



SOLVING PAIN
THROUGH TECHNOLOGY

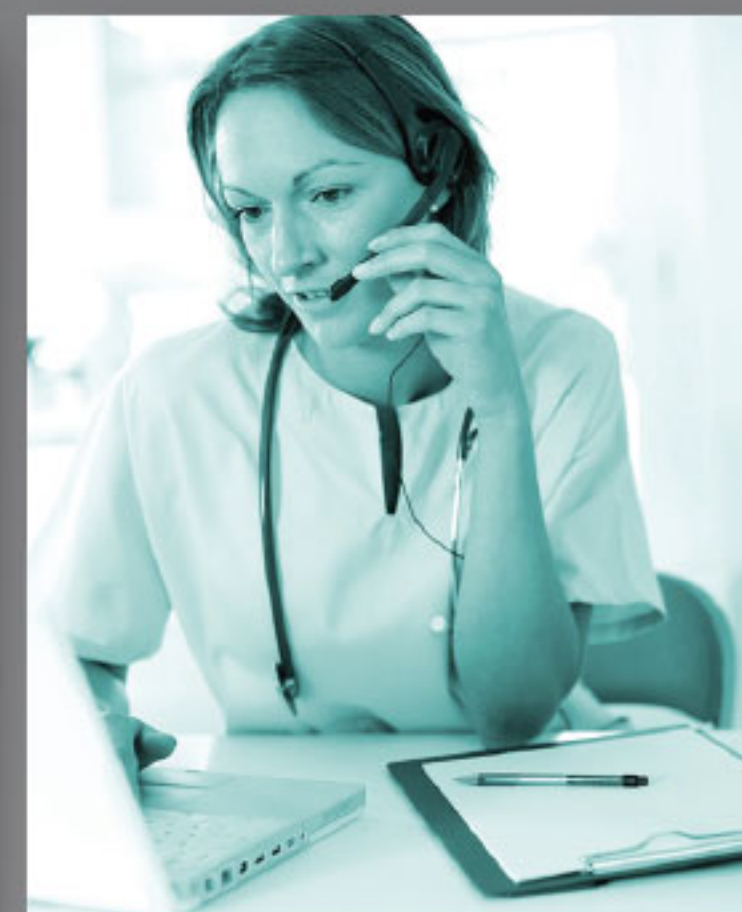
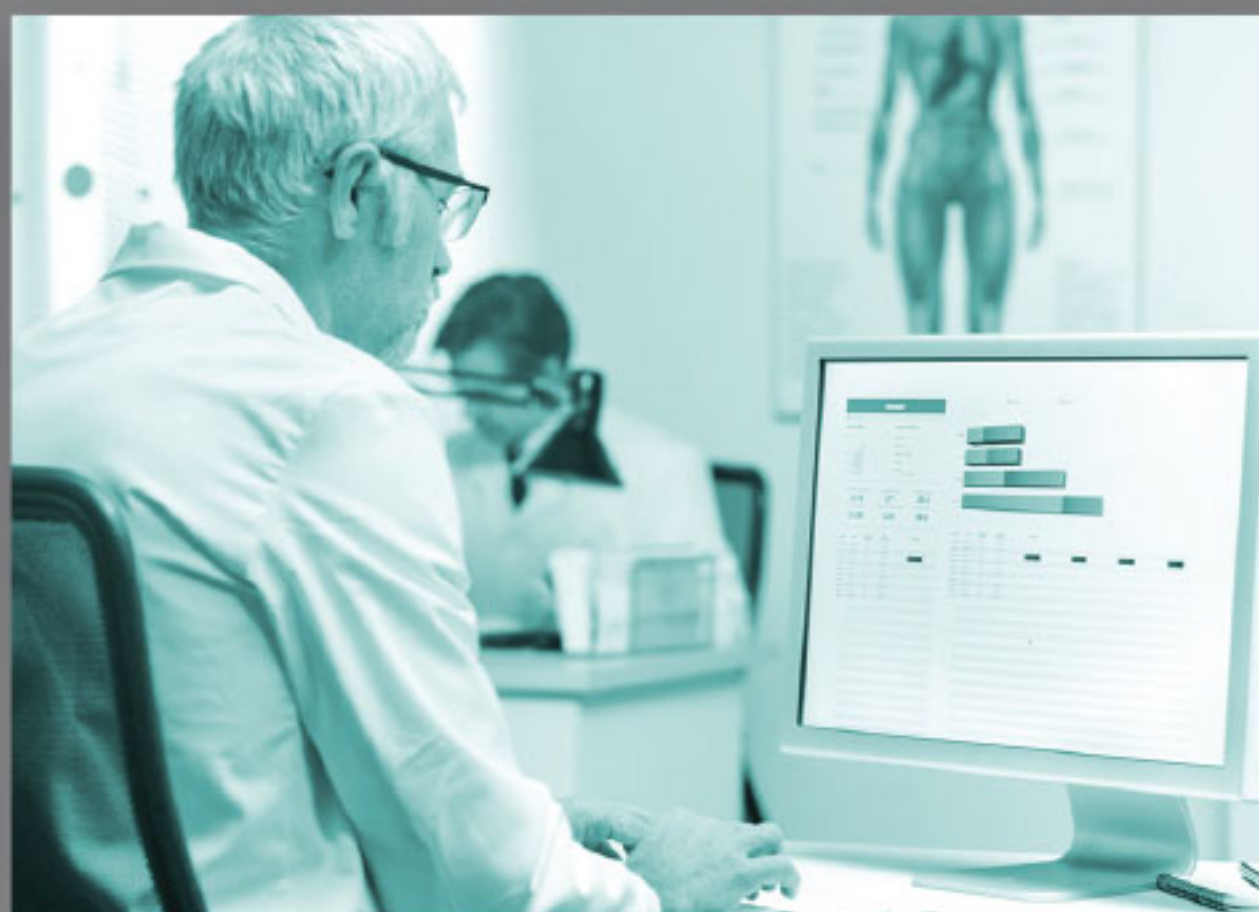


Vx PAIN RELIEF
VIRTUAL THERAPY

A Bio • Psycho • Social Program



PATIENT 0957



PATIENT OUTCOMES REPORT



SOLVING PAIN
THROUGH TECHNOLOGY

EXECUTIVE SUMMARY

Patient 0957 Summary

Patient: Patient 0957 is a 47-year-old female presenting for pain from a ruptured disc in her back. Pain was radiating from her back to her shoulders and hips. Her injury occurred in 2004, sixteen years ago. At the time of consultation, her pain level was a 7 on average. She was reporting high levels of stress from her injury and was sleeping 3 or less hours a night due to pain.

Protocol: The patient's physician prescribed the Vx Pain Relief Program. She was enrolled in the home-based Virtual Reality Therapy for 90 days. A Vx headset containing proprietary software was provided and the patient was paired with a specialized clinician best suited to address her behavioral health needs. The patient was instructed to use the headset 1-2 times a day, selecting specialized programs to provide relief for pain, release tension, or prolong a sense of well being. She had weekly phone consultations with her clinician. Each session ranged from 30-60 minutes with regular re-evaluations. The clinician directed the program, ensured compliance, and provided further education on how to generalize skills taught by the Vx headset. The clinician shared this information with the physician, who monitored the patient's progress.

