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THE APTNESS OF YOGA AND VEGETABLE DIET IN MANAGEMENT OF PARKINSON'S DISEASE

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ABSTRACT

Yoga is a way of life. Yoga is an old method of exercise that has developed over thousands of years in Indian society and has been practicing ever since. Yoga plays a great role in developing a sense of well being in the person and produces a harmony between physical and mental levels. Parkinson's is a common neurodegenerative disorder mainly caused by progressive damage to the brain. The condition shows symptoms of spontaneous shaking of body parts decelerating movement and stiffness in muscles. People suffering from Parkinson's also experience depression and anxiety. They experience loss of balance, sleep and memory. Mostly people suffering from this disorder often end up being teased and stigmatized. In certain cases this results in aggravating the problem. Classical yoga provides an alternative method to manage Parkinson's symptoms. *Yoga Pranayama, Yogendra Aasanas* and *Kriyas* with regular training showed enhanced motor scores and developed gait parameters. Thus, yoga enhances muscles mobility, balance and lower extremity functions and stimulates nerve cells for better functioning. In this way, yoga practice develops physical and psychological stamina. Thus, help in improving the concentration and removes fear from the mind of patient.

Keywords: Parkinson's disease, Anxiety, Stiffness, Yoga

INTRODUCTION

Parkinson's disease (PD) is a progressive neurodegenerative disorder, prevalent in 1% of all individuals over the age of 60 years [1]. Although considered a multi neurotransmitter system disorder, the cardinal PD pathology is damage to the dopamine producing cells in the substantia nigra. Dopamine acts as a messenger between the parts of the brain and nervous system that help control and co-ordinate body movements. If these nerve cells die or become damaged, the amount of dopamine in the brain is reduced so the part of the brain controlling movement cannot work as well as normal, causing movements to become slow and abnormal. The loss of nerve cells is a slow process. The symptoms of Parkinson's disease usually only start to develop when around 80% of the nerve cells in the substantia nigra have been lost.

➤ Symptoms of Parkinson's disease, can be

- Motor symptoms, meaning that they relate to movement. They are:-

Limb Rigidity, Bradykinesia, or Slow Movement, Tremor, Balance and Gait problems, Muscles cramps and Dystonia, Falls and Dizziness.

- Non-motor symptoms, which do not relate to movement. They are:-

Fatigue, Hallucination, Sleep problems, Memory problems, Depression

Anxiety, Cognitive Challenges, Felling Tongue tied.

Early symptoms of Parkinson's disease include:

1. Tremor.
2. Small Handwriting.
3. Loss of Smell.
4. Trouble Sleeping.
5. Trouble Moving or Walking.
6. Constipation.
7. A Soft or Low Voice.
8. Masked Face.

The 5 stages of Parkinson disease?

1. Rigidity (stiffness)
2. Bradykinesia (slowness of movements)
3. Tremors (involuntary or uncontrolled movements of body parts)
4. Problems with posture and balancing.
5. Problems with walking or moving around.

Stage five is the final stage of Parkinson's, and assistance will be needed in all areas of daily life as motor skills are seriously impaired. You may experience stiffness in your legs. It may make it impossible to walk or stand without help.

Parkinson's disease does not directly cause people to die, but the condition can place great strain on the body, and can make some people more vulnerable to serious and life-threatening infections. But with advances in treatment, most people with Parkinson's disease now have a normal or near-normal life expectancy.

There is currently no cure for Parkinson's disease, but treatments are available to help relieve & control the symptoms often dramatically and maintain your quality of life. These treatments include: supportive therapies, such as Yoga.

In some more advanced cases, surgery may be advised. Your health care team also may recommend Diet Modification like Healthy Vegetable Diet, Lifestyle changes especially ongoing aerobic exercise, Yoga and Physiotherapy.

Yoga is a way of life. Classical Yoga provides an alternative method to manage *Parkinson's* symptoms. Several types of research confirmed that the individualized progress in Yoga

postures with regular training showed enhanced motor scores and developed gait parameters. Yoga enhances muscle mobility, balance and lower-extremity functions. *Yoga therapy for Parkinson's* management can be very recuperative and rejuvenating. Some Asana are following:-

TADASANA (See Figure 1)

This standing pose can help improve balance and posture. It helps strengthen the thighs, knees, and ankles.

