

# Improved motor function with Bowen therapy for rehabilitation in chronic stroke: a pilot study

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## ABSTRACT

**INTRODUCTION:** Bowen therapy is an established complementary therapy with anecdotal reports of effectiveness. However, there is limited published research to substantiate safety or effectiveness. This is a pilot study to explore the potential impact of Bowen therapy in chronic stroke.

**METHODS:** A case series of 14 people with chronic stroke were offered 13 sessions of Bowen therapy over a three-month period.

**RESULTS:** Motor assessments of the 13 people who participated showed improvements—gross motor function trended to improvement; SF-36 role-physical, physical health summary scale and total SF-36 scores showed statistically significant improvements. However, grip strength reduced.

**CONCLUSIONS:** In this pilot study, Bowen therapy was associated with improvements in neuromuscular function in people with chronic stroke. At this stage of study, it is not possible to conclude that there is definite benefit; however the results suggest that exploration through further research is appropriate.

**KEYWORDS:** Bowen Therapy; stroke; rehabilitation

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## Introduction

Bowen therapy is an established complementary therapy. Even a cursory search on the Internet demonstrates a widely spread network associated with this practice and also a range of unstructured evidence published in that medium.<sup>1-3</sup> Developed in the mid-1900s by Thomas Bowen, its worldwide network of practitioners includes those providing Bowen therapy to horses<sup>4</sup> and also cats and dogs.<sup>5</sup>

Bowen technique involves light touch on muscles, tendons and connective tissues. It is not like the firm pressure of massage or many physical therapies. However, while there is much anecdotal information about its purported effectiveness, there is little published formal research on

the topic in the mainstream global biomedical literature.<sup>6-7</sup> In New Zealand, recent research has shown community use of complementary and alternative medicines of 23% over a 12-month period<sup>8</sup> and anytime use of 91% in a hospital inpatient survey<sup>9</sup> whilst there is still a paucity of published research to indicate safety or efficacy of such therapies.

In association with a local practitioner who reported improvements in people with stroke, it was decided to explore the use of Bowen therapy in a more structured manner. This report details a small case series (14 people) with chronic, stable stroke to identify the potential impact of Bowen therapy in such a group and assess whether there might be any value in further research.

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## Methods

A group of people (N=16) were identified through local support groups or general practitioners. All were interviewed to assess whether they fitted the following general criteria:

- **Inclusion criteria:** established, stable stroke >1 year since event and left with a significant physical disability.
- **Exclusion criteria:** still receiving active physical treatment of some description (e.g. physiotherapy, massage, acupuncture or some other form of manual therapy) or had previously received therapy with Bowen therapy following a stroke.

One interviewee was unable to attend weekly Bowen therapy sessions and one did not satisfy inclusion criteria.

Fourteen people were offered the intervention with one withdrawing, prior to receiving any Bowen therapy, because of ill health, with 13 people completing the study.

All participants were assessed against the following outcome measures: Barthel Index, Motor Assessment Scale (MAS), Grip strength, Nine-Hole Peg Test (9-HPT), Timed Up and Go (TUG), Key Pinch Test, Mini-Mental State Examination (MMSE) and the SF-36.

The Barthel Index is a measure of functioning with respect to activities of daily living. It is well-established in the care of people with stroke or other neuromuscular or musculoskeletal disorders.<sup>10-11</sup> The MAS is a performance-based scale that provides a measure of everyday motor function in patients with stroke.<sup>12</sup> Grip strength is a general measure of hand functioning.<sup>13</sup> The 9-HPT measures fine manual dexterity. It can be used with a range of populations, including people with stroke.<sup>14</sup> The TUG is a general physical performance test used to assess mobility, balance and locomotor performance in elderly people with balance disturbances.<sup>15</sup> The MMSE is a reliable, brief tool for assessment of cognitive functioning. The SF-36 is a reliable, validated short-form health survey of 36 questions, yielding an eight-point subscale profile of functional

health and well-being scores, physical and mental health summary measures and an overall total score.<sup>16</sup> An increase in score correlates with improved functioning. This applies across the scales.

An independent physiotherapist and occupational therapist assessed all participants immediately before the Bowen therapy and then again after the 13 treatment sessions. The physiotherapist assessment included the MAS and TUG. The occupational therapist assessment included the Barthel Index, grip strength, 9-HPT and MMSE. The SF-36 was self-completed by participants. No participants were receiving other therapies specific to their stroke functioning during the intervention period.

