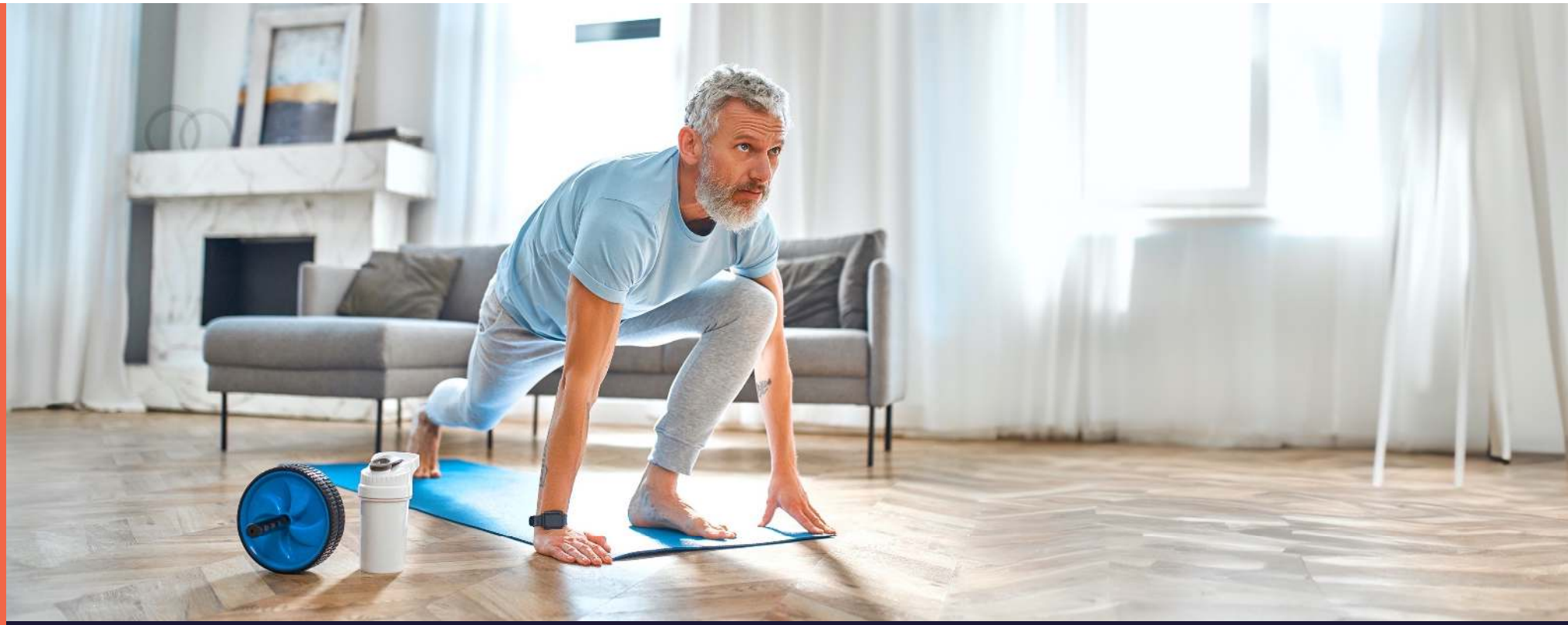
Intelligent data-powered recovery

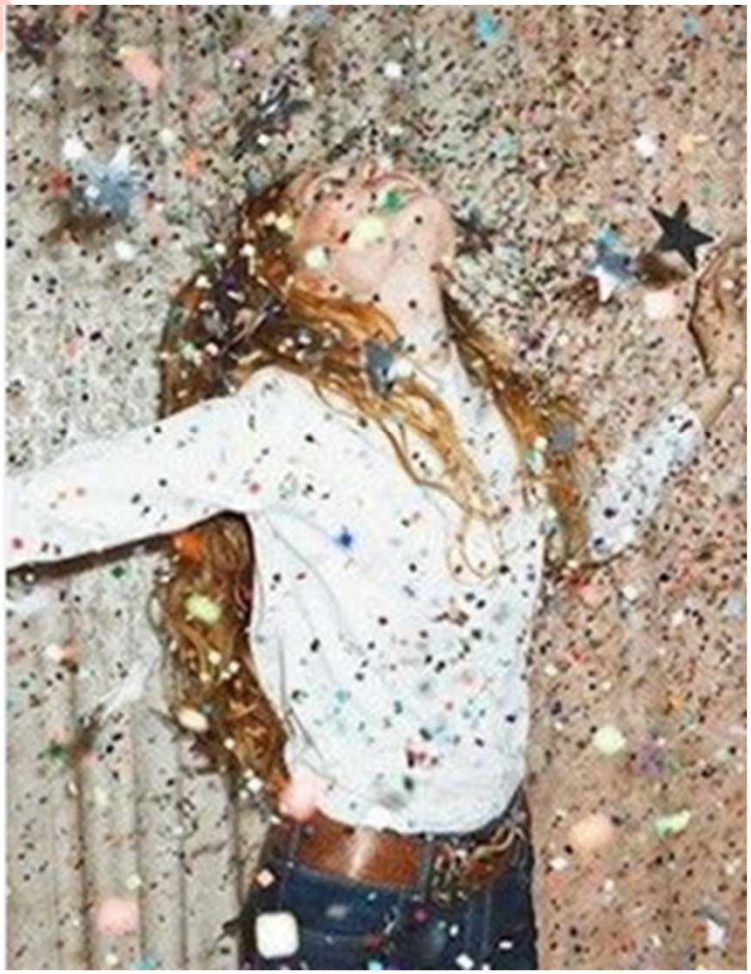


A Deep Dive into the Transformative Capabilities of Integrating Data Analytics into Claims Management

Dr. Claire Muselman, DCM claire@drclairemuselman.com

Dr. Claire Muselman

- The Science of People & Human Behavior
- Workers Recovery Unit - Founder
- Workers' Compensation Center of Excellence - Creator
- Developed the Workers' Empowerment Model
- Injured worker... three times
- Former CRO, Claims Executive (Insurance & TPA)
- Professor & Director of the Master of Science in Leadership Program
- Chief Operating Officer



My mission in life is not merely to survive, but to thrive; and to do so with some passion, some compassion, some humor, and some style.

– Maya Angelou

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DATA ANALYTICS

Integrating data analytics into claims management.

Our goal is to unveil the untapped potential of harnessing insights to optimize every facet of the claims process, starting from the initial assessment and extending to facilitating a successful return-to-work journey for injured workers.

Key Takeaways:

Essential Data Insights: Grasp why data-driven insights are vital in dynamic workers' comp, shaping the industry's future.

Revolutionary Analytics Integration: Discover power of data analytics in claims, enhancing every workflow stage.

Informed Decision-Making: Learn how data-driven choices reshape claims handling, making it precise and efficient.

Streamlined Processes: Uncover how insights simplify claims, reducing complexity and smoothing workflows.

Improved Outcomes: Explore real examples of insights bettering injured worker outcomes, from treatment to return-to-work.

Collaborative Approach: See how data fosters stakeholder collaboration, holistic claims management.

Future Implications: Gain insight on data analytics' ongoing role in reshaping claims, fostering improvement and innovation.