- It can also help ease sciatic pain.
- Muscles worked:-
 1. Quadriceps
 2. Obliques
 3. Rectus abdominis
 4. Transversus abdominis

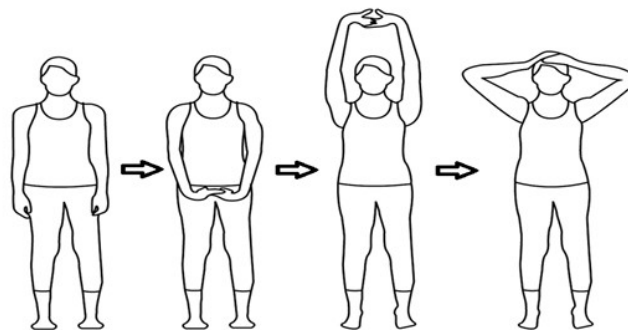


Figure - 1

VRIKSHASANA (See Figure 2)

- This is a classic balancing pose.
- It helps strengthen your ankles, legs, and spine while stretching your thighs, chest, and shoulders. This can help improve your balance while also relieving sciatic pain.

• Muscles worked:-

1. Rectus abdominis and transversus abdominis
2. Adductor longus
3. Iliacus
4. Quadriceps
5. Hamstrings



Figure - 2

VIRABHADRASANA (See Figure 3)

- This is a classic standing pose. It helps strengthen your legs and ankles while increasing your stamina.
- It's a great way to stretch your chest, shoulders, and groin.

• Muscles worked :-

1. Quadriceps
2. Thigh Adductors
3. Deltoids

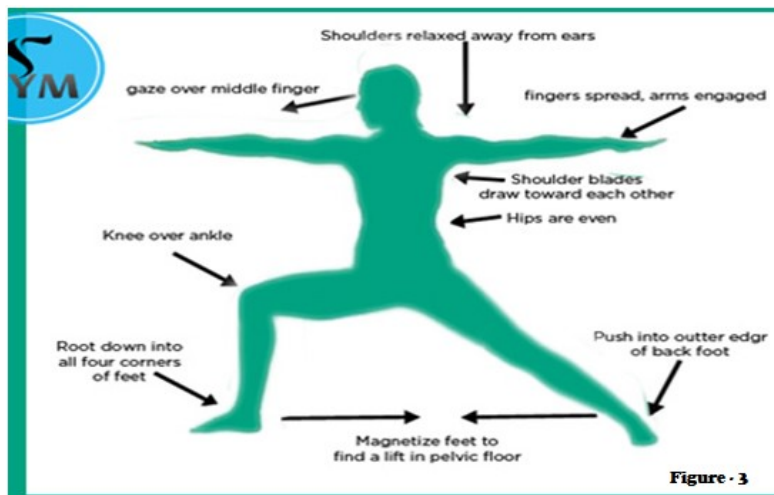


Figure - 3

UTTANASANA (See Figure 4)

- This calming posture helps strengthen your legs, knees, and hips.
- Because of its meditative nature, this pose is also thought to help ease stress and anxiety.
- Muscles worked:-

1. Spinal muscles
2. Piriformis
3. Hamstrings
4. Gastrocnemius
5. Gracilis

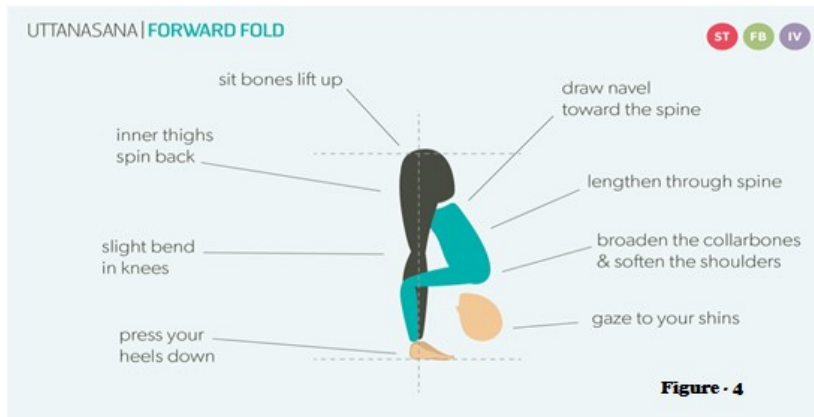


Figure - 4

SALABHASANA (See Figure 5)