Barthel Index scores and MAS scores were assessed using non-parametric techniques (Wilcoxon signed-rank test), with the remaining scales being assessed using parametric techniques (paired samples *t*-test).

Bowen technique was provided by a Bowen therapist who is a practitioner member of New Zealand Bowen Therapy Incorporated, trained to the 'Master' level. Treatment sessions occurred weekly and took between 30 and 60 minutes to complete. The therapist followed standard Bowen therapy techniques; however specific treatment approaches varied for each individual depending on their presenting functional deficit. Similarly, there were variations between sessions, dependent on the functional response of the individual participant.

The study received approval by the Tairāwhiti Regional Ethics Committee. Informed consent was obtained for all participants.

## Results

The 13 participants ranged in age from 43 to 82, the average age being 64. There were 10 women and three men in the group, with 11 identifying as European and two as Māori. Time since last stroke ranged from 15 months to 14 years, with an average of 5.5 years since last stroke.

Table 1 summarises the test results for the participants. Assessments of outcome measures

were performed for all 13 participants prior to and immediately following the 13 Bowen therapy treatments with complete SF-36 data available for 12 of the participants.

Interpretation of Barthel Index scores was limited in that only two participants had scores less than 95/100. One, whose score was 72 at entry, moved to 74 after the intervention and the other participant moved from a score of 81 to 97.

Although possible trends to improvement can be seen in measures such as the TUG and the 9-HPT, only the MAS demonstrated a statistically significant improvement ( $z=-2.354$ ,  $N\text{-Ties}=9$ ,  $p=0.019$ , two-tailed).

MMSE scores indicated that the participants were cognitively intact: one person with severe dysphasia scored 4/30; all other participants scored 29 or 30/30.

Total scores for the SF-36 improved, as did all subscale scores (Table 2). Wilcoxon signed-rank tests were carried out to explore changes in SF-36 subscale scores, Mental and Physical Health Summary scores and total SF-36 scores over time. Improvements seen on the Role-Physical subscale

### WHAT GAP THIS FILLS

**What we already know:** Whilst there is widespread use of complementary therapies in the community, there is little structured evidence about such therapies including Bowen therapy. Bowen therapy practitioners report improvements, including in animals, in a range of problems, primarily musculoskeletal.

**What this study adds:** This structured study suggests that Bowen has an impact on chronic stroke. It gives a measure of effect which could assist power calculation for further work. It suggests that there is evidence of benefit and, at worst, that the modality offers no evidence of harm in this group.

( $z=-2.372$ ,  $N\text{-Ties}=8$ ,  $p=.018$ ), the Social Functioning subscale ( $z=-1.983$ ,  $N\text{-Ties}=7$ ,  $p=.047$ ), the Physical Health Summary scale ( $z=-2.275$ ,  $N\text{-Ties}=12$ ,  $p=.023$ ) and the total SF-36 score ( $z=-2.118$ ,  $N\text{-Ties}=12$ ,  $p=.034$ ) were all statistically significant.

### Additional reported changes at individual level.

Two participants with no functioning in an affected limb gained useful functioning during the period of the intervention. Another participant was able to complete the 9-HPT at the end of the

Table 1. Outcome measures prior to and after Bowen therapy

Measure (n) <sup>‡</sup>	Mean start values (SD)	Mean end values (SD)	Percentage change	P-value
Barthel Index score (13)	95.46 (8.75)	96.92 (7.21)	1.53%	.244 <sup>§</sup>
Motor Assessment Scale (13)	34.00 (7.78)	35.31 (8.31)	3.85%	.019 <sup>* §</sup>
Grip strength (26) <sup>‡</sup>	37.32 (28.18)	34.99 (28.70)	-6.24%	.284 <sup>†</sup>
Nine-Hole Peg Test (23) <sup>‡</sup>	24.39 (11.68)	23.58 (10.95)	-3.32%	.386 <sup>†</sup>
Timed Up and Go (12)	23.01 (13.69)	20.20 (10.29)	-12.21%	.126 <sup>†</sup>
Key Pinch (26) <sup>‡</sup>	13.34 (7.16)	12.65 (7.15)	-5.17%	.164 <sup>†</sup>

