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"EFFECTIVENESS OF THE ALEXANDER TECHNIQUE AND THE FELDENKRAIS TECHNIQUE FOR IMPROVING THE BODY BALANCE IN OLDER ADULTS: A COMPARATIVE STUDY"

A Dissertation

Submitted by

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(NU10MSPT06)

UNDER THE GUIDANCE OF

PROF. MOHAMED FAISAL C. K.

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CERTIFICATE

Certified that **Ms. Patel Dhara Bipinbhai** U. S. No. **NU10MSPT06** of the Department of Neurology and Psychosomatic Physiotherapy of **Nitte Institute of Physiotherapy** is a bonafide student during the year 2010 to 2012 and has carried out this dissertation entitled **"EFFECTVENESS OF THE ALEXANDER TECHNIQUE AND THE FELDENKRAIS TECHNIQUE FOR IMPROVING THE BODY BALANCE IN OLDER ADULTS: A COMPARATIVE STUDY"** under my guidance.

Further certified that this work either in part or full has not been submitted to any other University / Institute for the award of any Degree / Diploma.

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DECLARATION

I, **Ms. PATEL DHARA BIPINBHAI** (**NU10MSPT06)** hereby declare that the dissertation work entitled **"EFFECTIVENESS OF THE ALEXANDER TECHNIQUE AND THE FELDENKRAIS TECHNIQUE FOR IMPROVING THE BODY BALANCE IN OLDER ADULTS : A COMPARATIVE STUDY"** is my original work and has been carried out under the guidance of **PROF.MOHAMED FAISAL. C. K, MPT, Department of Neurological Physiotherapy**, **Nitte Institute of Physiotherapy, Mangalore** and is being submitted to the Nitte University in partial fulfillment of the requirements for the award of master of **Physiotherapy (Neurology and Psychosomatic Disorders).**

I also hereby declare that this work in part or full has not been submitted to any other University / Institution for any Degree / Diploma.

Date of submission:

Signature of the candidate

Ms. PATEL DHARA BIPINBHAI

(NU10MSPT06)

Dedicated to:

My parents **Mr. Bipinbhai K. Patel** & **Mrs. Nitaben B. Patel**, My sister **Mrs. Karishma C. Parikh**, my brother in law **Mr. Chintan S. Parikh** & my brother **Mr. Kaushal B. Patel**.

Thank you for all your support, without it I would have been nothing in my life.

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Date:

Ms. PATEL DHARA BIPINBHAI

Mangalore:

LIST OF ABBREVATIONS USED

COG: CENTER OF GRAVITY

BOS: BASE OF SUPPORT

ADL: ACTIVITIES OF DAILY LIVING

COM: CENTER OF MASS

TUG: TIMED UP AND GO

BBS: BERG BALANCE SCALE

FRT: FUNCTIONAL REACH TEST

M: MALE

F: FEMALE

&: AND

<: LESS THAN

>: MORE THAN

ABSTRACT

"EFFECTIVENESS OF THE ALEXANDER TECHNIQUE AND THE FELDENKRAIS TECHNIQUE FOR IMPROVING THE BODY BALANCE IN OLDER ADULTS: A COMPARATIVE STUDY"

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BACKGROUND: The balance is the important factor which will help the individual to perform the ADL without any problem. The literature review suggested that any type of balance exercises in the older adults will help the individuals to improve the balance and reduce the fall. There are studies available which says Feldenkrais methods of exercises and Alexander methods of exercises will improve the balance in older adults, but there is no study available which says which technique of exercises, i.e. Feldenkrais technique or Alexander techniques, are effective to improve the balance in older adults. By keeping this fact in view present study aims at evaluating the efficacy of Feldenkrais technique and Alexander technique for improving the balance in the older adults.

OBJECTIVE: To compare the effectiveness of the Alexander technique and the Feldenkrais technique for improving the body balance in older adults.

METHODOLOGY: After satisfying inclusion criteria the individuals were randomly assigned to any of the three groups, group I, who received the Alexander methods of exercises, group II, who receives the Feldenkrais methods of exercises & group III, who receives only the conventional balance exercises to improve the balance. Each group was consisting of 15 individuals each and received treatment for 5 days in a week for one month. The balance was assessed before starting the treatment and after one month by using Berg Balance Scale (BBS), Functional Reach Test (FRT) in sitting and standing & Timed Up and Go Test (TUG).

RESULTS: Mann Whitney U test and Wilcoxon Signed Rank test were the statistical tools used for evaluating the results. At the end of one month all the three groups were showing significant improvement in the balance. The inter group comparison between group I and group III, group I showed better improvement with BBS (P = 0.001), but there was not statistically significant improvement with FRT sitting (P = 0.273), with FRT standing (P = 0.948), & with TUG (P = 0.394). The results suggested that the Alexander method of exercises will improve the balance with BBS than conventional balance exercises. The inter group comparison between group II and group III, group II showed better improvement with BBS (P = 0.016) & with FRT standing (P = 0.015), but there was not statistically significant improvement with FRT sitting (P = 0.231) & with TUG (P = 0.164). The results suggested that the Feldenkrais method of exercises will improve the balance with BBS and FRT standing than conventional balance exercises. The inter group comparison between group I and group II, group II showed better improvement with FRT standing (P = 0.019), but there was not statistically significant improvement with BBS (P = 0.326), with FRT sitting (P = 0.097), & with TUG (P = 0.629). The results suggested that improvement with only the FRT standing in Group II.

CONCLUSION: All the groups showed improvement at the end of one month of intervention. The study suggested that all the groups have improvement in the balance after one month of intervention, but still the study could not suggest that which method of exercises improve the balance better than other method of exercises. So, the study suggested that any kind of balance exercises for improving the balance helps the individual in improving the balance.

KEY WORDS: *Balance, Feldenkrais technique, Alexander technique, Berg Balance Scale, Time Up and Go test, Functional Reach Test, Older Adults*

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INTRODUCTION

Balance is defined as the ability to control the COG relative to the BOS [1]. Balance is also defined as the state of physical equilibrium achieved when vestibular, visual, and somato-sensory information which is integrated in the central nervous system [2]. Balance is described as “family of adjustments” which is needed in order to maintain posture and to move. These adjustments have three goals: to support the head and body against gravity and the external forces; to maintain the center of the body’s mass aligned and balanced over the base of support; to stabilize parts of the body while other parts of the body are moved [1].

Balance is an integral component of ADL; however, balance control is very complex and multi-factorial. The task being undertaken and the environment in which it is taking place both affect an individual’s ability to control balance, by altering the biomechanical and information processing needs. Balance may be measured when the body has a constant or static BOS, or during movement from one BOS to another. It can be analyzed directly by quantifying the position of the Center Of Mass in relation to the BOS.[3]

Balance, an important component of human motor performance, may be defined as “a motor skill that emerges from the interaction of multiple systems that are organized to meet functional task goals and that are constrained by environmental context”.[4] Large reductions in balance ability can lead to imbalance during everyday activities, difficulties with independent ambulation, and increased likelihood of falls.[4]

Balance can be measured indirectly through observation, self reporting or other reporting methods such as objective tests of functional activities. However, the ability to

undertake functional activities is complex and multifaceted involving not only balance but other factors such as strength, proprioception, and integrity of the neuromuscular system, pain, vision and in some instances fear of falling. Diminished ability to maintain balance may be associated with an increased risk of falling. A decrease in ability to maintain balance may be associated with an increased risk of falling. In older adults, falls commonly lead to injury, loss of independence, associated illness and early death.[3]

Decreased balance has been noted in 13% of 65 – 69 years old community living persons and in more than 46% of the people 85 or more years old. There is increased postural sway with aging under both static and dynamic conditions [5]. Altered postural responses in elderly subjects, such as delayed onset latencies, intermittent reversal of muscle activation sequence and occasional co-contraction in lower leg muscles, have tendency to improve with practice.[6]

Geriatric medicine as a medicine for the frail older individuals focuses on functional independence and quality of life. General objectives are treating diseases and preventing or minimizing disease-related and age-related functional decline and restitute functional independence after an acute illness. There is an important observation about the gender differences in life expectancy and fitness in the aged. The higher life expectancy of women is well known.[7]

Controversially to the higher life expectancy the mean fitness level of female population is lower compared to male controls. In the Berlin Age Study the proportion of female participants who cannot independently manage a certain activity of daily living is consistently and significantly higher compared with males.[7]

Balance in turn depends on good postural control, the flexible and adaptive control of bodily orientation within changing environments and task-demands [6].Training balance in the elderly is challenging because balance depends on the ongoing interaction of many physiological mechanisms within changing task environments [8].

Various forms of exercise have aimed to improve balance in older adults, generally to attempt to reduce the incidence of falls. Exercise has also been proposed as a preventative strategy to slow the decline from pre-frailty to frailty in older adults. Exercise approaches to achieve these aims have varied from strength and balance training to specific balance exercises.[9]

The head and neck contain many of the main sensory organs regulating balance: the eyes, vestibular system, and neck muscle proprioceptors. When dynamically interacting with the environment and during movements with varying body orientations, there is a higher demand on sensory feedback, which may indicate that head control is more critical during movement than during static tasks. The most basic function of postural control is to prevent falling [10].

According to *Lord et al* a combination of reduced sensation, leg muscles weakness and increased reaction time appear important factors associated with postural instability in the elderly [6]. According to *Judge et al*, there will be significant improvement in single leg stance, functional base of support, and the sensory organization test of balance function, but no change in strength after balance training [11].

The Alexander Technique is a method of movement education that purports to improve postural control through augmented perceptual and cognitive strategies applied to task-based activities. The step-wise perceptuomotor progression of improvement

included (1) the “means whereby,” that is, the unity of perception and action; (2) “primary control,” that is, proprioceptive guidance for balanced use of tonic and phasic spinal musculature; and (3) cognitive strategies to redirect the body toward improved support and force application in moment-by-moment negotiation of daily activities “inhibition” and “direction” [12].