CATEGORIES OF MUSCULOSKELETAL INJURIES

Broad categories of injuries lend itself to varying degrees of predictability

Non-Surgical

Sprains & Strains

Chronic Pain

Care Active

Conservative Care

Surgery Avoidance

Surgical

Fracture and
Joint Replacement

CAT Case

Increased Mobility
And Function

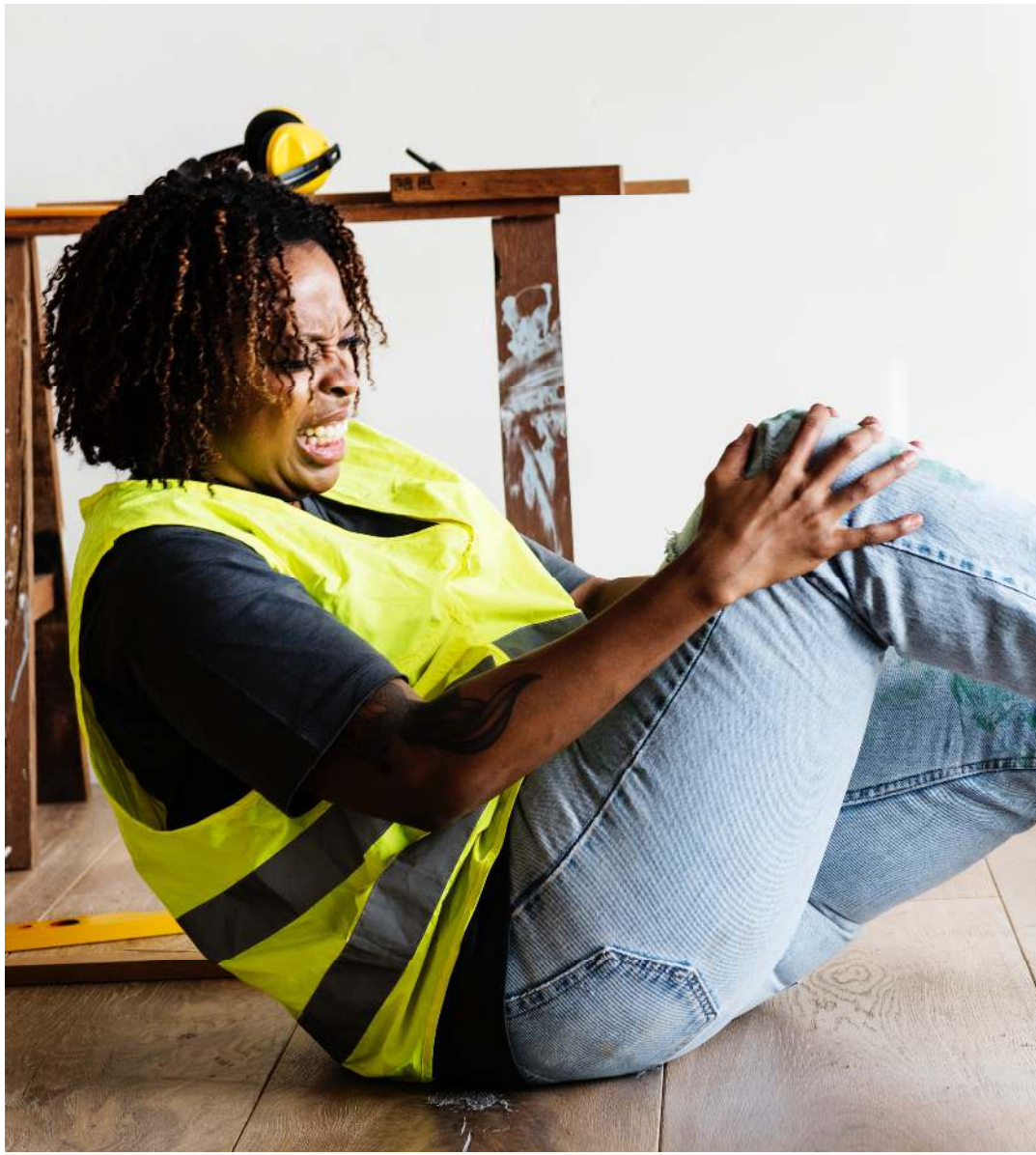
Legacy Claims

RTW and
Increased Function

Intelligent Recovery

JOURNEY START

Injury has occurred



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Meet Robert

Real life case study from 2022.

Robert is a 54-year-old technician from Texas. He is married with a high school diploma and works with his son. He and his wife take care of their grandchildren (3) and live on the third floor of an apartment building, accessible from the outside.

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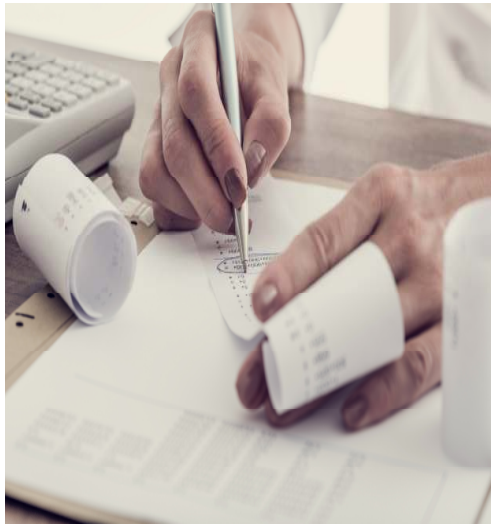
COST AND DURATION

Predictive Model for Length and Cost of Claim

Historical data, ODG, ACCOM, risk stratification algorithms (co-morbidities) are quite accurate

Ai / ML Models have made this analysis a breeze!



Restoring Mobility

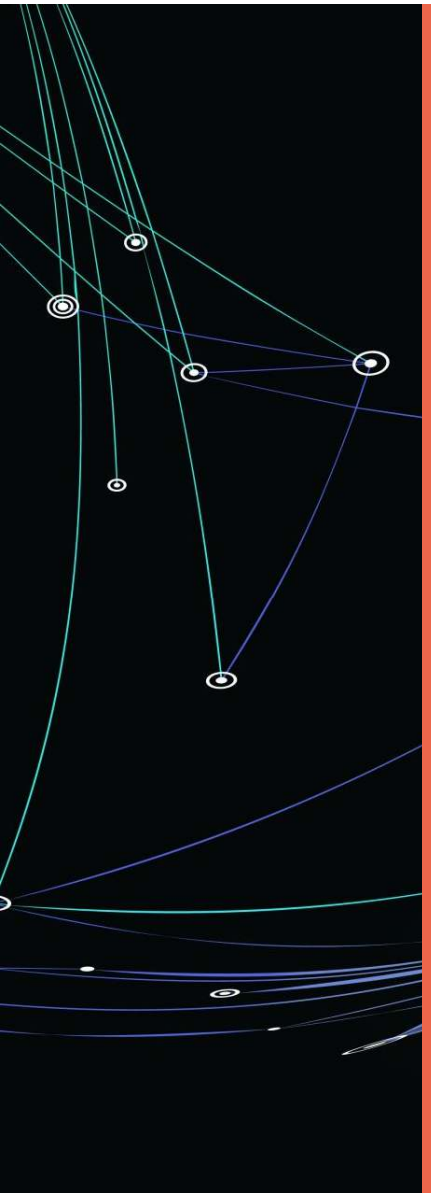
Majority of recovery occurs at home

Recovery requires patients to follow care at home between clinic visits.

Only 35% do

Gamification & Patient Engagement

- Increased Engagement & Motivation
- Improved Memory & Learning
- Stress Reduction
- Enhanced Problem-Solving Skills
- Boost in Confidence & Self-Efficacy
- Social Connection



What about that beautiful brain?

