks. In contrast, the Forced Expiratory Volume in one second (FEV1) showed a significant improvement, moving from 69% to 98%, indicating enhanced lung function following an intervention. The FEV1/FVC ratio, a critical marker of airway function, improved from 59% to 83%, suggesting better overall airway health. Moreover, the Peak Expiratory Flow (PEF), which reflects peak airflow and breathing efficiency, saw a substantial rise from 32% to 87%. Additionally, the Forced Expiratory Flow at 25-75% (FEF25-75), a measure of small airway function, improved dramatically from 60% to 102%, underscoring significant enhancements in small airway health post-intervention.

Parameter	Predicted (Sept 2023)	Best (Sept 2023)	% Predicted (Sept 2023)	Predicted (Jan 2024)	Best (Jan 2024)	% Predicted (Jan 2024)
FVC (L)	4.86	4.67	96%	4.84	4.59	95%
FEV1 (L)	4.00	2.76	69%	3.97	3.90	98%
FEV1/FVC (%)	83%	59%	-	82%	83%	-
PEF (L/s)	9.47	3.05	32%	9.43	8.22	87%
FEV0.75 (L)	2.14	-	-	3.50	-	-
FEV6 (L)	4.62	-	-	4.53	-	-
FEF25-75 (L/s)	4.04	2.43	60%	4.00	4.10	102%

Fig 2: A) Lateral view of postural assessment: the postural assessment revealed increased thoracic kyphosis at 45° (> the normal range of 20-40°), forward head posture at 15-degree anterior translation of the cervical spine, and lumbar hyperlordosis at 60° (>normal range of 30-50°)

B) At 12th week assessment, there were improvements in the head and knees, the shoulders and pelvis showed greater posterior shifts by January, suggesting a compensatory mechanism in postural adjustments.

