New Hope for Parkinson's Patients

The BHRT AND Exercise RX: As important as the pills you take

How natural bio-identical hormones can support an exercise program

Parkinson's disease (PD) afflicts approximately 1 million Americans, posing challenges on their daily activities and overall quality of life.

Recent studies suggest that exercise may slow progression of the disease, with increasing evidence that regular exercise can help PD patients better manage their symptoms. This research indicates that exercise may hold specific benefits for PD patients in staying active and relatively limber, as well as improving balance and motor coordination.

What new research is being done on exercise and PD?

According to the Michael J. Fox Foundation (MJFF), the single most important thing people with PD can do is exercise. And several studies are already underway to support this fact.

According to Lisa Shulman, MD, from the University of Maryland School of Medicine, low-intensity exercise improves walking in people with Parkinson's. Bastiaan Bloem, MD, an expert on exercise and Parkinson's disease, explains that Shulman's findings underscore the importance of exercise to PD patients.

In addition, the ParkFit Study is a two-year research project aimed at promoting an active lifestyle in Parkinson's patients and measuring the benefits of activity for people with PD. Led by Dutch researchers at Radboud University Nijmegen Medical Centre in The Netherlands, ParkFit is the largest exercise study in Parkinson's disease to date. See more details on exercise research findings for PD patients below.

How can PD patients muster up the motivation to exercise?

Taking that first step to integrate a regular physical activity routine into their daily treatment regimens can pose a challenge for many PD patients who often lack the vitality and motivation to exercise.

Dr. David Weiner, MD, a researcher and scientific advisory board member at MJFF explains: "Most people don't understand what it takes for many PD patients to get up in the morning and get through the day."

Experts agree that motivating patients when they are tired and uninspired represents the greatest obstacle. So what can PD patients do to gain their momentum and start exercising?

In addition to highlighting the latest findings on exercise and PD, this report presents an alternative to help PD patients find the initiative, energy, strength and stamina to start moving and stay active through the "good and bad days." There is hope.

Breakthrough hormone treatment helps PD patients enjoy better quality of life

One possible solution to help patients gain the strength and motivation to exercise is often overlooked: bio-identical hormone therapy, or BHRT. Due to the prevalent fear of hormones and misunderstanding about the different types and roles they play in human health, BHRT often remains in the shadows as a viable option to help PD patients.

To better comprehend how BHRT can support exercise regimes and improve the quality of life for PD patients on a daily basis, a closer examination of hormone therapy and how it works is required.

The facts about different hormone forms and methodologies remain greatly clouded in the glut of contradictory and often confusing medical and media reports often fueled by fraudulent pharmaceutical websites, blogs and press releases to suppress the truth about natural alternatives to drugs.

Yet the fact remains that early-onset PD patients are experiencing significant improvements in their conditions with BHRT. [check with Dr. T how SP might help more advanced stages of PD].

Increasing numbers of PD patients are now using SottoPelle® because its proprietary system of individualized precision hormone dosing can help to restore the body's normal physiology. In turn, this can support dopamine production and better assimilation of PD medications.

While BHRT isn't a cure-all for the disease, it can lend support by forestalling the disease's progression. This helps patients become more functional, with less medication.

Parkinson's patients using SottoPelle® report:

- More energy and vitality
- Reduced progression of symptoms
- Decreased need for certain medications
- Improved fitness and endurance
- Improved balance and coordination
- Increased mobility and flexibility
- Better cognitive function
- Greater sense of well-being
- Reduced tremor
- Better assimilation of medications

What is SottoPelle®?

Developed by Dr. Gino Tutera, M.D., F.A.C.O.G., more than two decades ago, SottoPelle® is an evidence-based proprietary method of Bio-Identical Hormone Replacement Therapy (BHRT). It differs from traditional Hormone Replacement Therapy (HRT) by offering a precise, web-based, individualized dosage delivery system (BioCalc®) prescribed for each patient's specific medical needs.

The treatment uses the highest quality plant-based pellets and SottoPelle®'s patent-pending BioCalc® dosing application via a unique subcutaneous insertion technique to generate steady and consistent serum levels of bio-identical hormones whose molecular structure mimics the body's own.

