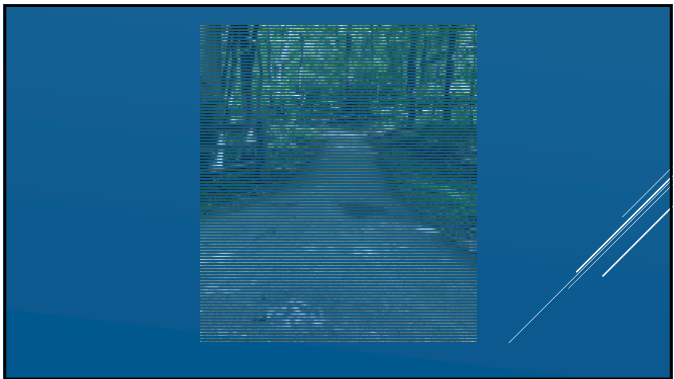
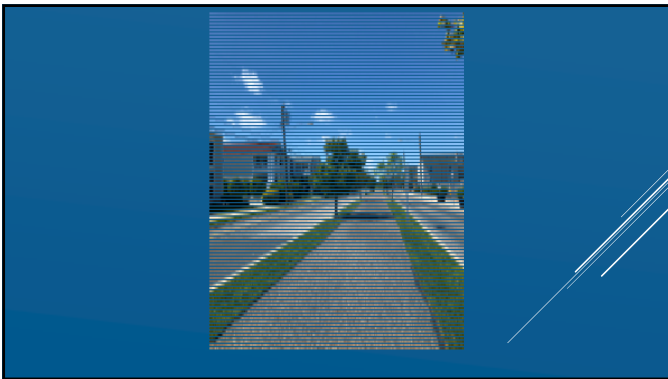
 **VILLANOVA UNIVERSITY**
M. Louise Fitzpatrick College of Nursing

Nutritional Considerations in Medical Marijuana Use

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Objectives

- Explore current research on medical marijuana use for two nutrition-related qualifying conditions
- Use a case study approach to demonstrate the use and impact of medical marijuana as part of an overall nutrition treatment plan
- Discuss nutritional and safety issues for consumers inquiring about cannabis/cannabinoid edibles





<https://www.mtbproject.com/trail/7009086/green-lane-park>

Questions for you.....

Question to ponder.....

- Can medical marijuana lower the "resistance" so that nutritional (and overall) treatment has a chance to take hold?
- If so, what are some factors to consider in the process?

A Quick Terminology Review

Cannabis: Flowering herb. Contains over 400 active compounds

Cannabinoids: Major components in cannabis plant

CBD: Cannabidiol. One of the cannabinoids. Non-intoxicating.

Hemp: Derived from CBD. Contains negligible THC

THC: Cannabinoid. Psychoactive component of cannabis

Additive Components of Cannabis

Terpenes: Aromatic, organic compounds found in all plants

Flavonoids: Powerful anti-inflammatory agents.

Most Common Adverse Effects

Dizziness
Dry mouth
Nausea
Fatigue
Confusion

Hallucination
Somnolence
Euphoria
Vomiting
Disorientation

THC vs CBD: Potential Nutrition-related Effects

THC	CBD (Cannabidiol)
Psychoactive	Non-intoxicating
Anti-inflammatory	Anti-inflammatory
Anti-spasm	Anti-seizure, anti-spasm
Analgesic	Analgesic
Bronchodilator	Bronchodilator
Stimulates appetite	Antinausea/Suppresses appetite?
Relaxes muscles	?? May improve blood sugar and bone health

