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A retrospective case study looking at the effectiveness of the 'Springback™ treatment for restoring spinal function in patients with chronic low back pain (LBP)

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1.0 Abstract

Background: Chronic back pain is a major problem according to the Clinical Standards Advisory Group1, despite current treatments. A new method of treating chronic back and neck pain was developed by the Springback™ clinic, incorporating power assisted mobilisation, which remains to be accepted by main stream medicine, despite apparently good results.

Aims: To assess the results of the last 58 cases treated by an experienced therapist at Springback™, looking at the treatment's ability to restore mobility and relieve pain.

Methods: 58 patients seen at Springback™ from 13 June to 12 August 2008 were sent a letter about the study, a consent form, a questionnaire asking details of their pain history

and treatment they had tried. They were asked about the results of their Springback™ treatment. Results: 58 out of 70 patients [83%] had agreed to enter the study; 48.28% had chronic mechanical neck or back pain, 18.56% had sciatica, 29.31% had degenerative spines, while 3.45% were post surgical or had listhesis. 50% had combined neck and back pain and 62% had suffered some injury. 40% had benefit from exercise therapy, 31% benefited from osteopathy, 22% benefited from physiotherapy, only 20% found injections helped and 18% benefited from chiropractic. 90% of the 58 patients said the Springback™ therapy helped; with increased mobility and much less pain.

Conclusions: These results merit further study, in order to determine if this method of treatment will bring significant long-term benefit to patients with chronic neck and back pain.

2.0 Key words

Back and neck pain, mobilisation and devices.

3.0 Aim of the Study

To assess the results of the last fifty-eight cases treated by a therapist at the Springback™ clinic, with respect to the treatment's ability to relieve chronic back and neck pain, by restoring spinal mobility and function.

4.0 Introduction

The author is an independent consultant occupational physician covering a wide range of industry in the West Midlands and Wales and he is aware of the major cost of sickness absence on industry and the NHS, due to chronic back pain. He is also aware of the government's recent drive to reduce the numbers of people in the UK on long term incapacity benefit, especially with chronic back pain.

The author has seen many severe cases of chronic mechanical back pain or 'failed backs' that do not seem to have received optimal treatment under the current system.

The evidence shows that at least 90% of acute mechanical low back pain (LBP) episodes will recover well within six weeks and they will be able to return to their usual work1. Unfortunately many people continue to suffer severely with chronic back pain, despite receiving maximum analgesia from their doctors, excellent surgery from spinal surgeons and also many sessions of physiotherapy or manual therapy from osteopaths and chiropractors. There is strong evidence that the longer an employee is off work with low back pain, the lower are their chances of ever returning to work. After 1-2 years absence it is unlikely that they will return to any form of work in the foreseeable future, irrespective of any further treatment2.

The Springback™ treatment also incorporates the use of a device; called the Power-Assisted Mobilisation (PAM) tool, which seems to assist an experienced therapist in more effectively mobilising the whole spine, while allowing the natural healing process to take place, according to its inventor, Robert Taylor. Usually there is a dramatic restoration of spinal mobility and a subsequent relief of chronic and disabling back or neck pain. The author first saw this machine or 'tool' demonstrated in 1997/8 at an airbase by a physiotherapist, who found it greatly helped the many chronic back cases and also the fast jet pilots with their back pain, due to prolonged sitting in cramped cockpits.

5.0 Methods

5.1 Population to be studied and the criteria for inclusion

At this stage, the author wanted to investigate approximately 70 cases seen at the Springback clinic (between the 13

June 2008 and the 12 August 2008), and he found that 58 (83%) agreed to take part. The last 70 cases were chosen to avoid any risk of errors in selection.

5.2 Controls
Not required at this preliminary stage for a case study.

5.3 Design
Retrospective case study using an anonymous patient identifying code.

5.4 Group code and chronicity
A group code would be used to designate cases into groups 1-5, as used in a similar Oswestry study: -

Group 1 – chronic mechanical backache, without evidence of degenerative changes
Group 2 -- prolapsed intervertebral disc and sciatica
Group 3 – degenerative spinal disorder (Based on patient records and investigations)
Group 4 – spondylolysis and/or listhesis (Based on patient records and investigations
Group 5 – post surgical patients with chronic pain

The author planned to look at chronicity in years, as with the Oswestry study, i.e. whether the patients were working, not working or retired, or not working due to their back problem and he also asked them about the effects on their lifestyle; what areas were painful and their views on the likely causes. See 6.3 and 6.4 below.