Unlike many of today's synthetic hormones with one-size-fits-all generic doses, SottoPelle® delivers a consistent flow of natural hormones on a 24-7 basis to support better health. SottoPelle® has expanded into a renowned medical group that includes locations and affiliated physicians throughout the U.S. and around the globe trained at the Tutera Institute and dedicated to improving the quality of life for men and women of all ages.

How does it differ from any other hormones?

Bioidentical hormones are plant-based hormone substances that precisely match the molecular structure and functionality of human hormones. Dr. Tutera pioneered an innovative web-based BioCalc system that provides each patient with a precisely dosed hormone pellet based on their individual needs and slipped under the skin for the maximum effectiveness.

The body recognizes bioidentical hormones, enabling them to bind appropriately to—and communicate properly with—the same receptors as their human counterparts. The body metabolizes bioidentical hormones in the same way as its own hormones, generating the same physiologic responses to provide vital support to the body's organs, tissues, and cells.

This scientifically proven method of natural bioidentical hormone therapy can benefit a variety of conditions and virtually eliminates the risks associated with mass-produced synthetic hormones. SottoPelle® is the only precision-based hormone therapy with an individualized approach that works with the body in a way the body recognizes to deliver a steady stream of hormone round the clock.

Other doctors prescribe hormones in tablets, patches, creams, gels or generic pellets do not use this proprietary system and give patients a one-size-fits-all generic dose of hormone that is less effective and can trigger unwanted side effects. Such imprecision may sometimes provide short-term relief of symptoms but does nothing to achieve the level of hormonal balance SottoPelle® delivers or the long-term benefits everyone needs for healthy aging and to prevent disease.

Who is Dr. Tutera? Is he a neurologist or PD specialist?

Working with PD patients is a focal point of Dr. Tutera's current research. Dr. Tutera is a board-certified physician with more than 40 years of practice specializing in BHRT and anti-aging medicine. He has authored three books on this subject and is widely respected as an international leader in his field.

Dr. Tutera began working with bioidentical hormone pellets over 20 years ago and discovered that they are safer and more effective than any other available treatments. He also observed that the lives of both men and women changed remarkably with this hormone approach.

In 2002, Dr. Tutera launched SottoPelle® after developing an innovative BioCalc® system that measures precise pellet doses individualized for each patient's specific medical needs. Today he remains dedicated to helping patients with neurodegenerative conditions achieve a higher quality of life. He also trains physicians on his science-based method and presents his research at conferences around the world.

Is BHRT pellet therapy a new hormone fad?

It is a science-based method backed by decades of studies. Pellet therapy originated in Europe over 75 years ago and was introduced to the U.S. by Dr. Greenblatt at the University of Georgia. Biologically identical hormones have been extensively researched with studies in medical journals all over the world since 1935, yet many people don't realize that BHRT was actually regularly employed in the United States from the 1940's through the1970's until pharmaceutical marketing intruded.

How and when are pellets administered?

The insertion is an easy in-office procedure and similar to having a shot of Novocain from your dentist. The doctor applies local anesthesia, then makes an incision in the upper hip area, gently sliding the pellets in. Pellets, which are smaller than a Tic-Tac and only slightly larger than a grain of rice, usually last anywhere from four to six months.

Is it safe?

Some misunderstanding persists around hormones because many people and even doctors don't realize that there are two different kinds – synthetic and bio-identical. When the Women's Health Initiative released a report in 2002 citing the dangerous side effects of synthetic hormones, it gave all hormones a bad reputation. To this day most news reports fail to distinguish between synthetic hormone replacement therapy (HRT) and the bio-identical kind (BHRT) that mimics the sane hormone naturally produced by the human body.

In 2009, the *Journal of Sexual Medicine* published a study analyzing the data from multiple studies of pellet therapy as far back as December 2003 through April 2008. The study focused on male subjects and found that 86 percent of the patients were satisfied with the improvement of their symptoms and the ease of insertion. No patient who followed post-insertion directions experienced any adverse side effects, such as infection or pellet extrusion.

Unlike other methods, SottoPelle® is based on science. It is precise; it is individualized; and it works with the body in a way the body recognizes. Hormone replacement should NEVER be based on guesswork, trial and error, or one-size-fits-all dosages. That kind of imprecision may sometimes provide short-term relief of symptoms but does nothing to achieve hormonal balance or the long-term benefits everyone needs for healthy aging.

As more people learn that pellets offer a safe, natural alternative to synthetic hormones, BHRT is growing in popularity among men and women, as well as PD patients.