The “good use” and use of light-touch physical guidance are tools for motor learning. Special attention is paid to the patient’s habits of movement execution in the earliest moments of initiation and especially to noticing the automatic muscular reactions resulting in motor commands.[12]

The Feldenkrais Method [TM] has the potential to be a useful tool for balance retraining. Dr Feldenkrais combined his understanding of human movement from his martial arts training, with extensive reading from Eastern and Western sources to develop a unique approach to improving movement. The Feldenkrais Method ‘Awareness Through Movement’ [TM] classes use an exploratory learning approach, in which participants are verbally guided through movement sequences aimed at improvement of body awareness and movement organization.[9]

‘This process facilitates the learning of strategies for improving organization and coordination of body movement by developing spatial and kinesthetic awareness of body-segment relationships’. Achieving effective balance is a multi-system and multi-dimensional task. The Feldenkrais Method is an approach to balance retraining that is multi-dimensional. All parts of the body are potentially involved in the movements, including the eyes, the feet and the trunk, which are all important contributors to balance. There is also involvement of the senses in the lessons, including tactile

sensation, proprioception, vestibular stimulation and vision. A fundamental principle of the Feldenkrais Method is that the processes of thinking, feeling, sensing and doing are all interrelated components of human functioning, and to address any one component is to address them all. It is this concept of the unity of the mind and body that distinguishes the Feldenkrais Method from most mainstream approaches to movement improvement.[9]

The Alexander technique and Feldenkrais method are somatic education techniques designed to establish a heightened awareness of movements. The desired outcome is to become more functional and aware of one's movements spatially (or, more accurately, kinesthetically) throughout everyday routine activity. The Alexander technique and Feldenkrais method, in contrast to other forms of alternative therapies, are relatively new and not as widely understood by society. Although each method has its own history and accepted approach, both also have many parallels and similarities. The Alexander technique and Feldenkrais method theorize that movement is a function not only of the body, but also the mind, and the two should not be viewed separately but as a whole.[13]

Jones, in the 1950s and 1960s, performed experiments attempting to document physical improvement in quality of movement of the head and neck in subjects using the Alexander technique. The process by which these techniques achieve their effect is likely multi-factorial, however. One hypothesis on a physiologic level is that these techniques change the muscle spindle set points to a new resting length or change the gamma neuron system set points. Another concept may be that the engrams of habitual movements are effectively altered or replaced by more functional and efficient movement patterns. The hands-on aspect of these treatment interventions (although

primarily intended to be instructional) may elicit effects similar to massage by activation of peripheral sensory receptors, a mechanical release of neuro-humeral factors, or direct stimulation of Golgi tendon organs.[13]

The psychological component of the Alexander technique plays a large role in movement because the method educates how to control physical movement in the time between deciding to move and the actual movement itself. Alexander stressed the importance of inhibition to alter routine movement. He postulated that by stopping a movement from occurring, one could reset the action and redirect motion to function more naturally. Over time, these movements become second nature. Alexander believed the dynamic relationship between the head, neck, and spine was crucial to a person's overall well-being. He referred to this as the primary control.[13]

Alexander set precise standards that he applied to every type of movement. He stressed the importance in positioning of the primary control and believed that no movement would be adequate if it did not to some degree follow his format. An initial session of the Alexander technique usually focuses on chair work and table work.[13]

The Feldenkrais method, although similar to the Alexander technique, varies in its fundamentals, teaching mechanisms, and philosophy. Feldenkrais often said his goal was to produce ‘‘flexible minds, not just flexible bodies.’’ This technique usually is taught in positions that eliminate gravity, such as lying down. Feldenkrais coined the terms awareness through movement and functional integration to define the teaching techniques of his method. Although the goals behind each method are similar, the instruction and philosophy behind each differ considerably. During awareness through

movement session, the instructor verbally guides a group or individual through a series of movements to explore systematically the relationship of body position and space.[13]

One key difference between functional integration and awareness through movement is that awareness through movement consists primarily of verbal cues, whereas functional integration mainly incorporates touch to facilitate movement and awareness. In the Alexander technique, the objective is controlled, elegant, functional movement, whereas in the Feldenkrais method, the desire is spontaneous, elegant, functional movement. The Alexander technique and Feldenkrais method are benign in practice and have no strict contraindications. The Alexander technique and Feldenkrais method focus on developing one's awareness of movement and provide the ability to improve that movement.[13]

The Alexander technique learning process can have many benefits, including freer and more comfortable movement, relief from strain, chronic pain, and excess tension, more comfortable and erect posture, easier and healthier breathing, increased vitality and strength, and most importantly, the development of skills that can be used to change habits that interfere with optimal functioning. The fundamental improvement in the reliability of sensory appreciation/feedback that occurs with Alexander Technique lessons can have positive, significant effects on a wide range of behaviors and skills, including the ability to learn.[14]

The performance oriented assessment of mobility of simple tasks: sitting and standing balance, turning, standing without the use of upper extremities for a push off, and gait. Five other common maneuvers – head turning, reaching, bending over, back

extension, and standing on one leg – can be added for a further assessment of balance.[15]

Other screening instruments include the timed get up and go test and the functional reach.

In the timed get up and go test, patients arise from a seated position, walk 3 meters, turn around, return to the chair, and sit down. A healthy, elderly individual should be able to complete this task in less than 10 seconds; any score greater than 20 seconds should prompt a more in depth evaluation. This test may also be useful to follow patients over time for functional decline. The functional reach is a measure of patient ability to stretch forward without moving their feet. Limited ability to reach forward predicts the occurrence of future falls.[15]

The berg balance scale developed by Berg and coworkers to measure the static and dynamic balance abilities. The scale consists of 14 functional tasks commonly performed in everyday life. The items range from sitting or standing unsupported. To movement transitions (sit-to-stand, stand-to-sit), variations in standing position (EC/EO), feet together, forward reach, retrieving an object from the floor, turning, standing on one foot to placing the foot on a stool. Scoring uses a five point ordinal scale, with scores ranging from 0 to 4. A maximum score of 56 points is possible. A score of 45 or below is associated with a high fall risk and each one point drop in scores ranging from 45 to 36 is associated with a 6 to 8 percent increase in fall risk. The BBS is a sensitive measure for low functioning older adults.[16]

Need for the study

The Alexander technique and Feldenkrais method theorize that movement is a function not only of the body, but also the mind, and the two should not be viewed separately but as a whole. The Alexander technique and Feldenkrais method have many similarities; however, each method also has a unique philosophy that makes it distinctive. Both techniques postulate that habitual movements lead to movement problems, pain, or overall patterns of dysfunction. Through changing these patterns, the entire system or body functions better. Alexander stressed the importance of inhibition to alter routine movement. He postulated that by stopping a movement from occurring, one could reset the action and redirect motion to function more naturally [13].

The Feldenkrais method, although similar to the Alexander technique, varies in its fundamentals, teaching mechanisms, and philosophy. Feldenkrais often said his goal was to produce ‘‘flexible minds, not just flexible bodies.’’ Feldenkrais coined the terms awareness through movement and functional integration to define the teaching techniques of his method. Although the goals behind each method are similar, the instruction and philosophy behind each differ considerably [13].

So, there is a need of the study to know among the two techniques of improving balance in older adults which is the better technique to improve the body balance and reduces the risk of the fall.

OBJECTIVES OF THE STUDY

1. To find out the effectiveness of the Alexander technique for improving body balance in older adults
2. To find out the Effectiveness of the Feldenkrais technique for improving body balance in older adults
3. To Compare the effectiveness of the Alexander technique and Feldenkrais technique for improving body balance in older adults

HYPOTHESIS

EXPRIMENTAL HYPOTHESIS:

The Alexander technique and the Feldenkrias technique may be equally effective for improving body balance in older adults

NULL HYPOTHESIS:

The Alexander technique and the Feldenkrias technique may not be equally effective for improving body balance in older adults.

REVIEW OF LITRATURE

- **Mary E. Tinetti, *et. al* (1994)** had done the study on a multi-factorial intervention to reduce the risk of falling among the elderly people living in the community. They had done the study on 301 individuals and concluded that the multiple risk factor intervention strategy resulted in a significant reduction in the risk of falling among elderly persons in the community. They also suggested that risk factor modification may partially explain the reduction in the risk of falling.[17]
- **Ullmann G. Williams, et. al (2010)** had done the study to examine the effects of Feldenkrais exercise in improving balance, mobility, and balance confidence in older adults. 47 individuals participated for the study. They had concluded that Feldenkrias exercises are an effective way to improve balance and mobility, and thus offer an alternative method to help offset age related declines in mobility and reduce the risk of falling among community dwelling older adults.[18]
- **Connors KA, *et. al.* (2009)** had done the study to investigate the effects of Feldenkrais methods balance classes on balance and mobility in older adults. 63 community dwelling older adults are participated for the study. They had concluded that the Feldenkrais method balance classes are helpful in improving the balance and mobility in older adults.[9]
- **Dennis RJ (1999)** had done the study on effect of learning the Alexander technique on balance by using functional reach as a clinical measure of balance. Understanding and improving body mechanics and body awareness is a proposed benefit of learning the Alexander technique; this may improve balance and reduce falls in the elderly. This study suggests clinical gains in functional

reach using a limited number of Alexander technique training sessions in a group setting.[19]

- **Stallibrass C. *et al* (2002)** had done a randomized controlled study on evaluation of the Alexander technique versus massage and a control group in treating 93 patients with idiopathic Parkinson's disease. They concluded that improvements in the Alexander technique group in the Self-Assessment Parkinson's Disease Disability Scale at the best and worst of times during the day and improvements in the Beck Depression Inventory following the course of treatment.[20]
- **Stephens, J., *et al* (2005)** had done the study on Learning to improve mobility and quality of life in a well elderly population: The benefits of Awareness Through Movement. The objective of the study was an alternative movement learning method, Awareness Through Movement, would produce improvements in coordination, mobility, economy of movement and quality of life in older adults. They had concluded that it is very effective method of treatment.[21]
- **Vrantsidis F *et al* (2009)** Getting Grounded Gracefully: effectiveness and acceptability of Feldenkrais in improving balance. Fifty-five individuals were participated with High attendance and survey feedback indicates that the program was viewed positively by participants and might therefore be acceptable to other older people. Further investigation of the Getting Grounded Gracefully program is warranted.[22]
- **Connors KA *et al* (2010)** had done the study on Feldenkrais method balance exercises are based on principles of motor learning and postural retraining a

qualitative research study. They had concluded that the Awareness through Movement lessons contained many elements consistent with current theories of motor skill acquisition and postural control, providing a sound theoretical basis for the effectiveness of the Feldenkrais approach in improving balance.[23]

