



the FOUNDATION *for*
PERIPHERAL NEUROPATHY®

Welcome!

FPN Webinar:

A Holistic Approach *to* Diabetic Peripheral Neuropathy

Friday, January 26, 2024

Webinar
sponsored by



We will begin our presentation shortly.



the FOUNDATION *for*
PERIPHERAL NEUROPATHY®

Today's moderator:



Lindsay Colbert
Executive Director
the Foundation for Peripheral Neuropathy

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Before We Begin



This presentation is being recorded. The recording link will be emailed to you so you can view it again later.



Submit your questions anytime via the Questions Box. We will try to answer them during this webinar.



If you are having trouble with the audio using your computer, you can dial in by phone (check your email for dial-in instructions).

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PERIPHERAL NEUROPATHY®



Mazen Dimachkie, MD
*Professor of Neurology and
Director of Neuromuscular
Division at the University of
Kansas Medical Center
(KUMC)*



**Joanna Johnston, MSOM,
LAc, Dipl.Ac, BSN, RN**
*Acupuncturist, Integrative
Medicine
Advocate Good Shepherd
Hospital*

Today's Panelists:



Lori Walsh, MD, FAAP, ABOIM
*Medical Director,
Center for Health and Integrative
Medicine,
Advocate Good Shepherd
Hospital*



Mark Fasick PT, MS, NCS
*Physical Therapist
Restore NeuroRehab - Owner
/ Physical Therapist
NeuroBalance Center -
Physical Therapist*

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Therapeutic Strategies in Diabetic neuropathies: Symptomatic Therapeutic Management

Mazen M. Dimachkie, M.D.

Professor of Neurology & Director, Neuromuscular Division

Executive Vice Chairman & Vice Chairman for Research

University of Kansas Medical Center

Kansas City, Kansas, USA

Over 10 minutes

The Foundation for Peripheral Neuropathy

Friday, January 26, 2024

12:00 PM-1:00 PM CT

Live Webinar program



Neuropathic Pain

Multidimensional Management

- Age-standardized prevalence:
 - probable & definite PN is 9.4%
 - definite PN 4%
 - more frequent in men - 6.7 vs 4.5%
- Treatment of:
 - Underlying cause of nerve damage – none in 50%
 - Pharmacological therapy
 - Non-pharmacological therapy

Neurology. 2016 Nov 1;87(18):1892-1898

Figure 2 Prevalence of polyneuropathy per age decade

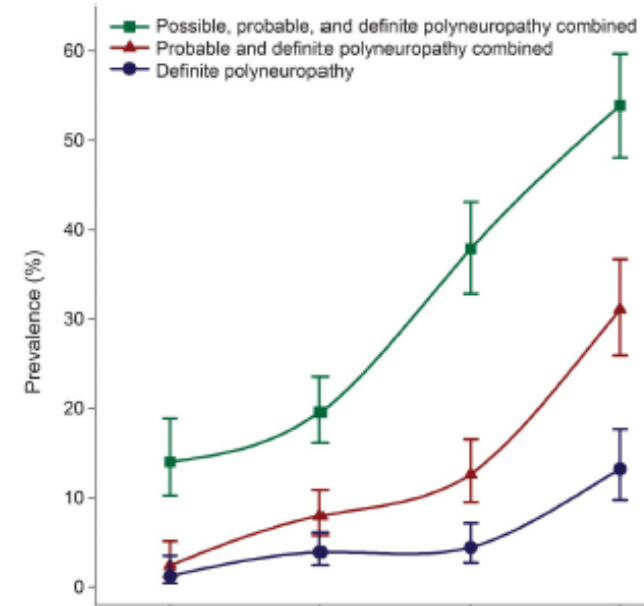


Table 3 Potential causes in cases with definite polyneuropathy

Associated risk factor present	Cases with a previous diagnosis (n = 37), n (%)	Cases with a new diagnosis (n = 35), n (%)	All cases (n = 72), n (%)
Diabetes	17 (46)	5 (14)	22 (31)
Vitamin deficiency ^a	4 (11)	6 (17)	10 (14)
Possible alcohol abuse ^b	2 (5)	1 (3)	3 (4)
Toxic	3 (8)	1 (3)	4 (6)
Hereditary	1 (3)	—	1 (1)
Immune-mediated ^c	4 (11)	3 (9)	7 (10)
Thyroid dysfunction	2 (5)	3 (9)	5 (7)
Renal failure	4 (11)	1 (3)	5 (7)
Systemic disease ^d	2 (5)	—	2 (3)
No risk factor present/CIAP	13 (35)	20 (57)	33 (46)
Total	52 (141)	40 (114)	92 (128)

Painful Peripheral Neuropathy: Treatment Goals

Pain score is subjective – 0 pain not a practical goal

Setting the expectation with emphasis on 3 key functional domains: work, recreation & sleep

This is addition to significant reduction of pain scores by 50% - BUT 30% is clinically relevant

Types of pharmacotherapies:

Anti-depressant

Anti-convulsant

Topical agents

Analgesics

Neuro-stimulation

Opioid drugs

Off Label Use With Few Exceptions!!!

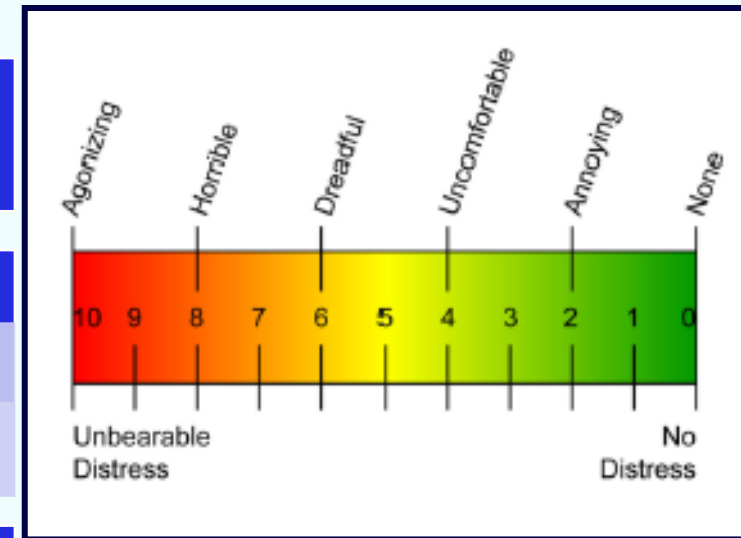
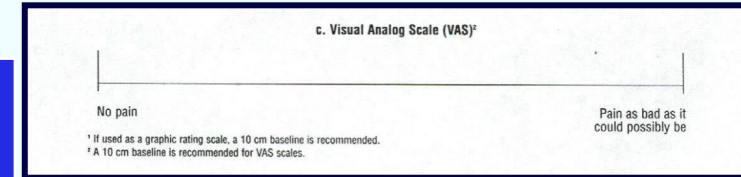


Table 3 Efficacy of Oral Medications for Painful Diabetic Neuropathy by Class Effect

Medication class	SMD ^a	LCL	UCL	Number of articles	Number of patients	Conclusion	Confidence
Gabapentinoids	0.44	0.25	0.63	16	3,550	Probably more likely than placebo to improve pain	Moderate
Sodium channel blocker	0.56	0.25	0.87	5	566	Probably more likely than placebo to improve pain	Moderate
SNRI	0.47	0.34	0.60	9	1,884	Probably more likely than placebo to improve pain	Moderate
SNRI-opioid	0.62	0.38	0.86	4	775	Probably more likely than placebo to improve pain	Moderate
TCA	0.95	0.15	1.75	3	139	Possibly more likely than placebo to improve pain	Low

Abbreviations: LCL = lower confidence limit; SMD = standardized mean difference; SNRI = serotonin-norepinephrine reuptake inhibitor; TCA = tricyclic antidepressants; UCL = upper confidence limit.

^a SMD >0 indicates intervention is clinically better than placebo.

DPN Pain 2022!