What do hormones have to do with PD and exercise?

The sex hormones serve a critical role in overall health, not just a reproductive one, and are directly related to neuromuscular and cognitive function. The latest research demonstrates that PD has been associated with low testosterone and estrogen levels, much like other neurological disorders such as Traumatic Brain Injury, multiple sclerosis, Alzheimer's and dementia.

Since hormonal balance helps to restore the body to it normal physiological state, many PD patients are experiencing improved neuromuscular function. They report more incentive to exercise and better ability to maintain their workouts more steadily and consistently, with moe endurance, balance and coordination. They also describe an improved sense of well-being.

Does a female PD patient need testosterone? Does a male patient need estrogen?

The majority of people fear hormones and don't realize that every human being needs and makes testosterone. In both men and women, testosterone has been shown to increase energy, relieve depression, increase sense of well-being, relieve anxiety and improve memory and concentration. Testosterone pellets can increase lean body mass (muscle strength, bone density) and decrease fat mass.

Men and women need continuous adequate levels. This can only be achieved with testosterone pellets for optimal mental and physical health and for the prevention of chronic illnesses, such as Alzheimer's and Parkinson's disease, which have been associated with low testosterone levels.

Estrogen has been shown to counteract the neuropathologic changes in the brain as well as neurotransmitter deficiencies. In the male brain, testosterone is converted to estradiol and thus can minimize the effects of neurodegenerative conditions since estrogen supports cognitive function.

The critical link between hormone deficiencies and neurodegenerative diseases

According to Dr. Tutera's research, estrogen and testosterone have an effect on the central nervous system. Estrogen, in particular, affects those areas of the brain involved with dopamine. There is growing evidence indicating that estrogen protects the nigrostriatal dopaminergic pathway affected in Parkinson's. It is also noted in the pharmacologic algorithm of the American Neurological Association that estrogen may play a role in the degree of PD symptoms.

The February 2015 issue of *Life Extension Magazine* further documents the hormone-brain connection in the article "Heal Traumatic Brain Injury with Bioidentical Hormones," which highlights Dr. Tutera's work using SottoPelle® to treat neurodegenerative conditions – including Parkinson's.

Citing 63 referenced studies, the article explains how BHRT works to penetrate the blood brain barrier to promote neuronal growth, support multiple aspects of cognitive function, and provide neuroprotection "to support healing." It states:

Both estrogens and androgens provide a broad range of neuroprotective activities. Some of these are relevant to normal brain aging, others may benefit neurodegenerative conditions, and still others appear to be largely specific to Alzheimer's disease.

Despite the demonstrated links between sex hormones and neuroprotection, virtually no physicians use sex hormones to treat TBI. However, over 200 SottoPelle®-trained physicians worldwide are now changing the way we think about traumatic brain injuries—and a variety of other diseases—and how to treat them effectively. Physicians are currently exploring the use of bioidentical sex hormones to treat TBI, CTE, mood disorders including depression, cognitive deficits, fatigue, menstrual headache, and loss of libido—as well as ***Parkinson's disease****, type II diabetes, and multiple sclerosis (MS).*

And just as Dr. Tutera has shown that TBI symptoms can be treated and possibly reversed with sex hormones, ***the same hormones have been shown to reduce the risk of neurodegenerative diseases*** *such as Alzheimer's disease[3]—the sixth-leading cause of death in the US.*

[http://www.lef.org/Magazine/2015/2/Heal-Traumatic-Brain-Injury-With-Bioidentical-Hormones/Page-01] "Reprinted with permission, *Life Extension Magazine*."

Since no systematic registry of impact of estrogen/testosterone on PD in humans has been performed, Dr. Tutera concludes that "human data on estrogen, menopause and onset and severity of Parkinson's disease begs for additional investigation."

Improving the lives of PD patients

When PD strikes, it causes the failure and death of critical nerve cells in the brain, called neurons. Parkinson's mainly affects neurons in an area of the brain called the substantia nigra. These particular neurons produce dopamine. Dopamine, in turn, communicates with the part of the brain that controls movement and coordination.

As PD progresses, dopamine production decreases. This leaves a person unable to control movement in a normal way. And this inhibits the ability to exercise and maintain fitness.