Clinical Results:

Patient experienced...

- 29% decrease in average pain levels from time of initial consultation to discharge
- Average reduction of 24% in pain levels during Virtual Reality sessions, with reduction per Vx session ranging from 14%-75%
- Pain relief lasting from 1-3 hours, with an average of 2 hours 15 minutes following Vx sessions
- Sleep increased by 167%, from 3 hours to 8 hours by discharge
- She reported stress-associated pain as nearly nonexistent by time of discharge
- Stress levels reduced enough to be removed from her blood pressure medication
- Increase in productivity and mood at work, resulting in less overtime and a promotion
- Pain medications substantially reduced

Patient Testimonials

"What my brain learned from this program helped me get through the withdrawal from my pain medication."

"My work has improved so much that I reached a personal goal: I was selected to travel for work. HR is so impressed that they're interested in providing Vx for the rest of our employees!"

"I sleep more, I can do yoga for longer periods, and my strength, endurance, and focus have all improved. I have more energy despite having more stress at work this week [Week 6]. I've even cut back on my pain pills."

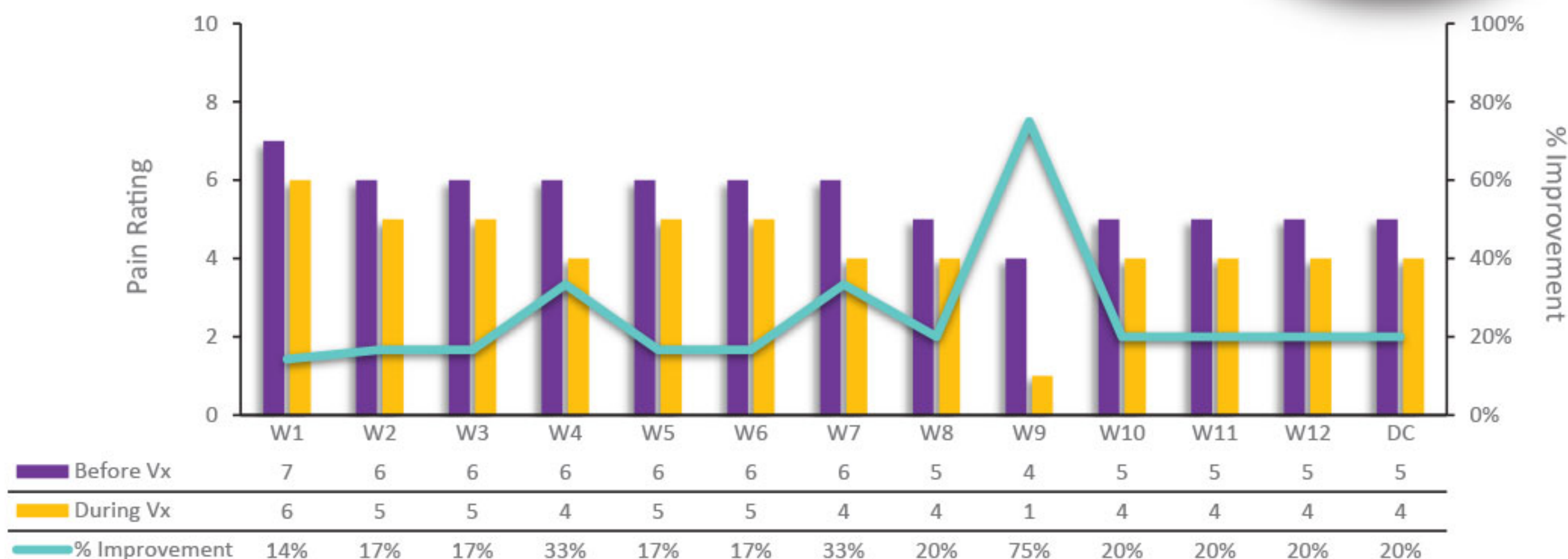
"I can play with my grandkids again."

"My doctors took me off my heart medications because of how much I've improved."

Reduction in Pain Using Vx Therapy

INSIGHT:

DISTRACTION PROPERTIES
OF VX DEMONSTRATE LOWER
PAIN LEVELS DURING USAGE

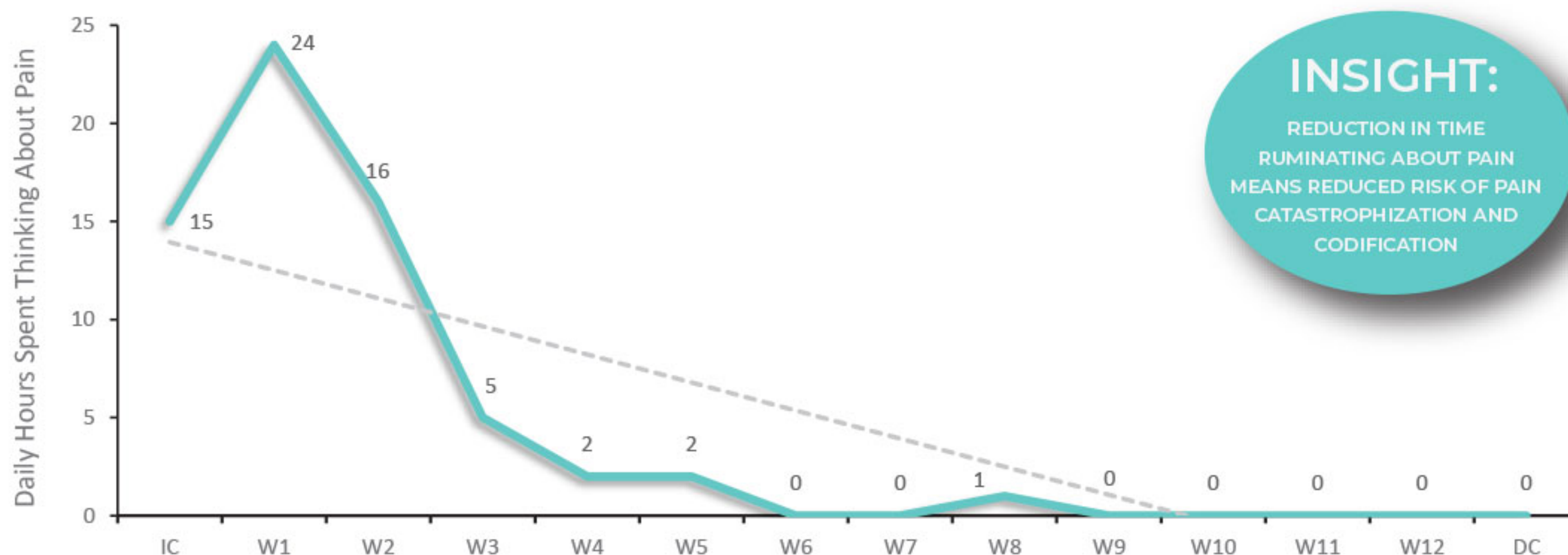


PATIENT EXPERIENCED A 24% REDUCTION IN PAIN ON AVERAGE, WITH A RANGE OF 14% TO 75%

Average Daily Hours Spent Thinking About Pain

INSIGHT:

REDUCTION IN TIME
RUMINATING ABOUT PAIN
MEANS REDUCED RISK OF PAIN
CATASTROPHIZATION AND
CODIFICATION

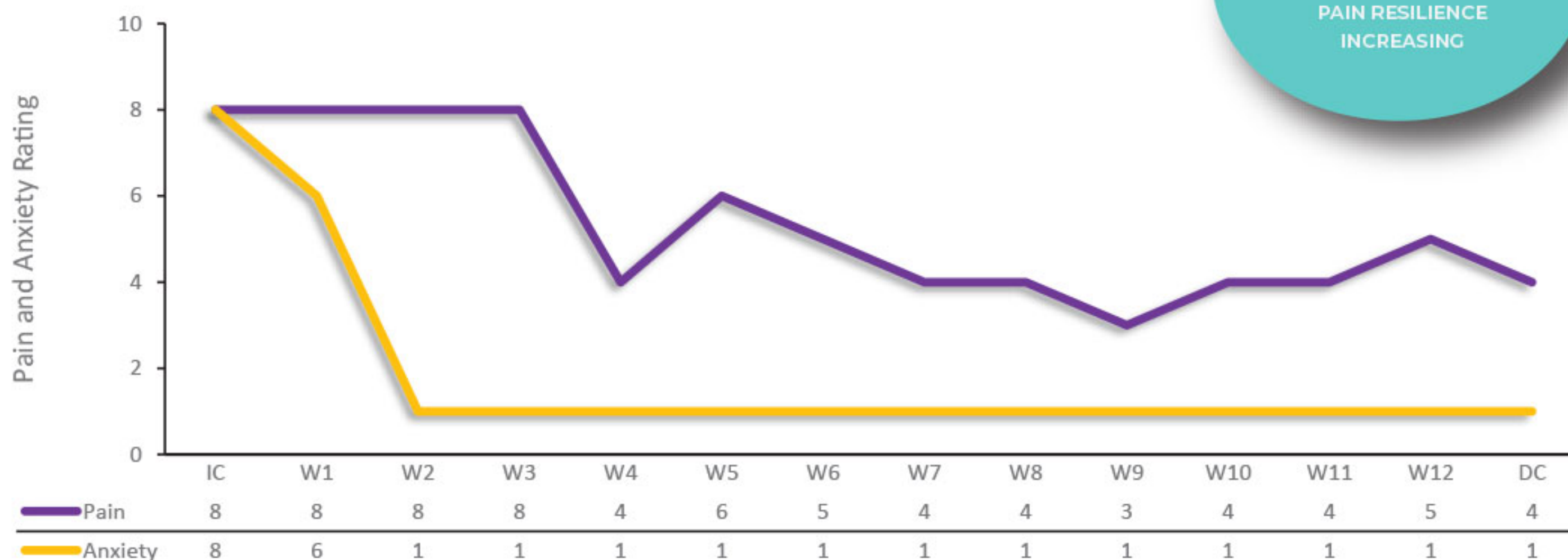


PATIENT RAPIDLY REGAINED A LARGE PORTION OF THEIR DAY AS THEY LEARNED TO PROCESS PAIN
WITHOUT BECOMING OVERWHELMED THINKING ABOUT IT

Pain and Anxiety Awareness

INSIGHT:

PAIN RESILIENCE
INCREASING

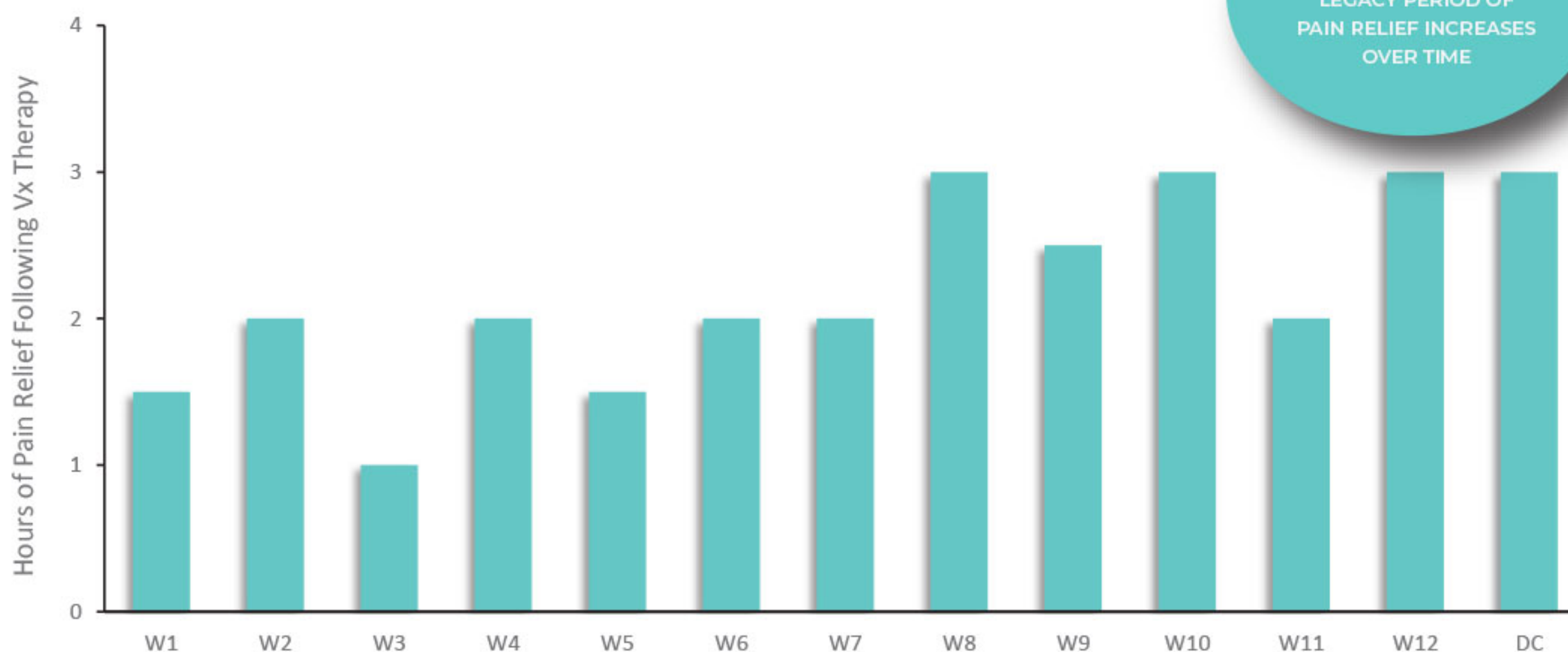


AS THE PATIENT'S PAIN DECREASED, THEY EXPERIENCED A STEADY DROP IN ANXIETY PROCESSING AND AWARENESS, AND A STEADYING OF PAIN AWARENESS. THIS SHOWS THE PATIENT WAS ABLE TO ACKNOWLEDGE THE UNPLEASANT STIMULI RATHER THAN IGNORE IT. THIS ALLOWS THEM TO HAVE OPTIMAL FUNCTIONING WHILE ALLOWING THEM TO WORK IN A WAY THAT DOESN'T EXACERBATE THE INJURY