- Dopamine release
- Endorphin production
- Stress reduction with Cortisol Decrease
- Increased Engagement through Norepinephrine
- Oxytocin Release through Social Interaction
- Enhanced Neuroplasticity

Neurotransmitters

- **Serotonin**
  The Mood Stabilizer
- **Dopamine**
  The Reward Chemical
- **Endorphins**
  The Painkiller
- **Oxytocin**
  The Love Hormone

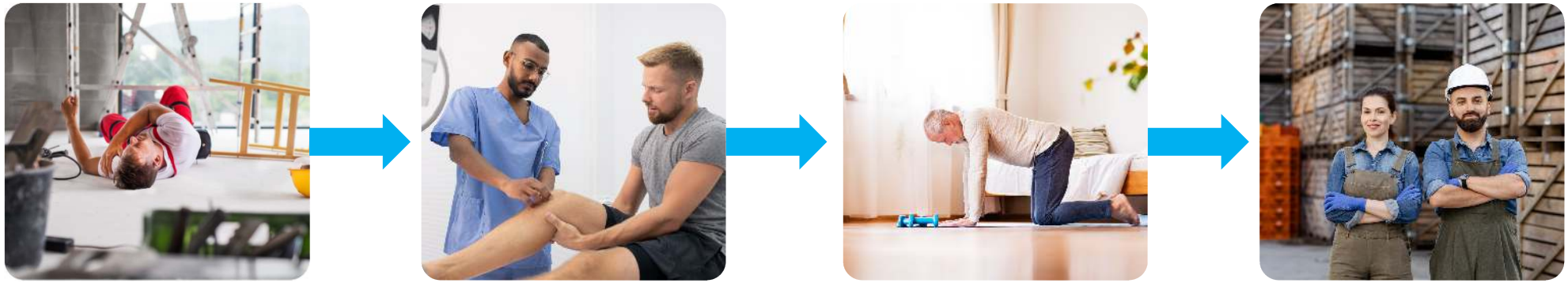
Majority of recovery occurs at home

Making it fun, engaging

Hormonal responses of reward

Increase beyond 35%?

Recovery is not a straight line



What injured workers get to manage their care at home

Home Discharge Instructions: Arthroscopic Knee Surgery

MEDICATION: You will have prescriptions for pain medications to take home with you. This will be submitted electronically to the pharmacy on file with UT Health – Austin.

1. Naproxen 500mg: This medication is for pain and to control inflammation. Take 1 tablet at breakfast and dinner – or twice a day with food.

2. Percocet (5mg/325mg): This is an OPIOID/NARCOTIC medication to treat severe pain. Take 1-2 tablets every 6-8 hours as necessary for severe pain. Opioids are effective at pain management but have multiple adverse side-effect which include nausea, vomiting, and constipation. You should take this medication with a full glass of water. This medication should be used only for excess pain despite taking the anti-inflammatory, and/or at night to help you sleep. You may discontinue this medication as soon as you would like.

Opioids have a peculiar drug interaction where it can make a person more sensitive to pain. This can ultimately lead to dependence on the medication or even addiction. For this reason, I encourage you to rely on this medication for severe pain as I will only prescribe enough medication for 10-days estimated at 8 tablets per day. At your first post-operative visit, I will begin to taper you off opioids and change this medication to a less potent drug. The goal is to have you off opioids/narcotics within 30-days of your procedure.

DRESSINGS: I prefer that you leave your dressings in place until your follow up appointment but, if absolutely necessary, you may change the dressing on your knee NO EARLIER THAN 7 DAYS AFTER SURGERY. Usually you will have 2 or 3 small incisions. Replacing the ace wrap over the knee will help limit swelling. The dressing may be wet and bloody, do not be alarmed, this is left over blood and arthroscopic fluid leaking out of your knee. If your wound is completely dry, without any drainage, you may leave the dressing off. If steri-strips were applied, leave them on until they come off on their own (about 7-10 days). Sutures will be removed at your first post-op visit, if necessary.

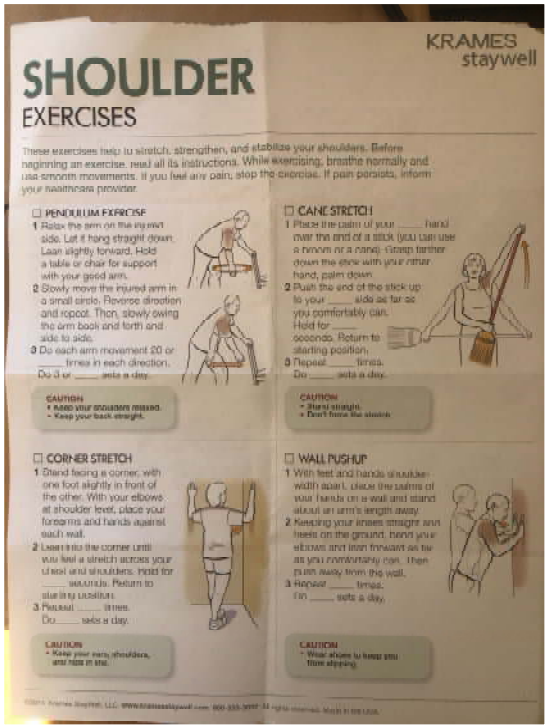
BATHING: You should keep your incision dry (no shower or bath) until 7 days after surgery at which time you may begin to shower only. Do not bathe, soak the knee, or use hot tubs. After your wound has been checked at your first post-op appointment, you will be told when you may begin bathing/soaking.

ICE: Use it as often as you can for the next 7 to 10 days. Ice bags/packs/bladder should be used for 20 to 30 min every 3 to 4 hrs during waking hours (minimum of 8 hrs/day). Be sure to protect your skin from frostbite with a washcloth, towel, or ace wrap between the ice bag/pack and your skin.

ELEVATION: Keep your leg elevated whenever possible. The primary goal during the first week post-op is to minimize swelling in your knee, therefore it is beneficial to minimize ambulation (walking) for the first week. When sitting or laying down, try to have your knee elevated higher than the level of your heart. Place pillows or rolled sheets underneath your lower leg or heel, NEVER UNDERNEATH YOUR KNEE. Placing pillows directly under your knee may be more comfortable, but this will cause your knee to remain in a flexed (bent) position, and it will become increasingly difficult to extend (straighten) your knee.

BRACE: You may be provided with a knee immobilizer or a hinged knee brace. If so, it usually this means that there was more extensive damage to the cartilage in your knee and another procedure was performed to address this. You should wear this brace at all times when ambulating (walking) to protect your knee cartilage from more damage while it is healing. Typically, you will need to wear the brace for 6-12 weeks after surgery. You may remove your brace while you are sleeping, working with the physical therapist or performing your home physical therapy exercises.

***IMPORTANT*:** If you have signs of an infection, such as a temperature over 101.5 degrees, persistent wound drainage, redness, swelling, or increased pain, you should contact us immediately at 1-833-882-2737.