Rick James is a SottoPelle® patient making noteworthy progress with his early-onset Parkinson's. He first visited Dr. Tutera in late summer of 2012. As an active participant in the Baehr Challenge for Parkinson's Research, Rick saw firsthand the healing power of exercise. The possibilities of improving muscle mass and strength, of boosting his energy levels, and increasing his motivation and drive were what drew Rick to SottoPelle®. He felt this type of BHRT offered more benefits and advantages than other methods.

SottoPelle® hormone therapy using estradiol pellets increases dopamine production and decreases inflammation in the female brain, as does the testosterone in the male brain. BHRT pellets – specifically testosterone replacement – allows those with PD to once again exercise. It gives them the motivation, endurance and stamina to make headway in physical fitness, just as it does in those without the disease.

For more information on how BHRT pellets can help PD patients, visit:

http://www.sottopelletherapy.com/parkinsons-disease-3/

http://www.sottopelletherapy.com/testimonials/

"Wow! I feel like a new woman since starting Hormone Pellet Therapy with Dr. Tutera and I believe every woman can benefit from his therapies! If a person like me (diagnosed with Parkinson's in 2008) can feel this energetic again – then anyone can!

Patti Meese, PD patient

EXERCISE TIPS AND RESEARCH FOR PD PATIENTS

How to get started on an exercise regimen

According to Helen Bronte Stewart, director of the Stanford Movement Disorders Center, it all depends on your overall fitness level. A good first step is have a thorough medical checkup before starting any activity.

For many PD patients, it's important to start slowly, and one good way is with a physical therapist. You can get an "exercise prescription" and work with an expert to determine what you can (and can't) do safely. Especially if you haven't been regularly exercising, it may be best to begin under the supervision of a professional who has access to professional equipment.

If you don't like the first exercise or program you try, keep at it. Different exercises tend to address different symptoms. For example, yoga and dance can help with balance and flexibility while walking and running target endurance building.

Lisa Shulman MD, professor of neurology, at the University of Maryland School of Medicine, emphasizes the benefits of any regular activity — be it walking, swimming, yoga or boxing — to enhance strength, balance and mood for people with PD.

What do we know about exercise and PD?

- Exercise improves PD symptoms, including some not treatable by medications such as gait disturbances.
- Many different kinds of exercise work for PD patients.
- A 12-year-long Swedish study, which included nearly 43,400 people, concluded that six hours of moderate exercise weekly may reduce the risk of developing PD by 43 percent.
- The jury is still out on whether exercise slows PD progression.

How exercise help you manage PD

Exercise can address:

- Balance
- Endurance
- Flexibility
- Strength
- Cognitive Function
- Fatigue
- Mood

Work with your physician or physical therapist to design an exercise plan that you'll stick with.

How may exercise change brain biology?

- Research suggests exercise boosts activity of neurotrophic factors.
- Neurotrophic factors are like fertilizer that help neurons grow and stay healthy.
- Some research in laboratory models suggests that exercise boosts activity of neurotrophic factors, which can protect neurons from toxins.

How may exercise change brain biology?

- Some studies show that exercise is associated with increased production of mitochondria in brain cells.
- Mitochondria are called the powerhouse of the cells because they make a source of energy.
- Damaged mitochondria may play a role in PD by harming neurons.

- Exercise may boost production of mitochondria, which may help keep cells healthy.

Why is it so hard to determine the true impact of exercise?

- It is difficult to design exercise trials.
- People don't want to abstain from exercise to serve as controls.
- Many people who sign up for exercise trials are already exercising, which can dilute the impact.
- Exercise trials can be expensive.
- Physical therapists or other staff must lead multiple training sessions or visits.
- There are so many kinds of exercise to integrate and explore.
- The same problems that impact drug trials affect exercise trials.
- Recruitment challenges
- Lack of a validated biomarker

Conduct your own experiment on yourself. See what exercise does for you.

Exercise and Physical Therapy

Research has shown that regular exercise benefits people with PD by

- reducing stiffness
- improving mobility, posture, balance and gait

Aerobic exercise increases oxygen delivery and neurotransmitters to keep the heart, lungs, and nervous system healthy. General exercise may also reduce depression. Learning-based memory exercises can also help keep your memory sharp.

What types of exercise are best for PD?

