



CASE STUDY

Low Back Pain

M. is a 64 year old male who has had chronic low back pain for the last 10 years as a result of a work-related injury while unloading a heavy object while working at newspaper production company. Additionally, he has had carpal tunnel pain in both hands but reported his back had been the main problem while he was in Karuna's program. M. had previously been engaged in surfing on a regular basis as well as hiking, traveling and running. His current routines involve doing house chores, driving his granddaughter to and from school as well as engages in light chair yoga. M. reported he used to be much more active and would like to return back to some of the things he used to do like surfing.

M. was on Motrin, Methadone, Hydromorphone and Valium at the beginning of this study and did not have a change in dosage by end of study.

GOALS

- Patient will decrease pain levels on a more consistent basis
- Patient will increase engagement in physical activity including walking and yoga
- Patient will use breathing/coping techniques in daily life to reduce increased pain

PROGRESSION

M. received 7 sessions total of Karunas VET following the protocol below over a 2 month period with 1-2 sessions per week:

- Induction
 - 8-10 minutes of predictive coding
- Graded exposure
 - Varied week by week using goal-directed modules to promote trunk rotational movements as well as trunk flexion and extension. Modules incorporated the following activities:
 - Goalkeeping,
 - target Shooting,
 - Cooking/Dish stacking
 - Guided Audio Breathing Module

RESULTS

Overall, M. had decreases in her pain scores using a Visual Analog Scale in 4 of the 7 treatment sessions (see table 1). Following session 4, M. had a much larger decrease in pain from pre to post session and reported his pain would disappear from his awareness at times. In addition, he had improved scores on pains interference on mood, normal work experience and his relationship with other people on the Brief Pain Inventory as wells improved scores on the Oswestry Low Back Pain Disability Index and Pain Catastrophizing Scale. See tables 1-7 below.

M. reported, “Karuna really helped me with my pain and everything. It really helped my hands more so than my back because during 2 sessions I had to check to make sure I was out of pain and to see if I was still numb in my thumb, pointer and middle finger. My hands were still numb but the pain was gone which was pretty significant as it hasn’t allowed me to be able to sleep at night for weeks. But during the breathing exercise before I finished, I had to check myself because the pain was gone and I thought, ‘wow’. I haven’t noticed a great impact on my back, but I think a lot of it has to do with my thinking and I am learning that I am always expecting my pain all the time and that it will get worse and if I do certain activities I am going to get bad results. I have been brainwashed into thinking like this and this helped me understand the process of the pain and hopefully I can work myself into a better place using some of these methods. The pain education allowed for me to explain things to my wife who was having a back flare up about how pain works in the body, how your reaction makes an impact and by having the knowledge it helps you react better. It has helped me, not leaps and bounds but I wouldn’t be coming here if I didn’t think it was helping me. Using the breathing techniques have helped me to get to sleep, when I concentrate and think about the things we talked about would get me to sleep. I think Karuna is great and I would like to continue after the study”.

Table 1: Visual Analog Scale Pain Score Results from session to session:

Session	Pre	Post
1	4.5	5.5
2	5.7	6.1
3	6.2	6.8
4	8.3	6.9
5	8.3	3.4
6	5.3	3.9
7	6.1	4.2

Table 2: BPI, Pain interference on various domains in life

Pain Interference on:	Pre	Post
General Activity	6	7
Mood	7	4
Walking Ability	4	5
Normal Work	8	7
Relationships with other people	6	3
Sleep	10	10
Enjoyment on life	7	7

*BPI assesses clinical pain. Questions are related to assessing how pain interacts with quality of life measures such as activities of daily living.

Table 3: Tampa Scale of Kinesiophobia

Pre	Post
46	48

*measures fear of movement in relation to chronic low back pain and has been used to assess other musculoskeletal conditions

Table 4: Oswestry Low Back

Pre	Post
23	22

*examines severity of pain, areas of live affected by pain, and abilities affected by pain

Table 5: PHQ-9

Pre	Post
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12	12
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*A depression inventory that assesses items related to the DSM-5 diagnostic criteria for depression, including mood, anhedonia, appetite, sleep, suicidality, guilt, concentration, and others

Table 6: Pain Catastrophizing Scale

Subscale	Pre	Post
Rumination	11	9
Magnification	7	7
Helplessness	16	7
Total Score	34	23

*Measures the mechanisms which catastrophizing impacts the experience of pain.

Table 7: Simulator Sickness Questionnaire

Pre	Post
0	0

*Assesses simulator sickness in the domains of nausea and oculomotor symptoms in the context of using as simulator