Goal of therapy is to reduce, and not necessarily to eliminate, pain by 30% (Level B)

Assess for concurrent mood and sleep disorders & treat (Level B)

Use TCAs, SNRIs, gabapentinoids, and/or sodium channel blockers – NOT valproic acid given potential for SAEs unless failed multiple other effective medications (All Level B)

Should not use tramadol and tapentadol (opioids/SNRI dual mechanism agents) for the treatment of PDN (Level C):

Their efficacy for painful neuropathy is only reported in short duration studies

Increase in all-cause mortality among patients taking tramadol for OA

Risk of serotonin syndrome

Abuse events per population > morphine

•Zeng C et al. *JAMA*. 2019;321(10):969-982

•Abadie D et al. *J Clin Psychopharmacol*. 2015;35(4):382-388

•Vosburg SK et al. *J Pain*. 2018;19:439-453

•*Neurology*. 2022 Jan 4;98(1):31-43



ORAL		
Therapy	Starting Doses	Maintenance Doses
First Line		
Tricyclic anti-depressants	10-25 mg at bedtime	Increase by 10-25 mg increments to 100-150 mg at bedtime
Gabapentin (Neurontin)	300 mg tid	Increase by 300-400 mg increments to 2400-3600 mg daily divided in 3-4 doses
Tramadol (Ultram)	60 mg bid or tid	Increase by 60 mg increments to a maximum of 100 mg qid
Duloxetine (Cymbalta)	30 mg a day	Increase by 30-60 mg increments up to 120 mg a day
Pregabalin (Lyrica)	50 mg tid	Increase to 300 mg/day
Second Line		
Carbamazepine	200 mg bid	Increase by 200 mg increments to 200-400 mg three to four times a day; follow drug levels on doses greater than 600 mg a day
Oxcarbazepine (Trileptal)	150-300 mg bid	Increase by 300 mg increments to 600-1200 mg two times a day
Lamotrigine (Lamictal)	25 mg once a day or bid	Increase by 25 mg increments weekly to 100-200 mg bid
Topiramate (Topamax)	25-50 mg at bedtime	Increase by 50 mg increments weekly to 200 mg bid
Venlafaxine XR (Effexor)	37.5-75 mg once a day	Increase by 75 mg increments to 150-225 mg a day
Valproate	250 mg bid to tid	Increase by 250 mg increments up to 1500 mg a day
Third Line		
Bupropion SR (Wellbutrin)	150 mg a day	After one week, increase to 150 mg bid
Tiagabine hydrochloride (Gabitril)	4 mg a day	Increase to 4-12 mg bid
Keppra (Levetiracetam)	250 mg at bedtime	Increase by 250-500 mg increments to 1500 mg two times a day
Zonisamide (Zonegran)	100 mg at bedtime	Increase by 100 mg increments to 400-600 mg at bedtime
Mexiletine	200 mg once a day	Increase by 200 mg increments to a maximum of 200 mg tid
Phenytoin	200 mg at bedtime	Increase by 100 mg increments to 300-400 mg daily divided in 1-2 doses, following drug levels
Newer Drugs		
Minacipran (Savella)	12.5 mg at bedtime x 1 d	12.5 mg bid x 2 d then 25 mg bid x 4 d then stay on 50 mg bid. May increase up to 100 mg BID
Lacosamide (Vimpat)	50 mg PO bid	In 1 week, go to 100 mg bid. May increase up to 200 mg BID

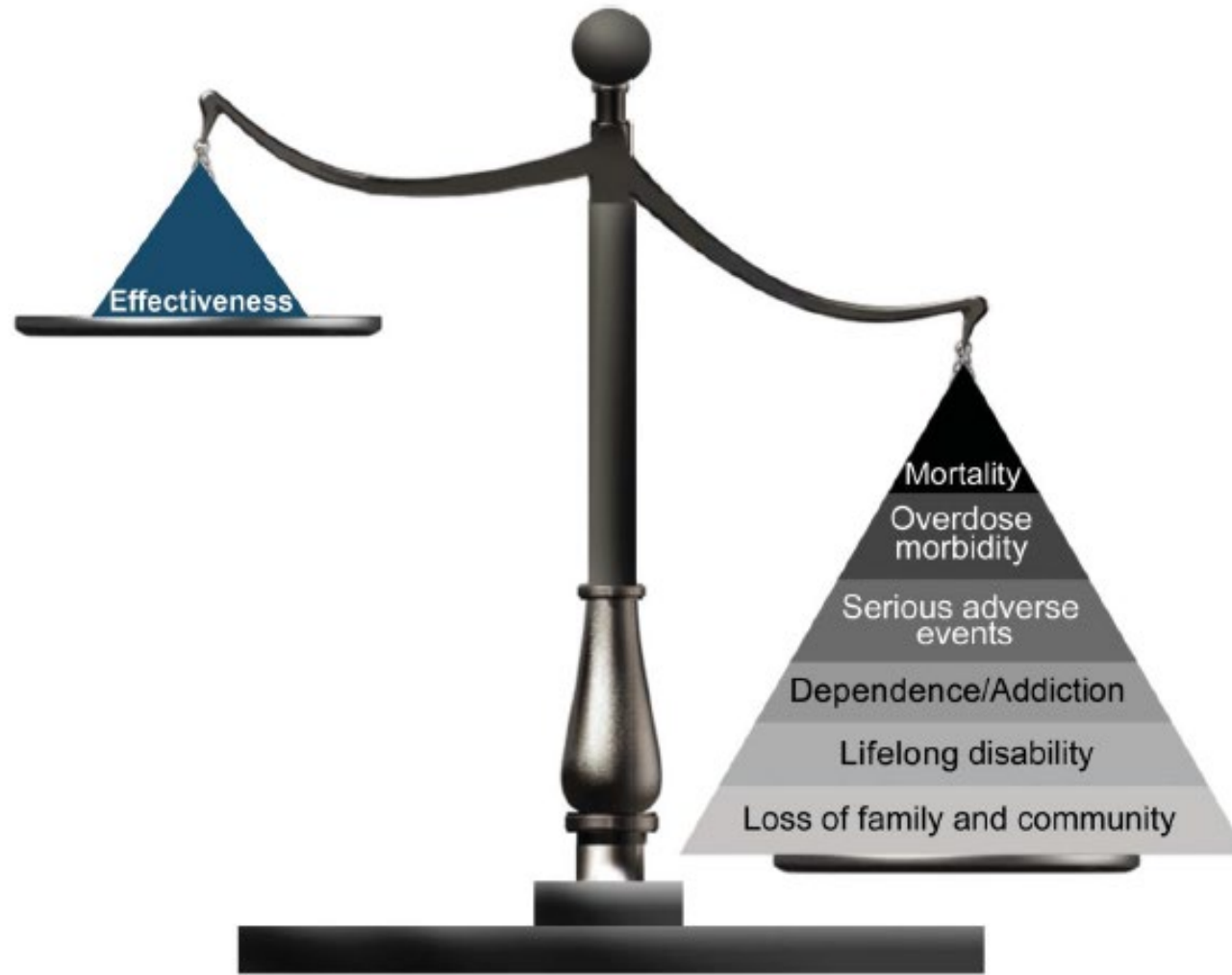


TOPICAL AGENTS		
Therapy	Starting Doses	Maintenance Doses
OVER THE COUNTER		
Capsaicin .075%	Apply to affected region tid to qid	Continue with starting dose
Salicylate 10-15%	Apply to affected region tid to qid	Continue with starting dose
Menthol 16% / Camphor 3% -+	Apply to affected region tid to qid	Continue with starting dose
Lidocaine 4% gel or cream	Apply to affected region bid	Continue with starting dose
BY PRESCRIPTION		
Lidocaine patch 5%	Apply over adjacent, intact skin	Increase up to 3 patches worn for 12 of 24-hour period
Doxepin 5% (Zolopan)	Apply to affected region bid	Continue with starting dose
Diclofenac Sodium Gel (Voltaren Gel 1%)	Apply to affected region tid to qid	Continue with starting dose
BY PRESCRIPTION - ONLY AT COMPOUNDING PHARMACIES*		
Ketoprofen 5% / Amitriptyline 2% / Tetracaine 1%	Apply to affected region bid	Increase up to a qid schedule
Ketoprofen 10% / Cyclobenzaprine 1% / Lidocaine 5%	Apply to affected region bid	Increase up to a qid schedule
Ketamine 5% / Amitriptyline 4% / Gabapentin 4%	Apply to affected region bid	Increase up to a tid schedule
Carbamazepine 5% / Lidocaine 5%	Apply to affected region bid	Increase up to a qid schedule
Amitriptyline 2% / Lioresal 2%	Apply to affected region tid to qid	Continue with starting dose

Key: * - must be compounded by pharmacy (to locate your local compounding pharmacy, call the International Academy of Compounding Pharmacists, 1-800-927-4227)

Adapted and modified from Pasnoor M, Kluding P, Dimachkie M, Barohn R. *Neurol Clin* 2013;31(2):425-445.