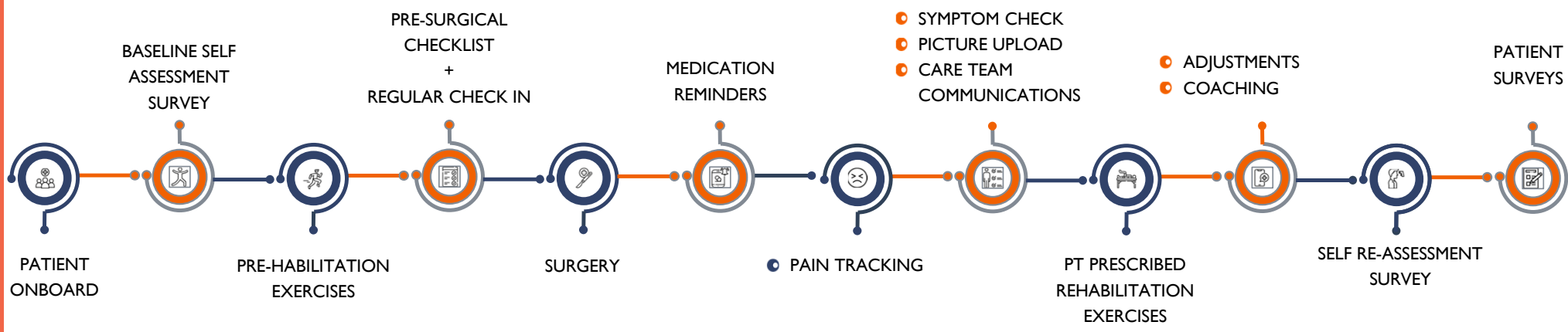


What is expected of them

Structured episode of care

PRE-SURGERY

POST-SURGERY OR NON-SURGICAL RECOVERY



Barriers Injured Workers Face are Many

Lack of Access To Care

- Distance
- Schedule
- Lack of support

Disconnected Data

- No at-home recovery metrics
- No data exchange: Doctor, PT, Home Health

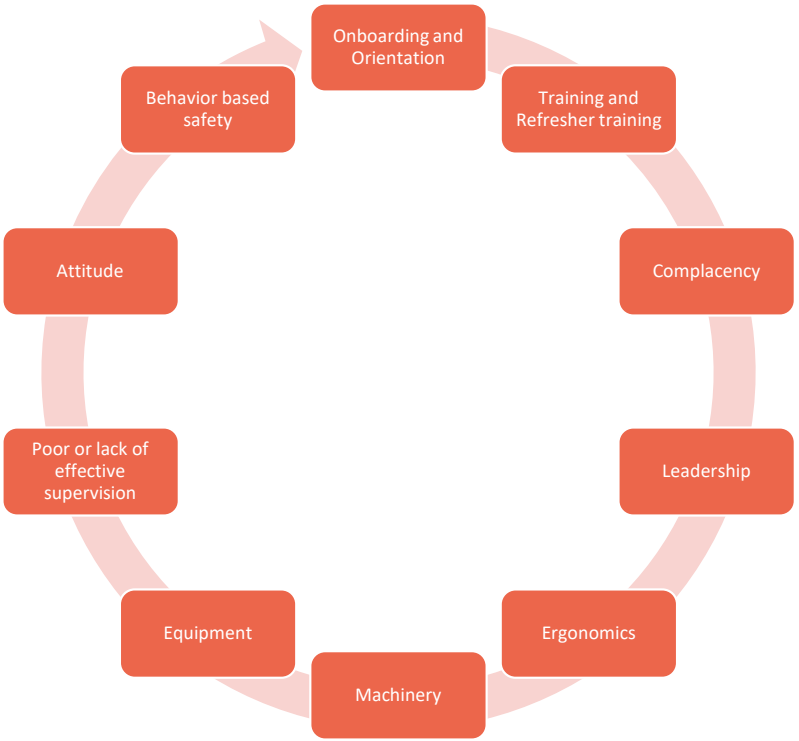
Fragmented Care

- No alerts for quicker intervention for care team
- No insights to claims adjusters for decision making

Restore Your Mobility

DATA AND ANALYTICS

Power of Data



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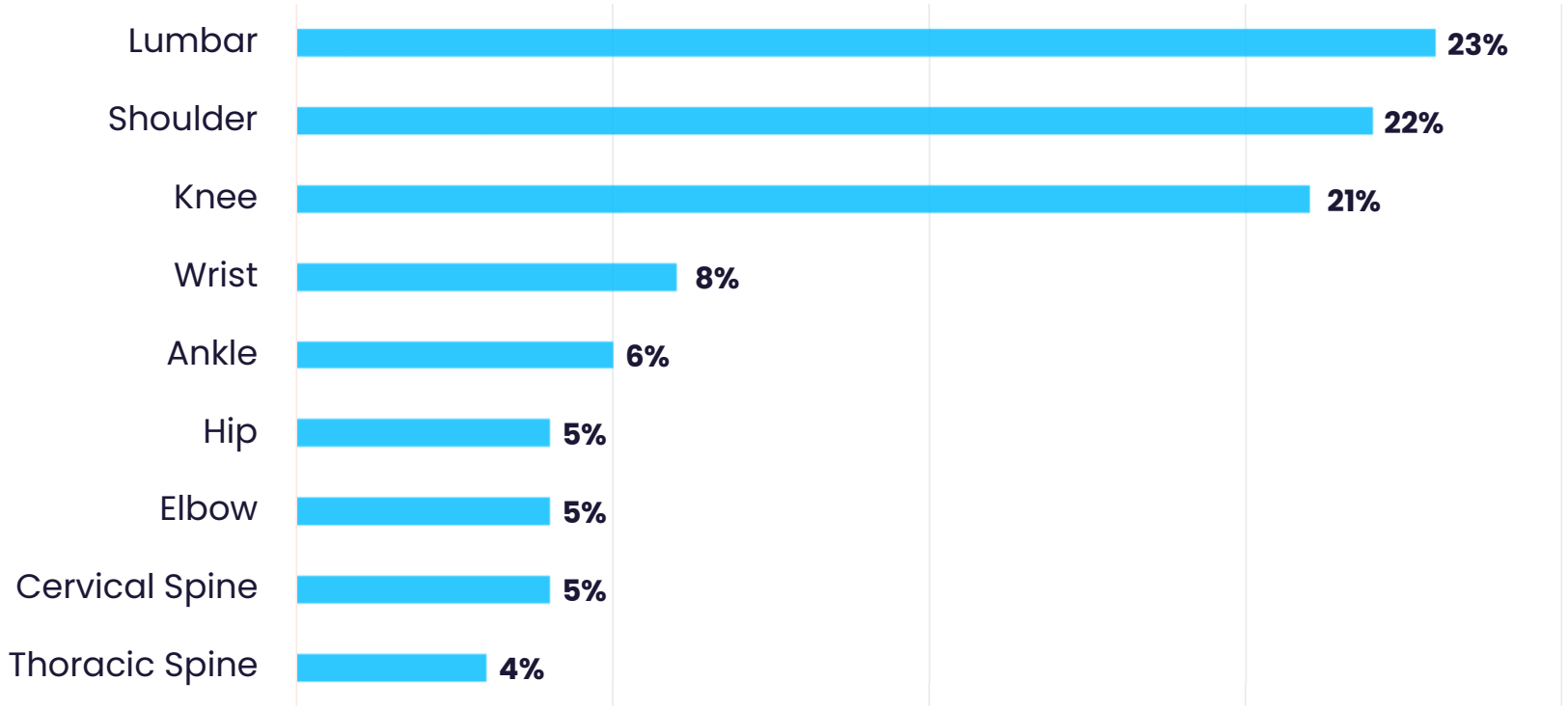
SAMPLE DISTRIBUTION OF INJURIES

Let us take a case of an enterprise focused on retail



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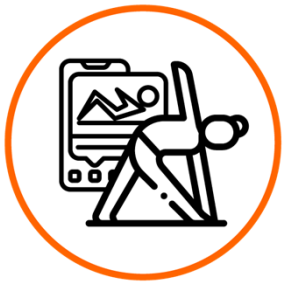
INTRODUCING UNPREDICTABILITY

80% of recovery occurs at home and only 35% of patient engage.