Qualifying Conditions in Pennsylvania

ALS Autism Cancer Crohn's Disease Damage to the nervous system of the CNS with objective neurological indication of intractable spasticity	Dyskinetic and spastic movement disorders Epilepsy Glaucoma HIV/AIDS Huntington's Disease Inflammatory Bowel Disease
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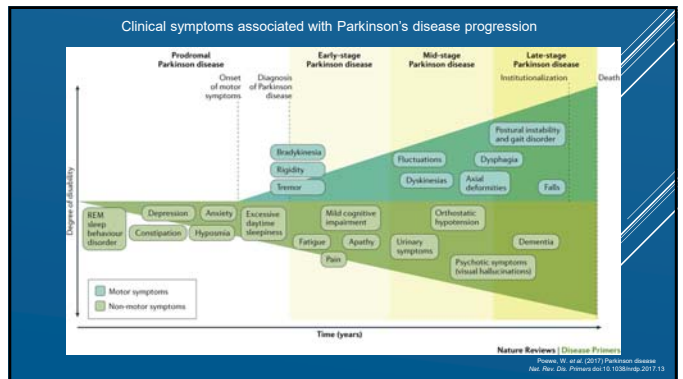
<https://www.pa.gov/guides/pennsylvania-medical-marijuana-program/#HowtoGetMedicalMarijuana>

Qualifying Conditions in Pennsylvania

Parkinson's Disease Post-traumatic stress disorder Severe chronic or intractable pain of neuropathic origin or severe chronic or intractable pain Intractable Seizures Multiple Sclerosis	Neurodegenerative diseases Sickle cell anemia Terminal illness Neuropathies Opioid use disorder*
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Parkinson's Disease

- 2nd most common neurodegenerative disorder
- Chronic degenerative disease
- Average age of onset: late 50's
- Progressive loss of dopamine-producing neurons
- Loss of 60-80% of dopa-producing neurons = loss of motor control
- Brain can't keep up with neuron loss



Treatment

- Oral intake L-dopa
- Anti-depressant
- Anti-tremor medications
- Self-care
 - Diet
 - Physical activity
 - Lifestyle Modifications

Can Cannabis/CBD help control symptoms of PD?

Bodies make natural cannabinoids controlling sleep, appetite and mood

Bind to receptors through body and brain

Receptors plentiful in basal ganglia –control movement

Hypothesis

Can cannabinoids bind to basal ganglia instead, and change course of disease?

Research Findings

- Numerous case series and single case reports concluded that cannabinoids might have potential beneficial effects on PD symptoms.
- Data from randomized controlled, placebo-controlled studies less encouraging
 - 4 studies
 - Total of 49 patients
 - Do not confirm the improvements noted in case series and single case reports
- Must weigh unsubstantiated benefits against potential side effects
 - Hallucinations
 - Orthostatic hypotension
 - Increased risk of myocardial infarction

Suhmasy, C., Mairka, T., Ebersbach, G. et al. J Neural Transm (2019). <https://doi.org/10.1007/s00702-019-02018-z>
Gandor, F., Ebersbach, G. (2017) Cannabinoids in the treatment of Parkinson's disease. Neural Int Open 1:307-311

Parkinson's Disease Causes: New Research

- Gut-Brain axis
- Quality of bacteria in microbiome
- Gut microbiome may influence endocannabinoid tone
- Bacteria quality influence:
 - Mood
 - Gut motility
 - Brain health

Nutrition in Parkinson's Disease

- Increase fruits and vegetables
- Mediterranean Diet
- Avoid excess protein
- Coffee and Tea (caffeine) may be helpful
- Promote healthy weight
- Consider probiotic food and supplements on individual basis

Seid JE, Santiago JA, Blyth H, Rokshin JA. The emerging role of nutrition in Parkinson's disease. *Front Aging Neurosci*. 2014;6:36. Published 2014 Mar 7. doi:10.3389/fnagi.2014.00036

Mediterranean Diet



Plant-based staples
Nuts, whole grains,
beans
Lean protein: chicken
and fish
Less dairy
Fruit and Vegetables
Low saturated fat
Olive oil

<https://parkinson.org/Living-with-Parkinsons/Managing-Parkinsons/Diet-and-Nutrition/Mediterranean-Diet>

Case Study: Medical Marijuana in Parkinson's Disease

- 62 year old male
- Diagnosed with PD 2010
- Multiple chronic medical issues
 - Type 2 DM
 - GERD
 - Iron deficiency
 - Gastroparesis
 - HTN
 - Fibromyalgia

