



Case Reports

Changes in Quality of Life in 7 Older Adult Patients Receiving Activator Methods Chiropractic Technique



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Abstract

Objective: The purpose of this case series is to report on symptomatic and quality of life (QoL) changes in 7 older adult chiropractic patients who were receiving care using Activator Methods Chiropractic Technique (AMCT).

Clinical Features: Seven patients were selected from 2 chiropractic offices in Auckland, New Zealand. Patients were included if they were older adults receiving AMCT care and for whom at least 2 QoL assessments had been performed. The patients, aged 69-80 years, primarily received care for a variety of musculoskeletal complaints.

Intervention and Outcomes: The patients reported improvements in their presenting complaints as well as a number of nonmusculoskeletal symptoms. Each patient demonstrated clinical improvements in their RAND 36-Item Short Form Health Survey (SF-36) results. The average improvement in QoL measured using a SF-36 questionnaire was 8.0 points in the physical component and 4.1 points in the mental component. Four cases had a second progress evaluation using the SF-36 and showed an overall improvement of 5.2 in the physical and 9.8 in the mental components from baseline.

Conclusion: This case series describes an improvement in QoL, as measured by the SF-36 instrument, as well as subjectively reported improvements in both musculoskeletal and nonmusculoskeletal symptoms in 7 older adults receiving chiropractic care.

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Introduction

The older adult population is growing faster than at any other time in history and is expected to increase by an estimated 19% by 2021 in New Zealand alone.¹ Globally, the percentage of older people (aged 60 years or older) increased to 11.7% in 2013 and is estimated to reach 21.1%, or more than double to exceed 2 billion people, by 2050.² There are multiple important issues relating to population aging and older adults which have both economic and social implications. Quality of life (QoL) measures are widely used to determine the impact of health interventions and relate to a person's overall well-being, which naturally declines with age, and are useful even in situations where complete restoration of health may not be possible.³ QoL measures have been shown to correlate with people's ability to remain independent and perform activities of daily living^{1,4,5} as well as their ability to be able to participate in life on many different levels, including physical, social, and mental,⁶ which in turn have positive economic and social effects.

Although it has been suggested that chiropractic care may enhance health and QoL in various patient populations, the body of evidence supporting this claim is limited.^{7–13} One recent clinical trial reported that 12 weeks of chiropractic care for an older adult population positively influenced the RAND 36-Item Short Form Health Survey (SF-36) Physical Component Summary scores compared with the control group.⁷ In addition, a retrospective study of 2818 chiropractic patients using Network Spinal Analysis reported improvements in QoL in 4 domains.¹⁴ A small-scale, prospective follow-up study completed at the New Zealand School of Chiropractic showed an increase in patients' self-rated wellness and increases to both physical and mental/emotional domains of health.¹⁵

At present, there are few case series that chronicle QoL improvements in the older chiropractic patients. The purpose of this case series is to present QoL outcomes in 7 older adults receiving Activator Methods Chiropractic Technique (AMCT) chiropractic care in Auckland, New Zealand.

Case Series

Two chiropractors from practices in Auckland, New Zealand, provided case notes for consenting, current, older adult patients receiving full-spine AMCT (the Activator II instrument was used in all 7 cases) care for

whom at least 2 SF-36⁶ assessments had been performed. Cases were selected if clinical spinal findings were noted in the initial assessment of all patients. Historically, only 1 patient (case 2) reported using any prescribed or over-the-counter medication on a regular basis. None of the patients were given additional lifestyle advice.

The patients were initially seen 1–3 times per week until the 12th visit, at which time they had a progress examination. Each patient followed a unique care plan for a period of time ranging in duration from 5 weeks to 15 months (Table 1). At the progress examination, each patient was asked to report on their overall perceived improvements as a percentage in addition to completing the SF-36. Subjective statements of progress as verbally reported by the patient were recorded on the notes at each visit.