Injured workers need support to recover at home and recovery at home data does not exist

We made it easy for injured workers to manage care at home between clinic visits



Engage patients
Support care at home

Intervene quickly
Accelerate recovery

Insights for
payors and providers

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Humans are complicated!

- Multi-faceted
- Multi-functional
- Multi-dimensional
- Multi-emotional

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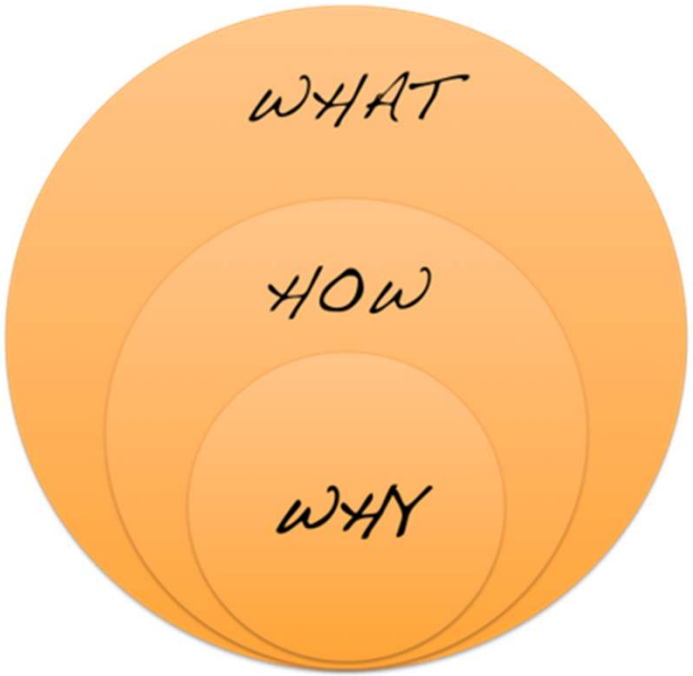
The Golden Circle Application

- Why → Identity
- How → Habits
- What → Outcomes



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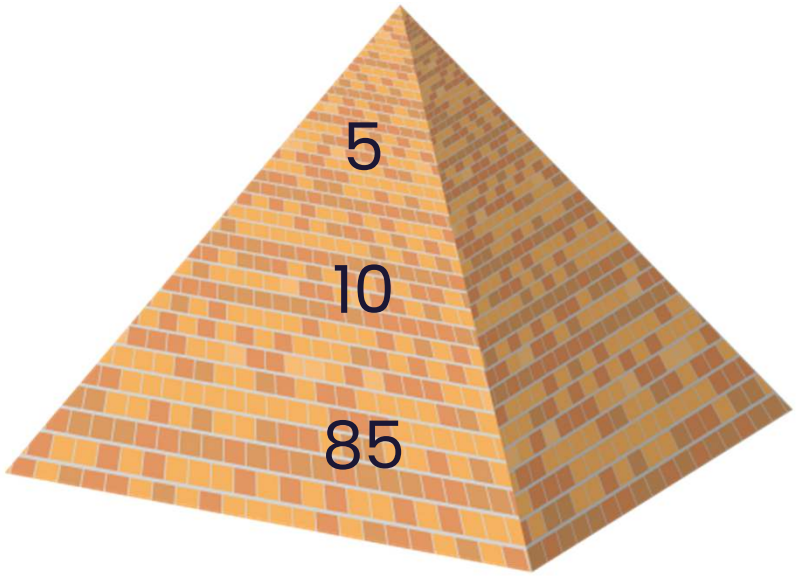
Life Force Pyramid

Self

Relationships

Physical Body



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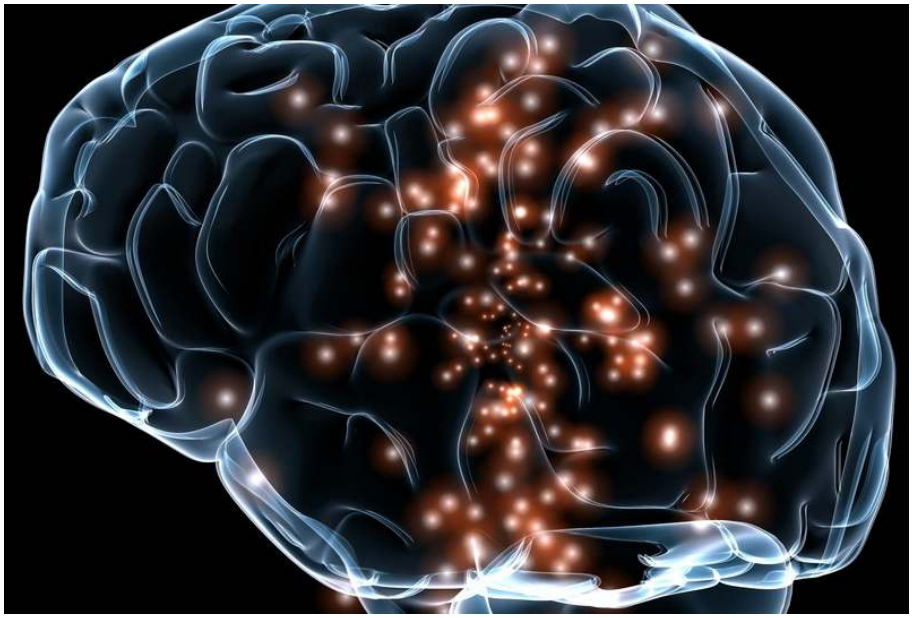

Gamification & Patient Engagement

- Increased Engagement & Motivation
- Improved Memory & Learning
- Stress Reduction
- Enhanced Problem-Solving Skills
- Boost in Confidence & Self-Efficacy
- Social Connection

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Data and Insights Lead to Quicker Intervention and Quality Outcomes

Real time data and analytics including alerts for intervention

Virtual Consultation eliminates unnecessary clinic visit

Quicker insights for Physical Therapists to adjust program

Quicker intervention saves money

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Role of Internet of Things (IoT) in health care

INTERNET OF THINGS

IoT is redefining healthcare through data, leading to improved outcomes, reduced costs, and better patient experience.

INTERNET OF BEHAVIOUR (IoB)

If you build it, they won't come

Too often attention diverted to shiny objects!

Intelligent data-powered recovery

Internet Of Behavior (IoB) in health care

INTERNET OF BEHAVIOR

IoB is enabling personalized services through data, by understanding the user's mood and behavior.