5.5 Other measurements
See 6.6 below; they were asked what areas had been affected; lower back, leg pain, neck pain etc. Also, if there was any history of accidents, either at home or work, sports injury, any diagnosis of arthritis or osteoporosis; see 6.7. The author asked about the types of medication and physical treatment they had received; such as surgery, physiotherapy, manipulation, acupuncture and how effective it had been; see 6.8.

5.6 Measurement of response
The author asked how they heard about the Springback clinic; when did they start treatment; were they told all about the treatment; had it been beneficial and how many treatments had they had. Some of these patients had been coming to Springback for a number of years from all over the UK and from abroad, for regular top up treatments.

5.7 Agreements
All patients were notified of the case study and told that the results would be strictly anonymous and they were also asked how they were functioning on a daily basis at present, with the help of the questionnaire above.

5.8 Tools
A letter was sent to all patients, as well as a reminder. Regarding the PAM tool; there were some details and patient information available on a DVD. The procedure employs a handheld tool. In mobilisation mode, as the tool is worked up and down the length of the spine, pneumatic air springs or cushions are employed to work each vertebra back and forth in counter-rotation with its neighbours. Due to the geometry of the joints, mobilisation by counter-rotation restores mobility in all three planes of rotation. The principle is to work away from the affected joints for the purpose of reducing the load on the affected joints. It is a gentle, passive and progressive procedure. A tool is employed because the joints of the spine are much bigger and tougher than the joints of a therapist's fingers, as you can see in Figure 1 above of an American ex-football player. When a spine has been stiff for a long time, associated reflexes degrade. In reflex mode, the tool is employed to restore elasticity or rebound by repetitive and progressive stimulation of reflexes. Here again, a tool is employed because human fingers cannot come close to what is required. The proper use of the tool is a special skill and good clinical results are a function of knowledge and skill.

A special couch was used, called the 'Spine Table', which was made to the specifications of Robert Taylor and Bethan Riley, the Springback™ therapist. Other aspects of Springback™ treatment include the postural advice and exercise leaflet and a demonstration on a Cross-trainer.

6.0 Results

6.1 Sex and age range of participants:
There were 24 males and 34 females who agreed to take part in this study. This was a total of 58 out of the 70 letters sent out (83% response rate). The age range of the males was from 33 to 80 and for the females from age 16 to 86.

6.2 The group information, see above:
This was based on the clinical records and the patients questionnaires, with a total of 58 cases: -

Group 1 – 28 cases of chronic mechanical neck or back pain
Group 2 – 11 cases of prolapsed intervertebral disc with sciatic symptoms
Group 3 – 17 cases of degenerative spinal disorder
Group 4 – 1 case of spondylolysis or listhesis proven by x-ray
Group 5 – 1 post surgical case; she said that in 1982 she underwent surgery to excise two intervertebral discs after undergoing osteopathy

6.3 The chronicity or length of time they had suffered:

6.3 Chronicity					
Years of suffering	No of patients	"No Help"	"Some Help"	"Helped a lot"	% Helped
<5	12	1	1	10	92%
5 - 9	7			7	100%
10 - 14	18	1	2	15	94%
15 - 19	2			2	100%
20 - 24	12		1	11	100%
25 - 29	2			2	100%
30 - 34	5			5	100%
Total Sample	**58**	**2**	**4**	**52**	**97%**

6.4 Who was working:
36 patients were still working and 20 were not. Two were not able to work, due to back pain. A man of 72 and one of 80 was still working. The oldest woman still working was aged 70.

6.5 Area affected by the pain:

Area affected by pain			
		No. of patients*	% of sample
1	Neck and back pain	29	50%
2	Back pain	10	17%
3	Back and leg pain	12	20%
4	Neck, arm and/or shoulder pain	3	5%
5	Neck pain	1	2%
6	Shoulder pain	1	2%
7	Neck, back and leg pain	1	2%
8	Pain everywhere	1	2%
Total Sample		**58**	**100%**

6.6 Causes for the neck/back pain:
This is what the patients reported and it seems that 34 cases (62%) were due to some sort of acute trauma or accident.