- This gentle backbend can help strengthen your upper body, spine, and thighs.
- It stimulates the abdominal organs, which can help ease indigestion, flatulence and constipation.

- Muscles worked:-

 1. Trapezius
 2. Erector spinae
 3. Gluteus maximus
 4. Triceps

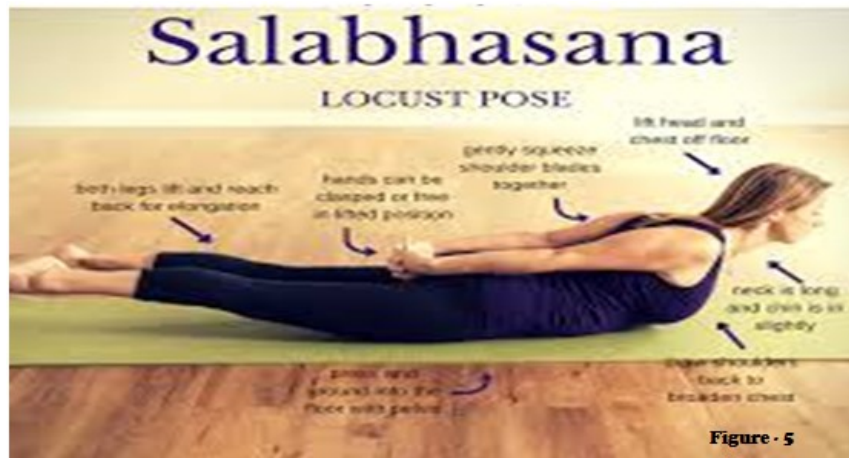


Figure - 5

BALASANA (See Figure 6)

Helps calm your brain and relieves stress and anxiety. It gently stretches your lower back and hips, enabling your body to relax.

- This restorative forward bend is an excellent resting pose. It gently stretches the hips, thighs, and ankles to help relieve tension and pain in the back.

- Peace and calm prevail over your entire being, helping you deal with your depression better.

- It also helps calm the mind, relieving stress and fatigue.

- Muscles worked:-

1. Spinal extensors
2. Hamstrings
3. Tibialis anterior
4. Trapezius

**Anulom-vilom (See Figure 7)**

- A breathing exercise that requires you to breathe in through one nostril, and breathe out through the other.
- It help in managing symptoms of Parkinson's.
- Breathing exercises calm down the mind and the body and make it

easier to keep anxiety and depression at bay.

- Taking deep breaths also makes the blood flow better and may help in keeping tremors away.



THE BENEFIT OF *YOGA THERAPY* FOR *PARKINSONS INCLUDE-*

- Increase motor functions, muscle flexibility and increased range of motion
- The circulatory system is benefits
- Enhances positive emotions
- Improves alertness of mind and memory
- Have better balance
- Awareness of their gait and less prone to shuffling their feet
- Relief from symptoms such as rigidity and fatigue
- Improvement in quality of life
- Decreasing the fear of falling and risk for injury
- Cultivating the ability to engage better in everyday tasks
- Increasing the opportunity to socialize and interact with others

DISCUSSION

Parkinson disease causes physical symptoms at first. Problems with cognitive function, including forgetfulness and trouble with concentration, may arise later. As the disease gets worse with time, many people develop dementia. This can cause profound memory loss and makes it hard to maintain relationships.