Case Study: Medical Cannabis in PD

Ht: 5'8"
Wt: 238 3/4 lbs
BMI: 36.3 kg/m²
HgA1c: 7.6 (11/16) 8.2 (5/17)

Lactose intolerant
Blood sugars: AM: 155-207 Pre-Dinner 147-168 Bed:
180

Diet: Erratic schedule; high in refined carbohydrates
Reviewed carb counting 1600-1700 calories/180- 200
grams distributed as 3 meals plus 1-2 snacks

Medications

- Sinemet
- Requip XL
- Lyrica
- K Dur
- Xarelto
- Zestoretic
- Toprol
- Metformin
- Prilosec
- Pepcid
- Lipitor
- Vicodin
- Flexeril
- Pennsaid 1.5%

Supplements
 Multivitamin
 Slow-Fe
 Vitamin C
 Probiotic
 Melatonin

November 2017

- Fibromyalgia flare
- Pain significantly increased
- Medical Marijuana application submitted
- Iron deficiency anemia workup initiated
- Adhering to carb limit, some cravings
- Weight, BMI, HgA1c all improving

March 2018

Began medical marijuana: hybrid dose
 "Munchies" during the day-ate more
 carbs
 Timing of dose adjusted to bedtime
 GI work up negative
 Walking 9000 steps daily

May 2018

Weight loss 8 lbs x 5 weeks
 Normal Hg/Hct
 Normal RBC
 Ferritin levels increasing
 Walking 10000 steps daily
 Appetite dropped: intake ~1500 calories daily
 Low potassium-encourage oral intake; supplement

August 2018

Weight loss 21 lbs x 1 year
 Walking 9000-10000 steps daily
 Appetite fair
 HgA1c 6.3
 Sinemet dose changed to time release form to help with AM function

December 2018

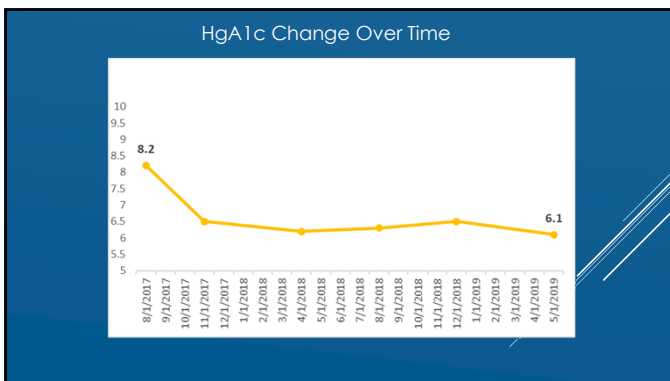
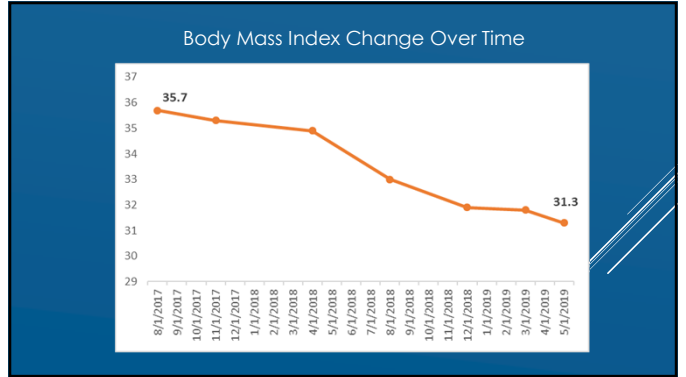
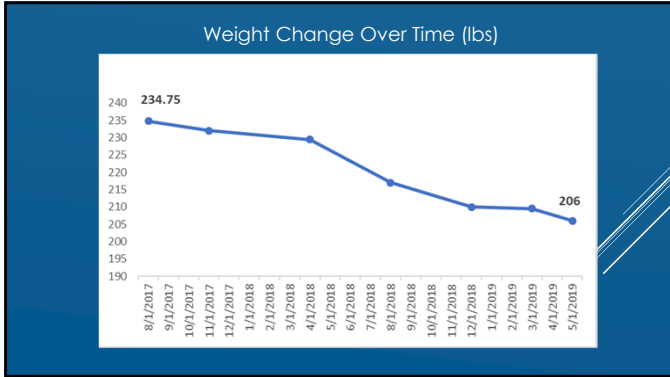
Weight loss 24.75 lbs x 16 months
 Fibromyalgia flare
 Appetite poor
 HgA1c 6.5
 Walking 3 miles daily-a bit less
 Medical marijuana continued-helping with sleep/pain
 Diverticulitis (end of month)