Outcome Measures

The SF-36 measures self-reported physical and mental health status. It consists of 36 questions designed to assess 8 different aspects of QoL, divided into 2 component summary scores: physical and mental.¹⁶ Component summary scores are normalized to have a mean of 50 and standard deviation of 10 based on population norms. The SF-36 has been demonstrated to be a valid and reliable measure of health-related QoL for the New Zealand population^{16,17} Although there is some disagreement in the literature, it appears that improvements in component summary scores of between 2 and 5 represent clinically important changes in QoL.⁷

Chiropractic Management Protocol

Activator Methods Chiropractic Technique, developed by Arlan Fuhr, DC, in 1967, uses a handheld instrument with a blunt stylus to deliver a specific, high-velocity, low-amplitude thrust for the correction of vertebral subluxation. Levels of vertebral subluxation are detected using a series of provocative maneuvers: pressure testing, isolation testing, and stress testing. Following a chiropractic adjustment, these tests are repeated to evaluate for functional changes to the neuroarticular unit.¹⁸ Activator Methods Chiropractic Technique is used with older adults because it may be well suited for the aging spine.^{7,19}

Patient Response to Care

The 7 patients (4 female and 3 male), aged 69–80 years (average age, 74 years), presented for care primarily presenting with a variety of musculoskeletal

Table 1 Patient Care Information

Case	Initial Program of Care	After 1st Progress	After 2nd Progress	Further Care	Total Length of Care	Average No. of AMCT Adjustments per Visit
1	2 visits per week for 6 wk	1 visit per week for 12 wk	1 visit per week for 12 wk		7 mo	5.2
2	2 visits per week for 8 wk	1 visit per week for 12 wk	1 visit per week for 16 wk	1 visit per week for 16	15 mo	7.4
3	3 visits per week for 4 wk (1 × 12) ^a	1 visit per week for 12 wk			8 mo	7.7
4	2 visits per week for 6 wk	1 visit per week for 14 wk			6 mo	6.6
5	2 visits per week for 6 wk				5 wk	6.6
6	2 visits per week for 6 wk				5 wk	6.4
7	1 visit per week for 3 wk	1 visit every other week for 12 wk			6 mo	5.2

AMCT, Activator Methods Chiropractic Technique.

^a Care committed to by the patient.

conditions. Courses of care ranged from 5 weeks to 15 months at an initial visit frequency of 1 to 3 visits weekly for 4 to 8 weeks of care. The average number of adjustments administered per visit ranged from 5.2 to 7.7, with an overall average of 6.4 (Table 1). By the 12th visit, each patient demonstrated clinical improvements in their SF-36 results. The average improvement in SF-36 score across all 7 cases was 8.0 points for the physical component and 4.1 points in the mental component (Table 2). Four cases had a second progress evaluation using the SF-36 and showed an overall improvement of 5.2 in the physical and 9.8 in the mental components (Table 3). All patients subjectively reported improvements in symptoms, health, and/or QoL. Six of the 7 patients provided an overall perceived percentage improvement at their initial progress examination, and the average improvement among the 6 was 60%. Details of each individual case are below. All patients provided consent for their health information to be published.

Case 1. A 79-year-old man presented with leg pain with low back pain that began in his early 30s. Moderate to severe degenerative disk disease and mild osteoporosis were noted. The pain radiated to his buttocks, posterior calves, and feet but spared the left second and third toe. The leg pain was rated 4/10, but the buttock pain was rated 6/10 and described as a dull ache. Sitting was palliative and standing provocative. Physical examination revealed reduced left cervical and lumbar lateral flexion, and positive left Standing Kemps test. Initial SF-36 scores were measured at 45

and 53 for physical and emotional components, respectively.

After 5 visits, the patient reported “feeling better, body improving.” On the sixth visit, he reported “not [being] in agony.” After 12 visits, the patient stated he was “feeling good, reduced back pain and reduced leg pain.” At the 13th visit: “feeling good, nothing to complain about, sleeping has improved.” At the 25th visit: “feeling great.” The patient noted a decrease in pain and frequency of pain in his low back and left leg. The patient was more comfortable when sitting and lying, and had noticed reduced stress and improvements in state of mind, energy levels, and eating habits, stating a 50% overall improvement. At the second evaluation of SF-36, component scores had both increased to 52 for physical and 54 for emotional markers.

Case 2. An 80-year-old woman presented with low back pain, intermittent buttock pain, and left knee numbness following a surgical fusion of L4 and L5. She had a 40-year history of hypertension and dizziness causing unsteadiness when performing activities of daily living. She routinely used a walking stick and had handles installed in her shower for support. Physical examination revealed postural changes of increased thoracic kyphosis, forward head carriage, and restricted cervical range of motion (flexion 40°, extension 40°, left lateral flexion 20°, and right lateral flexion 30°). Initial SF-36 scores were measured at 42 and 23 for physical and emotional components, respectively.