Research suggests that stressful life events may increase the risk of Parkinson's disease. In addition, animal studies indicate that stress damages dopamine cells, resulting in more severe Parkinsonian symptoms. In humans, acute stress can worsen motor symptoms, including Bradykinesia, freezing, and tremor.

Yoga can help reduce stress because it promotes relaxation, which is the natural opposite of stress. Yoga can benefit three

aspects of ourselves that are often affected by stress: -

Our Body, Mind, and Breathing. You don't have to wait to feel stressed out to do yoga and prevent disease like Parkinson.

Research has shown that exercise can improve Gait, Balance, Tremor, Flexibility, Grip Strength and Motor Coordination, Yoga such as -

Tadasana, Vrikshasana, Virabhadrasana, Uttanasana, Salabhasana, Balasana, Anulom-Vilom

Exercise such as treadmill training and biking have all been shown to benefit, along with Tai Chi.

Regular moderate-to-vigorous physical activity improves the clinical progression of early-stage Parkinson's disease. Different types of activities have different effects on the progression of the condition. Regular physical activity may improve the long-term clinical outcome of Parkinson's disease.

For people with Parkinson's, walking every day can drastically improve your ability to live an independent and fulfilling life. Research has found that just 20 to 30 minutes of brisk walking daily may slow the progression of Parkinson's symptoms, while improving gait, balance, tremor and flexibility.

For many people, Parkinson's affects brain chemistry—hindering the body's ability to produce dopamine, nor epinephrine, and serotonin. These chemicals determine mood,

energy, and motivation, leaving many in a state of depression, which can be treated, but is certainly a struggle to live with.

Yoga helps in decreasing the cortisol levels leading to a counter-regulatory effect to reduce the depressive and anxiety symptoms.

The slow rhythmic breathing practices and meditative/ relaxation practices of yoga are designed to induce a sense of calm, well-being, stress tolerance, and mental focus, all of which may minimize depression, anxiety, stress, and rumination. It has been proven to be a very good solution for stress management.

Experts believe yoga helps with anxiety by reducing levels of stress hormones in the body. The body releases stress hormones as part of the fight, flight, or freeze response. This response can lead to symptoms of anxiety.

A number of genetic factors have been shown to increase a person's risk of developing Parkinson's disease, although exactly how these make some people more susceptible to the condition is unclear. Parkinson's disease can run in families as a result of faulty genes being passed to a child by their parents.

It is very common for people in the advanced stages of PD to have excessive daytime sleepiness (EDS), which can cause them to sleep for periods during the day.

Research suggests that EDS increases as PD progresses.

It should be noted that the life expectancy of Parkinson's disease can be normal or near normal. However, a number of factors can shorten life expectancy. According to the Michael J. Fox Foundation for Parkinson's Research, patients usually live between 10 and 20 years after diagnosis.

Some research has shown that regular aerobic exercise might reduce the risk of Parkinson's disease. Some other research has shown that people who consume Good Healthy Vegetable Diet which contain rich amino acids and caffeine — which is found in coffee, tea and cola — get Parkinson's disease less often than those who don't drink it.

There is no doubt that a positive outlook, along with determination to overcome obstacles and focus on what you can do, will help you adapt to living with Parkinson's and, given time and an optimistic attitude, you will be able to continue to pursue the activities and relationships that make your life enjoyable and Happy.

- Specific improvement in the sit-to-stand ability following yoga indicated an improved functional mobility and lower-limb strength [2]
- Improvements in balance confidence that accompany, so yoga also

contributed to reduced fear of falling in PD [3].

- Utilization of more muscle fibers, especially during Vrikshasanas, produces more force per unit of mass; this causes peripheral changes and improved muscular endurance so gains in the lower extremity strength and improved postural stability and gait in PD.
- Since rigidity is a common clinical manifestation in PD so an improved upper and lower body flexibility have seen by doing Yogasanas [4].

Vitamin B₁₂ deficiency in humans is known to contribute to a variety of neurological conditions and low vitamin B₁₂ levels have been described in patients with idiopathic PD. A recent study showed that low levels of vitamin B₁₂ predict worse motor symptoms for patients early on in PD progression.