March 2019

Weight loss 25.75 lbs x 19 months
 Appetite slightly better-still suboptimal
 Must remain on low fiber diet due to diverticulitis
 HgA1c 6.5
 Metformin dose cut by 50%
 Walking less
 New med for PD-Rasigiline (Azilect)
 Medical marijuana continues-but not always available in dispensary

May 2019

Weight loss 26.75 lbs x 19 months
 Appetite slightly better-still suboptimal
 Working on meeting protein needs with supplements
 HgA1c 6.1
 Starting to walk again-small amounts
 Medical marijuana continued-helping with sleep/pain
"I don't like the way I feel on medical marijuana"



Mixed Results

- Sleeping better
- Maintaining some regular activity
- Weight down
- BMI down
- A1c controlled
- Carb cravings gone

But.....

- Doesn't like the way medical marijuana makes him feel
- Appetite is poor-working hard to eat
- More dietary modifications

Medical Marijuana in Inflammatory Bowel Disease

Inflammatory Bowel Disease (IBD)

- Chronic inflammatory condition
- Relapsing and remitting episodes of inflammation in GI tract
 - Crohn's Disease
 - Ulcerative Colitis

Swaminath A, Berlin E, Cheifetz A et al. The Role of Cannabis in the Management of Inflammatory Bowel Disease: A Review of Clinical, Scientific, and Regulatory Information. *Inflamm Bowel Dis*. 2018;25(3):427-435. doi:10.1093/ibd/iy319

Prevalence of IBD

Crohn's disease

26 to 199 cases per
100,000 persons
201 per 100,000 adults

Ulcerative colitis

37 to 246 cases per
100,000 persons
238 per 100,000 adults

Kappelman MD, Rifas-Shiman SL, Kleinman K, Ollendorf D, Sousvaros A, Grand RJ, Finkelstein JA. The prevalence and geographic distribution of Crohn's disease and ulcerative colitis in the United States. *Clin Gastroenterol Hepatol*. 2007; 5:1424-9.
Lofus EV, Jr. Clinical epidemiology of inflammatory bowel disease: incidence, prevalence, and environmental influences. *Gastroenterology*. 2004; 126:1504-17.

Symptoms-Crohn's Disease

- Cramps/belly pain
- Diarrhea
- Weight Loss
- Nausea
- Bleeding
- Skin Rash
- Arthritis
- Red, swollen eyes
- Fatigue

https://ago-cms-assets.s3.amazonaws.com/2019516232350---CGHPDF_IBD.pdf

Symptoms-Ulcerative Colitis

- Diarrhea or loose stool
- Cramps
- Rectal Bleeding
- Joint pain or soreness
- Eye irritation
- Rash

https://ago-cms-assets.s3.amazonaws.com/2019516232350---CGHPDF_IBD.pdf

IBD Standard Treatment

- Anti-inflammatory medications
- Immune system suppressors
- Fiber supplements or restriction
- Low residue diet during flare
- Avoid food triggers
- Pain relievers
- Iron supplements
- Calcium/Vitamin D
- Surgery

<https://www.mayoclinic.org/diseases-conditions/inflammatory-bowel-disease/diagnosis-treatment/drc-20353320>

Can medical marijuana for IBD do the following?

- Relieve symptoms and promote longer remission
- Change the course of the disease by changing the integrity of the gastrointestinal tract

Cannabis for symptom relief and promote longer remission

- 292 U.S. patients
- 12.3% reported cannabis use
- Significant improvement in abdominal pain, poor appetite, nausea and diarrhea

Ravikoff Allegritti J, Courtwright A, Lucci M, et al. Marijuana use patterns among patients with inflammatory bowel disease. *Inflamm Bowel Dis*. 2013;19:2807-2814.