The best exercise is the one that appeals to you because you'll stick with it. Some options seem to be working particularly well for people with PD:

- Dance classes for people with PD are ongoing in more than 75 communities around the world. Participants are empowered to explore movement and music in ways that are refreshing, enjoyable, stimulating and creative.
- Boxing is gaining popularity among some people with PD, who find they gain hope and improve quality of life through a non-contact-boxing-based fitness curriculum.
- There is some evidence to support the hypothesis that cycling holds particular benefit for people with PD.
- There is increasing evidence that aerobic and learning-based exercises could be neuroprotective in aging individuals and those with neurodegenerative disease.
- Many patients cite swimming, walking and yoga as favorites.

Facilitating exercise programs that challenge the heart and lungs as well as promote good biomechanics, good posture, trunk rotation and normal rhythmic, symmetric movements are the best. Dancing to music may be particularly good for decreasing stiffness.

Although research on this subject is ongoing, it does appear that beyond aerobic activities performed with healthy movement patterns, exercises challenging the individual to change tempo, activity, or direction (what is referred to as "random practice" exercise) benefits people with PD.

It is also important to keep variety in exercise activities, because individuals with PD often have difficulty in shifting from one activity to another or in performing two activities at the same time. Exercises that require balance and preparatory adjustment of the body are also important along with rhythmic activities such as dancing, skipping and cycling can maintain the ability to perform reciprocal movements.

Finally, exercises that promote attention and learning are beneficial.

Types of exercises that do this:

- Walking outside or in a mall
- Dancing
- Yoga classes
- Tai Chi classes
- Stepping over obstacles
- Marching to music with big arm swings
- Sports (ping pong, golf, tennis, volleyball)
- Aerobic/Jazzercise classes

Types of exercises that promote cardiopulmonary fitness:

- Paced walking (treadmill walking at different speeds and different inclines)
- Hiking using walking sticks
- Swimming with different strokes with the eyes open and closed (+)not only challenge motor learning but also increase heart rate and provide good cardiopulmonary conditioning.
- New bodyweight-supported treadmills can also be helpful to protect from falling, and to facilitate easier coordinated movements for fast walking with a long stride or jogging.

Types of exercise that do NOT challenge motor planning:

- Riding a stationary bicycle without doing other activities
- Weight lifting
- Treadmill walking at a slow speed
- Lap swimming can be very habitual and also automatic.

These exercises for cardiovascular, endurance and strengthening could be enriched by performing simultaneous activities such as reading, writing, problem solving, singing, watching the news or a movie or throwing and catching balls. Exercises that demand attention, repetition, progression of difficulty with spaced practice over time are the best exercise routines to promote learning.

Is there any value in strength training?

According to MJFF researchers, weight lifting per se is NOT the best choice of an exercise program for the person with Parkinson's disease, particularly if it is the only exercise activity. Individuals need to be careful how they perform strengthening exercises to minimize increasing stiffness and rigidity. When performed properly, strengthening exercises do have some value.

As one ages, more exercise must be performed to maintain muscle mass. Muscle mass and strength allow an individual to complete daily chores and to maintain balance. Additionally, strengthening postural muscles may help to maintain a more upright posture. Integrative, functional exercises other than weight-training may strengthen muscles in ways that are more beneficial to individuals with Parkinson's disease.

Examples of alternative exercises to weight lifting:

- Activities in a standing position strengthen legs
- Pushing up to rise on the toes
- Modified squats
- Repetitively rising and sitting from a chair
- Wearing ankle and wrist weights around the house or out on a walk
- Push-ups or wall push-ups for arms

Light weights are just as effective as heavy weights in maintaining muscle tone and do not increase stiffness as much. Walking with ankle and wrist weights can help strengthen while encouraging increased awareness of arm swinging and high stepping. Moderation is the best word for strength training without other forms of exercise. However, integrating strengthening and flexibility exercises into aerobic, rhythmic and learning-based exercise routines that are fun, engaging, progressing in difficulty and rewarding are the best.

On the other hand, Dr. Mercola recommends core-strengthening exercises, strength training, and the right kind of stretching, as well as high-intensity "burst-type" activities.

What about swimming?

Swimming provides good cardiopulmonary training and maintains muscle strength. However, lap swimming does not challenge balance or stimulate variety of movements. Therefore, lap swimming is a second-choice activity. However, since the arms, legs and head may be doing different things, it may increase coordination. The resistance of the water increases stiffness in some people and decreases it in others.

