

# The effects of medical cannabis and physical therapy in patients with chronic pain and/or Parkinson's Disease: Protocol study

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## INTRODUCTION

- It is estimated that more than 20% of Americans experience chronic pain<sup>1</sup>.
- There is a strong correlation between chronic pain and diminished performance of daily activities<sup>2</sup>.
- In 2016, opioid medications recorded approximately 38,000 deaths due to overdose<sup>3</sup>.
- Parkinson's Disease currently affects approximately 60,000 Americans per year and an estimated 10 million people worldwide<sup>4</sup>.
- Common symptoms in patients with Parkinson's Disease include pain, resting tremor, fatigue, decreased movement, muscle rigidity, impaired postural control and balance, difficulty with gait (freezing gait), and sleep disturbances.
- Results of self-reported assessments of neurological disability between current cannabis users and non-users and found that the level of disability was 44% less with the users compared to non-users<sup>5</sup>.
- There is currently limited research exploring how physical therapy coupled with medical cannabis use in patients with chronic pain and/or Parkinson's Disease.

## PURPOSE

The purpose of this study is to determine the effects of medical cannabis coupled with skilled physical therapy in patients with chronic pain and/or Parkinson's Disease.

## METHODS

- Protocol for randomized experimental study involving individuals 21 years or older who have been diagnosed with chronic pain and/or Parkinson's Disease:
  - Inclusion criteria: diagnosis of chronic pain, Parkinson's disease, or both; legally certified to use medical cannabis; English speaking; clearance from physician to participate; administration of medical cannabis using a legal form.
  - Exclusion criteria: diagnosed with another neurological disease; acute musculoskeletal injury in the past 2 weeks; acute systemic illness; uncontrolled hypertension (resting BP > 149/90); disoriented to person, place or time; resting HR greater than 100 bpm.
- Participants would be screened by a physical therapist in order to participate. Following screening, participants will provide informed consent and photo release, and be assigned a random ID number to maintain confidentiality.
- Researchers would like a total of 80 participants, recruited from the Justice Grown Dispensary in Edwardsville PA.
  - Subjects will be placed in 4 groups (see Figure): 1) chronic pain, 8 sessions of physical therapy (PT); 2 ) chronic pain, no PT ; 3) Parkinson's disease , 8 session of PT, 4) Parkinson's Disease, no PT. All subjects will use medical cannabis.
- PT interventions would be customized to participants, including, but not limited to: Balance, strength, or flexibility training; walking, functional mobility, manual therapy.
- Following the study, 8 session of Physical therapy will. be offered to participants who were not placed in the PT group.



Figure: Experimental Groups

## OUTCOME MEASURES

- We decided to use 4 outcome measures that would be measured twice in patients; once at the beginning of the experiment and once at the conclusion of the 4 week testing period.
  - Numeric Pain Rating Scale (NPRS)<sup>6</sup>.
    - Patients will rate their pain from 1 (little to no pain) to 10 (pain requiring hospitalization).
  - Life Satisfaction Questionnaire-11<sup>7</sup>.
    - This questionnaire targets 11 life domains that may impact a subject, including: vocation, finances, leisure, general life satisfaction, contact with others, sexual life, self care, family life, partner relationship, physical health, and psychological health.
  - Posture Analysis<sup>8</sup>.
    - Posture analysis will be completed using the Posture Screen Mobile application and will be used to determine any variations in the participant's posture that may be related to discomfort or physical symptoms that they are experiencing.
  - Gait Analysis<sup>9</sup>.
    - This analysis will use the Zeno Walkway and the Prokinetics Movement Analysis System to assess gait speed, step length, and step symmetry.

## PHYSICAL THERAPY IMPLICATIONS

- Both PT and medical cannabis have been shown to be effective in patients with Parkinson's Disease and chronic pain.
- We hypothesize that the combination of skilled PT coupled with medical cannabis will increase positive results in patients.
- This research will allow physical therapists to learn about the potential benefits of medical cannabis and how it can aid their patients, and pass that information on the colleagues, other medical professionals, patients and families.

## CONCLUSION

- We believe that the interaction between medical cannabis coupled and PT in patients with chronic pain and/or Parkinson's Disease will lead to better overall patient outcomes and is a need for future research.
- There is currently no literature exploring how PT coupled with medical cannabis in patients with chronic pain and/or Parkinson's Disease affects life satisfaction. Therefore, we believe this research to be appropriate and necessary.
- In future research, inclusion and exclusion criteria can be adjusted based on the preferences of future researchers as well as current state legislation.

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