Best food for Parkinson disease?

While there is no prescription for a PD-specific diet, one that includes a variety of whole grains, vegetables, fruits and protein-rich foods can improve health. Also consider including nuts, olive oil to your diet, for their beneficial fats. **(See Figure 8 & 9)**



Vitamin B6 and B12

Certain Veg. nutrient-dense foods Like-

- Iron: Spinach, Tofu, and Fortified breakfast cereals.
- Vitamin B1: Beans, lentils, and peas.
- Zinc: Whole Grains
- Vitamin D: Fortified dairy Products.

The research team showed that vitamin D deficiency affects the growth and dopamine release mechanisms in dopaminergic neurons. They found that dopamine release was enhanced in cells grown in the presence of the vitamin D hormone compared to a control.

Along with eating a balanced diet, many possible supplements may help boost dopamine levels, including probiotics, Vitamin D, magnesium, ginkgo and ginseng. This, in turn, could help improve brain function and mental health. Each of the supplements on this list has a good safety profile when used properly.

Green leafy vegetables

Green leafy vegetables scientifically called the cruciferous vegetable group consists of

lettuce, spinach, cabbage, kale, cauliflower, broccoli, and many more. They act as great dopamine boosters for vegans.

Green tea

Green tea is a great beverage if you wish to increase your dopamine levels naturally. Green tea is high in caffeine which boosts our energy levels. Along with this, it also boosts our metabolism. It is also rich in antioxidants and promotes better overall health.

Nuts

Nuts are another great source of amino acids, especially for vegans and vegetarians. As they are also rich in other nutrients it is a great addition to your diet if you naturally want to boost the production of happy hormones.

Coffee

Coffee similar to green tea is a high-caffeine beverage. This makes it an energy and hormone booster instantly. Drinking caffeine can improve your dopamine levels and also increase productiveness.



A healthy diet means all type of grains (complex carbohydrates, vitamins, and minerals), green vegetables, vegetables, and fruits. Choose a Parkinson's patient diet with plenty of grain foods (See Figure 8 & 9). Replace white rice with quinoa, brown rice, wild rice, barley or bulgur.

In conclusion, what we eat significantly influences the production of various hormones and several body functions. Therefore, we must be mindful of the food we consume daily. Eating a well-balanced diet is the key to a healthy mind as well as body. We do also encourage you to engage in physical activities as participating in them also greatly affects your hormone levels.

CONCLUSION

- Yoga may represent a particularly promising Nonpharmacologic therapy for PD.
- By doing these yogaasanas improving mobility, balance, and lower-extremity function, so they also reduced the fear of falling and

declines in strength and flexibility related to inactivity [5].

- Upper-body flexibility supported postural stability and improved function during daily living activities
- These Yoga Aasanas have demonstrated improvements in stress, mood, fatigue, sleep, pain, mobility, problem solving and memory.
- The additional psychosocial benefits associated with yoga are also important to disease management and to the QoL in persons with PD, as they are often not addressed with conventional Dopaminergic therapy
- Boulgarides, *et al.*, in a pilot study identified the outcome measures responsive to change in individuals with PD after an 8-week adaptive yoga program and found out depression subscale of the Hospital Anxiety and Depression Scale (HADS), 30-Second Chair Stand

(TSCS), Single-Leg Balance test (SLB), and the right and left Sitand-Reach Test (SRT) changed as outcome measures. They concluded that adaptive yoga can be very helpful in patients with PD [6].

- Shin, *et al.*, used a Self administered, cross-sectional survey and found ^{out} 2/3rd of participants used complementary health approaches like yoga, massage etc. either for general health measures or controlling quality of life in patients with PD [7].
- Recently a case-control study reported that participants who completed a twice-weekly 12-week yoga intervention reported high levels of enjoyment. Yoga as an intervention showed improvement in balance l in people with PD [8].
- Walter, *et al.*, examined changes in nonmotor symptoms among individuals with PD following an 8-week yoga intervention. They found out yoga to be an efficacious intervention for improving nonmotor symptoms as well as HRQOL [9-11].

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