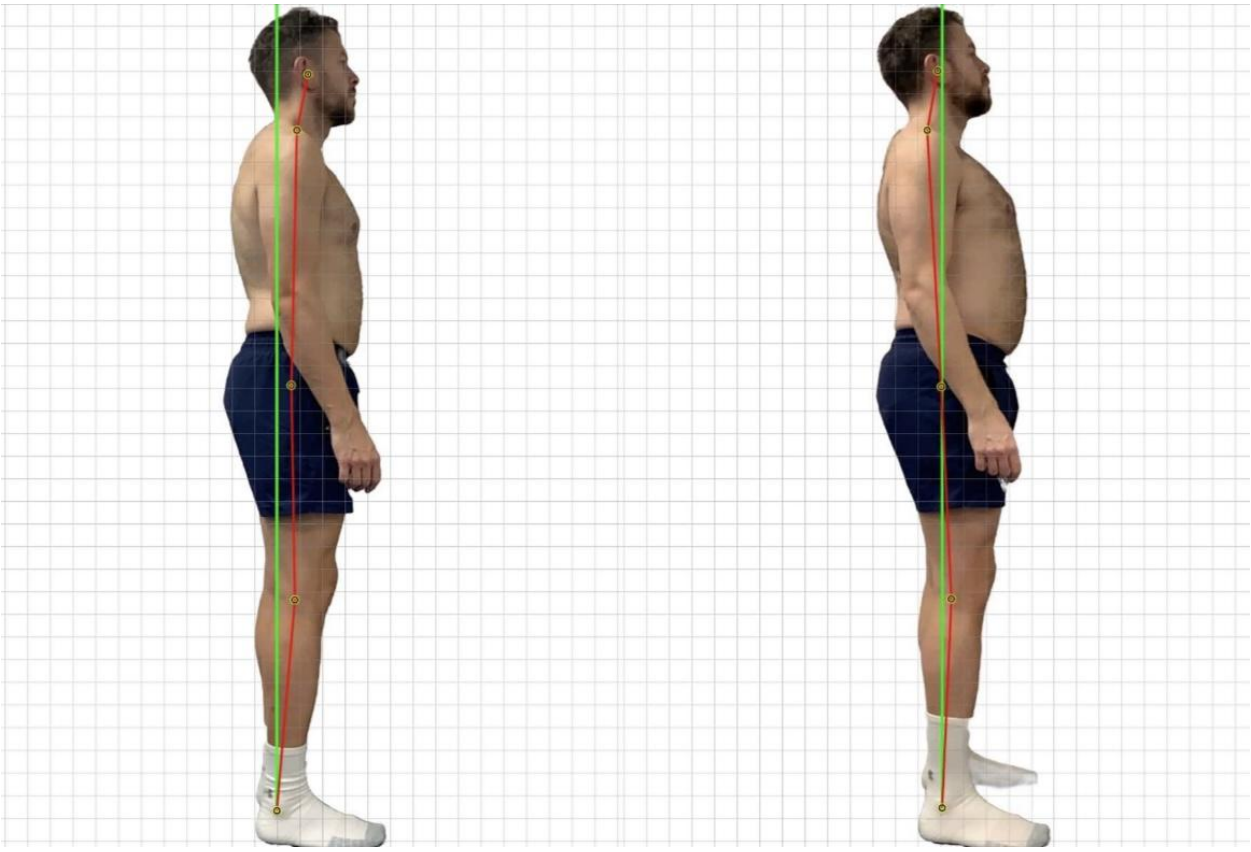

Table 2: The head's forward shift decreased slightly from 2.27 cm to 2.13 cm, indicating a minor improvement in alignment. The shoulders showed a significant change, transitioning from a forward shift of 1.17 cm to a backward shift of 2.86 cm, demonstrating a marked improvement in shoulder positioning. In the hips/pelvis area, the backward shift increased from 0.73 cm to 2.13 cm, suggesting a more pronounced posterior alignment of the pelvis. Lastly, the knees experienced a reduction in their forward shift from 3.74 cm to 1.91 cm, reflecting better alignment and positioning in the lower body. The total deviations increased from 7.90 cm to 9.03 cm, primarily due to the increase in backward shift at the pelvis and shoulders.

Body Region	Shift (Translation) 21/09/2023	Shift (Translation) 08/01/2024
Head	2.27 cm forward	2.13 cm forward
Shoulders	1.17 cm forward	2.86 cm backward
Hips/Pelvis	0.73 cm backward	2.13 cm backward
Knees	3.74 cm forward	1.91 cm forward
Total Deviations	**7.90 cm**	**9.03 cm**

The patient was treated by chiropractic spinal manipulation (ABC™) two times a week for 12 weeks to correct the spinal alignment and posture. High velocity, long lever spinal manipulation was applied at the segments of spinal dysfunction and tightened muscles.

Photography was documented every 6 weeks. At the 12th follow-up visit, the patient denied any symptoms for 3 weeks and remained symptom-free. Posture assessment showed significant improvement from both kyphosis and anterior forehead posture with the total deviations increased from 7.90 cm to 9.03 cm (lateral view) and 3.21 cm to 2.08 cm (frontal view) (Figure 2B, Table 1 and 2). Spirometry was also performed and the results showed considerable improvements across all parameters, reflecting the normal function (Table 3). The data reveals an overall positive trend in respiratory function, which could be attributed to the postural interventions and back pain treatments performed between the two tests.

Fig 3: Anterior view of postural assessment: A) The head showed a minor shift from 0.45 cm to the left. B) At the 12th week re-evaluation, the photo indicates progress in correcting posture, particularly in terms of lateral translation. However, the appearance of head rotation might pose new challenges in maintaining a balanced posture and preventing strain on the upper body.