- **Patima Silsupadol1 *et. al.* (2006)** had done the study on Training of Balance Under Single- and Dual-Task Conditions in Older Adults With Balance Impairment. They had concluded that the patients who received balance training under dual-task conditions showed dual-task training benefits; these training benefits were maintained for 3 months. The patient who received variable-priority training showed improvement on novel dual tasks.[24]
- **Shumway-Cook *et al.* (2000)** had done the study on TUG validation in older adults. The TUG has been validated on 30 elderly community-dwelling individuals with varied balance deficits to assess risk for falling. Sensitivity was measured at 87% (13 of 15 fallers) and specificity at 87% (13 of 15 non-fallers).[25]
- **Sarah F *et.al* (2004)** had done the study on reliability and validity of functional balance tests post stroke on 83 patients in which 38 patients selected for reliability testing and 45 patients selected for validity testing and concluded that the berg balance scale has high reliability and validity for functional balance testing in stroke patients.[26]
- **Joseph O. Nnodim, *et al* (2006)** had done the study on to compare the effect of two 10-week balance training programs, Combined Balance and Step Training (CBST) versus tai chi (TC), on balance and stepping measures. The intervention focused on improving dynamic balance and stepping (n5106, mean age 78). Of

the two training programs, in which variants of each program have been proven to reduce falls, CBST results in modest improvements in balance, stepping, and functional mobility versus TC over a 10-week period.[27]

METHODOLOGY

DESIGN:

Randomized Experimental study

SOURCE OF DATA:

- From old age homes in and around Mangalore
- K. S. Hegde Hospital, Mangalore, Karnataka, India

SAMPLING PROCEDURE:

- Random sampling

METHODS OF DATA COLLECTION:

The informed consent was obtained from each subjects and the Ethical Clearance has obtained from the Central Ethical committee of Nitte University. 45 older adults were selected from the old age home as well as from the K. S. Hedge hospital, who fulfills the inclusion criteria. Patients were randomly divided into any of the 3 groups and each group was consisting with 15 individuals. Group 1 has been given the Alexander technique for improving body balance and group 2 has been given the Feldenkrais technique for improving body balance. Group 3 has been given the conventional balance exercises. The study was carried out for one month and the training was given to the patient every day for one month once in a day and asked the individuals to repeat it once at the home. The outcomes were measured with Berg

Balance Scale (BBS), Timed Up and Go Test (TUG) and Functional Reach Test (FRT). All these tests were evaluated before starting the program and at the end of one month.

The group 1 was followed the protocol according to the Alexander technique. The Alexander technique is based on the practical application progressing through essential basics; core concepts and technical exploration, then returning to practical application. The protocol was followed according to the guided lessons for students of the Alexander technique.[28]

The group 2 was followed the protocol of the Feldenkrais technique. The Feldenkrais technique is based on the thinking, sensing, moving and imaging. It progress from movements in sitting, sitting to standing, standing and walking. The protocol followed the different 16 lessons in series. The protocol was beginning with turning the whole body & followed with transferring the weight; activating flexors in sitting; standing up from the chair – I; the feet, the ankles and the ground waking up the balance sensors; standing balance and the pelvis; introduction to walking; standing as balancing; finding the feet; standing up from the chair – II; walking along a line; walking on the wall; the feet in walking; dancing with the wall; graceful walking; driving from the pelvis.[29]

The control group (group 3) who was followed the conventional balance training protocol. The protocol was static and dynamic balance exercises which includes the sitting and standing without support, sitting and standing in different surfaces, tandem stand, standing in one leg, sitting to standing, reaching activities in sitting and standing, walking with and without support, tandem walking, walking with obstacles, walking in different surfaces, balancing on wobble board, etc.[30]

ALEXANDER PROTOCOL:

ESSENTIAL BASICS:

1) Becoming calm:

Alexander emphasized that there is no separation between the 'physical' and 'mental' aspects of self being. Becoming calm, centered and present is essential if individual want to cease being reactive and if individual want to exercise choice – whether it be over mental, physical, emotional, or behavioral issues.

- Sit comfortably in a chair with back supporting in an upright and lengthened state.
- If individual can detect tension in the neck, let the muscles soften and ease, allow the head to rebalance on the neck.
- As individual breathe, think of the ribs moving freely, and the torso expanding.
- Get the awareness gently expand to include the surrounding – the sounds, shapes, colors, and smells.
- Become simultaneously aware of the breathing, the ebb and flow of the inner movements and the environment.
- Continue to attend to the breathing, without any deliberate attempts to make changes. Simply be aware.
- Inevitably the attention will be distracted from the breathing every now and then, by intruding thoughts, feelings and stimuli. When the notice that this has happened, gently redirect the awareness to the breathing.

- Initially it may be difficult to practice this procedure for more than a minute without being distracted – this is perfectly normal.
- As practice, individual will be able to increase the duration of maintaining a gentle awareness of the breathing with fewer and fewer distractions occurring.
- This practice will help to develop a calmer state of mind, and an ability to be more present.

2) Dealing with stress:

It is a fact that lives often find the self in quite stressful situations. It could be driving to work in heavy traffic, or being in a rush to complete a task, or being in an argument with someone. Inevitably, individual react to the situations with muscle tension (especially in the neck), and a lot of mental discomfort. Individual often make poor decisions under these circumstances, or react in ways that we later regret.

- Identify feeling of stress and discomfort as they begin, rather than letting them take the awareness.
- Think of allowing the muscles of the neck to soften and release.
- As individual breathe, think of the ribs moving freely, and the torso widening.
- Get the awareness be expansive rather than narrow, to include more of surroundings.
- Get the awareness gently include the activity of the breathing.
- Let the muscles of the shoulders and back soften and release.

- Let the stomach muscles release and keep breathing.
- Continue to be aware of surroundings and own feelings.
- Choose not to react to the stimulus of the stressful situation by tightening the hands, gripping the jaw, shouting, throwing a plate – or whatever reaction may usually have in the situation.
- Continue to be aware of surroundings and feelings without any reaction.
- Again think of allowing the muscles of the neck, shoulders, back and jaw to release.
- By releasing what manifests as physical tension individual will be able to choose a more constructive response instead of a destructive automatic reaction.

3) The semi supine position:

Lying in semi supine can alleviate many of the muscular aches and pains that develop from tension, overuse and fatigue. The semi supine position, used once or twice a day for 10 – 15 minutes, provides an opportunity for numerous benefits.

- Counteracts tension and fatigue
- Utilizes the natural force of gravity to release and lengthen muscles
- Allows time to inhibit
- Allows time to give directions

4) Habitual patterns and inhibition:

The Alexander technique is to inhibit habitual patterns that interfere with functioning. The habitual patterns are so familiar and ingrained that individuals

are not even aware of them. In a lesson, the therapist helps to become aware of our habitual patterns and teaches how to “inhibit”, reducing their occurrence and severity. This can usually be readily observed in one’s self and others. Unfortunately, simply becoming aware of this unwanted pattern is not enough.

5) **Up direction:**

Up direction is the rhythm of the Alexander technique. Music is just a bunch of notes until you insert rhythm. Rhythm organizes the notes into music. Likewise, everything in the Alexander technique hangs on up direction. The experience of up direction is to feel light, buoyant and mobile. Think of up direction as an arrow of energy coming from your feet, continuing up your body, and pointing out beyond the top of your head. The entire body organizes around the direction of up. The up reflexes are stimulated by the gravitational force of the weight being conducted through the bones, via the feet, to the ground. As long as individuals are not interfering with the reflexes, body responds to gravity by lengthening up.

CORE CONCEPTS:

1) **The body mind connection:**

The mind and body are not separated. As soon as individual have a thought, the muscles are activated. For example, if individual is walking down the stairs, and individual think there is another step, the whole system is organized for another step. Some thoughts cause downwards pull, muscle tension, and tight joints. Other thoughts cause physical release and lightness. The Alexander technique teaches individual how to use thought to manifest constructive change.

Thoughts, both “real-time” and imaginary have the same connection with the muscles of the body. The types of responses noticed in this exercise are similar to what experience throughout the day.

2) Kinesthesia: the sixth sense:

Traditionally, five senses are identified in human anatomy: sight, hearing, smell, touch, and taste. What is missing from this list is the internal sense of body movement and position, named kinesthesia. There is evidence that kinesthesia is suppressed, even faulty, in our modern civilization. Without reliable kinesthesia, individuals are unable to perceive poor use. The Alexander technique re-sensitizes and develops the kinesthetic sense.

3) Faulty kinesthesia:

The difference between what individual is seeing in the mirror and how individual feel, is due to faulty kinesthesia. Alexander technique therapist use mirrors in their teaching rooms to help counteract faulty kinesthetic awareness, and to help develop more reliable kinesthesia. Do not force a correction of what individual see. Asymmetries are a consequence of complex use patterns, as well as genetics tendencies. Let go of preconceptions that individual should be “straight” or “symmetrical”. Rather let self become kinesthetically sensitive to the asymmetries.

4) Non-doing – inhibiting habitual patterns:

Alexander learned that just thinking about an activity triggers the muscles into their habitual patterns. If individuals want something different from the habitual patterns, individuals have to learn how to break the link between the

thought and the habit. This is the beginning of learning how to inhibit and the process of “non doing”.

5) Inhibition – changing habitual patterns:

Do not put all the attention on trying to feel that the process is working. Put more attention on sending the message from the brain to the muscles, instead of attending to the sensory input coming into the brain.

6) Directing:

Direction rests on the truth that mind and body are not separate. Directing is the action of influencing the psychophysical system through clear thought. When therapist direct & send self a thought message of what individual want, but individual do not have to force into a position. When therapist direct, individual formulate a clear thought of what individual want and allow self time to respond to the thought without effort, muscular force, or other forms of doing. The desired alignment comes from allowing, not forcing. It is difficult to distinguish between directing and “subtle doing”. Forcing will cause fatigue and pain.

7) The primary control:

The manner in which the head, neck and trunk integrate in the vertebrate organism is referred to by Alexander therapists as the “primary control”. In vertebrates, the head leads, and the trunk follows. However, habitual patterns of tension reduce the quality of functioning of the primary control. The primary control operates poorly when a tight neck pulls the head back and down. The primary control is more functional when a free neck permits the head to go forward and up. As the quality of the primary control improves, an organism

becomes more integrated among its parts, and its total ability to function increases.