Activities to try:

- Adding resistance with paddles and trunk support – provides more opportunity for reciprocal movements and circling movements of the arms and the legs
- Rolling and somersaults – in the pool are good for those who are particularly comfortable in the water

For individuals with Parkinson's disease who have difficulty in breathing, swimming may not be a comfortable aerobic activity. Thus, swimming may be an appropriate choice of exercise for individuals who have enjoyed it in the past and are comfortable with the techniques and those with musculoskeletal conditions particularly of the knee and back. Swimming using certain strokes can also help increase shoulder range of motion.

Will exercise make my muscles less stiff?

Exercises that require large, rhythmical movements through a full range of motion have been shown to decrease rigidity. For example, in a program of aerobic exercise using music, there was a reduction in rigidity in 9 out of 10 participants immediately after the exercise program.

Exercises to decrease stiffness:

- Large, rhythmical movements
- Rotating the trunk
- Vibration, rocking and swinging

Other considerations to decrease stiffness:

- Avoiding tremors (e.g. touching the limb that is shaking to quiet the movement) can also decrease tension
- Decreasing stress – having fun, thinking positively about planning and carrying out challenging, socially engaging and learning-based activities
- Cooling or warming the tense extremity can sometimes be helpful.

Exercise and medication

The best time to exercise is when mobility is best. For individuals who take PD medications, the best level of function often occurs about 1 hour after a dose of medications. The answer to this question varies by individual. The individual reaction to the medication is also important.

Exercise frequency

The guidelines for PD patients are no different from those without the disease (i.e. 4-5 times a week for at least 30-40 minutes). This assumes that your heart is beating at 70 to 80% of maximum (220 – your age times 70 or 80%).

Make the exercise time fun. Engage in group exercise, movement or dancing classes. For many, participating in activities with other people, can be more stimulating and increase compliance.

Stay active and integrate exercise into your usual day:

- Walk whenever possible instead of driving
- Climb the stairs instead of taking the elevator
- Take regular 5 minute breaks every 30 minutes (lifting the arms up over your head, performing wall glides, breathing diaphragmatically, getting up to get a glass of water, or putting theraband on chairs to work on some strengthening)
- Avoid long periods of time watching TV and or using a computer

Other useful exercise facts

A "cool-down period" is important. After exercise, allow yourself a longer time for a cool-down than others would need (Individuals who exercised before developing Parkinson's disease typically double their cool-down time).

A cool-down period accomplishes two goals:

1) Promotes a slow decrease in heart rate
2) Allows the muscles time to cool down gradually so they do not become stiff.

A cool-down period consists of the same exercise activity but at a progressively slower pace. During the cool-down, all muscles need to go through a slow, full range of motion. If you feel exhausted and want to fall asleep immediately after exercise, then you are not cooling down slowly enough.

Learn something new every day:

If you listen to the news, talk to someone about it. Listen to educational programs and discuss what you learned. Do crossword puzzles or participate in memory training programs on the web or from a CD.

Challenge yourself to go out each day:

If you are retired, consider volunteering your time to help others (e.g. Red Cross, Meals on Wheels). Move about in the community and learn the tricks of keeping your eyes on a target to improve stability. Carry a cane to let people know that it would be best not to bump you.

Practice writing:

Learn to hold your pen lightly and write with big cursive type movements. Consider making the surface of your pen rough or sticky. This will help decrease the force of your squeezing the pen. Write by moving the whole arm, not just the fingers. Practice writing to music and even say the words out loud as you write. Circle making big movements. Get a drawing pad from a toy store where your can lift up the writing surface and erase your practice strokes.

Exercise your voice:

Talk slowly, clearly and loudly with a lot of expression of your eyes and your face. Have everyone speak loudly and slowly. If you find you continue to talk softly and quickly and people are having difficulty understanding you, then ask a friend to read and record some passages from a book. Then you put the head set on and hear your friends voice as you read the same passages. This may strengthen the learning.

Techniques to help with walking

Often individuals with PD have problems with abruptly halting or "freezing," when walking.

To help decrease freezing, try:

- Reciprocal arm swinging
- High long steps
- Scanning the environment and using visual fixation on an object in the distance or auditory cues (listening to music, singing to yourself, counting)
- Thinking about making big steps to clear obstacles on the floor or marching (high steps)
- Walking hand-in-hand, swinging the arms with a friend or family member
- Having someone place their foot in front of you as a cue to step high and over
- One person found that throwing pennies and stepping over them was helpful ("But," he added, "don't bend down to pick them up.").
- Loud rhythmical clapping
- Paced walking with high stepping.
- Using walking sticks (using them for sensory feedback and sense of stability may be more important than using a cane. Of course, using a cane or a walker can be helpful if there is a lot of weakness and stiffness.)