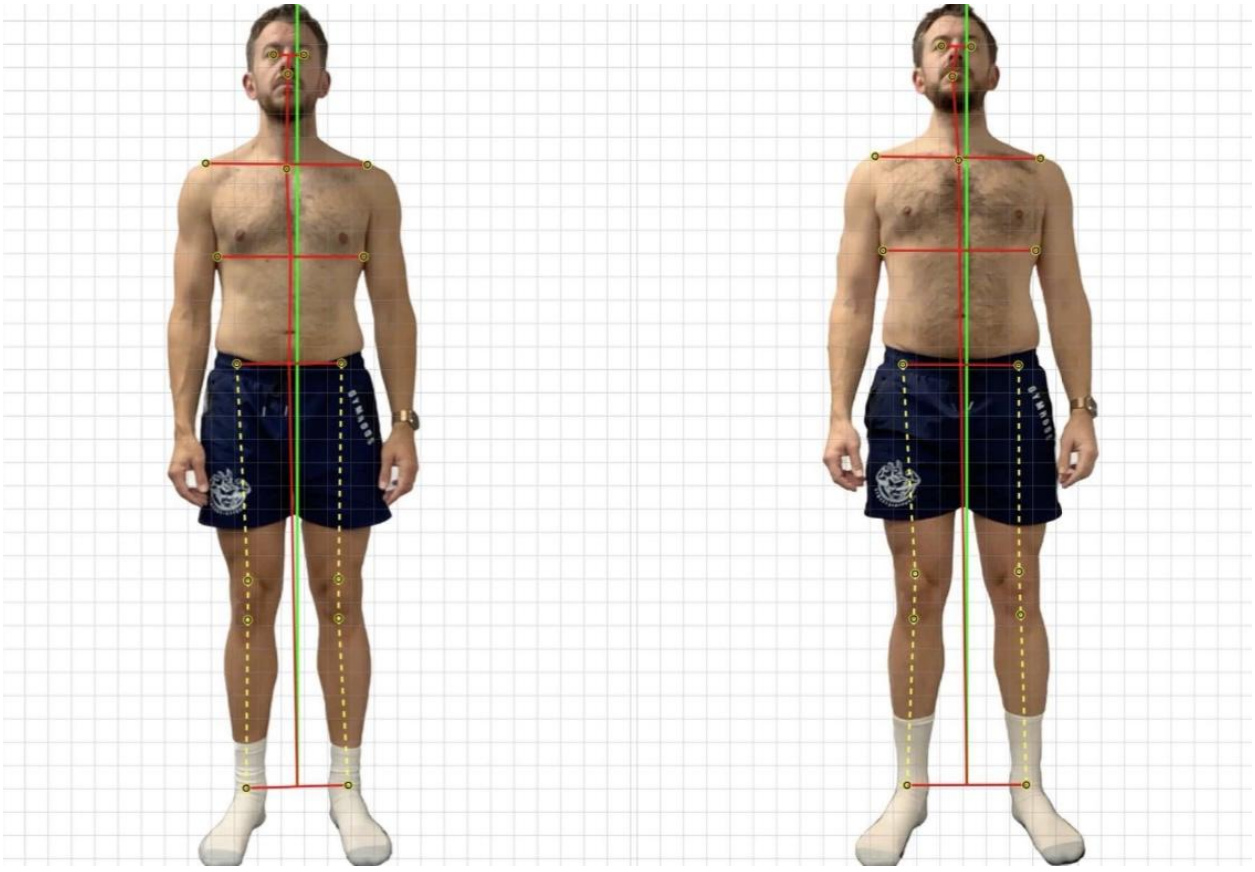

Table 3: At 12th week assessment, the head exhibited a shift from 0.45 cm to the left to 0.48 cm to the right, and a new rotational deviation of 1.4° emerged. This alteration in head positioning could influence upper body alignment and potentially increase neck strain, which might lead to compensatory postural mechanisms. Shoulder alignment saw an improvement as the shift from 0.86 cm to the right was corrected to 0.18 cm, with no rotational deviations noted, likely reducing muscular strain in the upper back and neck areas.

The ribcage also showed a modest correction, shifting from 0.29 cm left to 0.22 cm right, which could help in easing tension within the thoracic region. In the hips/pelvis, a decrease in the rightward shift from 1.61 cm to 1.20 cm was observed. Overall, total deviations in translation improved markedly from 3.21 cm to 2.08 cm; however, the introduction of a 1.4° rotational deviation in the head as of January calls for further examination to avert long-term compensatory adjustments in posture.

Body Region	Shift (Translation) 21/09/2023	Shift (Translation) 08/01/2024	Rotation 21/09/2023	Rotation 08/01/2024
Head	0.45 cm left	0.48 cm right	0°	1.4°
Shoulders	0.86 cm right	0.18 cm right	0°	0°
Ribcage	0.29 cm left	0.22 cm right	n/a	n/a
Hips/Pelvis	1.61 cm right	1.20 cm right	0°	0°
Total Deviations	**3.21 cm**	**2.08 cm**	**0.0°**	**1.4°**

Discussion

The findings of this case study are consistent with existing literature that elucidates the positive effects of chiropractic care on both structural alignment and respiratory function. (7, 8, 9) Numerous studies have reported that Chiropractic care can lead to improvements in postural metrics and subsequently enhance pulmonary function. For instance, research has demonstrated that spinal adjustments, particularly in the thoracic region, can significantly increase lung capacity and improve the mechanics of breathing in individuals with restrictive respiratory conditions. (10)

This case study extends these findings by showing that targeted Chiropractic interventions specifically designed for postural correction can also positively influence pulmonary metrics such as FVC and FEV1, reinforcing the importance of considering spinal health as part of comprehensive respiratory care.

The potential mechanisms behind the observed improvements in respiratory function following chiropractic care may involve several physiological processes. Correcting misalignments in the spine, particularly the thoracic vertebrae, can alleviate mechanical restrictions on the rib cage and diaphragm, enhancing the efficiency of respiratory muscles. (11) Additionally, spinal manipulation may stimulate neural pathways that modulate the tone of respiratory muscle and improve proprioceptive feedback, (12) which is crucial for maintaining optimal lung expansion and airway patency. These mechanisms suggest a direct link between spinal health and respiratory efficiency, highlighting the role of Chiropractic care in managing not only musculoskeletal complaints but also in improving respiratory health.

These findings have practical implications for clinical practice in both Chiropractic and physical therapy settings. They emphasise the need for clinicians to adopt a holistic approach to patient care, integrating posture assessment and correction as a standard component of treatment for patients presenting with respiratory symptoms or chronic back pain.

Furthermore, this case study suggests that routine integration of postural assessments in the clinical evaluation of respiratory ailments could lead to more personalised and effective treatment strategies. Clinicians should consider training in specialised techniques for assessing

and correcting postural imbalances, potentially enhancing the therapeutic outcomes for a wide range of conditions associated with poor respiratory function.

Conclusions

This case study highlights the significant role of *Advanced Biostructural Correction*™ in improving pulmonary function through postural correction in a patient with chronic lower back pain. The observed improvements in spirometry metrics following targeted ABC™ care underscore the interconnectivity between posture, spinal alignment, nervous system function and respiratory health.

These findings suggest that incorporating postural assessment and correction into the standard care regimen could enhance the effectiveness of treatment protocols not only for musculoskeletal disorders but also for respiratory conditions. This study advocates for a broader clinical application of *Advanced Biostructural Correction*™ and invites further research into its benefits across different patient populations, encouraging a more integrative approach to health that bridges the gap between musculoskeletal and respiratory therapy.

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Patient consent for data and images is held by the authors