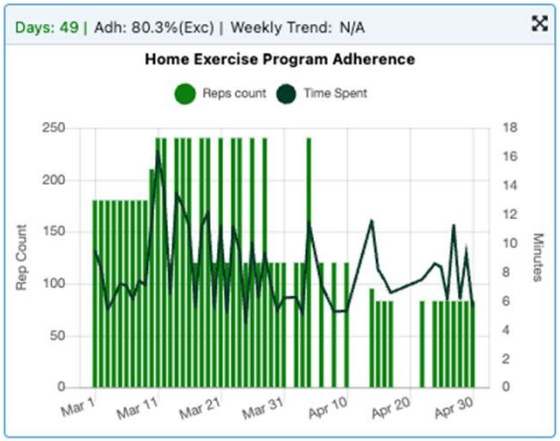
Mood affects engagement and personalization is critical

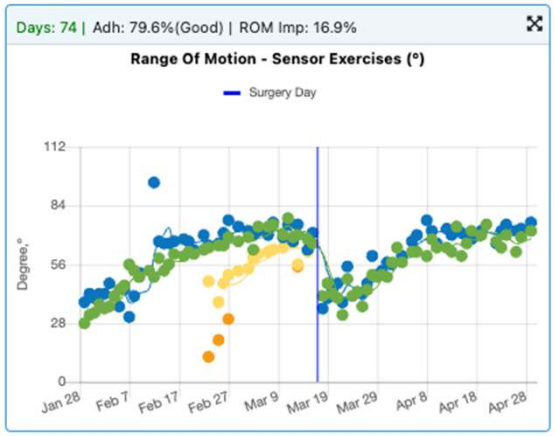
Social support systems accelerate recovery

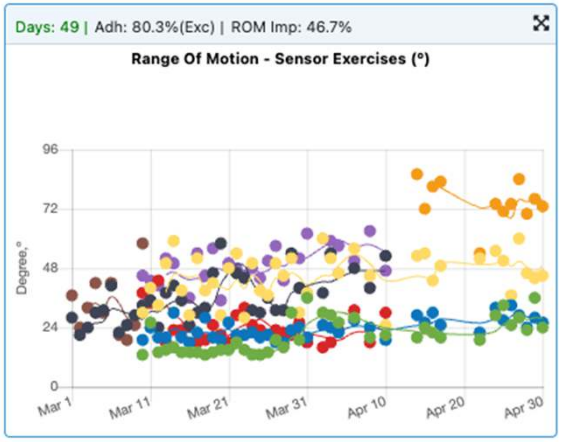
Delayed recovery risks are real

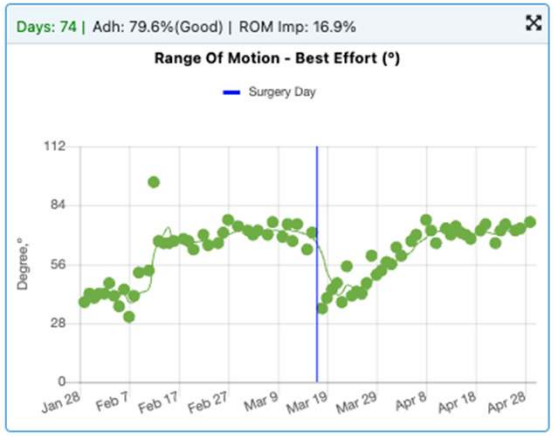
Intelligent data-powered recovery

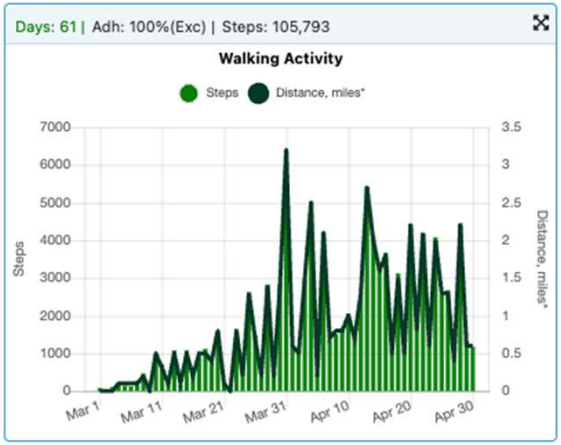
Passively Collected Data

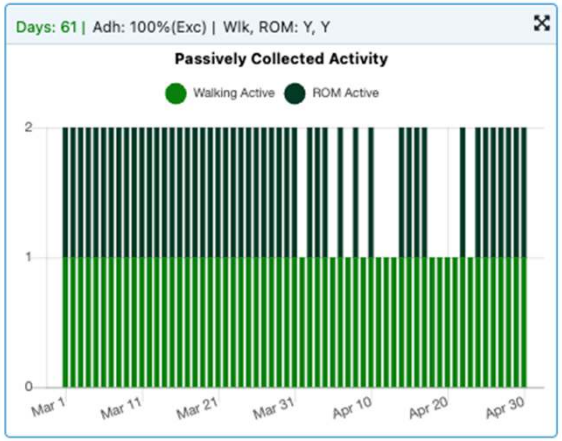












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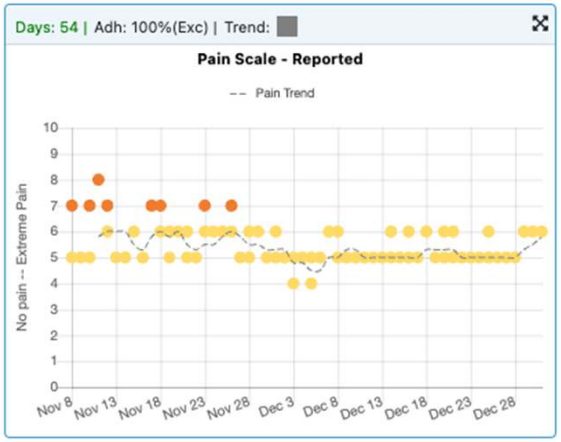
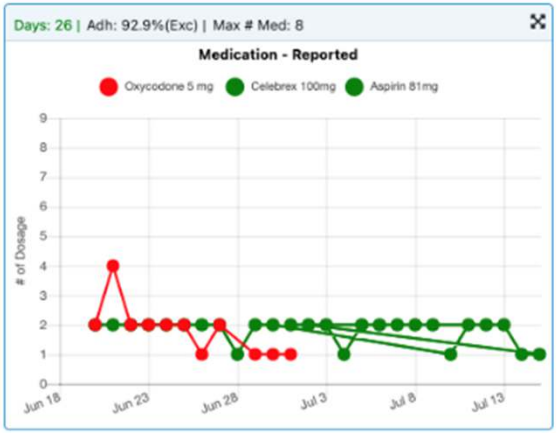
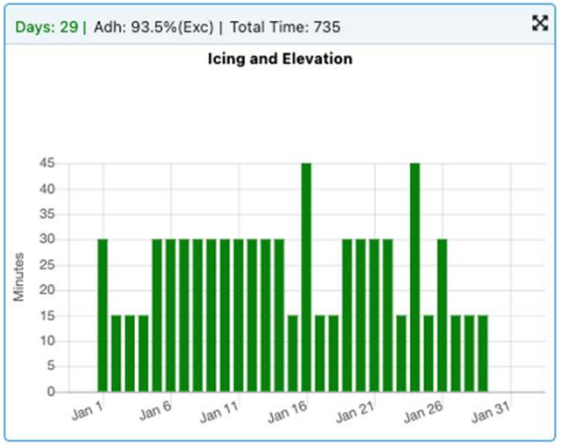
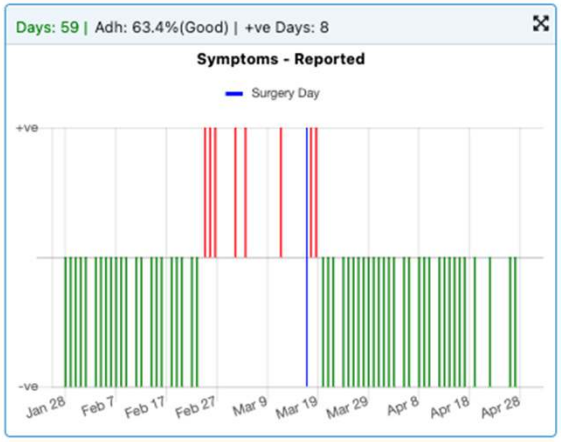
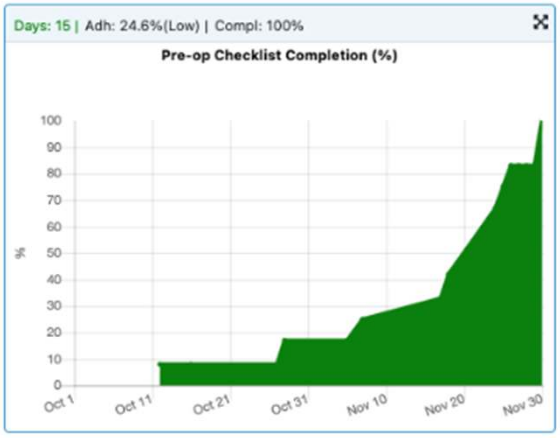
Actively Collected Data