Medicinal cannabis for symptom relief and longer remission

- Observational study
- 13 patients with Crohn's Disease
- 3 months treatment with cannabis (inhaled and oral)
- Improvement in pain, depression, social functioning
- No improvement in objective disease measures
- Able to gain weight from low BMI to near normal

Lohaf A, Lang A, Ben-Horin. Impact of cannabis treatment on the quality of life, weight and clinical disease activity in inflammatory bowel disease patients: a pilot prospective study. *Digestion*. 2012;85:1-8

Can cannabis use alter the course of IBD? Studies using medical cannabis in IBD

RCT #1

21 patients with moderate disease activity
No prior cannabis use
Standardized dose and administration
Outcome: clinical (symptomatic) remission at 8 weeks
No statistical significance
All patients in treatment group could stop steroids
Cannabis use associated with improved abdominal pain and quality of life
Relapse after 2 weeks off cannabis

Nofrati T, Bar-Lev Schieider L, Datan I, et al. Cannabis induces a clinical response in patients with Crohn's disease: a prospective placebo-controlled study. *Crohn's Gastroenterol Hepatol.* 2013;11:1276-1280.e1.

Can cannabis use alter the course of IBD? Studies using medical cannabis in IBD

RCT #2

20 patients with active Crohn's Disease
Low dose cannabidiol by oral administration
Placebo-controlled
After 8 weeks:
No significant reduction in Crohn's Disease Activity Index (CDAI)
No significant changes in blood count, liver and kidney function

Nofrati T, Bar-Lev Schieider L, Datan I, et al. Cannabis induces a clinical response in patients with Crohn's disease: a prospective placebo-controlled study. *Crohn's Gastroenterol Hepatol.* 2013;11:1276-1280.e1.

CBD Edibles



https://www.google.com/img/?imgref=#esqm&source=images&cd=1&ved=2zHUKwD2bac3ANwmc8Kp5CeiQv68Agl8AQ&url=http://s3.amazonaws.com/cbdedibles.com/27cbd-edibles2018.jpg?awp=Hs_zqg85a70wed4u81594611212218

Nutritional Considerations: Cannabidiol (CBD) Products

- Medications are best as medications; foods are best as foods.
- Make sure extraction process does not include use of solvents such as butane or hexane
- Request independent lab testing so that what you see is what you get. Get written certification of any THC content.
- Slow onset-30-90 minutes-metabolism time varies
- Easy to be tempted to eat more while waiting for the first to kick in.
- These products contain calories-and calories add up
- Keep out of reach of children-and pets.
- May potentially interact with medications

Borin-Miller MO, Loflin MJE, Thomas BF, Marcu JP, Hyke T, Vandrey R. Labeling accuracy of cannabidiol extracts sold online. *JAMA.* 2017;318(17):1708-1709.

What's the Bottom Line?

- Medical cannabis can offer some IBD/Crohn's patients symptomatic relief and improved quality of life when standard therapy fails
- None of the available studies demonstrate improvement in biochemical or disease activity scores.
- There is value in symptomatic improvement even if it's temporary
- Provides opportunity for improved nutritional intake, nutritional status, repletion and weight gain

Take Home Messages

- Medical cannabis cannot be looked at in isolation
- Patients are on numerous medications so interactions are possible
- Medical marijuana does not take the place of dietary intervention but may-or may not-complement it
- Stay in touch with MD and pharmacist. Timing of dose may impact tolerance of food and diet
- Be careful you aren't trading one problem for another

Take Home Messages

Don't assume that medical marijuana will increase-or decrease-appetite. Each strain and each individual is different.

Follow patient's weight, BMI other nutritional parameters closely.

Medical marijuana may* offer some patients some symptomatic relief, which lowers the "RESISTANCE" and makes it easier for them to gain nutritional footing.

Be open to discussing it with your patients, and learn more about it.

Thank You!!

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