Figure 2 Risk/benefit of opioids for chronic noncancer pain



Neurology. 2014 Sep 30;83(14):1277-84.

Opioids for chronic noncancer pain: a position paper of the American Academy of Neurology

Spinal Cord Stimulation (SCS) for DPN

- Conventional medical management (CMM) vs. 10-kHz implanted SCS + CMM
- Included 216 refractory PDN patients refractory to gabapentinoids & ≥ 1 other analgesic class &:
 - lower limb pain intensity ≥ 5 cm on VAS, BMI < 45 , HbA1c $\leq 10\%$
 - daily MME ≤ 120 mg & medically appropriate for the procedure
- PEM [% of participants with $\geq 50\%$ pain relief w/o worsening of baseline neurological deficits at 3 months] was met in: 5 of 94 CMM vs 75/95 SCS with 79% difference (P $< .001$)
- 2 patients had infections requiring device explant
- 60% more cases improved on sensory exam at 3 & 6 months in SCS group as compared to CMM!
- FDA approved July 2021!

JAMA Neurol. 2021;78(6):687-698

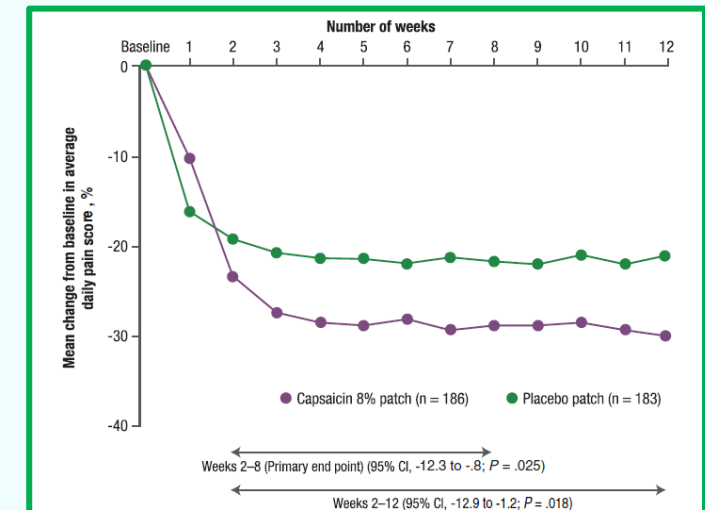
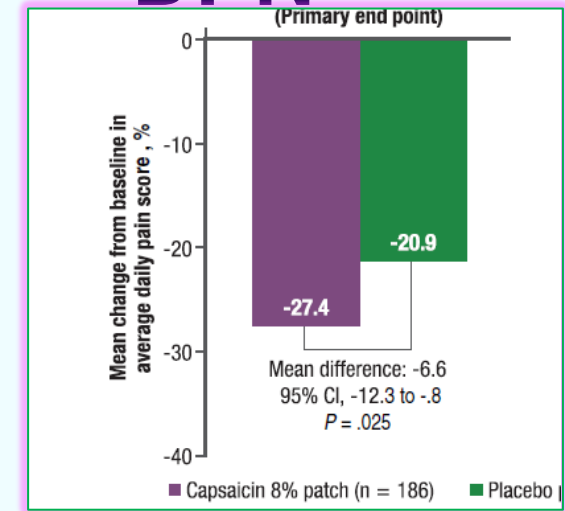
Capsaicin 8% Patch

PHN

- Selective TRPV1 receptor agonist, a cation channel overexpressed in intact nociceptive sensory nerves
- TRPV1 receptor activation at 38 C → high levels of intracellular calcium & substance P depletion
- Capsaicin cream 0.075-0.1% of limited use
- 8% patch mean pain score change from baseline @ wk 2-12: -33.8% NGX-4010 vs +4.9% PBO in PHN
 - *Pain Med* 2010;11:600-8
- AE: pain, transient burning, itch, skin irritation & HTN
- FDA-approved for PHN and DPN - applied for 60 mn for PHN and for 30 mn in DPN
- Up to 4 patches applied Q 3 months as needed

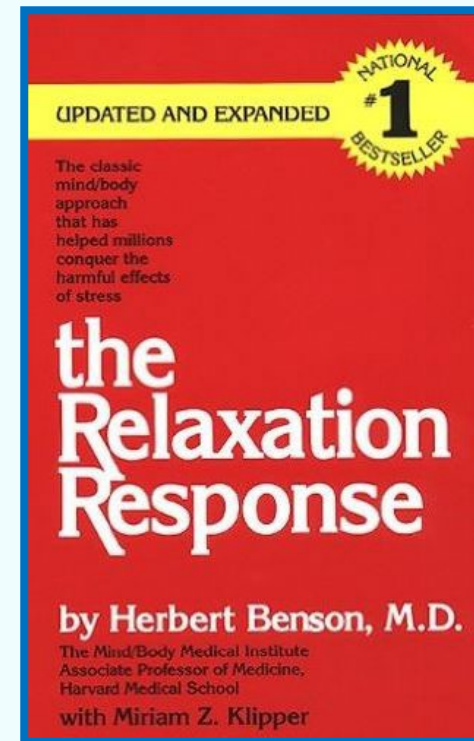
The Journal of Pain 2017: pp 42-53

DPN



Other Treatments: Non-pharmacological therapy

- Lifestyle modification, PT & OT
 - J Diabetes Complications 2012 Jun 18
- Podiatric care & diabetic orthopedic shoes
- Pain psychologist & Cognitive Behavioral Rx
- TENS
- Biofeedback/Relaxation Response
 - Benson 1975
- Complementary & alternative medicine: acupuncture, supplements, Henna, etc.



Controversial Interventions in Distal Symmetric Neuropathy

- Interventional / regional anesthesia: odd choice for diffuse neuropathy
- Perineural Platelet-Rich Plasma for DPN
Pain Med. 2020;21(4):757-765
- Anodyne aka Monochromatic near Infra Red Energy (MIRE) negative RCT: “Anodyne MIRE therapy was no more effective than sham therapy in the treatment of sensory neuropathy in individuals with diabetes”
Diabetes Care. 2008 Feb;31(2):316-21. Epub 2007 Oct 31.
- Peripheral nerve decompression trial completed, results?
NCT00703209

Why is treating neuropathy so challenging?

For those suffering from neuropathy, the condition affects every part of life — walking, sitting, and even sleeping.

If you suffer from any of the torturous symptoms of neuropathy — numbness, tingling, or sharp nerve pain — finding relief becomes a main focus in life.

“Maybe you’ve had multiple tests, only to find out no one has any idea what you have. Maybe you’ve been put on a drug with heavy side effects,” said Dr. Michael Riley, D.C., founder of Renuva Back & Pain Centers and creator of CoreCare™. “I have been helping people with neuropathy and nerve problems for many years now. This painful condition interferes with your body’s ability to transmit messages to your muscles, skin, joints, or internal organs. If ignored or mistreated, neuropathy can lead to irreversible health conditions.”

Treatment options are available. However, uncovering the cause of nerve damage is the first step in treating neuropathic pain.