After 2 visits, the patient reported that she had noticed “not being dizzy when washing hair, haven’t been able to do that for years.” At the ninth visit, the

Table 2 SF-36 Physical and Mental Component Score Summary of All 7 Subjects (Initial to Progress 1)

	Initial Physical Component Summary	Progress 1 Physical Component Summary	Initial Mental Component Summary	Progress 1 Mental Component Summary
Case 1	45	53	53	40
Case 2	42	42	23	26
Case 3	50	56	32	24
Case 4	43	37	44	62
Case 5	46	53	43	38
Case 6	32	57	44	52
Case 7	30	46	33	58
Average	41	49	39	43

patient reported “walking down stairs without having to hold anything” and was “able to vacuum areas of the house I have not been able to vacuum for over 2 years.” At the 13th visit, the patient reported that her “balance is better.” Cervical range of motion was reassessed after 16 visits, revealing flexion 65°, extension 50°, left lateral flexion 40° and right lateral flexion 35°. In addition, the emotional component SF-36 score had increased to 26. After 20 visits, she reported “no longer using a walking stick, has better posture, and can get in and out of the car with relative ease.” At the 21st visit, she reported that she “ran round the house three times,” and at the 34th visit, she was “able to stand for more than an hour at a time comfortably and unassisted”. After 38 visits: “blood pressure is ok.” After 57 visits: “blood pressure has been low (76/56) and feeling unwell.” After 59 visits: “BP has returned to ‘normal’ consistently and medical doctor has taken her off her hypertensive medication after almost 40 years of taking them.”

Case 3. A 74-year-old woman presented with progressive bilateral cervicothoracic neck pain of 6 weeks’ duration with no specific cause for onset. The pain was constant and exacerbated by movement, especially cervical rotation. The pain worsened throughout the day, although Panadol and heat were palliative. She reported crepitus with movement and the feeling of head “heaviness.” Physical examination revealed reduced cervical lateral flexion with dull achy pain from C5 to C7 on the left. Maximum compression elicited bilateral 4/10 pain at C6/C7, modified Spurling test elicited right 3/10 achy pain from C4 to C7, and Jackson compression test produced 4/10 right pain at C6/C7 and left pain at C3-4 with the patient complaining of “creakiness.” Shoulder depression caused shoulder muscle discomfort bilaterally. Moder-

ate degenerative disk disease, intervertebral foramina narrowing, mild osteoporosis, and facet arthrosis were found on cervical radiographs. Initial SF-36 scores were measured at 50 and 32 for physical and emotional components, respectively.

At the third visit, the patient reported “more energy and more clarity.” By the 14th visit, the patient reported that she was “able to go about daily life with no mindfulness of pain or restriction,” and at the time of the 21st visit, she reported feeling “a little creaky every now and again but feeling fantastic.”

The first progress examination revealed an increase in cervical lateral flexion, and Jackson compression test result was no longer positive. The patient reported a 70% overall improvement. She noticed improvement in “sleeping and a general feeling of good health.” She indicated more comfort when walking, sitting, and sleeping, and improvements in state of mind, energy levels, sleep, strength, stamina, well-being, fuzzy head, and alertness.

At the second progress examination, there was an increase in cervical extension, and the shoulder depression test result was no longer positive. Her SF-36 component scores had both increased: 54 for physical and 58 for emotional. The patient reported “much less neck pain, more energy and vigor returned.” An overall improvement of 90% was noted, with improvements in breathing, state of mind, energy levels, sleep, strength, stamina, well-being, fuzzy head, and alertness level also noted.

Case 4. A 69-year-old man presented with a primary complaint of localized bilateral cervical pain. He “whacked his head very hard” on the roof of a car 5 years previously (2008) while getting out of the car and had suffered from recurrent neck pain, graded 5/10, ever since. The pain occurred with headaches referring superiorly to the bilateral forehead and behind the eyes approximately 3-4 times a week, and was exacerbated by flexion and relieved by other cervical movements and heat. He also presented with right-sided low back pain at L4/L5, graded 5-7/10, exacerbated when standing up and getting up from lying or sitting. The pain was worse at the end of the day. Patient history revealed that 2 myocardial infarctions, complete loss of vision in his right eye and partial loss of vision in his left eye, Meniere disease, anosmia, chronic obstructive pulmonary disease, and multiple regional surgeries were concomitant conditions. Physical examination revealed reduced lumbar and cervical lateral flexion and cervical rotation. Maximum cervical compression test, cervical distraction, shoulder depression, and modified Spurling tests elicited 4/10 pain over the

Table 3 SF-36 Physical and Mental Component Score Summary of 4 Subjects (Initial to Progress 2)