8) The four basic directions:

The four basic directions are like a sustained musical chord. Each basic direction is like an individual musical note. For full effect, these directions happen all together. Individuals need to understand them one at a time, but interdependent. At first, as individual learn & attend to each basic direction one at a time. Then, as individual develop the gestalt of the four basic directions & learn how to generate them all together. Consider the wording of the four basic directions. The most important word is “let”. Individuals are tempted to use effort or force to make the four basic directions happen. Instead, individuals need to inhibit the patterns of tension that pull us away from the basic direction. The four basic directions: Let the neck be free; to let the head go forward and up; to let the back lengthen and widen; to let the knees go forward and away.

9) From sitting to standing:

- If the feet are together, move them hip distance apart, distributing weight evenly, left and right.
- Soften the joints.
- Release tight muscles.
- Let the eyes engage with the environment.
- Let the arms hang against the sides.
- Standing in front of chair, using thoughts before.

- Begin the movement to the chair by letting the neck be free, to let the weight of the head release forward, and then bending simultaneously in the hips, knees, and ankles.
- Maintain balance on the feet all the way to the chair.
- Once seated, pause a moment, feeling the support of the chair.
- Scoot all the way to the back of the chair, so that individual can use the back of the chair to support the back.

10) Sitting awareness:

- Allow sitting bones to be in contact with the chair, and let the chair take the weight of the upper body.
- Release the muscles of the abdomen, lower back and buttocks as individual lengthen up.
- Let the weight be evenly distributed right and left.
- Allow the muscles in the hip joints to soften, so the legs are separate from the upper body.
- Let the weight of the legs be supported by the floor through the feet.
- Allow the upper legs to rest on the seat. Let the neck be free. Let the head go forward and up from the spine as the up reflexes are simulated by the sitting bones.
- Let the eyes take interest in the environment, looking around the room, rather than down at the ground.

11) From sitting to standing:

- If individual is sitting at the back of the chair, slide forward toward the front of the chair.
- Let the feet be hip distance apart, and slightly behind the knees. Let the arms rest on the legs without tension.
- Begin the movement to stand by letting the neck to be free, to allow the weight of the head to release slightly forward. Pivot forward at hip joint, keeping the upper body lengthened.
- Wait until individuals are balanced over the feet before the come up off the chair.
- As individual arrive in standing, soften the joints. Let be mobile by relaxing tightened muscles. Balance the weight evenly on both feet, and let the eyes engage with the environment.

12) Monkey:

As adults individual tend to bend and reach by stiffening the limbs and bending the spine. “Monkey” restores the awareness and ability to maintain the integrity of the spine and bend the legs. The significance of monkey is not in the arrangement of the parts, but in the lively quality and enhanced availability. Monkey is “a position of mechanical advantage”. The head leads, the spine lengthens, and the hips, knees, and ankles joint. Although it is known as monkey a position, it is not one fixed position. It is a dynamic relationship, in which the limbs joint and the spine lengthen. Monkey can range in depth from a squat to standing almost upright with knees bending forward and away.

TECHNICAL EXPLORATION

1) Let the neck be free:

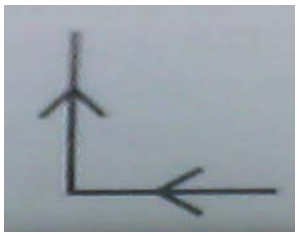
"Let the neck to be free" means inhibiting any tension which is pulling the neck or throat down. Consequently, freeing the neck includes:

- Inhibiting the pull through the trunk (back and front)
- Allowing the spine to lengthen
- Allowing the ribcage to lift and expand
- Lengthening and widening front, side, and back neck muscles
- Allowing the skull to rebalance on the top 2 vertebrae of the neck

As individual breathe in, naturally lengthen upwards. Unfortunately, individual tend to habitually pull down on the out – breath. Notice how the in-breath will lengthen to upward. Now, consciously inhibit the tendency to pull down on the out – breath.

2) To let the head go forward and up:

Ideally, the head balances on neck. This can easily be observed in infants. Alexander described this desired balance of the head on the neck as "Head forward and up". If individuals were to point to the area of the front that corresponds to the very top of the neck, where would the point? Most people would indicate the throat or jaw, but actually the bottom of the nose corresponds to the top of the spine. Now, consider the skull – what all does that include? Take a moment to distinguish the lower jaw from the skull. The lower jaw is an appendage.



“Forward and Up” is not two directions

“Forward” and “up”, but it is one direction.

The balancing action of the skull on the spine occurs because the skull is heavier in the front than in the back. The skull “falls” forward, because it is heavier in front. This stretches the neck muscles, stimulating the stretch reflexes to tone the neck muscles. The toning of the neck muscles rebalances the skull on the spine. It is not possible to feel this action, because it is subliminal. To let head go forward and up & need to “unfix” the position of the head and allow the head to balance on the neck.

3) To let the back lengthen and widen:

In above direction “the back” refers to the whole trunk, front and back. Many people compress themselves. They make themselves shorter and narrower by tightening the muscles of the chest, back, and abdomen. The culprit causes are: wanting to appear thinner and cultural directions such as “shoulder back”, “head up”, “tummy in”, and “stand up straight”. These directions cause us to pull on the self, and narrow and tighten. Allow the self to breathe freely. As individual inhibit the attempt to force to body into a

shape, individual will find the self lengthening and widening, back and front. The muscles of the back and chest naturally lengthen up on the in-breath, and the rib cage expands. As breathe out, inhibit pulling down again.

4) To let the knees go forward and away:

Ideally, the torso can bend at the hips without moving the legs, and the legs can move independently of the torso. Habitual over-contraction of the leg, back, and abdominal muscles limits independent movements. The eyes and head are leading towards an interesting attraction, and the legs are moving merely so the head can continue where it want to go. The leg muscles are not gripping the pelvis. There is freedom of movement. To restore the mobility, individual can think of allowing space in the hip joints, allowing the trunk to lengthen up off the legs, and allowing the legs to lengthen and release away from the trunk. When sitting, individual tend to pull the knees together, tightening the lower backs, buttocks, hips and legs and pulling down in front. To inhibit the habit of pulling the knees inward, allow the knees to go “forward and away”. Note that the feet are hip width apart, not close together. Directing the knees forward and away allows freedom in the trunk to sustain lengthening and widening, and up direction.

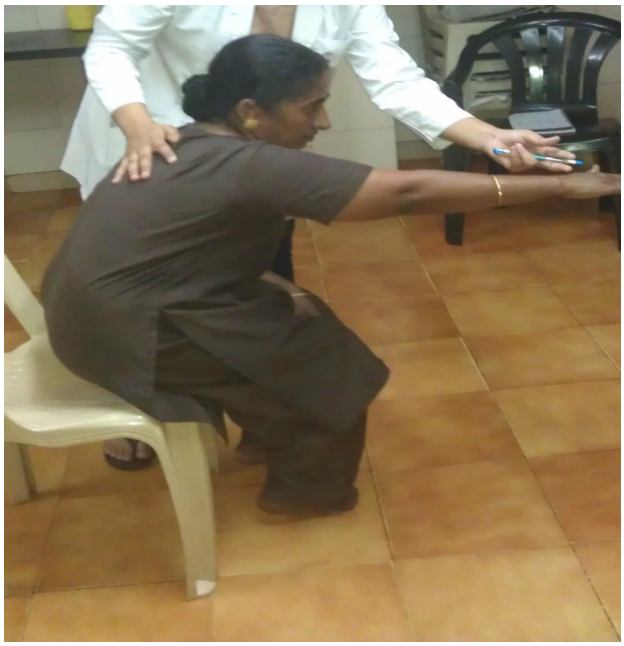
5) Breathing and Vocalization:

Breathing and vocalization from a cornerstone of the Alexander technique. All tension negatively affects breathing and vocalization and all release of tension positively affects breathing and vocalization. Releases in the Alexander technique are often followed by a breathing release which feels like

a sigh but is actually a deeper, fuller inhalation. Individual have many habits of interference with the breathing mechanism. For example, during activities sometimes individual hold the breath. Other times individual forcefully suck air into the lungs. The actual in-breath is caused when movement of the diaphragm and the ribs create bigger space in the lung area. A relative vacuum results, and air rushes into the lungs. When these muscles and ribs return to its original position, the space decreases and the air flows out.

6) Controlled Exhalation:

The bodies are built for breathing. Individual have organs to “hold” the air, known as the lungs, and an opening to the outer air supply, known as the nose and trachea. Very often we hold the breath during activity and tighten the muscles of the back, chest, and ribs. We prevent the ribs from moving as intended. Attending to the out-breath can help this.



FELDENKRAIS PROTOCOL

Introduction:

Program: Sitting, Sitting to standing, Standing, Walking

- Original control movement of pelvis.
- Ankle and hips flexibility and mobility improvement.
- Thinking, sensing, moving and imaging.
- Should be able to walk for 5 minutes with the walking stick, without support, standing for one minute.
- If any time the patient feels unsafe then the movement is stopped and is discontinued.

Principles:

- Should do particular movement with repetition for several times. It should not strain the body and cause pain.
- Stop doing movement before you are tired and take rest.
- If you can't do particular movement asked to do in the session and can't perform a program.
- Do not worry if you do not understand.
- Exercise with shoe on, because of hardness of the sole.
- Not only improve balance, but also improve physical activity.

Material:

- Chair without arms. Shoe off, nothing else around.

Preparation:

- Do not over exert yourself**,** easy enjoyable gentle lessons, focusing quality of movement than quantity.

  1) Stay within the limit, never cross it.

  2) Rest before getting tired.

  3) Pay attention during movement.

  4) This is not strengthening, it is an exercise program

  5) It is for general fitness.

  6) After movement ask the question.

LESSION 1: WHOLE BODY TURNING

- Whole body turning: Important for pelvis turning and balance ability.
- Come and stand behind chair. Before starting, check the balance in starting and what is restricted; Check the standing balance- duration, with or without support, Floor contact sense with weight.
- Shift the weight to right foot and come back to normal with or without support and ask the patient about the movement. Try with left foot.
- Right foot on left foot and side to side and ask questions about the movement.
- Shift the weight front and back and ask how you do it.
- Sense of foot, knees with foot position. Walk before and sit, turn around and look back on wall and as reference point. Repeat for 3 times each side. Talk about sense in standing.