\*  $P < .05$

§ Wilcoxon signed-rank test

† Paired samples t-test

‡ Hands assessed individually

Table 2. Subscale, physical and mental health summary scales and total scores on SF-36 testing

Measure (n=12)	Pre-intervention	Post-intervention	Percentage change	P-value
Physical Function	37.5	52.1	38.9%	.071
Role-Physical	35.4	62.5	76.6%	.018 *
Body Pain	71.3	73.8	3.5%	.624
General Health	59.3	69.7	17.5%	.126
Vitality	56.3	62.1	10.3%	.413
Social Functioning	70.8	84.4	19.2%	.047 *
Role-Emotional	72.2	83.3	15.4%	.577
Mental Health	79	83.3	5.4%	.265
Reported Health	62.5	72.9	16.6%	.558
Physical Component Summary	51.9	64	23.3%	.023 *
Mental Component Summary	67.5	76.6	13.5%	.158
<b>TOTAL SF-36 SCORE</b>	<b>60.2</b>	<b>71.4</b>	<b>18.6%</b>	<b>.034 *</b>

\* P<.05

intervention (albeit very slowly—three minutes to complete).

A further participant went from barely being able to stand up from sitting, to completing the task in a normal fashion by the end of the intervention.

### Discussion

This case series begins to explore, in a systematic fashion, the impact of Bowen technique. While exploratory, it suggests that further investigation of the application of Bowen therapy to people with chronic stroke is warranted. The nature of case series where there is no control group and participants are aware of the study nature, inevitably brings bias into play and any positive results have to be considered in this light.

All participants were positive about the experience of Bowen therapy and all felt better after the intervention. This is usual for most therapies, and, at face value, does nothing to validate the modality. However, the small and measurable changes in muscular functioning do merit comment. The consistent finding of a reduction in grip strength is notable: this suggests that there is some physical impact of the therapy. While it may seem a paradoxical

finding, in that improving grip strength is often the goal in rehabilitation therapy, the reduced grip strength may have reflected less muscle spasm allowing improvements in fine motor recruitment of muscles and improved function as supported by trends to improvement in measures of dexterity (TUG and 9-HPT). It would be useful for any future research in this area to also incorporate direct outcome measures for spasticity.

A result of particular note in the grip strength series is that two participants, with no grip strength in the stroke-affected arm, developed useful strength after the intervention.

While Barthel Index scores were part of the assessment, the high scores at entry for the majority of participants meant that this was not a useful measure in the context of this study. It is interesting to note, however, that one participant with a low Barthel's score on entry improved substantially during the study period (from 81 to 97) although the participant with the lowest score improved only marginally from 72 to 74. The individual with the large improvement in their Barthel Index score also required less carer support subsequently with activities of daily living. Clearly, this may be a coincidental finding.

While most of the changes in scores seen across functional measures do not reach statistical significance, this may be a function of small numbers in this study.

SF-36 scores showed consistent improvements for participants. This suggests that, at least, the intervention did not have a detrimental impact on participants. In the absence of a control group, any further interpretation is limited.

There is little published research in the mainstream biomedical literature about the efficacy of Bowen therapy. We could find two reports, both relating to a study of Bowen therapy in frozen shoulder.<sup>6-7</sup> That work showed improvements for participants and also concluded that further study was merited. There is research published on the Internet, for example, the Bowen Technique National Migraine Research Program<sup>17</sup> and many anecdotal reports.<sup>18</sup>

We recognise that this brief pilot study is limited: it is a case series, with all the inherent limitations of that approach. However, Bowen therapy does appear to have potential benefit, warranting further investigation, for people with chronic stroke where neurological and functional recovery normally plateaus within the first five months post-stroke.<sup>19</sup> We recognise that offering a therapy to people who may seem to have reached the end of rehabilitative options is more likely to induce a response; however, that there is measurable change, especially in an unsuspected direction, suggests that further research is valid. Any such research should include a control group or control groups. This will present challenges of determining a valid control and also addressing blinding.

In summary, while this report is an early assessment of the impact of Bowen therapy in chronic stroke, the improvement gained suggests further investigation is appropriate. This is generally a group of people in whom mainstream medicine has decided that the best functioning level has been reached. Even if Bowen therapy is not the direct reason for this change, it suggests that we may need to reconsider interventions at later stages of stroke, as assumptions of a peak of recovery may not be correct.

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## COMPETING INTERESTS

None declared.