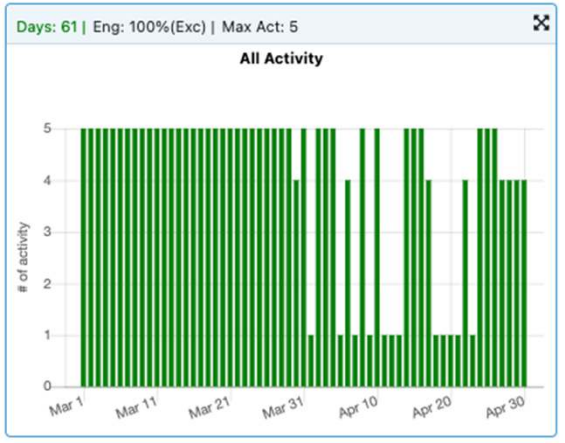












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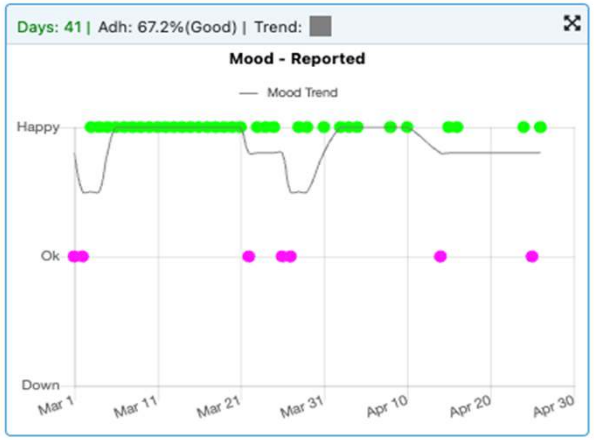
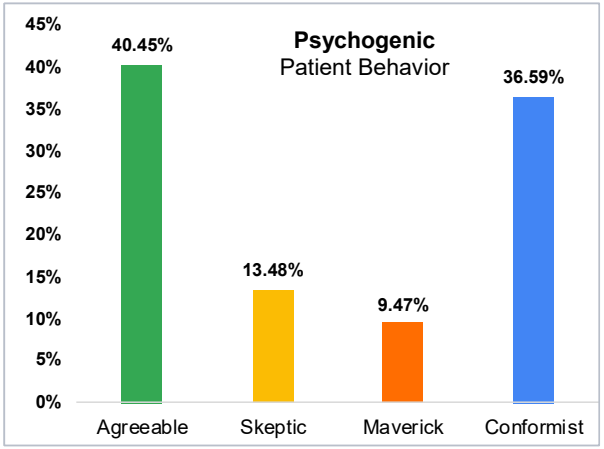
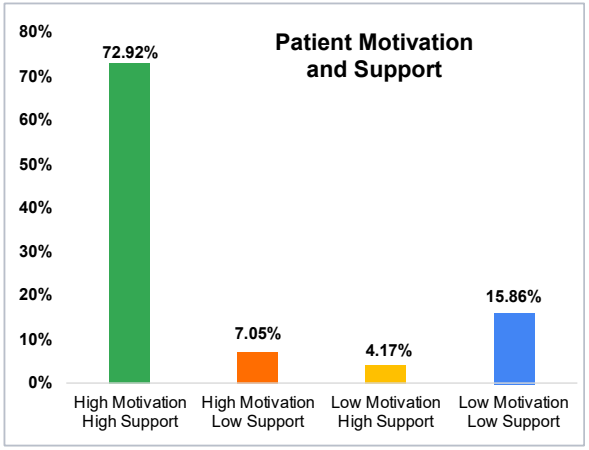
Psycho-Social Data







We also identify Delayed Recovery Risks for Patients

Intelligent data-powered recovery

LUMBAR

Injured workers with lumbar indications when engaged require reduced services and prevents the risk of reinjuries and prolonged recovery

50 Days

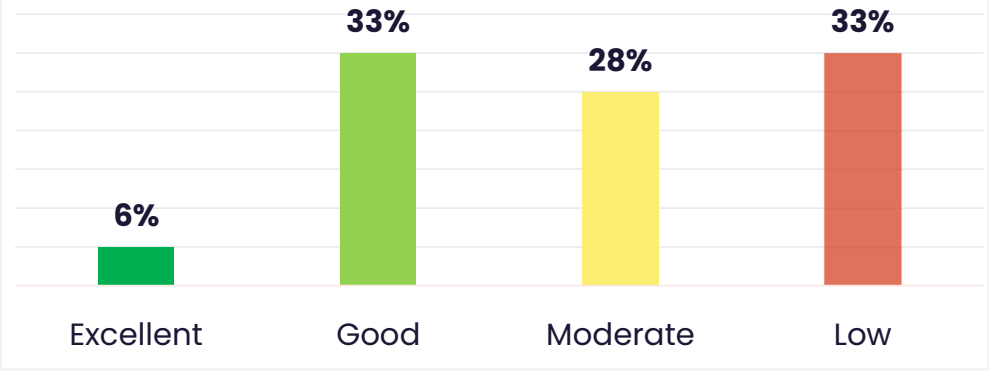
Average days the injured worker spent on the program

27%

Pain Reduction

Engagement Level in Program

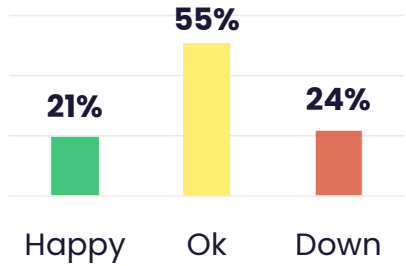
2.5x Industry average



In Work Comp 21%-24% of IW engage in their home exercise program (NCCI)
Only 35% of physical therapy patients fully adhere to their plans of care https://pubmed.ncbi.nlm.nih.gov/8234458/