Pushing one's self to stay active should be the goal.

What is 'forced use' exercise?

Frequently patients with PD have one limb or one side that is more involved. It is easy to stop using the more involved side because it is too difficult. This leads to overuse of the lesser affected side and neglect of the more affected side. This disuse of the affected limb can lead to a worsening of the signs and symptoms. There is evidence that constraining the least affected side, and forcing the use of the more affected side can lead to improved function and increased "mindfulness" of the limb.

Forced use and constraining the least affected side has been effective in driving neural adaptation. This has been demonstrated in animal studies with drug induced PD. It has also been demonstrated in patients post-stroke. This forced use can be enhanced not only by physical practice, but mental practice as well. Each day, time should be spent on strengthening, range of motion, task performance and coordination exercises of the more involved limb. Force yourself to do as many tasks as possible with the involved upper limb, using the other limb only to help stabilization.

In addition, do some drills like tap the fingers, tap the wrist and then tap the forearm moving from the elbow as fast as possible. You can also practice turning the palm up and down as fast as possible, throwing and catching balls, putting small objects in small containers, taking your index finger to quickly touch objects that are moving those that and still. Do similar activities with the leg.

This principle of targeting specific task-oriented use of an extremity is similar to forcing yourself to exercise at an intense versus a low level. 'Forced,' in this context, means that you work harder than you would usually work. In other words, in your general exercise routine, you want to work with a faster speed and potentially for a longer period to keep your nervous system and your cardiovascular system adaptable and responsive. This will also allow your nervous system to respond more crisply when faced

with unexpected and surprise events. This will also facilitate better balance responses and improved postural alignment.

Exercise tools for PD patients

Look for free resources at community centers or commit to walking, running or biking in your neighborhood. The Davis Phinney Foundation has a free DVD of exercise for people with Parkinson's http://www.davisphinneyfoundation.org/living-pd/dvd/ and http://vimeo.com/73142626 or **call 855-346-7564**]. And don't forget that physical activities like gardening and even cleaning can also offer benefits.

In this video, Matthew P. Ford, PT, PhD provides the guidance to help you get started and shares a range of exercise approaches drawn from research and his deep experience working with members of the Parkinson's community.

Thirteen men and women of different ages, living with various stages of Parkinson's disease, demonstrate a range of exercise routines and share their inspiring personal stories with encouragement and first-hand insight into getting started and sticking with it.

More than an "exercise along" video, this program goes one step further and provides a road map that will teach you how to safely progress exercise activities over a period of years in order to help you stay motivated and derive the greatest benefit from your workouts.

PD Clinic & Research Center, UC/San Francisco

http://pdcenter.neurology.ucsf.edu/patients-guide/exercise-and-physical-therapy

STUDIES

https://foxtrialfinder.michaeljfox.org/pages/find-trials/default.aspx/?keywords=exercise&webbased=2

1 - 10 OF 20 Trials

Exercise Targeting Cognitive Impairment in Parkinson's Disease
Study Type Interventional
Study Focus: Cognitive Deficits
Sponsor University of Southern California
Location University of Southern California, Los Angeles, California, United States

Skeletal Muscle as a Mediator of Exercise Induced Effects on Metabolism & Cognitive Function: Role for Myokines & miRNAs
Study Type Interventional
Study Focus: Cognitive Deficits
Sponsor Slovak Academy of Sciences
Location Inst. Exp. Endocrinology Slovak Acad Sci, Bratislava, Slovakia

High-intensity Exercise and Fall Prevention Boot Camp for Parkinson's Disease
Study Type Interventional
Study Focus: Bradykinesia (slowness of movement), rigidity, Gait disturbances (e.g., freezing)
Sponsor University of Nevada, Las Vegas
Location University of Nevada, Las Vegas, Las Vegas, Nevada, United States

Exercise, Brain Imaging, Cognition, and Gait in Parkinsonism
Study Type Interventional
Study Focus: Gait disturbances (e.g., freezing)
Sponsor Oregon Health and Science University