	Initial Physical Component Summary	Progress 1 Physical Component Summary	Progress 2 Physical Component Summary	Initial Mental Component Summary	Progress 1 Mental Component Summary	Progress 2 Mental Component Summary
Case 1	45	53	52	53	40	54
Case 3	50	56	54	32	24	58
Case 4	43	37	46	44	62	62
Case 5	46	53	53	43	38	38
Average	46	50	51	43	41	53

entire cervical spine. Standing and Seated Kemps, and Yeoman tests elicited pain at L4/5 graded as 5/10. Straight leg raise test elicited pain in the left hip. Initial SF-36 scores were measured at 43 and 44 for physical and emotional components, respectively.

At the fourth visit, the patient reported “low back feeling much better.” At the sixth visit, he said that he “haven’t taken as many anti-inflammatories this week due to reduced back pain.” On the first progress examination, the patient exhibited improved lumbar and cervical lateral flexion and cervical rotation. Maximal cervical compression test, cervical distraction, and modified Spurling tests no longer elicited pain. Shoulder depression and Jackson compression tests elicited a reduced 3/10 pain over the entire cervical spine. The patient reported improvements in his state of well-being and state of mind, was more comfortable when lying down, and stated that he had experienced an improvement of 70% overall in his symptoms. At the 13th visit, he was “feeling fantastic.” At the 17th visit, he reported that “[he] has been absolutely stunning.” At the second progress examination, Jackson compression test no longer elicited pain, and shoulder depression elicited minor pain only at the left occiput. The patient reported a 90% overall improvement in his symptoms and other subjective improvements in walking, sitting, lying and sleeping, digestion, toilet habits, breathing, state of mind, energy levels, sleep, strength, stamina, well-being, exercise, and alertness, and reduced stress. The SF-36 component scores had both increased to 46 for physical and 62 for emotional.

Case 5. An 80-year-old woman presented with insidious dull pain at her cervicothoracic (C7/T1) junction rated at 5/10, which had been present “for years.” Movement, getting up from sitting too quickly and head extension, provoked pain. Pain was relieved by not moving her neck and taking paracetamol. Dizziness was also associated with her neck pain and was provoked by extending her neck, rising from a seated position, and rapid head movement. Dizziness

occurred once a week and had been present for 15 years. No other physical examination findings were noted during her initial consultation. Initial SF-36 scores were measured at 46 and 43 for physical and emotional components, respectively.

At the second visit, the patient reported “feeling good, less dizzy spells.” At the third visit, she reported “feeling really great, less giddy, did 45 minutes of aerobics this morning.” At the sixth and ninth visits, she reported “no dizziness.” At the progress examination, the patient reported that she was more comfortable sitting and felt she had an improved well-being and noted a 60% overall improvement in her symptoms. By the second progress examination, the physical component SF-36 score had increased to 53, whereas the emotional component score had declined by 5.

Case 6. A 74-year-old woman presented with a chronic bilateral local ache at the thoracolumbar junction that had been present since she sustained a compression fracture at L1 5 years previously. The pain was worse when performing activities like housework and was described as an intermittent dull ache that was rated at 6/10. She reported difficulty breathing since developing the stress fracture. She also presented with pernicious anemia of 2-3 years’ duration, restless leg syndrome of 40 years; duration, and hypothyroidism, which were all medically managed. Physical examination revealed that maximum cervical compression elicited localized left 3/10 pain in the upper neck; Jackson compression test elicited mild left localized neck pain in the lower cervical spine. Chest expansion was decreased because of hyperkyphosis, and seated Kemps test caused mild pain in her right groin. Initial SF-36 scores were measured at 32 and 44 for physical and emotional components, respectively.

After the third visit, the patient reported “feeling good,” and she said she was “moving a bit better than yesterday.” After the 10th visit, she reported “feeling pretty good today.” After the 12th visit, she reported

that she was “feeling okay today.” At the progress examination, she reported a 10% overall improvement; she was more comfortable when sleeping and had improved general well-being. On the 12th visit, there was a 10° increase in left cervical rotation and maximum cervical compression, Jackson compression test no longer elicited pain, and the SF-36 component scores had both increased to 57 for physical and 52 for emotional.