Mood Tracking

Leads to early intervention to keep injured worker engaged



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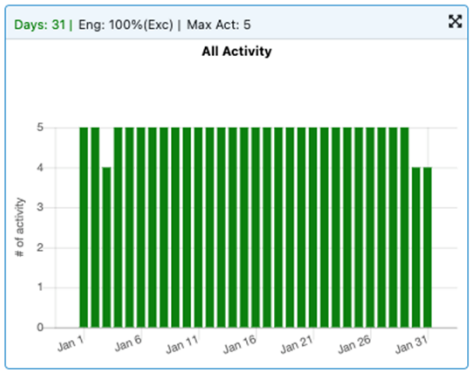
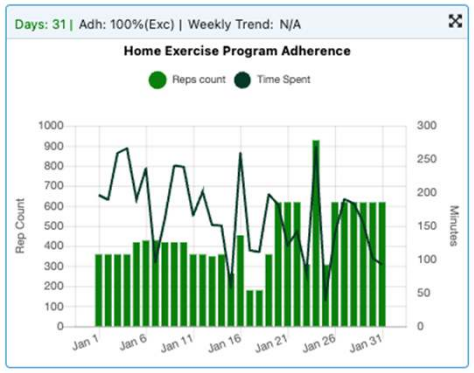
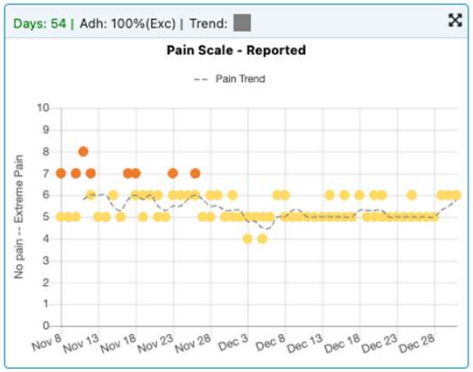
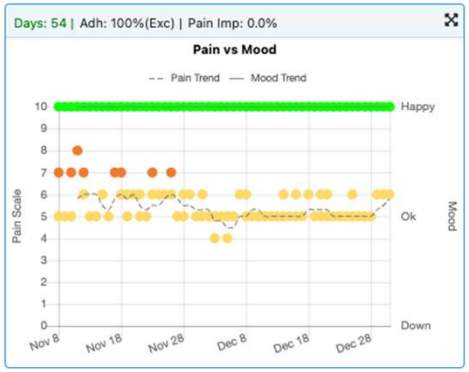
Data and Correlation for Intervention

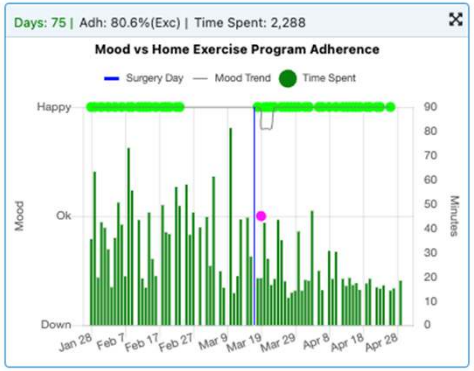
Alerts and Thresholds customizable by surgeon

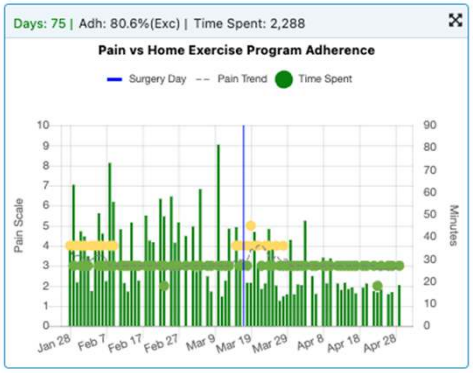


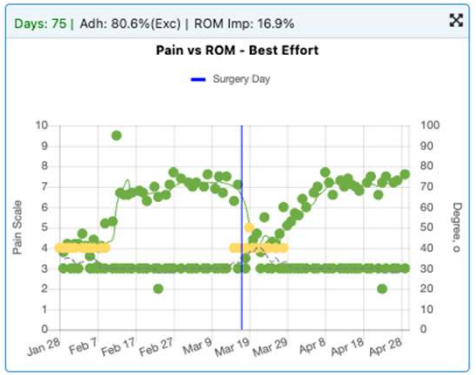












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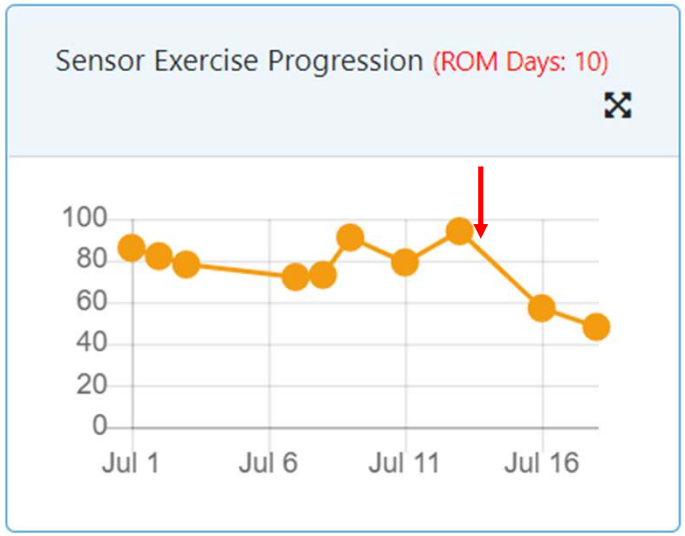
Injured worker had consistent ROM, but has fallen recently.

Coach following up with patient proactively



OBSERVATIONS

- Injured work fell
- Opportunity to engage with claims team
- Engagement with provider on program revision

Intelligent data-powered recovery

93%

Physicians believe digital health solutions would improve patient care

Source: AMA Digital Health Research, September 2022

3 in 5

Physicians believe technology can most help key areas such as chronic disease patients and preventative care

40%

Physicians expect to incorporate digital therapeutics within 1 year

Intelligent data-powered recovery

Benefits:

Organizational Behavior

Clarified Policies & Consumable Procedures

Accountability

Leadership Buy-In

Biology/Psychology/Sociology

Psychosocial Issues

Political Narrative

Alleviates Bias

- Lens of Objectivity
- Factually-Based Information
- Scope of Control

HOW AN EFFECTIVE LOSS TREND ANALYSIS CAN IDENTIFY OPPORTUNITIES

BENEFITS:

Restore Your Mobility

Restoring Mobility

Types of Ai

Artificial Narrow Intelligence

Narrow artificial intelligence (narrow AI) is a specific type of artificial intelligence in which **a learning algorithm is designed to perform a single task**, and any knowledge gained from performing that task will not automatically be applied to other tasks.

Artificial General Intelligence

Artificial general intelligence (AGI) is the representation of **generalized human cognitive abilities in software** so that, faced with an unfamiliar task, the AGI system could find a solution.

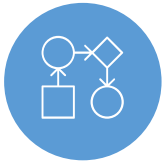
Artificial Super Intelligence

Artificial superintelligence (ASI) is a software-based system with **intellectual powers beyond those of humans** across a comprehensive range of categories and fields of endeavor. ASI doesn't exist yet and is a hypothetical state of AI.

Restoring Mobility

Role of AI in Healthcare

Timely Diagnosis



Quicker Decision

Quicker Treatment

Virtual Care

Data Capture

Virtual Engagement

Reduced Care Costs

Intelligent Recovery

Enhancing WC Outcomes Through Big Data and Wearables

We have to meet each injured worker where they are

This approach leverages the bio-psycho-social aspect that is critical for engaging the worker while capturing necessary insights.

This involves:

- Understanding their home situation, motivations, and behaviors
- Demonstrating empathy and understanding
- Realizing the patient's journey is not a straight line of consistent progress
- Adapting the patient's treatment plan as needed
- Engaging with clinicians as quickly as possible when issues arise

Intelligent Recovery