“Neuropathy has many different causes. The most common causes are metabolic conditions, such as diabetes”, he said. Other causes may include chronic kidney insufficiency or toxicity from alcohol or medications; such as chemotherapy drugs. Some neuropathy cases are caused by inflammation in nerves, and others are inherited.

“Often neuropathy is caused by a degenerating spine pressing on the nerve roots”, said Riley. This can happen in any of the vertebral joints from the neck all the way

down to the tail bone.

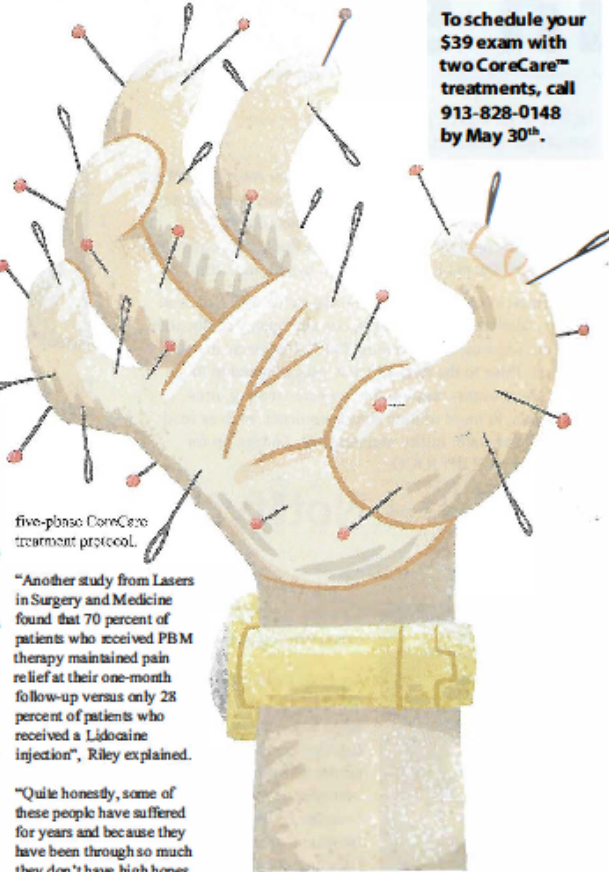
Riley said finding a solution that not only masks symptoms, but offers reliable pain management requires a comprehensive approach.

“By using gentle techniques, like those we use in our CoreCare treatment program, we aim to release the pressure on the nerve,” said Riley. “This helps the nerve to heal and ease the symptoms. Numerous studies have proven the therapies we use can be effective in helping nerve conditions.”

“Renuva’s CoreCare treatments, which include Photobiomodulation (PBM) therapy using Class IV Therapy Laser, work to restore the body’s natural ability without painful shots, harmful drugs, or surgery”, Riley explained.

Cleared by the FDA in 2003, Class IV Therapy Laser devices have become the standard of care for many musculoskeletal injuries such as nerve damage. Before the FDA would approve Class IV Lasers for PBM therapy they required evidence that it was safe for use on humans. This led to studies on safety, but also numerous studies on the effectiveness of PBM therapy.

One study by the American College of Physicians found that pain medication and steroids were limited in improving pain outcomes. For patients with chronic pain, ACP recommends that physicians and patients initially select non-drug therapies like multidisciplinary rehabilitation, PBM therapy, and spinal manipulation — all of which are included in Renuva’s



five-phase CoreCare treatment protocol.

“Another study from Lasers in Surgery and Medicine found that 70 percent of patients who received PBM therapy maintained pain relief at their one-month follow-up versus only 28 percent of patients who received a Lidocaine injection”, Riley explained.

“Quite honestly, some of these people have suffered for years and because they have been through so much they don’t have high hopes. But we have treated thousands of neuropathy patients effectively and with long-lasting results — 96 percent of Renuva patients would refer us to their family and friends,” he said.

According to Riley that’s why his team offers introductory CoreCare treatments that are affordable to just about anybody. Through May 30th, Renuva will offer two treatments with a patient’s initial visit,

To schedule your \$39 exam with two CoreCare™ treatments, call 913-828-0148 by May 30th.

for only \$39 instead of the normal price of \$275. The initial visit also includes an in-depth consultation about your neuropathy and health, a complete neuromuscular examination, digital X-rays (if needed) and a thorough analysis of your exam findings. Plus, two initial CoreCare treatments come as part of the package.

There are two locations that offer CoreCare in the Kansas City Area:

Overland Park:
Renuva Back & Pain Centers
4400 College Blvd.,
STE 150, Overland Park, KS

Northland:
Elevate Life Chiropractic & Wellness
9237N Oak Trafficway,
Kansas City, MO 64155

Call 913-828-0148 for more information.

Certified CoreCare Provider

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Painful Peripheral Neuropathy

Conclusions

- Discuss patient expectations in managing chronic neuropathic pain
- Selection based on efficacy, AE and comorbidity
- Multiplicity of drugs (see laminated card)
- A variety of mechanisms of action
- US FDA-label is limited to PHN, DPN & fibromyalgia
- Progress in chemo NP and CSPN
- More comparative effectiveness studies are needed in a wider variety of neuropathic pain states



"I HAVE THESE PILLS TO RELIEVE HAYFEVER BUT THE SIDE EFFECTS ARE WATERY EYES, A RUNNY NOSE AND SNEEZING."

Advocate Good Shepherd Hospital Center for Health & Integrative Medicine

Diabetic Peripheral Neuropathy: A Holistic Approach

Lori Walsh, MD, ABOIM

Joanna Johnston, MSOM, Lac, Dipl.AC, BSN, RN



What is Integrative Medicine?

Integrative medicine is healing-oriented medicine that takes account of the whole person (body, mind, and spirit), including all aspects of lifestyle. It emphasizes the therapeutic relationship and makes use of all appropriate therapies, both conventional and alternative.

[Andrew Weil Center for Integrative Medicine](#)

The Center for Health and Integrative Medicine

Created through a shared vision that IMAGINED that there could be a place within the hospital where all could go to build a foundation of health and to meet challenges: mind, body and spirit.



Who Benefits From an Integrative Medicine Consult?

Short answer: *everyone!* For patients who want to live a healthier lifestyle to providing complementary support for a medical condition, our team is ready.

Our skilled team provides acupuncture, medical massage therapy, yoga classes, trauma-informed counseling, and holistic nursing care. An infant, child, teen, or adult might benefit from an integrative approach for:

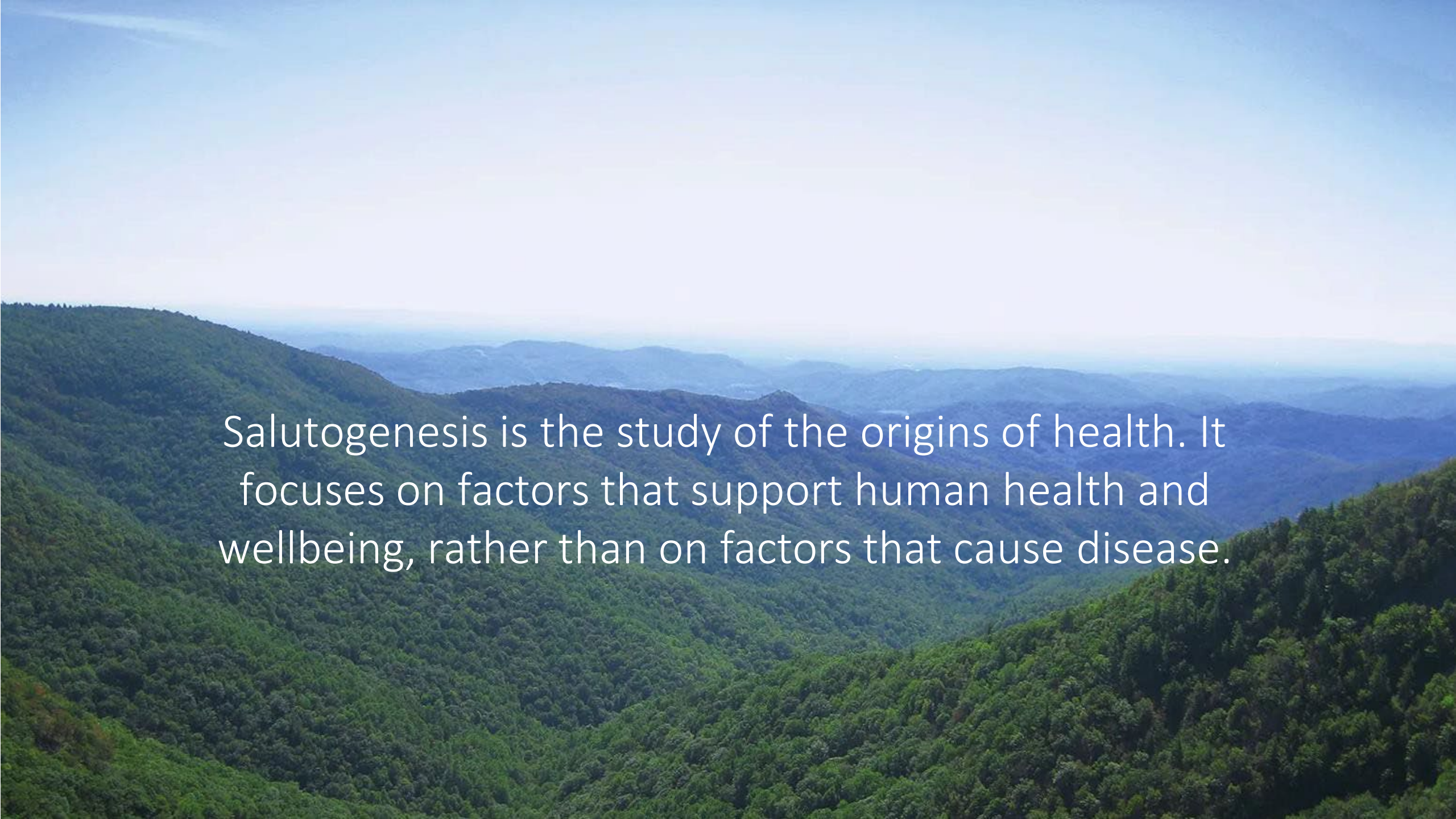
- Persistent or occasional pain
- Digestive/intestinal conditions
- Chronic health conditions
- Type 2 diabetes
- Feeding or nutrition concerns
- Sleep issues
- Emotional life transitions
- Heart health
- Cancer prevention & support during treatment
- Stress and anxiety
- Women's health
- Fatigue
- Overall wellness

The Center for Health & Integrative Medicine

The Advocate Good Shepherd Hospital Center for Health and Integrative Medicine brings conventional and complementary methods together. We emphasize a holistic, individualized approach to achieving optimal health and well-being.



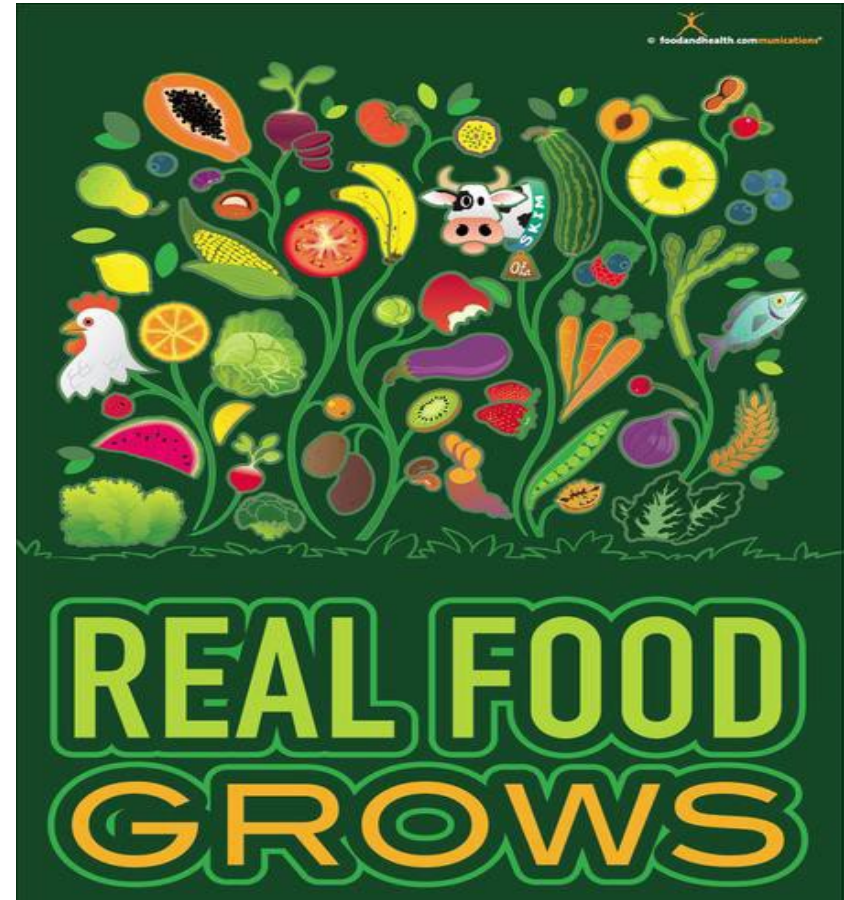


A wide-angle photograph of a vast, rolling landscape of green hills and mountains. The foreground is dominated by dense, vibrant green forest covering the slopes. In the distance, the hills recede into a hazy blue sky, creating a sense of depth and tranquility. The overall atmosphere is peaceful and natural.





Salutogenesis is the study of the origins of health. It focuses on factors that support human health and wellbeing, rather than on factors that cause disease.

Culinary Medicine

Culinary medicine is an evidenced-based field in medicine that blends the art of food and cooking with the science of medicine.



NOVA Food classification

Unprocessed or minimally processed foods	Processed culinary ingredients	Processed foods	Ultra-processed foods
<p>Foods which did not undergo processing or underwent minimal processing technics, such as fractioning, grinding, pasteurization and others.</p> 	<p>These are obtained from minimally processed foods and used to season, cook and create culinary dishes.</p> 	<p>These are unprocessed or minimally processed foods or culinary dishes which have been added processed culinary ingredients. They are necessarily industrialized.</p> 	<p>These are food products derived from foods or parts of foods, being added cosmetic food additives not used in culinary.</p> 
<p>Legumes, vegetables, fruits, starchy roots and tubers, grains, nuts, beef, eggs, chicken, milk</p>	<p>Salt, sugar, vegetable oils, butter and other fats.</p>	<p>Bottled vegetables or meat in salt solution, fruits in syrup or candied, bread, cheeses, purees or pastes.</p>	<p>Breast milk substitutes, infant formulas, cookies, ice cream, shakes, ready-to-eat meals, soft drinks and other sugary drinks, hamburgers, nuggets.</p>



Fiber: Whole Grains, Nuts, Seeds,
Beans, Vegetables, Fruits

Fermented Foods

Prebiotic Foods

Inulin

Bananas
Asparagus
Burdock
Chicory
Dandelion Root
Jerusalem
artichoke
Garlic
Leeks
Onions

Dietary Fiber
Insoluble Fiber
wheat bran,
flaxseed, lentils,
celery, okra,
raspberries

Soluble fiber
Psyllium, oats,
legumes, tubers,
banana, pear

Pectin

Citrus peels
Pears
Apples
Guavas
Quince
Plums
Gooseberries
Polysaccharide
Mushrooms

Probiotic Foods: Fermented Foods

- Yogurt
- Kefir
- Sour cream
- Sweet acidophilus milk
- Fermented soft cheeses
- Sauerkraut
- Kimchi
- Miso
- Tempeh
- Kombucha
- Sourdough breads
- Vegetables pickled in salt