Hours of Pain Relief Following Vx Therapy Session

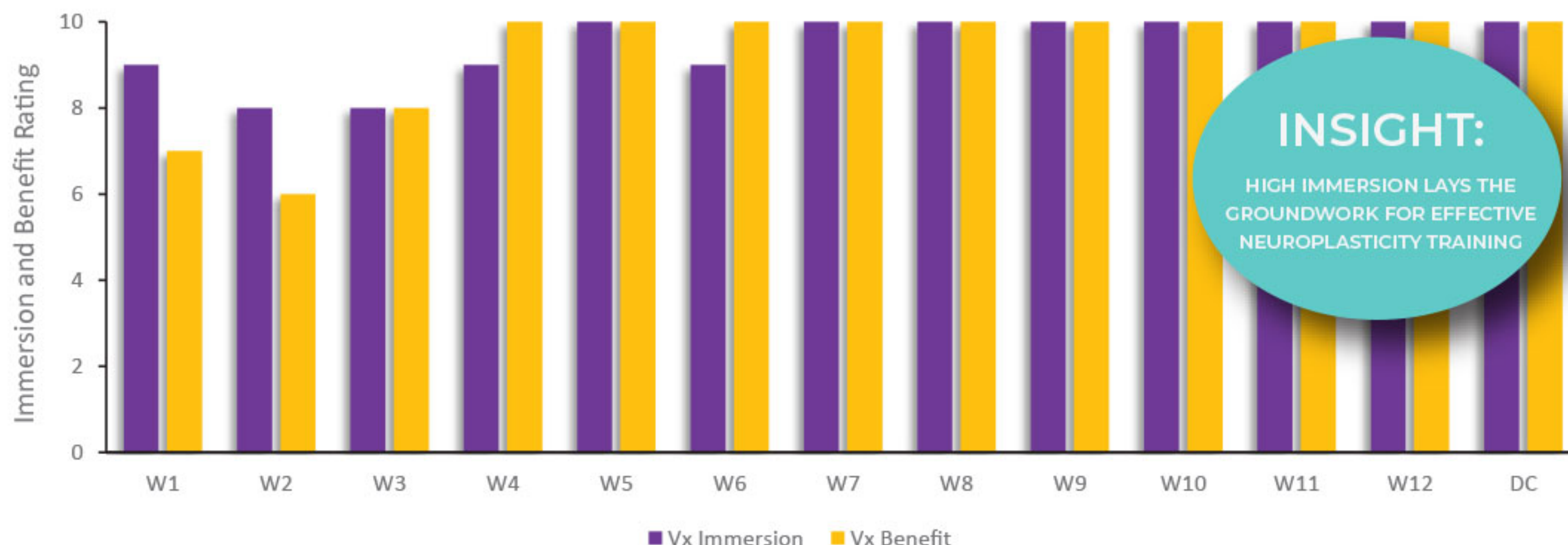
INSIGHT:

LEGACY PERIOD OF
PAIN RELIEF INCREASES
OVER TIME



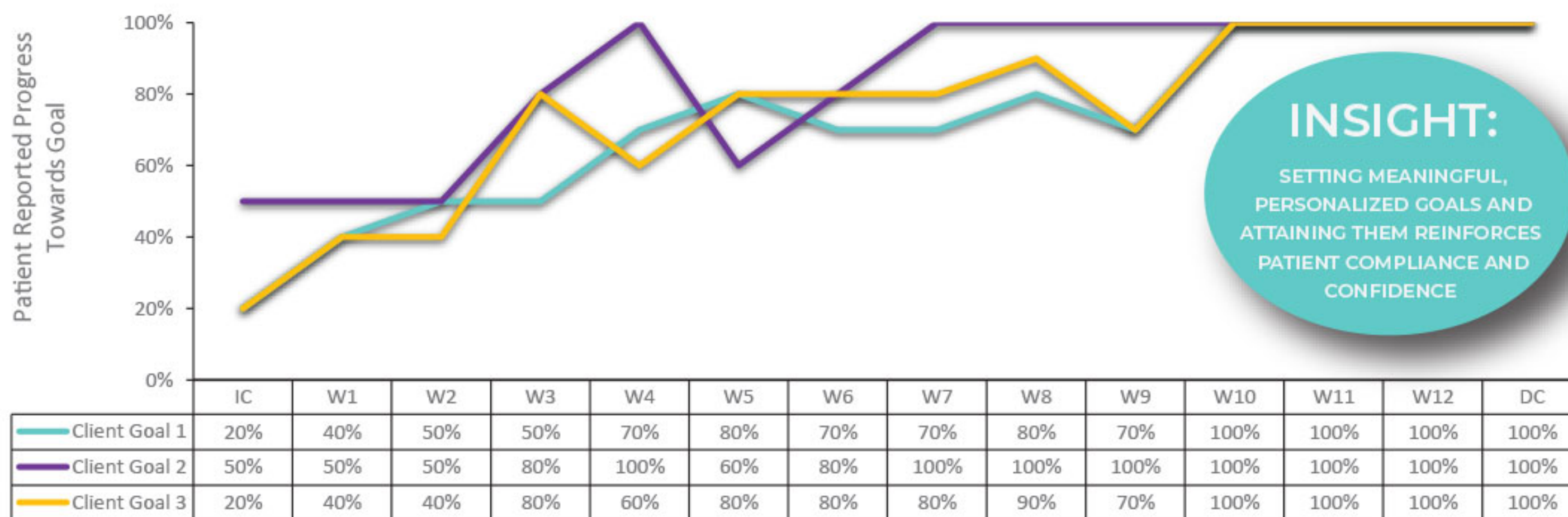
PATIENT EXPERIENCED AN AVERAGE OF 2 HOURS AND 15 MINUTES PAIN RELIEF FOLLOWING VIRTUAL REALITY THERAPY