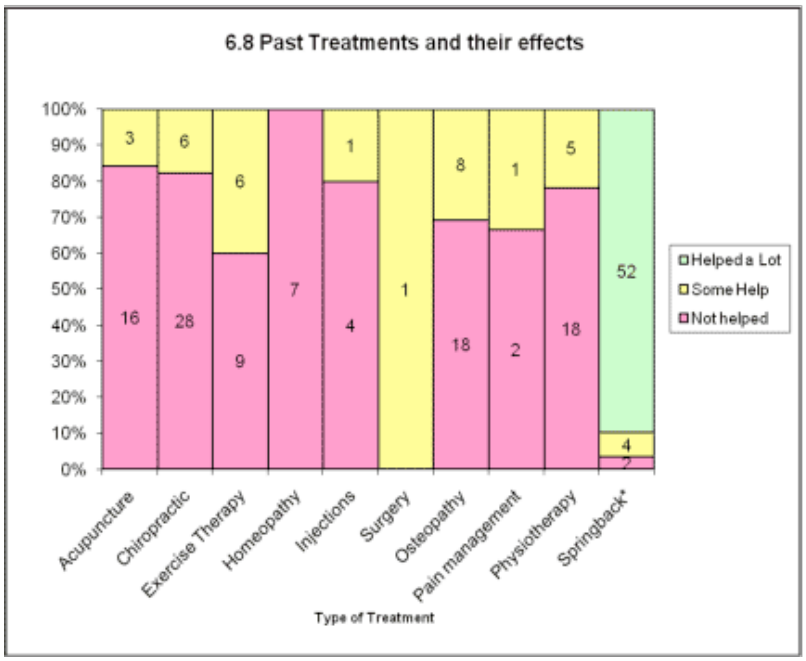
Causes for the neck/back pain	
Injuries (various major injuries)	15
RTA	7
Sport	6
Horse Riding	6
Farming	5
Nursing/Care Assistant	2
Osteoporosis	2
Postural	1
Surgery	1
Rail Accident	1
Other	12
Total	**58**

6.7 Past treatments and their effects:
We asked all the patients about a wide variety of therapies; acupuncture, Alexander technique, chiropractic, exercise therapy (Pilates or Yoga), homeopathy, hospital injections and surgery, osteopathy, pain management programmes, physiotherapy and any thing else they had tried.

They were also asked about any long-term benefit from these therapies; did it hurt and why did they stop them, with any personal comments. The outcomes were as follows: -

6.8 The Springback case study results on the last 58 patients treated:
See graph on the opposite page.
Those who were not sure or had little help – 2 (3.4%)
Those who said they had some help – 4 (6.9%)
Those who said they were better, had no pain, more mobile, "cured", could work again or walk more or even "had a new life"; they numbered 52 cases (89.7%)

FINAL GRAPH WITH COMMENTS OF THE LAST 58 PATIENTS ON THEIR PAST TREATMENTS



Past Treatments and their effects				
	"No Help"	"Some Help"	"Helped a Lot"	%"Helped"
Acupuncture	16	3		16%
Chiropractic	28	6		18%
Exercise Therapy	9	6		40%
Homeopathy	7			0%
Injections	4	1		20%
Surgery		1		100%
Osteopathy	18	8		31%
Pain management	2	1		33%
Physiotherapy	18	5		22%
Springback	2	4	52	97%

7.0 Discussion

There appears to have been a very good response to this treatment from the many patients who would normally be labelled as 'failed back' cases, also the results appear to speak for themselves and are very promising.

It seems that the results answer the main aim of this study; namely, they demonstrate the ability of the Springback™ method to restore spinal mobility and function, as well as relieve chronic back pain. Admittedly the numbers are small and do not include some cases who may have had successful results from surgery or other conventional back treatments or even the many failed back patients, who do not want any further therapy and may have adopted the chronic invalid role.

Figure 1. Reflex stimulation mode

Figure 2. Treatment in progress at Springback™: Spinal mobilisation mode

The Power-Assisted Micro-mobilisation tool was first invented by Robert Taylor, a Cornish engineer, who having suffered himself and having sat in on many consultations with medical colleagues; conceived the idea of this electromechanical device; based on engineering principles and his analysis of the mechanics of the spine in both health and disease3. Along with Mr Robert Taylor, Mrs Bethan Riley at Springback has developed a more comprehensive package of back treatment, incorporating this new technology. Since then, the author has referred a number of serious back pain cases to this clinic and has also discussed this device with Professor Stephen Eisenstein of the Robert Jones and Agnes Hunt Orthopaedic Hospital at Oswestry, who has confirmed that it had been used in their physiotherapy department eight years ago. A pilot trial was carried out on an earlier version of this PAM tool, by a spinal orthopaedic consultant and a senior physiotherapist. Surprisingly this seems to have been the only medical trial so far and it was not published. The author has managed to obtain their results and they reported that of the 64 chronic back pain patients in this trial; 54% of the out of work group were able to return to work and were still in their employment one year on.