Treatment Choices

Supplements

- Alpha lipoic acid
- N –acetyl cysteine
- CoQ10
- Vitamin B6/B12/B7
- Omega 3 Fatty Acids

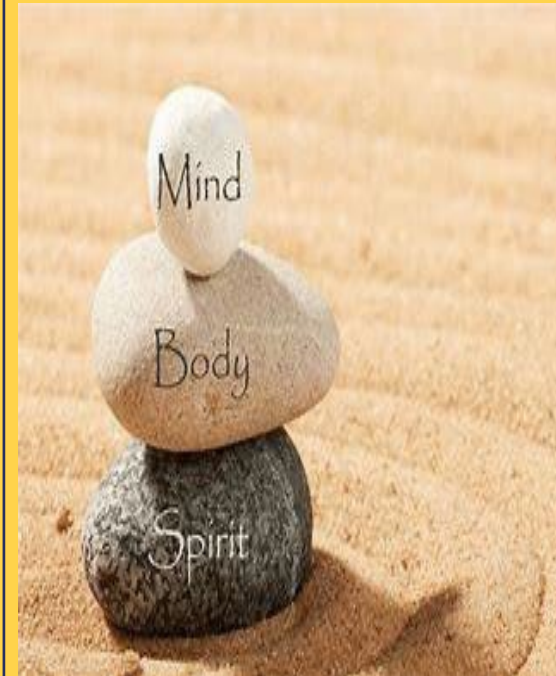


Botanicals

- Capsaicin patch/ cream
- Evening primrose oil
- Rhodiola
- Berberine
- Lions Mane