Patient Perception: Immersion and Benefit Rating



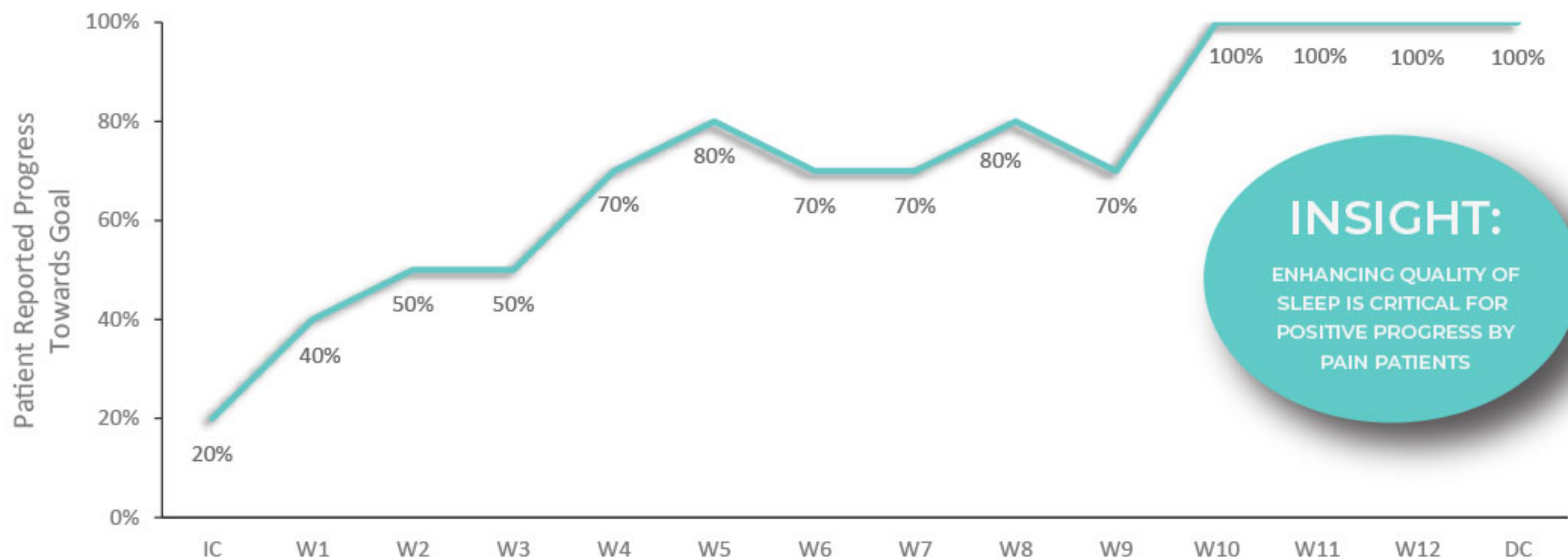
THE PATIENT EXPERIENCED CONSISTENTLY HIGH LEVELS OF IMMERSION AND BENEFIT THROUGHOUT THE PROGRAM

Client Goals - Big Picture



PATIENT WAS ABLE TO REACH MASTERY ON ALL GOALS BY SESSION 10

Client Goal 1: Better Quality and Duration of Sleep

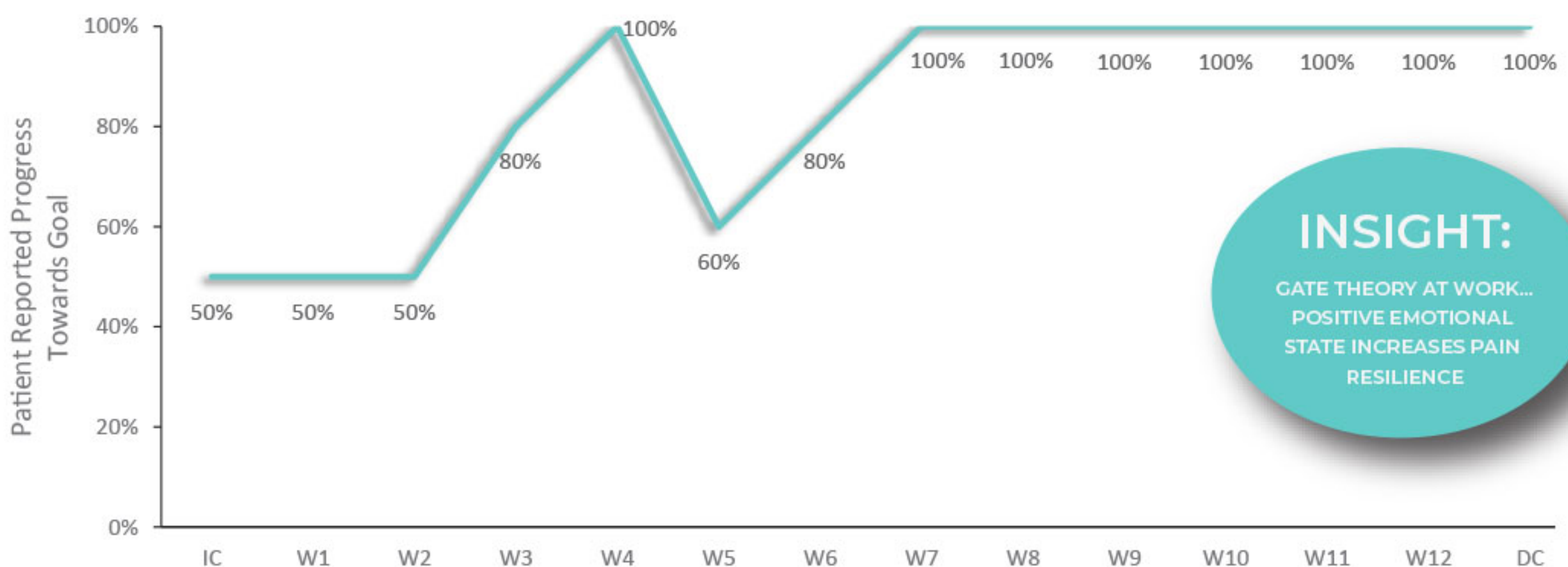


INSIGHT:

ENHANCING QUALITY OF SLEEP IS CRITICAL FOR POSITIVE PROGRESS BY PAIN PATIENTS

PATIENT WAS ABLE TO INCREASE SLEEP DURATION FROM 3 HOURS AT THE START OF TREATMENT, TO 8 HOURS BY DISCHARGE

Client Goal 2: Reduction of Pain Triggered by Workplace Stressors

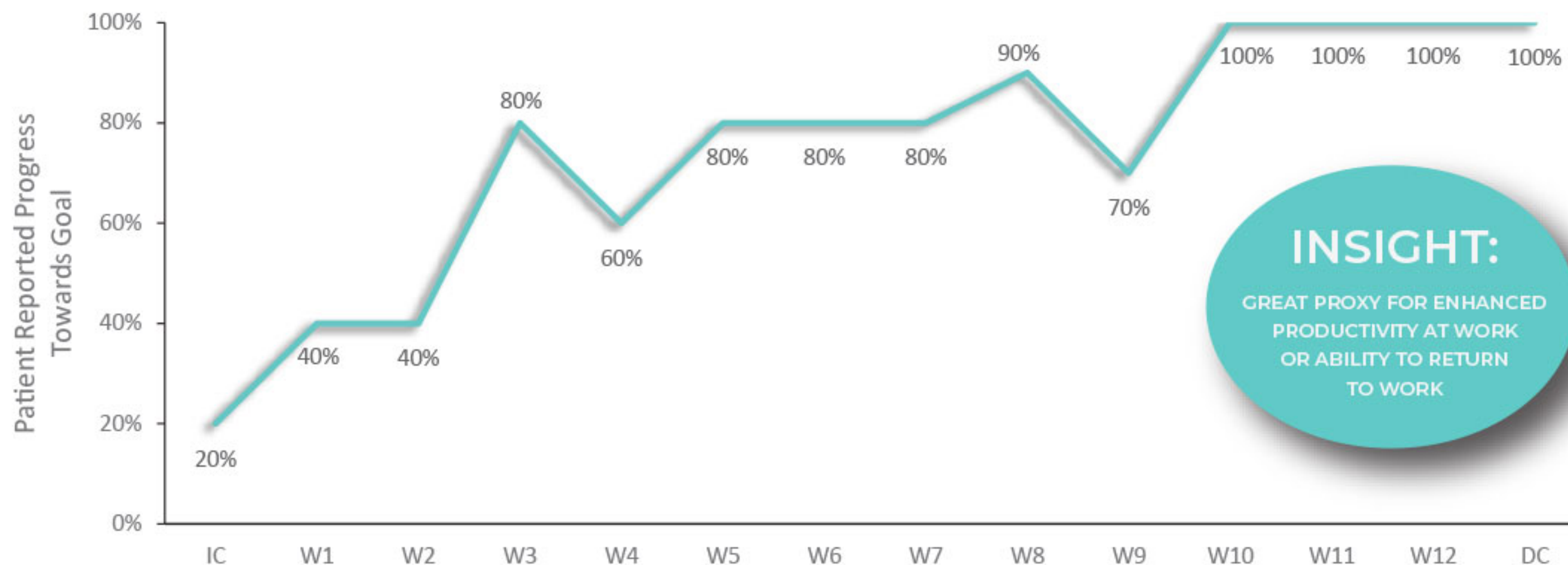


INSIGHT:

GATE THEORY AT WORK... POSITIVE EMOTIONAL STATE INCREASES PAIN RESILIENCE

PATIENT STATED THAT WORK RELATED STRESS WAS CAUSING AN INCREASE IN PAIN. DURING TREATMENT THE PATIENT WAS ABLE TO REDUCE STRESS ASSOCIATED PAIN TO AN AVERAGE OF 0-1 EVEN WITH HEIGHTENED STRESSORS PRESENT IN THE WORKPLACE

Client Goal 3: Increase Mobility and Endurance



INSIGHT:

GREAT PROXY FOR ENHANCED
PRODUCTIVITY AT WORK
OR ABILITY TO RETURN
TO WORK

PATIENT BEGAN TREATMENT PRACTICING YOGA APPROXIMATELY 2X/WEEK FOR 20 TO 30 MINUTES EACH SESSION. BY THE END OF TREATMENT, SHE WAS PRACTICING 1X/DAY FOR 60 MINUTES OR MORE PER SESSION

NOTE:

The following attachments are actual redacted reports for patient 0957. The Initial, Discharge and two Re-Evaluation reports were chosen from the weekly reports to illustrate important milestones during therapy.

Initial Consultation - Vx Pain Relief Program**Patient Name:** [REDACTED]**Physician:** [REDACTED]**Personal Clinician:** [REDACTED]**Visit Date:** 10-12-19**Patient Date of Birth:** [REDACTED]

Date of Injury: 10-20-04

Mechanism of Onset: Patient injured her back (ruptured disc) setting up a christmas tree at work.

Pain Rating Prior to Program (1-10):

Best: 7

Worst: 8

Average: 7

Relevant Past Medical History (last 5 years): Patient had a Thoracic Aortic Aneurysm 2-years-ago which required open heart surgery.

Opioid Usage History Prior to Program:

Name: Oxymorphone

Dosage: 30mg

Frequency: BID

Name: Morphine

Dosage: 15mg

Frequency: TID

Amount of time spent thinking of pain per day (hrs/min): 15 hr

Patient is currently working 60 hours per week and current level of function at work is 100%.

Using a scale of 1 (no awareness) to 10 (total awareness), current awareness of:

Pain: 8

Anxiety: 8

Symptoms

Body parts involved: back, shoulders, l5 and s1. across both hips

Characteristics: stabbing, throbbing, electricity, pins/needles, sharp, ache

Difficulty performing: walking, standing, bending, twisting, sleeping, concentrating on tasks

Patient statement about symptoms: Patient reported only getting 3 hours of sleep per night due to pain.

Feel better: bending forward, sleeping, climbing, lying down, watching TV, listening to music, meditation activities, self talk

Feel worse: sitting, standing, walking, extension, bending forward, sleeping, climbing, lying down, stress, anxiety, activity

1 OF 3

Details: Patient walks on a regular basis in order to keep her energy level up.

Goal #1

Desired goal: Patient would like increase sleep duration.

Current ability (1-10): 2

Current level of function: Patient currently gets 3 hours of sleep per night on average.

Short term goal: Patient would like to get 5 to 6 hours of sleep per night on average.

Long term goal: Patient would like to get 7 to 8 hours of sleep per night on average.

Goal #2

Desired goal: Patient would like to decrease stress that increase pain level.

Current ability (1-10): 5

Current level of function: Patient said that vocational related stress increases pain.

Short term goal: Patient would like to decrease pain related to stress.

Long term goal: Patient would like to experience minimal or no pain while under stress at work.

Goal #3

Desired goal: Patient would like to increase the number of days and length of time that she can practice yoga.

Current ability (1-10): 2

Current level of function: Patient can currently practice yoga twice a week for approximately 20 or 30 minutes each session.

Short term goal: Patient would like to practice yoga three times per week for approximately 20 to 30 minutes each session.

Long term goal: Patient would like to practice yoga on a daily basis for at least one hour per session.

Operating Vx Virtual Reality Therapy Device

- Reviewed treatment protocols and how to operate Vx Virtual Therapy Device.
- Patient able to set up Distraction Session.
- Patient able to set up Relaxation Session.

Observations and Adjustments: Patient said that she is using the VX system at work in order to cope with stress.

Patient has concerns about operating Vx Virtual Therapy Device.

Concerns: Patient reported that the VX controller is not working but that she is able to operate the system and navigate all of the programs with the volume buttons on the headset. Clinician will help trouble shoot and report the issue to HMT office staff.

Assessment and Plan

Impairments: range of motion, impaired activity tolerance, pain limiting function, inability to focus due to pain, sleep deficit, strength deficit, increased anxiety, decreased endurance

Plan: Patient to follow Vx Pain Relief Program with clinical oversight per physician order.

Recommendations/Summary: It is recommended that patient use the Vx Pain Relief System as prescribed for pain relief and management. Patient injured her back at work while setting up a Christmas tree. Patient goals include increasing her ability to sleep, practice yoga and to decrease stress related pain. Client has been able to use all the Vx programs despite the controller not working properly. Clinician will help troubleshoot the controller issue and will notify MHT office staff. Patient completed all relevant questionnaires. Clinician will contact patient for her first Weekly Call on 10/19/19.