- Sit on the edge of the chair hand resting on thigh and sense. Reference point is comfortable point for patient till turn in stand then next point turn about the back till reference point both the side and sense bout the turning.
- Check the reference point in sitting. Perform very smooth movement.
- Knee forward and backward without foot movement. Knee movements cause hip movement.
- Right knee move forward, right shoulder and hip forward and turn to left. Right knee backwards to normal and turn to right side.
- Sit back on chair and rest. Again at the edge of the chair and repeat.
- Right knee forward chest turn left side and look in front. Do not force yourself and look at left. Repeat for 3 times see to it that your head face front side.
- Sit back at the chair and rest before that turn left side fully for reference point.
- Come to edge of the chair. Without moving body, just looking left and right corners of the eyes pay attention on breathing. Don’t hold your breath.
- Move your right knee forward and repeat eye movement. Back to normal.
- Repeat again and turn more. Back to normal and rest.
- Edge of the chair turn to left. Turn your face left with eyes left and move right knee forward and backwards.
- Repeat again. Sit back and rest.
- Let the therapist know for any problem.
- Just move face less than the body.
- Repeat it again. Make a reference point. Check the distance.
- Sit normally and rest. Compare the body with other side.

- Repeat it with opposite side. Ask him to remember every movement after that.
- Check the distance in standing and check the sense of balance and sway.

LESSON 2: TRANSFERING WEIGHT

- Chair and shoe off. Stand behind the chair, get the sense of movement and balance happening in the body or postural sway.
- Check the weight distribution. Shift your weight to right and back to normal and check the movement on hand, pelvis and tilt.
- Make a circle with both the limb and mark points.
- Put your foot together and get the sense & Put your hand on chair and feel the sense
- Lift your right foot up and lift your body with hands on chairs.
- Try with lifting up the foot and get the sense.
- Repeat with left side and get the sense. Rest for some time.
- Repeat it again to get the sense and then take rest.
- Do not lift your foot and shift weight. Imagine, the spine is rigid part.
- Shift the weight the right and lift without moving the body and get sense. Take rest now.
- At the edge of the chair, attention is given to right side bend and right hand on right side and look at the right hand bend. Do not force it to be performed.
- Perform on left side. Repeat this for some time. Take rest now.
- Edge of the chair. Put your right hand on your head shift the weight to the left side and flex the hand to the right side.
- Repeat it. Rest and don't hold the breath during program.

- Inform if it is paining. Repeat it with the opposite side. Rest for some time.
- Put the left hand on the left side, bend and shift the weight on the right. See to the left side and bend. Pay attention to not bend completely off the ground.
- Repeat all the movements like that of right side to the left.
- Left knee towards left shoulder check the sense of the muscle and keep breathing during movement. Rest.
- Shift the weight towards right and left and feel that your spine is like an iron rod.
- Land in pray position. Shift your weight in right and left hand and land in middle in position and check the movement of the lower ribs.
- Repeat it again. Don't hold the breath & Move like an Indian dancer.
- Don't lift your heels. Rest. Repeat from first once again. Rest.
- Exercise on the chair. Edge of the chair. Shift your weight to left and shift your right in backwards and opposite side. Walk forwards in sitting. Rest.
- Stand up with a little walk around back of the chair. Shift the weight on right foot but hand in the middle than towards left. Repeat.
- Hands in the position of prying and shift the weight to right and left and get the sense.
- Repeat it again. Shift the weight forwards and backwards, the way other for weight shift you think.
- Head being quiet and move your pelvis forward and backwards and shift the weight.
- Repeat it again. Rest.

- Make a circle with your pelvis and head in the middle and feel the pressure under the feet and reverse the circle and feel the pressure.
- Before finishing take a walk and ask about the improvement in the quality.

LESSON 3: ACTIVATING FLEXORS IN SITTING

- Take off the shoe and sit on the chair. Ability flex in sitting. Important is small and minimal movement.
- Stand behind your chair and get the sense of the movements and check the weight on your feet.
- Shift the weight to right foot and come to middle and check the movement in the body. Perform with left.
- Keep your hand in middle for whole movement. Shift the weight on front and back of the foot and check the movement in the body.
- Take support if you need. Try to stand on one leg with or without support from right to left. Before you set and check the walk. Sit on the chair.
- Turn as lesion 1 and check the walk. Than shift the weight as lesion 2.
- Get the sense of heavy on right and lift the left leg off the ground and check how you will perform it. Repeat of the opposite side and check which is very heavy to do it.
- Look to the floor and do the same thing and feel the movement in the body. Sit comfortably.
- Nose touching the floor and perform the movement and check the movement and don't hold your stomach and nose going towards the floor. Repeat it. Rest.

- Direct chin towards the floor and check the movement. Pay attention to seat bends and pressure. Come back and rest.
- Edge of the chair. Direst the bending head in right knee specially forehead. Repeat it. Rest and breathe normally.
- Direct the nose towards right knee. Check the movement and weight and pressure.
- Repeat it. Chin towards the right knee. Repeat it. Rest.
- Do it alternating the movement of fore nose and chin. And check the movement and pay attention right rib cage. Back and rest.
- Edge of the chair. Bend your forehead towards right knee and knee to the forehand and repeat it doesn't force the self & Fill the ribcage to right side.
- Repeat it. Have rest in between movement. Foot maximum come up 1 to 2 cm.
- Do it with nose and chin and check the movement in rib cage. Do only small movement for max effect. Do it alternating with forehead nose and chin.
- Repeat it again. Rest and get the change in right side then left.
- Repeat it. Place your right hand on back of the head and with the help of the hand, bend the neck. Forehead and neck and chin. Do it with right knee.
- Repeat it alternatively. Repeat it. Hand down and rest.
- Edge of the chair. Leave the foot from ground and bend forehead towards right knee with hand. With nose. With chin. Repeat it.
- Turn your neck left and right ear to right knee without lifting leg. Check the movement in the body and spine.

- Turn your neck to right and left ear to right knee without lifting leg and check the movement. Rest. Feel the sense of difference in both sides.
- Turn to right and to the middle. Turn to left. Check the difference between right and left turn.
- Left the right leg up check the weight. Left the left leg up check the weight. Stand behind the chair.
- Shift the weight to right and left. Get the sense. Stand on one foot. Walk around the room. Sit on the chair and repeat all the movements step by step with left side.
- Do not resist any movement during program.

LESSON 4: STANDING UP FORM CHAIR PART 1

- Shoe off and sit. Tilting the pelvis back and front.
- Stand up and go behind the chair and get the sense of balance.
- Get the sense of knee in extension or flexion and weight under and side.
- Bend the knee little and extension that repeats it and gets the sense of weight transfer.
- Rest for a minute then shift the weight right and left.
- Lock the knees and try to transfer the weight to right side and get the sense.
- Bend knee slightly and shift the weight to right and left and get the sense of weight.
- Walk a little bit and sit on the chair. Stand up and sit down for some time and get the sense of the effort of movement. Sit down on the edge of chair.
- Movement of first and second lesson. Repetition.

- Move your head and let the pelvis to follow it towards right and left.
- Rest. Repeat lesson 2.
- Put your hand in praying position and shift the weight to right than left.
- Tilt side to side and hand in pray position. Understand the difference between right and left. Tilt alternatively and feel the sense. Hands in paying position.
- Repeat it again. Sit on the edge of the chair and hands on the thigh comfortably and shift the weight to hands and bend forward. Very minimal movement should occur.
- Make an arch on the back and come back to normal. Repeat it again. Rest.
- Edge of the chair. Shift the weight backwards and make the back round backwards.
- Repeat. Rest. Walk around and sit again. Edge of the chair and lean on the knees and try to shift the weight on the hands and forward.
- Do not do large movements. Repeat it again. Same way do the movements backwards and get the sense of pelvis movement. Rest.
- Edge of the chair. Lean with the elbows on knees.
- Shift the weight forwards but this time look up and shift the weight forward and get the sense of the pelvis movement. Repeat it again. Rest.
- Shift the weight to right side. Bend and lean on the knees and then shift the weight to forward. Get the sense. Repeat it.
- Rest and differentiate between right and left. Repeat the movement to the left side.

- Repeat it again. Rest. Imagine you are standing from chair and then put the weight passively. Repeat it again. Stand from this position.
- Compare with the before and check the changes. Rest. Stand behind the chair.
- Get the sense of standing and see the difference than before. Shift the weight from right to left. Shift the weight to ball and heel of the feet.
- Walk around. Rest.

LESSON 5: THE FEET, THE ANKLES, AND THE GROUND WAKING UP YOUR BALANCE SENSORS

- Shoes off and sit. Very minimal movement and attention to ankles. Walk around the room. Get the sense of the ankle while walking & contact with ground.
- Imagine and get the sense in the sand and look for the foot print and compare right and compare right and left. Shift the weight to the right and left and pay attention to the pelvis and movement. Pay attention to ankle and foot about the weight and feel the compression.
- Hold the chair and shift weight whole on one foot right and left and pay attention to the ankle. If you can't stand on one foot then you can use toes of another foot for support.
- Sit on chair. Edge of the chair. Pay attention to the contact with the ground with right and left. Check for any differences in that. Do very small movements.
- Lift your heel off the ground like piece of paper right side repeat.
- During lift relax your leg. Get the sense of ankle and knee and hip. Repeat it again. Rest for a moment. Difference in the right to left sense.
- Just lift the ball off the right side foot and move like slide piece of paper.

- Get the sense at ankle, knees, hips, ribs, shoulder. Repeat it with relax movement and limb. Fill the contact with ground. Rest.
- Feel the difference between right and left. Alternate with heel and ball of the foot at right side.
- Rest. Edge of the chair. Just lift the inside of the right foot to pass the piece of paper.
- Repeat it again. Do the movement at outside of the foot and lift it up to pass the piece of paper. Repeat it again. Rest.
- Alternate of lifting inside and outside of the foot and get the sense at ankle, knees, hips, ribs and shoulders. Sit back at the chair and take rest.
- Get the sense of the foot contact to the ground and ankle than left side.
- Rest. Memorize the movements. Edge of the chair.
- Slide to the ball of foot to the right and left, heels should be at the contact and get the sense from right ankle, knees, and hips. Repeat it again.
- Take the ankle to the right and left and get the sense of the contact of the foot and the movement of the ankle, knees and hips. Repeat it. Rest. Feel the contact with the ground.
- Edge of the chair. Imagine there is a clock and lift the heel off the ground and make a circle and ball off the foot in the ground.
- Repeat it again. Rest. Rotate in an opposite side.
- Repeat it again. Get the sense at ankle and knees. Rest.