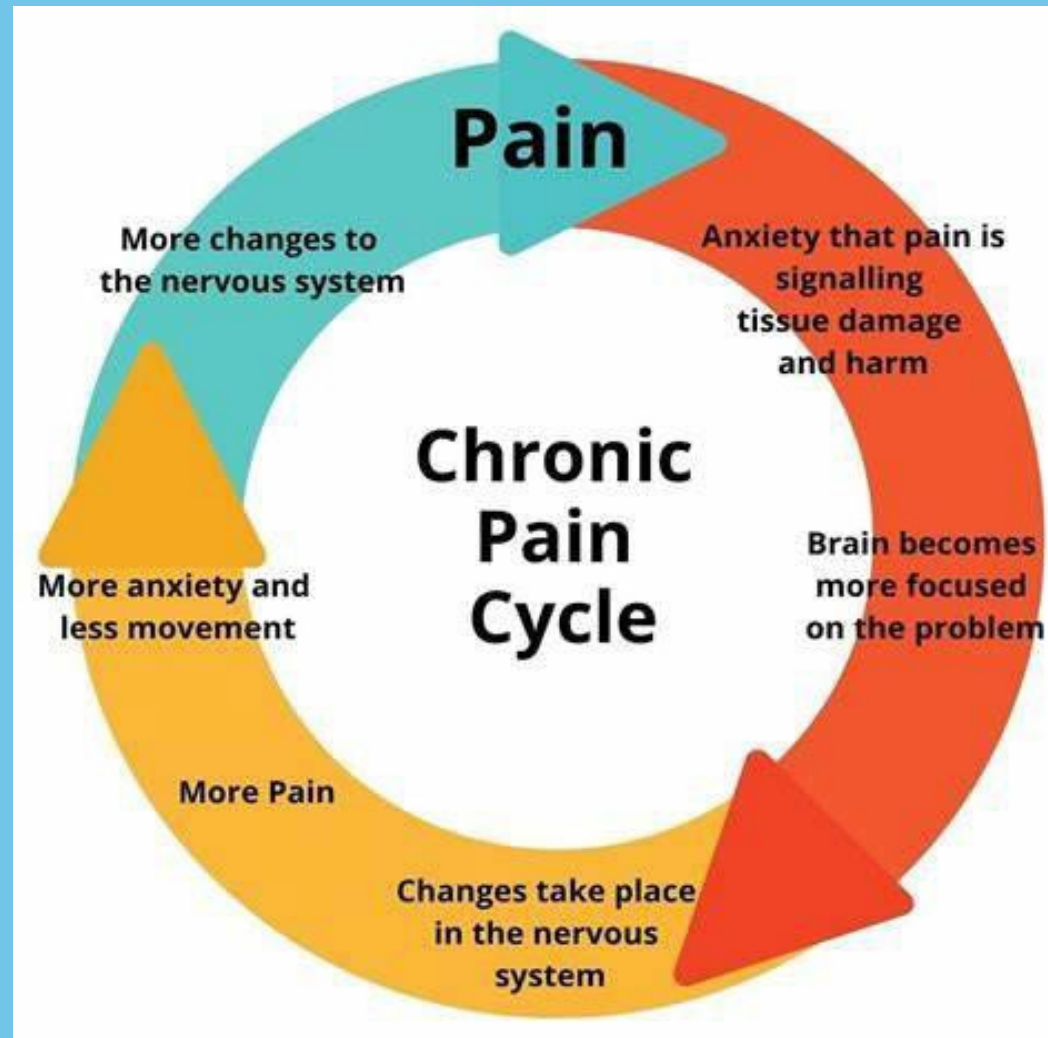
Mind Body

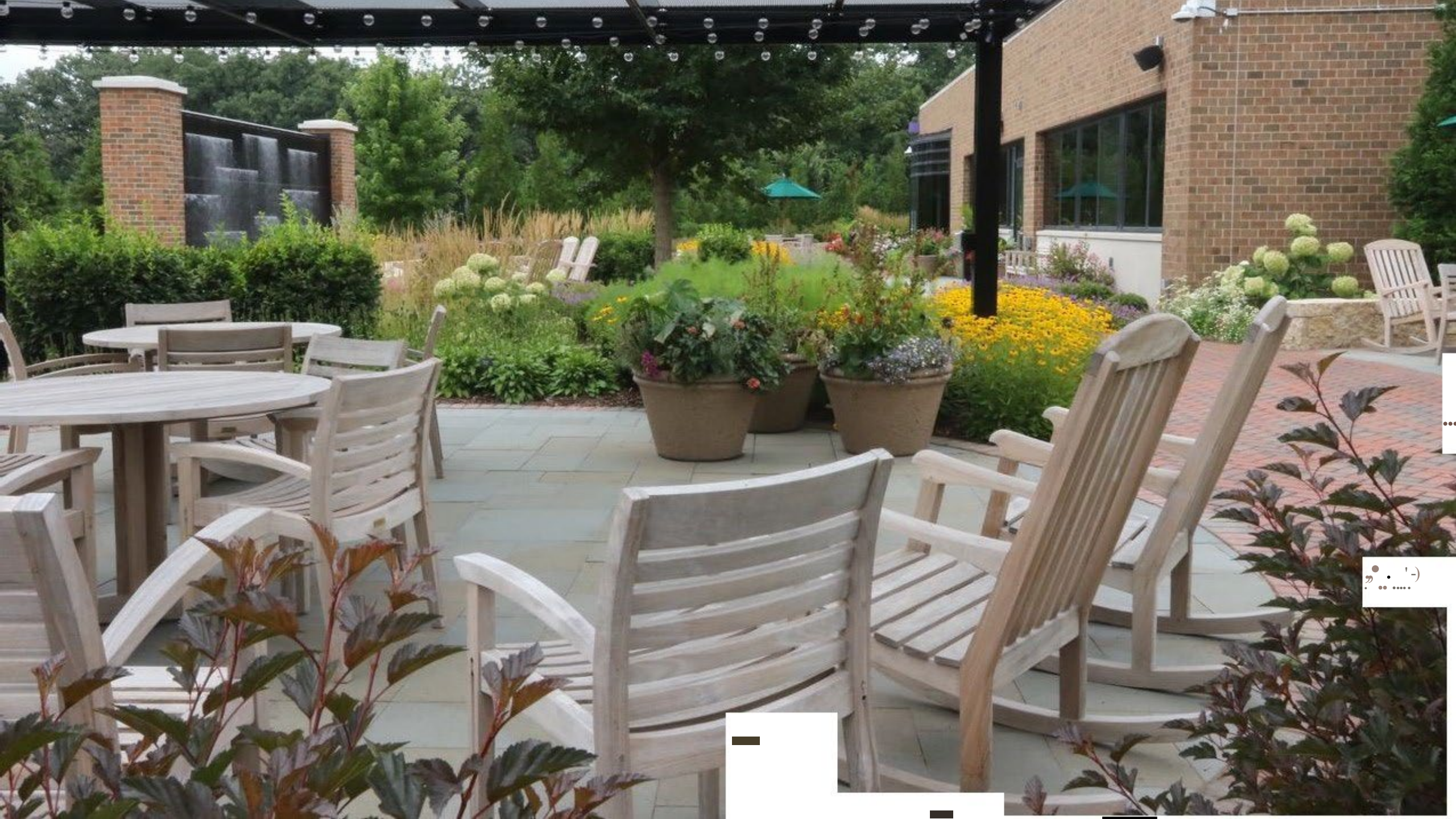
- Tai Chi
- MBSR
- Yoga



MUSHROOM BENEFITS AT A GLANCE

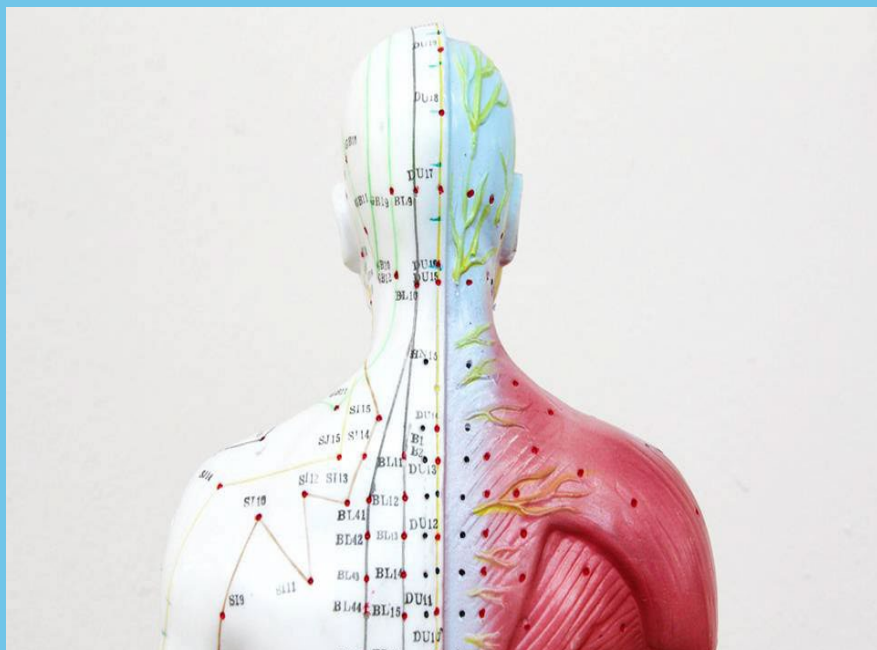
	AGARIKON	CHAGA	CORDYCEPS	LION'S MANE	MAITAKE	REISHI	TURKEY TAIL
ANTIOXIDANT & DNA SUPPORT*		✓	✓	✓		✓	
BREATHING*		✓	✓			✓	
DIGESTION & MICROBIOME*		✓		✓		✓	✓
ENERGY & STAMINA*		✓	✓			✓	
GLYCEMIC BALANCE*		✓	✓	✓	✓	✓	
HEART SUPPORT*			✓			✓	
IMMUNE RESPONSE*	✓	✓	✓	✓	✓	✓	✓
LIVER & METABOLIC DETOX*		✓	✓			✓	✓
MEMORY, CLARITY & COGNITION*				✓		✓	
MOOD, STRESS & SLEEP SUPPORT*				✓		✓	
NERVE SUPPORT*			✓	✓		✓	
PERFORMANCE & ATHLETIC RECOVERY*		✓	✓			✓	





Acupuncture-Traditional definition

- Based on the concept that energy, or Qi, flows through and around the body along meridians
- It is believed that illness occurs when something blocks or disrupts the balance of Qi.
- Acupuncture is a way to unblock or influence Qi to achieve balance and harmony



- 12 Main Meridians
- 365 points on the meridians
- Over 2000 points including extra points and Auricular points
- Each acupuncture point has defined therapeutic actions

How does acupuncture work?

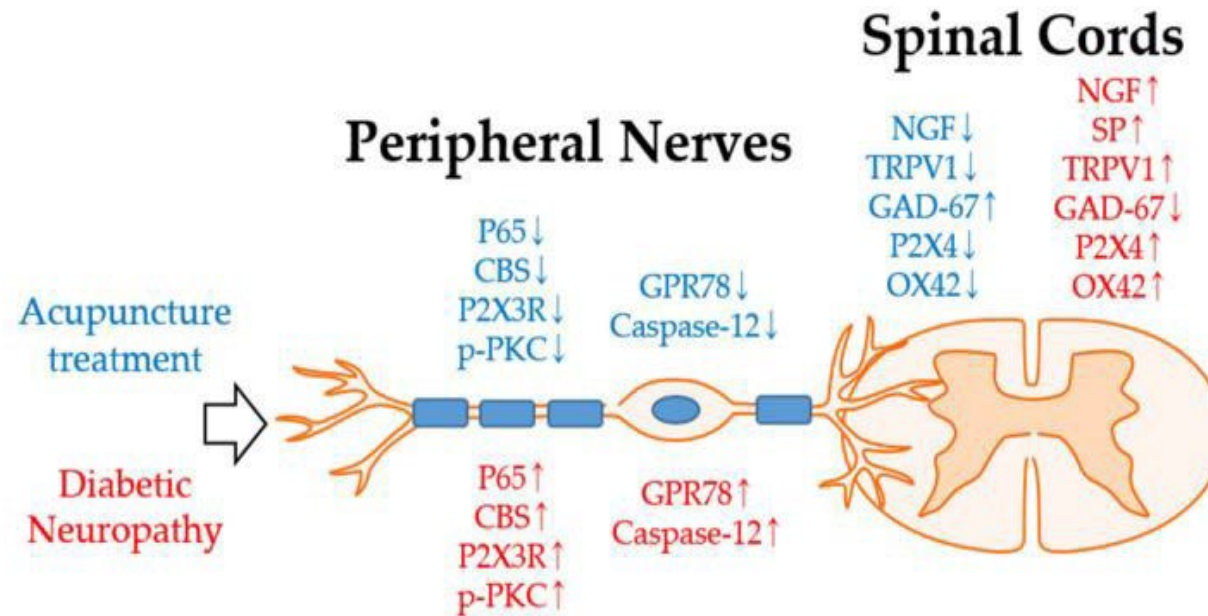
Western explanation

- Stimulates the release of Endorphins and other opioids
- Increases the production and release of neurotransmitters
- Blocks pain signals to the brain
- Increases blood flow
- Decreases inflammation
- Stimulates the bodies innate healing abilities

Specific to peripheral neuropathy

- Mediated through various molecules present in the peripheral nervous system and the spinal cord

- P65
- GPR78
- TRPV1



Research

- In the last 20 years has grown at twice the rate of research into conventional biomedicine
- Over the last 20 years there have been over 13,000 studies conducted in 60 countries
- The Acupuncture Evidence Project found evidence for the effectiveness of acupuncture for 117 conditions
- The World Health Organization recommends acupuncture for over 100 conditions

Effect of Acupuncture on Diabetic Neuropathy: A Narrative Review
International Journal of Molecular Sciences, 2021 Aug; 22(16): 8575

Outcomes

Neuropathy Disability Score (NDS)

Vibration Perception Threshold (VPT)

Visual Analogue Scale (VAS)

Neuropathic pain symptom inventory (NPSI)