The Oswestry Disability Index (ODI) scores were in all cases significantly reduced across the board, from a pre treatment average of 42%, down to a post treatment average of ODI of 10%. Not only this; these patients were the worst cases, who had been referred to Oswestry for specialist conventional treatment4.

Figure 3. Post treatment exercise on a 'Cross trainer'; to help develop and maintain good posture and mobility, for suitable cases.

The author feels the study suggests that other current treatments available for chronic failed backs can, at best, only give very short term relief, while this method of treatment appears to last longer, with a few patients requiring annual top-up sessions at Springback™. This is borne out by other research evidence; namely, that the various conventional treatments may produce only very short term clinical improvement for those with chronic back pain and there is currently strong evidence that most clinical interventions are quite ineffective at returning people to work once they have been off work for a protracted period with chronic LBP5. With a future prospective study the author does need to address the question of how many patients actually return to their work as a result of this treatment, since this question was not asked in a very specific manner in this case study.

Other systematic reviews on conservative non-pharmacological interventions for chronic back pain found strong evidence that, in addition to exercise prescription, intensive multidisciplinary programmes also reduce chronic back pain6. Professor Maurits van Tulder in an editorial in the BMJ on the 23 August 2008 stated that though few guidelines exist on the management of chronic low back pain, recently published European clinical guidelines recommend cognitive behaviour therapy, supervised exercise therapy, brief educational interventions and multidisciplinary (biopsychosocial) treatment for chronic back pain. Prior to this, there was a large 'back pain exercise and manipulation trial' (BEAM) in primary care in the UK in 2004, which found that relative to current best care; manipulation followed by exercise achieved a moderate benefit at three months and a small benefit at twelve months in 1300 patients7.

It is interesting to note a later study from Australia in 2007. It found no difference between medication and physical treatments in the first 12 weeks with LBP; it doesn't really matter what one does, as 99% of acute mechanical back pain episodes will recover8.

What new facts have emerged from this study? The author has learned some new facts from this study; namely, the large number of patients who have suffered 'injuries' and also the large number suffering from neck as well as back pain. Previously the author has noted in his occupational health work that very many otherwise fit young persons were suffering from recurrent back pain episodes, due to sitting on unsuitable seats in their offices, cars or fork lift trucks or even lying on inadequate beds. There is strong evidence that physical demands of work (manual handling, lifting, bending, twisting and whole body vibration) are a risk factor for the incidence (onset) of low back pain, but overall it appears that the size of the effect is less than that of other individual, non-occupational or unidentified factors9.

The author believes that this study of the Springback™ method of treatment emphasises the importance of the initial consultation, the full spinal mobilisation by an experienced therapist, as well as remaining active.

So how does the Springback™ therapy work? According to Robert Taylor, Springback's philosophy states those patients who are in the category of 'failed back' typically present with a rigid spine; the spine feels set like cement.

Attempts to restore mobility through exercise fail, because exercise exacerbates the overwork and overstressing of the affected joints. Thus passive mobilisation is indicated.

Ideally, supple elasticity should be maintained or restored before structural damage occurs. Failing that, the restoration of supple elasticity will allow the natural processes of healing and adaptation to do their work unhampered by the continual overwork and overstressing of the affected joints. Patients are recovering who would not otherwise recover.

There was discussion about a controlled trial, but the idea was dismissed for three reasons. Firstly, these patients provide their own control. There is no pattern of spontaneous recovery with patients who have suffered years of debilitating pain; numerous interventions having failed to resolve the complaint. Secondly, a trial label would be misleading, given that this is a skill-based procedure. The clinical results of one practitioner cannot attest to the skill of another. These results are specific to Springback. Thirdly, it is the fate of patients in a control group to receive a placebo. Patients who have suffered debilitating pain for years feel let down by everyone and could not cope with another disappointment. Few if any would agree to participate in such a study. The author feels that clinical audit is the right methodology and a continuous program of clinical audit is planned in the future.

8.0 Acknowledgements

The author would like to thank Robert Taylor for his assistance in explaining in very great detail his theories on chronic mechanical spinal pain and the actual practicalities of his power assisted micro-manipulation tool, with the aid of a DVD that was produced by some of the Springback™ patients.

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Conflicts of interest: none declared

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