PHQ-2

Over the past 2 weeks, how often have you been bothered by the following problems?

[REDACTED]

	Initial Consult Score
1. Little interest or pleasure in doing things	0
2. Feeling down, depressed or hopeless	0
Total	0

Roland Morris

0=No Disability, 24=Max Disability

Initial Consult Score
12

PROMIS 29

Note: Raw data is converted to Tscore with mean of 50 and SD of 10

	Initial Consult
Physical Function	15
Anxiety	7
Depression	5
Fatigue	12
Sleep Disturbance	12
Ability to Participate in Social Roles & Activities	15
Pain Interference	11
Pain Intensity	7

Overall, in the past 7 days, patient has a pain intensity of 7, with scoring for Anxiety, Fatigue and Ability to Participate in Social Roles & Activities score as . Patient scored standard deviation worse than average for Physical Function Depression, Sleep Disturbance and Pain Interference.

[REDACTED]

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[REDACTED]



Re-Evaluation

Patient Name: [REDACTED]
Physician: [REDACTED]
Personal Clinician: [REDACTED]

Visit Date: [REDACTED]
Patient Date of Birth: [REDACTED]

Patient Status Update

Average pain level prior to starting Virtual Reality Therapy (1-10): 6

Amount of time spent thinking of pain per day (hrs/min): 2hr

Patient is currently working 55 hours per week and current level of function at work is 90%.

Pain decreasing while using Virtual Reality Therapy (VRT).

Details: Patient reported a decrease in pain during and after Vx sessions over the past week.

Average pain level during VRT sessions (1-10): 4

Length of time after VRT session that pain stays decreased (hrs/min): 2hrs

Using a scale of 1 (no immersion) to 10 (total immersion), the perceived immersion level during VRT: 9

Using a scale of 1 (no benefit) to 10 (extreme benefit), the patient rated the benefit of her VRT sessions: 10

Additional comments on immersion and benefits of VRT: Patient said "I can honestly tell you that this is a very beneficial." Patient said it decreases pain and anxiety effectively. Patient said that she uses the Vx before and during work and that her coworkers have commented that her stress is decreased. Patient said that she also has more energy after work.

Using a scale of 1 (no awareness) to 10 (total awareness), current awareness of:

Pain: 4

Anxiety: 1

Symptoms

Body parts involved: Back, shoulders, neck and hips.

Characteristics: pins/needles, dull, ache, burning

Difficulty performing: bending, twisting

Patient statement about symptoms: Symptoms have not changed over the past week. Patient also noticed an increased sleep quality and duration.

Feel better: sitting, standing, walking, extension, bending forward, lying down, watching TV, listening to music, meditation activities, self talk

Feel worse: sitting, standing, walking, extension, bending forward, climbing, lying down, stress, anxiety, activity

Goal #1

Desired goal: Patient would like increase sleep duration.

Current ability (1-10): 7

Current level of function: Patient increase sleep duration to 4 hours.

Short term goal: Patient would like to get 5 to 6 hours of sleep per night on average.

Long term goal: Patient would like to get 7 to 8 hours of sleep per night on average.

Goal #2

Desired goal: Patient would like to decrease stress that increase pain level.

Current ability (1-10): 10

Current level of function: Patient reported reaching her short term goal. Pain related stress has been significantly decreased.

Short term goal: Patient would like to decrease pain related to stress.

Long term goal: Patient would like to experience minimal or no pain while under stress at work.

Goal #3

Desired goal: Patient would to increase the number of days and length of time that she can practice yoga.

Current ability (1-10): 6

Current level of function: Patient has increased her ability to practice yoga and has met her short term goal.

Short term goal: Patient would like to practice yoga three times per week for approximately 20 to 30 minutes each session.

Long term goal: Patient would like to practice yoga on a daily basis for at least one hour per session.

Program Performance

Patient has followed Vx Pain Relief Program without difficulty.

Patient comfortable operating Vx Virtual Therapy Device and understands treatment.

Assessment and Plan

Impairments:

- no change in range of motion
- increase in activity tolerance
- increase in pain limiting function
- no change in strength
- increase in endurance
- increase focus due to pain
- decrease in anxiety levels
- increase in sleep

Plan: Patient to follow Vx Pain Relief Program with clinical oversight per physician order.

Recommendations/Summary: Patient completed her 30 day re-evaluation. Patient is using the Vx system as prescribed. Patient reports a significant decrease in pain during and after Vx sessions over the past 30 days of treatment. Patient said that the Vx helps her to manage pain, increase sleep quality/duration and decrease stress/anxiety related pain at work.

Patient reported reaching two of her short term goals and making progress toward the other. Patient also reported increased daily activities, endurance, and ability to focus. Patient did not report any technical issues and completed all questionnaires. Patient will complete her next call on 11/16/19.

Roland Morris

	Initial Score	Score	Improvement %
0 = No Disability, 24=Max Disability	12	11	8%

Patient has improved their overall Roland Morris score from a 12 to a 11 for an overall improvement of 8%.

PROMIS 29

Note: Raw data is converted to Tscore with mean of 50 and SD of 10

	Initial Consult	Re-Evaluation	Improvement
Physical Function	15	19	27%
Anxiety	7	4	43%
Depression	5	4	20%
Fatigue	12	8	33%
Sleep Disturbance	12	12	0%
Ability to Participate in Social Roles and Activities	15	16	7%
Pain Interference	11	7	36%
Pain Intensity	7	6	14%

In the past 7 days: Patient has improved in the following categories: Physical Function: 27%, Anxiety: 43%, Depression: 20%, Fatigue: 33%, Ability to Participate in Social Roles/Activities: 7%, and Pain Interference: 36%. Patient has not improved in the following categories: Sleep Disturbance: 0%. Patient's pain intensity has decreased by: 14%.

[REDACTED]

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[REDACTED]



Re-Evaluation

Patient Name: [REDACTED]

Physician: [REDACTED]

Personal Clinician: [REDACTED]

Visit Date: 12-07-19

Patient Date of Birth: [REDACTED]

Patient Status Update

Average pain level prior to starting Virtual Reality Therapy (1-10): 5

Amount of time spent thinking of pain per day (hrs/min): 1

Patient is currently working 55hrs hours per week and current level of function at work is 95%.

Pain decreasing while using Virtual Reality Therapy (VRT).

Details: Patient continued decreased stress. Said that she is communicating better with her co-workers. Patient said she "hit a plateau" in regard to pain relief.

Average pain level during VRT sessions (1-10): 4

Length of time after VRT session that pain stays decreased (hrs/min): 3 hrs

Using a scale of 1 (no immersion) to 10 (total immersion), the perceived immersion level during VRT: 10

Using a scale of 1 (no benefit) to 10 (extreme benefit), the patient rated the benefit of her VRT sessions: 10

Additional comments on immersion and benefits of VRT: Patient said that even slight pain relief "is like heaven." Patient continues to report total immersion and benefit. Everything has mellowed out. A five is "pain" is like heaven. noticing. Patient said that she is thinking about working on cars again which has not done since her injury. Patient also reported increased sleep quality/duration, decreased blood pressure and increased endurance for piling with her grandchildren.

