

## **Case Study Report on a Parkinson's Disease Patient with Inversion Therapy Using Physioball and Inversion Based Yoga Postures.**

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**Abstract:** As Age Advances Neurological ailments, depression, difficulty in movements, obesity with lowered cognitive functioning are known and well recorded. This single case study where a obese patient with difficulty in walking, low confidence level, difficulty in speech and hand tremors under goes Inversion Therapy using Physioball along with Inversion based yoga postures. He has improved significantly with improved confidence, confident in walking less tremor and reduction in obesity which is highly significant and an innovative means of treating patients with movement disorders.

**Key words:** Physioball: An air inflated ball Inversion Therapy: upside down postures used for Therapeutic Purpose.

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### **I. Introduction:**

Inversion therapy being carried at the United States army physical fitness school. Inversion therapy, to relieve pain and the effects of gravity have been documents as early 400 BC by Hippocrates, Gord Ker 2015 has shown reduction of pressure on the spinal discs, improved blood circulation with yoga postures such as pawan Muktasana, Genu Sirasana, are effective.

#### **Indications:**

For Inversion Therapy patients with Movement disorders, and Mild cognitively impaired.

#### **Contra Indication:**

For Inversion Therapy patients with labile blood pressure semi conscious, un cooperative, Epileptic seizures, who have under gone Neck and Head surgeries, increased intra cranial pressure.

#### **Care Points:**

Monitor Heart Rate Breathing Rate, Fatigue No Breath Hold, or Any Other Physical Abnormal Signs to Discontinue.

Mr.XXX, Aged 74 years, H/O Father of 5 Female Children and a retired Gazette officer from Tamilnadu Government. Known Type II Diabetic and Parkinson's disease for the last Ten years. He is on Metformin and 125 mg syndopa. C/o continuous tremor with pilrolling of Left hand, difficulty in walking, pain over lower back region and left Knee.

#### **O/E**

- Endomorph, waist circumference -122cm.
- Body Weight: 89 Kg, Height: 168 cm.
- Heart Rate: 84/mt, Blood Pressure: 138/85mm/ng.
- Bed Mobility and Transfers independent.
- Pain increasing on left knee extreme flexion as well an extension.
- Exagrated lumbar lordosis.
- Tender Limbo sacral region.
- Unilateral stance for balance in standing III/ V.
- Dyskinesia on left upper and lower extremity.
- Hyper reflexion positive, hyper toxicity positive on left upper and lower extremity.
- Speech was stammering.
- Ambulant with minim oral manual support as he lacks confidence.
- For activities of daily living partially dependent.
- Cadence.

- 30 minute.

**Provisional Diagnosis:**

Type II diabetic mellitus, Parkinson's disease, L5 disc lesion, obesity.

**Treatment Adopted are as below:**

- Weight reduction means using Physioball.
- Yoga postures such as vajrasan, pawanuktasan, Veerasan.
- Inversion therapy postures using Physioball in supine, side, prone and sitting along with cat and camel posture using ball, and modified sirasasana using ball.
- Postures are maintained and increased gradually from 1-3 minutes. Heart rate and breathing rate increased in the initial few sessions by 10%
- Core Exercises to strengthen Lumbar spine and knee joint using Physioball.
- Proprioceptive and irradiation techniques using proprioceptive Neuro muscular facilitation Techniques.



**Cat and Camel Inversion Yoga posture using Physioball.**



**Prone Position Passive Lifting of Both Legs using Physioball.**



**Lying on The Ball in Supine Inversion of The Head.**



**Supine Inversion with Pelvic Bridging using Physioball.**



**Inversion in side Lying Ball Below Both Legs Raising the Hips.**

His physical condition following weekly twice sessions for a period of 3 months from January 2015 to March 2015 are as below:

1. Waist circumference has decreased from 122cms to 117cm.
2. Cadence has increased from 30 to 60/ minutes.
3. Able to walk unaided for half an hour.
4. Left hand pill rolling movements which was continuous earlier, has now seen occasionally.
5. Modulation in speech and body language has improved and able to converse with self confidence.

6. Though left knee pain continuous, lumbar pain has decreased with improved spinal and abdominal motor power.

**Salient points from this case study are:**

1. Obesity reduction improved motor power of spine, abdominal muscles and increased range of motion of lumbar spine using specific yoga postures and Physioball are together used here.
2. Inversion therapy using Physioball is an innovative means where gravity is useful to facilitate more blood flow to cerebral areas, improve venous return.

As recorded clinically with improved speech, physical activities, walking, level of self confidence, decreased tremor and pill rolling of left hand.

**II. Discussion:**

West et al 2004 shown yoga in Larry Payne and, improving physical and mental health. Layton believes that in head and shoulder stance (sarvan gasan posture) the heart works doggedly to ensure that freshly oxygenated blood makes its way up to the brain and hits sensory organs. Prof Chandra on physiological and psychological effects of head stand postures project that it could affect a base- line opening of blood vessels making them more efficient at dilating and constricting to efficiently shunt blood to the active areas of the brain Coulter 1992 has recorded that with 3-5 minutes of inverted posture, blood will not only drain quickly to the heart but tissue fluids will flow more efficiently into veins and lymph channels of lower extremities. Abdominal and pelvic organs facilitating a heal their exchange of Nutrients and wastes between cells and capillaries. (Karen K. Offer has recorded that Inversion therapy increases blood flow and increased bio availability of oxygen and glucose the most important metabolic substrates for the brain.

Though this case study where inversion therapy using Physioball and yoga postures which are gravity based are together used for the clinical prognosis as mentioned above, further larger sample size other qualitative variables on other further substantiate and validate the findings of this study.

**III. Conclusion:**

With very few clinical studies are done on inversion therapy, Inversion based yoga postures such as head stance postures, cat and camel postures patients may develop complications such as vertebral fractures, and Muscular and ligament strain of shoulders also the imported inversion table costs Rs. 10 Lakhs. This innovative study with supportive medium using Physioball to utilise the gravity based yoga postures provides geriatric, Neurologic patients huge cognitive, physical benefit along with an improved quality of life is the major outcome of this report.

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**Reference:**

- [1]. F. Chandra, on head stands Yoga postures of their physiological and psychological effects.
- [2]. Journal of Canadian chiropractic association on Inversion Therapy.
- [3]. WWW. Sungray.org. benefits of Inversion techniques.
- [4]. Gord Kerr, Demand Media, 2015 on Inversion Table risks and benefits.
- [5]. David Coulter, Anatomist, University of Minnesota. US 1992, Yoga. Anatomy of Hatha Yoga: A Manual for Students, Teachers, and Practitioners Paperback – January 1, 2010.
- [6]. Pat Layton, Physiologist, Iyengar Yoga Institute of San Francisco Advanced Study on The effects of sarvangana posture.
- [7]. Karen K offer, Director of Integrative Medicine, North western university on
- [8]. Inversion therapy, 400BC by thippo crates.
- [9]. Larry payre, yoga for Dummies, California.
- [10]. West J, otte, C, Geher K, Johnson J et al. Effects of hatha yoga and African dance on perceived stress, affect and salivary cortisol. Ann.Beh Med 2004: 28; 114-118.