Location Oregon Health & Science University, Portland, Oregon, United States

Blood Lactate Concentrations With and Without Exercise in Parkinson's Disease and Multiple Sclerosis Patients
Study Type Interventional
Study Focus: Bradykinesia (slowness of movement), rigidity, Gait disturbances (e.g., freezing), Postural Instability (falling), Tremors
Sponsor Florida State University
Location Fitness and Wellness Center, Tallahassee, Florida, United States

Cycling in Parkinson's Disease
Study Type Interventional
Study Focus: Gait disturbances (e.g., freezing)
Sponsor Rehabilitation Institute of Chicago
Location The Rehabilitation Institute of Chicago, Chicago, Illinois, United States

CYCLE Trial
Study Type Interventional
Study Focus: Bradykinesia (slowness of movement), rigidity, Postural Instability (falling), Tremors
Sponsor NIH
Location Cleveland Clinic, Cleveland, Ohio, United States

Exercise Intervention and Dexterity in Parkinson
Study Type Interventional
Study Focus: Bradykinesia (slowness of movement), rigidity, Pain
Sponsor Universidad de Granada
Location Facultad de Ciencias de la Salud Universidad de Granada, Granada, Andalucia, Spain

A Pilot Study of Mirabegron and Behavioral Modification Including Pelvic Floor Exercise for Overactive Bladder in Parkinson's Disease (MAESTRO)
Study Type Interventional
Study Focus: Not Specified
Sponsor Daniel Burdick, MD
Location Evergreenhealth Booth Gardner Parkinsons Care Center, Kirkland, Washington, United States

Stability and Balance in Locomotion Through Exercise - S t a B L E
Study Type Interventional
Study Focus: Gait disturbances (e.g., freezing), Postural Instability (falling)
Sponsor University of Erlangen-Nürnberg
Location Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Institute of Sport Science and Sport, Gebbertstr. 123b, Erlangen, Germany

The Effects of the Hopeful Outdoor Parkinson Exercise (HOPE) Program on Improving Balance Performance and Reducing Fall Rate in Parkinsonian Non-fallers and Single Fallers

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	The Hong Kong Polytechnic University
Location	The Hong Kong Polytechnic University, Hong Kong SAR, China

Virtual Exercises in Patients With Parkinson's Disease

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	Faculdade Evangelica do Parana
Location	Associação Paranaense dos Portadores de Parkinsonismo, Curitiba, Parana, Brazil

Swallowing and Breathing Exercises for Dysphagia in Parkinson Disease

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	Federal University of Bahia
Location	Not Specified

The Effects of Exercise in Parkinson's Disease

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	Pacific Parkinson's Research Centre
Location	Pacific Parkinson's Research Centre, Vancouver, British Columbia, Canada

The Cyclical Lower-extremity Exercise for Parkinson's Trial

Study Type	Interventional
Study Focus:	Not Specified

Sponsor	The Cleveland Clinic
Location	Cleveland Clinic, Cleveland, Ohio, United States

Exercise and Parkinson's: Comparing Interventions and Exploring Neural Mechanisms

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	Washington University School of Medicine
Location	Washington University School of Medicine, St. Louis, Missouri, United States

Multi-Ex PD Balance Trial

Study Type	Interventional
Study Focus:	Bradykinesia (slowness of movement), rigidity, Postural Instability (falling)
Sponsor	Pepper Older Americans Independence Center
Location	Boston, Massachusetts, United States

Study in Parkinson's Disease of Exercise

Study Type	Interventional
Study Focus:	Not Specified
Sponsor	University of Colorado, Denver
Location	University of Colorado Denver, Aurora, Colorado, United States

Exercise and Cognitive Training in Parkinson's Disease

Study Type	Interventional
Study Focus:	Cognitive Deficits
Sponsor	Department of Veterans Affairs
Location	Baltimore VA Medical Center VA Maryland Health Care System, Baltimore, MD, Baltimore, Maryland, United States

Exercise Study For People With Parkinson's Disease

Study Type	Interventional
Study Focus:	Bradykinesia (slowness of movement), rigidity, Gait disturbances (e.g., freezing), Postural Instability (falling)
Sponsor	Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
Location	Waldron's Peak Physical Therapy, Boulder, Colorado, United States

https://www.michaeljfox.org/understanding-parkinsons/living-with-pd/topic.php?exercise