- Right foot in front of the left foot and how clock is the balls and make a circle with reduce the size of the circle. Get the sense at the ankle. Repeat with opposite side.
- Pay attention contact to the ground with right to left. Stand up and get the sense about weight. Just try balance on right foot and see the improvement.
- Transfer the weight to the right and get the sense at the ankle.
- Try with the left ankle and stand it and get the sense from left ankle.
- Walk around the room, get the sense from right ankle and foot and note the improvement.
- Sit on the chair. Rest. Edge on the chair hand in thigh and get the attention to the contact with the ground. Imagine the lifting of the left ankle and get the sense.
- Repeat it. Rest. Repeat all the movements like right.

LESSON 6: STANDING BALANCE AND PELVIS

- Sit in shoe off. Come behind the chair and stand and get the sense of balance and weight on balls of feet or heels, attention to knees.
- Transfer the weight to right and left and get the sense at pelvis and head.
- Transfer the weight to balls of feet and heels. Bend your knee and check the weight and extend it the sense of weight. Take a walk around the room, before start.
- Sit down on chair. Stand left side of chair hold with right side.
- Bend right knee, heels off the ground. Pay attention to weight movement and movement of the pelvis. Repeat it again. Get the difference between right and left.

- Allow the pelvis the movement.
- Repeat it. Alternate lift the heel and ball of the foot and get the changes on the body for weight and movement. Do not lean on right hand.
- Repeat it again. Feel the weight compare with the right to left and knees also.
- Go for a walk around the room. Sit and rest for a minute.
- Feel the difference between right and left of the body.
- Stand right side of the chair and hold on the chair with left side.
- Repeat all the movement like right. Get the sense of upper body and bend also.
- Get the sense of the stand. Pay attention of the foot.
- Walk and sit on chair. Stand left side and right hand on chair.
- Two foot movement together and combine the movement. Lift the heel of left and ball of right foot and check the movement of pelvis and knees. Repeat it. Lift the heel of right and ball of left foot alternatively and repeat it and get the sense.
- At the same time heel of left and ball of the right foot and get the sense do not bend forward. Repeat it and get the sense.
- Try to do it and get the sense. Do not lean on the chair.
- Alternatively heel off left and ball of right and right heel and left ball and repeat it. Do not hold the breath. Get the sense at the middle of the movement.
- Walk around. Stand right side of chair left hand on the chair left hand on the chair.
- Just imagine the previous movement. Heel of left and ball of right and heel of right and ball of left alternatively. Perform the movement after that.

- Look around the room and pay attention to another matter and repeat the movements.
- Bring feet closer and repeat the movement. Walk around and feel it. Set and rest.
- Stand left and right hand on chair. Cross your right foot over left foot and put it on the floor and back to normal repeat it and get the sense.
- Left foot little bit front and then repeat it again. Stand in this position for few minutes.
- Do not hold the breath and tight on chair. Walk around the chair.
- Right hand on chair cross right leg on left put weight front and back and get the sense of movement and transfer of weight. Pay attention to the thing and do the movement. Do not lean on chair. Walk around the room. Feel the walk. Sit down and rest.
- Right side of the chair and left hand on chair and repeat the left leg movement like right.
- Make the circle with the pelvis and sense on knees and ankle. Repeat it. Reverse the circle and get the sense. Repeat it. Other side on the chair right foot across the left and make the circle both side and get the sense at knee and ankle.
- Come back of the chair and feel the sense and change than before.
- Note the duration of standing. Shift the weight right and left and compare than before.
- Feel the sense of stability. Bend your knees and then lock the knees and feel the weight and then again bend the knee and make the circle with pelvis. Lock the knee and make the circle with pelvis. Repeat it and walk around and get sense.

LESSON 7: INTRODUCTION TO WALK AND INOPERATIVE BREATIHNG

- Shoe off and sit down. Stand behind the chair and duration how long he/she can stand till tired and get the sense about weight.
- Walk around and pay attention to your walking get the duration.
- Come back of the chair and transfer the weight side to side with and without locked knee.
- Pay attention to your breath in or out while inhale or holding the breath.
- Stand with feet parallel. (distance between toe = distance between heels)
- Shift the weight side to side. Head stays in middle. Transfer right inhale comes to middle exhale. Same with left.
- Weight →inhale. Shift → exhale. Repeat it. And slow down the movement with breathing. Walk around the room. Rest for a minute.
- Back of the chair hand on the chair. Cross the leg. (right to left)
- Transfer the weight right to left. Coordinate breathing with weight transfer.
- Slow down the breathing and movement. Take feet parallel. Transfer the weight with coordination of breathing. Walk around. Take rest for a minute and relax.
- Stand behind the chair support with finger. Left foot cross right. Repeat it like right.
- Walk around and sit down and rest. Stand back of the chair, feel parallel.
- Shift the weight right to left. Shift the weight right while. Shift the weight left make an arc backwards the pelvis and coordinate with your breathing.

- No movement with head. Repeat it again. Walk around the chair. Back of the chair, feet parallel. Shift the weight right to left and shift the pelvic in front arc and repeat like before. Repent it again and rest.
- Very slowly join the two half of circle. Right to left→ backwards, left to right→front.
- Make the circle in opposite direction. Sit and rest. Stand behind the chair.
- Shift the weight on right and keep there and make the circle with important joint in this position. Repeat it again. Make the circle in opposite direction and repeat it again.
- Get the weight on left foot and repeat it like right. Walk around. Come back behind the chair feet parallel and shift the weight with coordinating breathing.
- Sit and rest. Stand behind the chair cross right foot to left and shift your weight and coordinate with breathing. Circle with a pelvis while shifting a weight with coordinate the breath. Repeat it. Reverse the circle and get the sense. Repeat it. Walk around the chair.
- Stand back of the chair and if foot cross to right and repeat like right.
- Think about the movements. Stand with feet parallel and transfer weight and breathing.
- Feet normal and stand and get the sense and compare with beginning of the lesson.
- Walk around the room and repeat the same thing.

LESSON 8: STANDING AS BALANCING

- Shoe off and sit down. Before after intervention postural away.
- Stand behind the chair, hold on the chair and get the sense of postural sway and note it.
- How many sway it's important. Pay attention to contact of the floor, how and where.
- Lock your knee and check the sway in the standing position. Check the weight on the foot & difference between half of the body. Shift the weight right and left. Shift the weight forward and backwards. Repeat it.
- Move right of the chair and left hand on the chair (if needed) cross right leg on left and weight on left foot to right foot and back to normal. Repeat it and breathe coordinately.
- Shift the weight to ball of right to whole of left foot in this position and get the sense of the movement. Repeat it again.
- Shift the weight ball of right to middle of left foot in same position and get the sense.
- Repeat it again. Back to normal. Cross the right then left. Heel of the right to whole of left foot and shift the weight. Repeat it again. Get the sense of movement.
- Get back to the normal and check the weight of distribution. Right foot front of left foot.
- Weight on right foot and ball of right and heel of the left foot. Shift the weight forward and backwards. Repeat it again. Get the sense of movement. Coordinate

with breath do not hold the breath. Sit and rest. In sitting shift the weight right to left.

- Right side stand and left hand on chair cross the leg right on left and shift the weight.
- Get the sense with repetition and keep the thighs together pressed and get the sense.
- Transfer the weight from right to left without pressing the thigh. Try with pelvic tilt and mind movement of pelvis and repeat it.
- Walk around. Sit and rest. Stand on side of chair and right hand on chair. Feel the weight difference after those previous movements. Repeat all the movements like right. Rest.
- Cross the left to right. Shift the weight left ball to heel to right ball ad right ball to left ball. Make the circle. Reverse the circle and repeat it.
- Stand normal. Move to right side of chair left hand on the chair cross right to left.
- Make a circle. Right ball→ right heel → left heel → left ball →Right ball. Reverse the circle. Repeat it. Sit and rest.
- Stand behind the chair. Get sense of what on the feel, knee position and check the postured sway. Shift the weight to right to left & forward and backward.
- Check the postural sway. Walk and get sense.

LESSON 9: **FINDING YOUR FOOT**

- Sit and shoe off. Stand behind the chair sense the contact of feet to the ground.
- Imagine the stand on sand and sense about the foot print. Without moving looking your feet and get the sense of the distance of feet. Bring your feet

together much as possible and parallel. Check the postural sway in this position. Come back to normal.

- Shift your weight right and left and do not move from mid just tilt the pelvis.
- Put your feet together and tilt the pelvis. Imagine your spine is an iron bar.
- Put your feet together and tilt right and left. Repeat it with coordination of breath.
- Walk around and rest. Stand behind chair feet together spine as iron bar move forward and backwards and feel the movement at ankle and pressure under feet. Concentrate on breathing. Repeat it again. Gradually reduce the movement and get midpoint.
- Walk and rest. Stand back of chair and feet together imagine that you are standing on the clock. 12 – Toes, 6 – Heel, 3 – Right, 9 – Left
- Tilt 12 to 6 and shift 6 to 12 do not move spine. Tilt 3 to 9 and 9 to 3. Perform very small movements. Feel apart, walk and rest. Back off chair and feel together imagine the clock.
- Think about the circle and pressure from 12 → 3 → 12 →9 →12.
- Try to restrict the major movement. Repeat it again. Coordinate breathing and repeat it again. Walk and rest. Move across and stand in front of the wall. Hands on the wall and feet together. Do the movement like before. Get the sense. Rest and walk.
- Back to walk, feet together, hands on wall. Make a reverse circle. 6→ 3→ 6→ 9→ 6.
- Get the sense of movement, repeat it. Part away the feel, rest, walk.
- Stand in front of wall with feet together and make a circle 12→3→6→9→12.