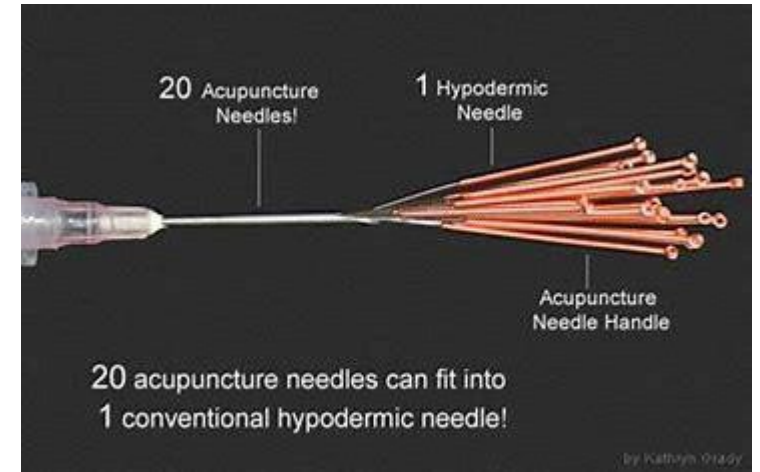
Diabetic Peripheral neuropathic pain impact (DPNPI)

Median nerve sensory and motor conduction velocity

Common peroneal nerve sensory and motor conduction velocity

What does Acupuncture offer?

- Non-invasive
- No drug related side effects
- Thousands of years of results
- A holistic approach to mind, body and spirit
- Effective for all ages
- An adjunct treatment with Western medicine
- Preventive medicine
- Assists you to achieve your maximum health potential





Wellness for Life.

It's at the center of what we do.

DIABETIC
PERIPHERAL
NEUROPATHY

PHYSICAL THERAPY MANAGEMENT

PHYSICAL THERAPIST'S ROLE

- Identify risk
 - Fall Risk
 - Wound
- Balance and Gait
 - Comprehensive evaluation
 - Treatment
- Pain Management
- Wound Management
- Amputee and Prosthetic Management
- Education

PHYSICAL THERAPY EXAM

History

- Chief complaint
- Past medical history / medications
- Pain
- Functional activity level
- Fall History
- Home environment
- Social / vocational
- Recreational

PHYSICAL THERAPY EXAM

- Posture
- Range of Motion
- Muscle Length
- Muscle Strength
- Coordination
- Visual Screen
- Aerobic Capacity
- Functional Mobility

PHYSICAL THERAPY EXAM

SENSORY TESTING

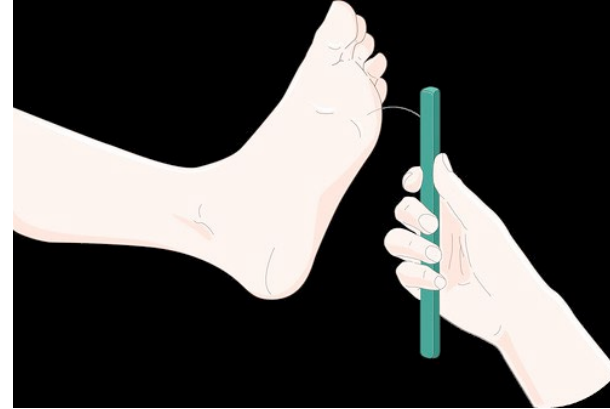
Light touch screen

Monofilament testing

Two Point discrimination

Proprioception

Hot/cold



PHYSICAL THERAPY EXAM

BALANCE TESTING

FUNCTIONAL TESTS

SENSORY ORGANIZATION

MOTOR STRATEGES

Functional Tests

Tests

- Berg
- BEST test
- Tinetti
- Functional Gait Assessment

Benefits

- Predictive – “What are my chances of falling?”
- Reliable – “Can I trust the accuracy?”
- Responsive – “Will it show my improvement, or decline?”

PHYSICAL THERAPY EXAM
BALANCE TESTING

FUNCTIONAL TESTS
SENSORY ORGANIZATION
MOTOR STRATEGES

Sensory Organization Testing

- Somatosensation
- Vision
- Vestibular



PHYSICAL THERAPY
EXAM

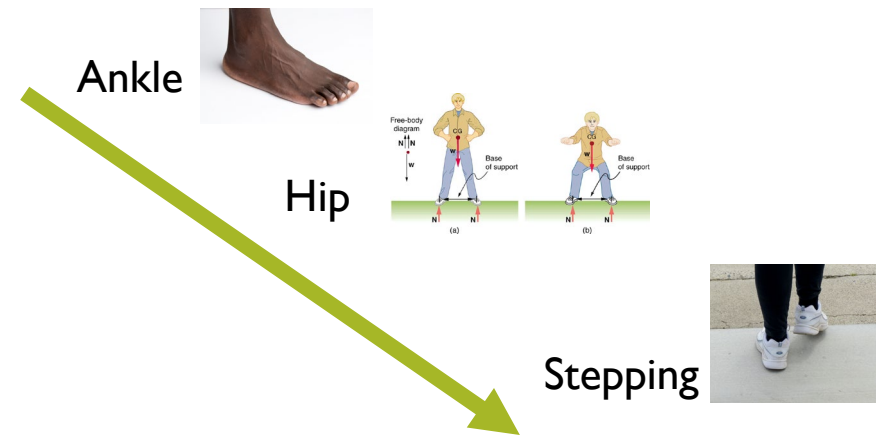
BALANCE TESTING

FUNCTIONAL TESTS

SENSORY
ORGANIZATION

MOTOR STRATEGES

Motor Strategy Testing



PHYSICAL THERAPY EXAM

GAIT ANALYSIS

Telltale Gait Deficits

- Wide Base of Support
- Steppage Pattern
- Variable Step Path

PHYSICAL THERAPY INTERVENTIONS

PHYSIOLOGIC

Anodyne

Use of infrared light to stimulate capillary growth around nerves.

Lavery et al determined there was no benefit as compared to sham. Used a multitude of outcome measures.

Lavery LA, Murdoch DP, Williams J, Lavery DC. *Does anodyne light therapy improve peripheral neuropathy in diabetes? A double-blind, sham-controlled, randomized trial to evaluate monochromatic infrared photoenergy.* Diabetes Care. 2008 Feb;31(2):316-21.

PHYSICAL THERAPY INTERVENTIONS

BALANCE

Balance

Mild Deficits → Restorative Approach

- Sensory: work on using foot sensation (bare feet, Textured insoles, eyes closed, dim lighting)
- Motor: work on ankle strategies

PHYSICAL THERAPY INTERVENTIONS

BALANCE

Balance

Severe Deficits → Compensatory Approach

- Sensory: work eyes open, use of visual anchors
- Motor: work on hip and stepping strategies
- Use of assistive devices
- Environmental considerations
- Use of protective gear to reduce risk of injury.

PHYSICAL THERAPY INTERVENTIONS

CHRONIC PAIN MANAGEMENT

- Education in the nature of chronic pain, including central sensitization and impact of descending pathways on pain modulation.
- Use of competitive stimulation
 - Visualization
 - Mental activities
 - Alternative sensory stimulation
- Exercise

Nuñez de AS, Cavero RI, Torres CA, Reina GS, Lorenzo GP, Martínez VV. Effects of exercise interventions to reduce chemotherapy-induced peripheral neuropathy severity: A meta-analysis. *Scandinavian Journal of Medicine & Science in Sports*. 2023;33(7):1040-1053. Accessed January 8, 2024.

<https://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=164255009&site=eds-live>

Jintaruethai P, Anek A, Mitranun W. Effect of Walking Meditation on Peripheral Neuropathy in Type 2 Diabetes Mellitus. *Journal of Exercise Physiology Online*. 2023;26(2):69-78. Accessed January 8, 2024.

<https://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=163154096&site=eds-live>

PHYSICAL THERAPY INTERVENTIONS

ORTHOTICS / FOOTWEAR

- AFO – for footdrop
- Soft dorsi-assist braces – footdrop
- Arizona AFO – structural foot deformities
- Shoe inserts
- Educate in monitoring daily for blisters, ulcers, “hot spots” (especially if using a brace).



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