Using a scale of 1 (no awareness) to 10 (total awareness), current awareness of:

Pain: 4

Anxiety: 1

Symptoms

Body parts involved: Back, shoulders, neck and hips.

Characteristics: stabbing, dull, ache, burning

Difficulty performing: twisting

Patient statement about symptoms: Patient reported decrease frequency, intensity and duration of symptoms. Patient has learned to generalize Vx benefits. Patient said that she gets a similar benefit from relaxing and watching a movie.

Feel better: sitting, standing, walking, extension, bending forward, sleeping, lying down, watching TV, listening to music, meditation activities, self talk

Feel worse: sitting, standing, walking, extension, bending forward, climbing, lying down, stress, anxiety, activity

Goal #1

Desired goal: Patient would like increase sleep duration.

Current ability (1-10): 8

Current level of function: Long term goal met. Patient reports an average of 6+ hours of sleep per night.

Short term goal: Patient would like to get 5 to 6 hours of sleep per night on average.

Long term goal: Patient would like to get 7 to 8 hours of sleep per night on average.

Goal #2

Desired goal: Patient would like to decrease stress that increase pain level.

Current ability (1-10): 10

Current level of function: Long term goal met.

Short term goal: Patient would like to decrease pain related to stress.

Long term goal: Patient would like to experience minimal or no pain while under stress at work.

Goal #3

Desired goal: Patient would like to increase the number of days and length of time that she can practice yoga.

Current ability (1-10): 9

Current level of function: Patient is doing at least an hour of yoga 2x per week. Near long term goal.

Short term goal: Patient would like to practice yoga three times per week for approximately 20 to 30 minutes each session.

Long term goal: Patient would like to practice yoga on a daily basis for at least one hour per session.

Program Performance

Patient has followed Vx Pain Relief Program without difficulty.

Patient comfortable operating Vx Virtual Therapy Device and understands treatment.

Assessment and Plan

Impairments:

- increase in range of motion
- increase in activity tolerance
- increase in pain limiting function
- no change in strength
- increase in endurance
- increase focus due to pain
- decrease in anxiety levels
- increase in sleep

Plan: Patient to follow Vx Pain Relief Program with clinical oversight per physician order.

Recommendations/Summary: Patient completed her 30 day re-evaluation. Patient is using the Vx system as prescribed.

Patient continues to report decrease in pain during and after Vx treatment. Patient reported increased sleep quality/duration, decreased blood pressure and increased endurance for paling with her grandchildren since starting Vx treatment. Patient has met two of her long term goals and is approaching the third. Patient did not report any technical issues and completed all questionnaires. Patient will complete her next call on 12/14/19.

Roland Morris

	Initial Score	Score	Improvement %
0 = No Disability, 24=Max Disability	12	2	83%

Patient has improved their overall Roland Morris score from a 12 to a 2 for an overall improvement of 83%.

PROMIS 29

Note: Raw data is converted to Tscore with mean of 50 and SD of 10

	Initial Consult	Re-Evaluation	Improvement
Physical Function	15	17	13%
Anxiety	7	4	43%
Depression	5	4	20%
Fatigue	12	7	42%
Sleep Disturbance	12	12	0%
Ability to Participate in Social Roles and Activities	15	16	7%
Pain Interference	11	5	55%
Pain Intensity	7	5	29%

In the past 7 days: Patient has improved in the following categories: Physical Function: 13%, Anxiety: 43%, Depression: 20%, Fatigue: 42%, Ability to Participate in Social Roles/Activities: 7%, and Pain Interference: 55%. Patient has not improved in the following categories: Sleep Disturbance: 0%. Patient's pain intensity has decreased by: 29%.

[REDACTED]

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[REDACTED]



Discharge

Patient Name: [REDACTED]

Physician: [REDACTED]

Personal Clinician: [REDACTED]

Visit Date: 01-11-20

Patient Date of Birth: [REDACTED]

Patient Status Update

Average pain level prior to starting Virtual Reality Therapy (1-10): 5

Amount of time spent thinking of pain per day (hrs/min): 0

Patient is currently working 61 hours per week and current level of function at work is 95%.

Pain decreasing while using Virtual Reality Therapy (VRT).

Details: First full week back at work after the holiday season. "it was challenging...it work out well." Leaving the 6th of feb. Work goal. expanding my job a little bit.

Average pain level during VRT sessions (1-10): 4

Length of time after VRT session that pain stays decreased (hrs/min): 3 hrs

Using a scale of 1 (no immersion) to 10 (total immersion), the perceived immersion level during VRT: 10

Using a scale of 1 (no benefit) to 10 (extreme benefit), the patient rated the benefit of her VRT sessions: 10

Additional comments on immersion and benefits of VRT: Patient report an in increase in ADL which "was excellent." Due to improvement patient was chosen to travel for work. Was a personal goal to travel for work. Patient said that her HR department is interested in provding Vx tx for the rest of there employees.

Using a scale of 1 (no awareness) to 10 (total awareness), current awareness of:

Pain: 4

Anxiety: 1

Goal #1

Desired goal: Patient would like increase sleep duration.

Current ability (1-10): 10

Current level of function: Patient met her long term goal.

Short term goal: Patient would like to get 5 to 6 hours of sleep per night on average.

Long term goal: Patient would like to get 7 to 8 hours of sleep per night on average.

Goal #2

Desired goal: Patient would like to decrease stress that increase pain level.

Current ability (1-10): 10

Current level of function: Patient met her long term goal.

Short term goal: Patient would like to decrease pain related to stress.

Long term goal: Patient would like to experience minimal or no pain while under stress at work.

Goal #3

Desired goal: Patient would to increase the number of days and length of time that she can practice yoga.

1 OF 2

Current ability (1-10): 10

Current level of function: Patient met her long term goal.

Short term goal: Patient would like to practice yoga three times per week for approximately 20 to 30 minutes each session.

Long term goal: Patient would like to practice yoga on a daily basis for at least one hour per session.

Program Performance

Patient has followed Vx Pain Relief Program without difficulty.

Patient comfortable operating Vx Virtual Therapy Device and understands treatment.

Assessment and Plan

Impairments:

- increase in range of motion
- increase in activity tolerance
- increase in pain limiting function
- increase in strength
- increase in endurance
- increase focus due to pain
- decrease in anxiety levels
- increase in sleep

Plan: Patient to follow Vx Pain Relief Program with clinical oversight per physician order.

Recommendations/Summary: Patient completed her discharge call and will text all questionnaires. Patient used the Vx system as prescribed. Patient reported a significant decrease in pain during and after Vx sessions over the past 90 days of treatment. Patient met all of her long term goals. Patient requested to keep the Vx for her work trip to Michigan. Patient will return the Vx to the HMT office after her trip.

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