- Repeat it again. Reverse the movement. Get the senses while repeating it. Walk and rest. Stand in front of wall, hands on wall. Cross left on right foot. Imagine the clock.
- Move between 12 to 6 and 6 to 12. Repeat it. Get the sense. Walk and rest.
- Back to the wall and position like before move from 3 to 9 and 9 to 3. Repeat it. Rest.
- Same position and make a circle 12→ 3→ 6→ 9→ 12.
- Repeat it. Get the senses. 1st shift the spine. 2nd move the pelvis and then tilting.
- Reverse the circle. Repeat it. Get the senses. Coordinate the breath.
- Rest. Back to the wall and hands on wall. Right foot to left foot. Do not presses right much and focus on feet and imagine the clock. Move from 6→ 12 and 12→ 6.
- Coordinate the movement. Walk and rest. Come in same position and move from 3→9 and 9→3. Make a circle 12→ 3→ 6→ 9→ 12. Repeat it with smaller the circle.
- Reverse the circle in a clock and pay attention to movement. Repeat it with any other imagination. Walk and rest. Behind the chair – stand, feet together and get the sense and the postural sway in this position.
- Tilt forward and backwards and get the sense of movement and tilt.
- Hold your hand in praying position and make a circle and reverse the circle.
- Feel the pressure under the feet. Walk and get the sense.

LESSON 10: SITTING UP FROM CHAIR II

- Shoe off and sit. Remember the lesson 4.
- 1st imagine the movement, stand behind the chair and get the sense of weight and movement. Stand behind the chair and get the sense of weight and movement.
- Shift the weight from left to right. Get the sense and hold the position for a movement.
- Repeat it again. Walk around and get the sense of posture lack.
- Sit down in chair. Edge of the chair hands on thighs. Get the sense of upright sitting.
- Tilt the pelvis forward and backwards with upper body movement. Repeat it again. Repeat the movement like before. Rest. Stand up and sit down for few times.
- Get the sense of postural lack and note it before lesson. Sit again, while standing up and prepare yourself for standing get the sense of it and imagine the movement.
- Stand and sit down for some time. Lean on your knees with fore arm. Just begin to arch your back little and while looking up and around little bit and repeat it with very minimal movement. Get the sense where in spine arching happening.
- Repeat it again. Sit properly and rest. Move both feet forwards about an inch.
- Get the sense of postural lock. Keep your feet there and lean your back.
- Make the circle and round your back with very small movement. Repeat the movement.

- Make the arch lower than the sense and above them the sense about the inch.
- Go back to mid-point sense and repeat it. In this position from mid to lower to upper and repeat making arch. Make arch in between the shoulders.
- Repeat it. Sit back with feet in same position. Sit and stand from this position with arching the back like before. Repeat it. Sit back and rest. Edge of the chair.
- Take your fingers and place at the hip joint out thumb and in figures.
- Get the sense of hip joint. Move forward and backward. Feet are forward than normal. Think of senses of standing.
- Lean on your knees. Make arches in the spine and get the sense of point.
- Make the point of ark lower and focus in each vertebrae and upper focus in each vertebrae. Tilt between the shoulders. Move from upper to mid and lower.
- Keep the feet at the place and get the sense of stand up and as come one is pulling with hands. Repeat it again. Back the sense of spine.
- Edge of the chair and feet in front of the knees. Lean with right elbow knee and left hand holding the right fore arm. Look a little bit right.
- Make arch in back with big movement and get the sense. Repeat it again. Sit up and rest. Repeat it with left side. Lean on both the knees and arching slightly and rounding the spine.
- Get the sense of movement and take control of spine. Move up and down in spine.
- Repeat it again. Sit up and think about the standing up. Repeat it. Sit to stand and get the sense. Walk around and rest. Compare with your previous postural lack and walk lack.

- Rest. Think the attention to the sit bend. Think you have eyes in sit bends.
- Bring the feet little bit forward lean on knees; lift your buttock of the chair.
- Think lift buttock as head go down. Extend the knees and stand. Repeat it again. Sit back and rest. Edge of the chair. Hang your arm side of chair and lift the head up.
- Lift your arm up and head down and lift the buttock off the chair. Repeat it. Rest in between. Sit back and rest on chair.
- Edge of chair and feet in front position lean your elbows on knees and make the arch for some time in different positions. In this position stand from sit and repeat it again.
- Sit on edge of the chair and with feet in the normal and get the sense of posture.
- Stand up from sitting position. Repeat it again and then rest.
- Stand behind the chair and get the sense of the weight in standing and postural lack.
- Check the postural sway. Walk and rest.

LESSON 11: WALKING ALONG A LINE

- Sit and shoe off. Stand behind the chair. Stand hands at side and move for postural sway.
- Transfer the weight right to left for few times. 1st put the left foot and shift the pelvis. Repeat with right. Walk few steps forward and backward and walk in a straight line and get the sense. Foot in front of the foot. Stand behind the chair.
- Stand on one foot and try and balance it in both the foot alternatively. Repeat it again. Get the sense of movement.

- Behind the chair, put your feet closure not touching each other in parallel position.
- Get the sense of position. In the same position, bend the right knee; lift the heel and left hand on chair weight on left leg. Repeat it again many times.
- Perform the movement in quick movement and get the sense should not any pelvic movement and stop. Put the weight on both legs. Repeat the movement right side again.
- While doing coordinate the breathing. Stop and rest and walk.
- Back to the chair. Repeat the same thing with leg try without support.
- Repeat many times. Walk and get the sense of walking. Rest.
- Back to the chair. Repeat it alternatively again. Feet parallel once bending right once bend and heel off and then left side. Repeat it again; do not lift one leg before going in standing position. Stop and walk and rest. Stand behind chair feet parallel.
- During movement and allow the lower leg to fall forward and under the knee.
- Repeat it again with right side. Walk and rest. Get the sense of walking.
- Come back to the chair and repeat the same thing with opposite leg.
- Do not strain the neck and breath. Walk and rest and get the sense of walking.
- Come back to standing, repeat the movement alternatively with both legs. Repeat it again. Walk around and take rest.
- Stand with feet parallel and repeat it again and when right leg is free than give the weight on it. Repeat it again with right leg.

- When shifting the weight right do not extend or lock the knee. Repeat the movement again. Walk around and rest. Stand behind and repeat with left leg.
- Repeat it again. Walk around and rest. Feet parallel and repeat the movement done before right side and left side and move forward. Repeat it again.
- Walk forward in immediate transfer of weight.
- Walk around and rest. Back to a chair and repeat it again with right and left.
- Walk around and get the sense and postural and walk lack. Sit down and rest. Walk in a line and get the change the sense of walk in a straight line. Walk normally and get the sense.
- Compare the sense with both sense back to chair and stand in one leg and with or without support and get the sense. Walk and rest.

LESSON 12: WALKING ON WALL

- Sit and shoe off. Stand behind the chair and get the sense of the standing and back without holding.
- Lock the knees and get the sense. Transfer the weight right to left I locked position.
- Walk at the line and get the sense of walk in and speed note. Stand across the wall and rest the elbow on wall and head on figures.
- Begin the lift right hip and repeat it and sense of knee bending.
- Rest in standing. Again in the same position and lift right hip and right heel off the floor and repeat it. Stop and standing rest. Get the sense.
- Go back to the wall and alternate with knee straight and bend and repeat it and get the sense. Get the sense. Coordinate the breath.

- Walk around and get sense. Back to the wall and position like before.
- Shift the weight to left and lift the toes off the right and balls of right foot.
- Get the sense of hip joint. Try to restrict the hop movement and allow the pelvis to move repeat. Walk and rest. Differentiate between right and left leg. Back to wall and position.
- Alternate the heel and ball of the right foot and weight on the left.
- Get the sense at hip and knee. Repeat it. Rest and walk. Differentiate between right and left. Sit and rest. Back to wall and position.
- Weight on left foot and lift the ball of right and move right and without heel lift.
- Get the sense. Walk around and rest. Back to wall and in position.
- Shit weight on left and move the right toes and ball to the left side and get the sense of hip movement. Rest. Take your right heel at place and move alternately left to right.
- Walk and get sense and rest. Back to wall and shift the weight to left foot and lift the right heel and move on ball right and normal and allow the movement at hip joint.
- Repeat it again. Repeat it and move the heel to the left and get the sense of hip.
- Do not hold the breathing. Rest. Again to the position and heel of right lift and move right to left and repeat it again and again. Walk around and differentiate between right and left. Sit down and have a rest. Get the sense differentiate between right and left.
- Up to the wall and position. Repeat the 1st movement and repeat it again.
- Get the difference 1st and now. Same previous movement with left side.

- Sit down and take rest. Lean your elbow on wall and lift the both ball of the feet simultaneously and then heels of feet both side. Walk around and get the sense of walking.
- Back to wall lean on wall alternate heel of one foot and ball of another foot and get the sense on middle of movement. Stop and take rest and breath quickly while movement.
- Repeat the move oppositely than before. Allow the body to participate in movement.
- Walk around and rest. Repeat the movement alternatively and get the sense of movement.
- Rest and get the sense of contact. Repeat the same thing again. While movement lift the hand up and pay attention to something else.
- Walk around and get sense. Check the speed of walking and compare with before.
- Stand behind the chair and walk right and left side. Lift the front right heel and move it to left.
- Right ball lift and move right and left heel lift and right side move.
- Repeat it again to right side. Do the movement with left side.
- Walk around and get the sense compare with before and note. Get the sense in standing also.

LESSON 13: THE FEET IN WALKING

- Shoe off and sit down. No obstacle on floor. Stand behind the chair and get the sense of standing. Move away from chair. Just being step off one foot and put

forward and foot backwards. Choose the foot first. Do it slowly and pay attention on movement.

- Come back the stand. Repeat with another foot and repeat it again.
- Get the sense and repeat it again. Try to search the reason of the first loose.
- Walk around and shift the weight right to left and forward back. Get the sense of weight right to left. Stand and feel normally apart and shift the weight from inside to outside and shift the weight from inside to outside of the feet. Rest.
- Walk while shift the weight outside and walk with outside of the feet and get the sense.
- Repeat it again. Walk with shift within outside and get the sense without lifting inside of the feet much and change the vision and concentrate somewhere else. Rest and walk normally and sit down. Recall the movements.
- Now shift the weight from outside to inside. Walk in this position and get the sense of body. Concentrate to your breathing. Stop walk normally and rest.
- Sit down and rest. Recall the movement and get the sense from feet on the ground.
- Stand again. Rock on the heels and come back to the normal with pelvic move backwards. Get the sense of movement in body. Walk on the heels.
- Rest and recall the movements. Lift the heels off the ground and move up and down and repeat it again. Walk on balls of the feet and get the sense of the movement.
- Walk normally and rest. Get the sense of ankle in sitting.
- Get the ankle capacity of bend. Standing, think about the toes and get the sense.