Case 7. A 71-year-old man presented with low back pain rated as 9/10 and was recovering from surgical fusion of L4 and L5 to correct an L4 degenerative spondylolisthesis and surgical removal of a cyst located on the anterior surface of the L4 posterior arch. The surgery had taken place 3 months before his initial presentation to the chiropractor. His health history revealed repetitive sporting injuries due to running 21 marathons in his lifetime, surgical procedures to remove varicose veins, and repair of a double hernia. Physical examination revealed generalized reduced cervical and lumbar range of motion, and standing Kemps test elicited local pain at L3-L5. Radiographic examination revealed mild osteoporosis, moderate degenerative joint and disk disease of the spine, advanced degenerative joint disease of the left medial knee, and degenerative anterolisthesis of L4 upon L5. Initial SF-36 scores were measured at 30 and 33 for physical and emotional components, respectively.

After the fourth visit, the patient reported “low back still a bit sore but on the up. I ran 5 km last night.” After the 10th visit, he “did a 3 km cross country run on the weekend.” The patient reported a 60% overall improvement in symptoms and indicated improvements in stress levels, toilet habits, sleep, general well-being, strength, and state of mind. At the progress examination, improvement was observed in cervical flexion, left lateral flexion, and bilateral rotation. An improvement in lumbar flexion, extension, lateral flexion, and rotation was also noted. Standing Kemps test no longer elicited pain at the first progress examination. The SF-36 component scores had both increased to 46 for physical and 58 for emotional.

Discussion

This case series chronicled the QoL changes as measured by the SF-36 instrument and subjective statements in 7 older adult patients receiving AMCT chiropractic care. Each of the patients selected for this case series demonstrated clinically important improvements in SF-36 scores and subjectively reported

improvements in symptoms, health, and/or QoL, both musculoskeletal and nonmusculoskeletal. Overall, the average improvement in the physical component of QoL measured using a RAND36 questionnaire was 8.0 points and the improvement in mental component was 4.1 points, which appear to be clinically important changes.⁷

Overall positive results were seen in both musculoskeletal and nonmusculoskeletal presentations, and patient-perceived QoL. There is limited current research investigating the effects that chiropractic care has on QoL. However, the findings from this case series are congruent with some previously reported studies that investigated the effects of chiropractic care on QoL.^{7,13–15} This supports the use of chiropractic care to promote the health of older adults.

Limitations and Future Research

Study limitations include a small sample size, lack of a control group, and inability to completely control for confounding factors such as alternative interventions. In addition, health care records may not have contained all relevant data given the retrospective nature of case series reports.

As causal inference cannot be ascertained from case series reports, it is not possible to definitively identify what specifically contributed to the reported improvements in subjective and objective findings in this case series; however, several hypotheses can be formulated. Given that all patients in this case series presented for care primarily for musculoskeletal complaints, it is possible that a decrease in pain or discomfort may have led to an increase in QoL. In addition, patient-reported nonmusculoskeletal changes following chiropractic care have previously been documented in the literature.^{8,20} Improved neurological function and sensorimotor integration as a result of addressing vertebral subluxations may be another explanation for the increase in QoL indicators throughout this case series.^{21,22} Alternatively, the QoL improvements could be a result of both decreased pain and an increase in neurological function, or a result of another reason such as placebo effect or natural progression. The use of pharmaceuticals, although denied by most patients reported above, even sporadically could contribute to improved self-reported improvements in QoL.

Another contributing factor to consider relates to the concept of therapeutic nihilism which describes one particular barrier to recovery where health care providers and older patients themselves may believe that the older patient cannot recover as fully as a younger patient, leading to failure to seek or provide treatment due

to limiting beliefs.^{23,24} It is possible that chiropractic care is less prone to therapeutic nihilism and so is better able to promote the health of older adults.

Further clinical research is required to evaluate the relationship between chiropractic care and QoL and what roles chiropractors may play in caring for older adults, specifically pertaining to overall QoL. General and older adult populations tend to visit chiropractors mostly for musculoskeletal complaints, especially neck and back pain^{25,26}; however, as individuals age, the likelihood of developing chronic conditions and disease that negatively impact QoL increases, illustrating the value of interventions such as chiropractic care that may improve QoL even when complete restoration of health has been commonly viewed as unlikely.

Conclusion

This case series describes improvement in QoL as measured by the SF-36 instrument as well as subjectively reported improvements in symptoms, health, and/or QoL, both musculoskeletal and nonmusculoskeletal, in 7 older adults receiving chiropractic care using AMCT. Considering the dramatic expected increase in the older adult population into the future, further clinical research investigating the role of chiropractic care and its effect on QoL in caring for older people is warranted.

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No funding sources or conflicts of interest were reported for this study.

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