- Try to group the floor with toe and loose it. Get the sense of body.
- Prepare the walk and group the floor slightly and get the sense from the walking and now it will affect your walk.
- Walk slowly graving the floor with the toes and get the sense and feel the toes and movement now.
- Get the sense from heel to toes. Back to chair and rest for a moment.
- Get the sense in sitting. Stand again and lift your toes up and down. Do not lift the ball of feet and get the sense of the body. Prepare walk and try to lift from the floor and then walk.
- Get the sense of the walk. Now allow your toes to participate and then compare with beginning of the lesson. Stand by a chair and get the sense of contact to ground then before. Walk forward and backward.
- Get the attention to feel to ball of the right and which toe pressure goes and get the sense.
- Repeat with the left side and compare right to left.
- Stand at the chair and step up and come back choose the foot and get the sense of lack with another foot also. To move alternately. Get the sense of the fee ton ground and walk.

LESSON 14: DANCING WITH THE WALL

- Shoe off and sit. Stand up and behind the chair and get the sense of balance in this position. Shift the foot right. Repeat it again and focus on ankle, knee, hip and body.

- Get the sense in this. Walk around the room and get the sense now about the walking.
- Back on the chair. All the weight on right and left on floor without weight / try to stand on one leg. Get the sense of balance. Come across the wall. Stand in from of the wall.
- Right hand on the wall for support. Left foot behind the right foot and most of the weight on the right foot. Begin to fall on the right foot and get the pressure and sense. Rest.
- Repeat it again and allow your pelvis to turn right and do the movement.
- Rest for a moment and recall the moment and get the changes between right and left.
- Back to wall in position rolling the pressure from sole to inside the foot and lift the outside of the right foot and allow accommodating the movement.
- Get the sense and pelvis will turn left. Repeat it again. Stop and rest in stand.
- Back in position, lift the inside of right toot ho outside of the foot and pressure shifts from outside to inside.
- Try to initiate movement with head movement and get the sense of the movement.
- Walk and rest. Get the difference between right and left. Back to the position; translate the pressure from heel to ball of the foot.
- Get the sense of movement. Look up → pelvis move forwards. Look down → pelvis move backwards. Repeat it again. Stop and rest in stand.
- Walk around and get the difference between right and left.

- Take a seat and rest. Get the sense of difference between right and left.
- Right hand on wall and right foot front and sense of the line from heel to toes.
- Put the pressure from heel to ball do not lift the leg. Take a line of pressure to heel to big toe and get a sense. Repeat it from heel to little toe. Repeat it with other toes also.
- Get the sense of movement. Alternate to big toe to little toe and feel the sense.
- Stop and stand facing the toe. Feeling of right sole than left sole.
- Pay attention to sense. Walk and attention to right and left and line of pressure for walking at right. Back to wall and repeat it with left side and get the sense.
- Walk around and rest. Back to wall, place both hand and feel together.
- Left foot to left and bring it back and shift the weight at that place. Lift right hand, move left and place and bring it back. Repeat it. Rest the hand for a minute.
- Combine the movement of left foot and right hand towards left. Repeat it. Stop and rest.
- Hands on wall. Left hand up left and back and right foot lift towards left and come back.
- Combine the movement of hand, right foot together. Stop and rest. Walk around the wall.
- Alternately left toot and right hand then right foot and left hand towards left side.
- Repeat it again. Coordinate the movement in left side. Get the sense. Repeat it again.
- Do the same and opposite movement to right side. Right foot and left hand, then left foot and right hand towards right side. Stop and rest. Repeat it again.

- Hands down and repeat it again. Hands down and walk around.
- Stand behind the chair and perform the movement done in start.
- Stand in one leg and check the ability of one foot standing and change. Walk around the ground.

LESSON 15: GRACEFUL WALKING

- Sit and take off the shoe. Stand behind the chair and pay attention of the feet contact to the ground and weight on feet. Translate weight from right to left.
- Just walk in a circle and reverse get the sense of the movement and sense of difference in weight. Pay attention when right foot hits ground and get the sense.
- Pressure from heel to ball and foot moves backwards. Walk in rest. Attention to shoulder movement.
- Foot goes forwards → shoulder → backwards and vice versa.
- Focus on the right side. Try to touch the floor with foot on the ground.
- Exaggerate the shoulder movement. Right feet on the ground move forward with the right hand. Foot moves backwards and hands front. Walk normally and feel the movement of right shoulder. Place on right hand on right shoulder.
- Every time right leg standing and right hand on shoulder. Stop walk & Sit down and rest.
- Stand and walk again observe the right shoulder movement and right foot sense.
- Right foot off the ground → shoulder moves backwards (right). Exaggerate the movement and repeat it. Walk normally and feet the movement of right shoulder and foot.

- Right hand around the back at lower back. Every time step forward move left with the right hand and give slide. Exaggerate the movement again and repeat.
- Take hand down and walk normally and get the sense in right arm and shoulder with foot.
- Get the difference between right and left. Pay attention to the right and get the sense of movement.
- Sit down and rest. Recall the movements and et the difference between right and left side.
- Stand and walk starts. Right foot comes forward move right shoulder forward.
- Exaggerate that and repeat it and allow your neck to be free. Repeat it again. Stop and move forwards. Right foot on ground move shoulder back. Sense the contact to the ground. Walk normally.
- Right foot on ground→ shoulder forwards. Foot off the ground → shoulder backwards.
- Walk without think about it. Sit down and rest. Feel the difference between right and left.
- Sit and rest. Start walking and get the sense of upwards and downwards movement of the right shoulder with walking.
- Foot on the ground → shoulder up. Foot of the ground → shoulder down.
- Walk normally and pay attention to up and down movement of the shoulder and feet.
- Sit back rest for a minute. Walk normally and differentiate between the right and left.

- On the ground, shoulder up and lengthening the movement of shoulder and bend little bit to left. Walk normally, get the sense.
- Learn in the way of all the variations, maximum possibility of movements.
- Walk normally. Try to walk with stuck the right arm to the body with no movement and get the sense of walking. Sit down and rest sense the contact of foot and ground.
- Do the movement in walking backwards. Stand and walk normally.
- Make a circle forward and sense that. Walk forward make a circle with shoulder in relation with foot. Walk normally and get the sense.
- Walk forward; make a reverse circle with shoulder in relation with foot.
- Walk normally and get the sense between right and left. Shift the weight right side and get the sense. Shift the weight left side and get the sense.
- Perform the same organization with left.

LESSON 16: DRIVING FROM THE PELVIS

- Sit and shoe off. Stand behind the chair and remember the sense of lesson 1.
- Transfer the weight from right to left. Put your hand in praying position and check the sway of the body. Stand and rest.
- Put your hand in praying position and tilt the body from right to left and check the difference. Weight shift from front to back. Stand in rest.
- Stand in one foot and get the sense. Repeat it with other foot. Walk around the room and sit back in the chair.
- Remember the lesson 1. Begin to turn right and left with actively and get the sense.

- Right knee front and turn to the left and weight on the right and left sit bends.
- Turn to the left at shoulder and knee forwards, head turn to left and do not hold the breath. Repeat it again. Repeat with right side. Make the movement comfortable and easy.
- Turn right and head turns to left with erect body. Repeat with the opposite side. Rest.
- Edge of the chair. Right hand on neck and left hand on forehead.
- Right elbow in right side and left elbow in left side. And get the sense. Put the arm down and turn to the left side. Rest for a moment. Do it with opposite side. Rest.
- Right and left alternately and get the sense of pelvis movement.
- Back on the chair and rest. Edge of the chair side to side lift up the pelvis like lesson 2.
- Shift weight on right and get the sense with hand left on chair.
- Shift your weight on the left side get the sense again and rest.
- Edge of the chair and repeat it again. Lift the heel and ball of the foot off the ground alternately. Repeat it. Head doesn't turn and shift the weight to right sit bend and it comes off left side. Repeat it with opposite side and get the sense of rib movements.
- Shift the weight right and left tilt the pelvis. Tilting the pelvis forward and backward lesson 4. Edge of the chair.
- Arch the back → look up. Round the back → look down. Repeat the movement.

- Gradually, reducing the movement and do not tilt the upper body forward and backwards and movement at the hip joint, spine as an iron bar.
- Arch back → look down. Round back → look up. Tilt the pelvis forward and backwards.
- Edge of the chair shift the weight right back is normal.
- Shift the weight right keep there and look a sense of curve of spine.
- Arch a back – look up, and round the back – look down with weight on right side.
- Very small movement and gentle breathing. Come off the position and rest. Repeat.
- Make a circle of pressure with right side weight on ball.
- Reverse the circle in a position. Get the sense in normal sitting and rest.
- Edge of the chair and repeat with the left side. Rest. Edge of the chair and hands on thigh.
- Imagine a clock move a circle of pressure around the clock. 12 → 3 → 6, 3→6→9, 12→3→6→9→12. Get the sense of movement. Repeat.
- Reverse the circle and repeat it again. Get the sense and rest. Move in a figure of 8 with pelvis.
- 12 → right side → 6 → mid. Circle around left and 12. Repeat. Reverse the figure of 8.
- Repeat it. Feel the freedom of the pelvis and hip joints. Rest. Imagine you are driving a car and right and left shift of steering and shift the weight to right and left and turn from the pelvis. Reverse the car and turn the left and right shoulder and get the sense. Rest.

- Write the name on the board but move the pelvis, do not change the distance of hand shoulder and chest. Move your pelvis to move your hand. Rest. Stand up and walk around. Shift the weight right and left.
- Standing on a clock and make a circle with pelvis clock wise and anti-clock wise.
- Repeat it and get the sense. Make a figure of 8 with pelvis in standing and reverse the figure of 8 at the pelvis.
- Right foot weight and left leg on the ground and extend the hip joint forward and backwards. Stop and rest. Right foot weight and circle around the right hip joint. And reverse the circle. Get the sense of difference between right and left.
- Weight on left foot and repeat the movements. Rest. Make a figure of 8 with pelvis and accommodate to the movement. Rest. Walk around the ground and get the sense of movement. Walk as an exercise and pay attention to the walking movement.
- Stand back of the chair and get the sense. Stand on one leg and get the sense of stand.
- Rest. Repeat the program every day.

INCLUSION CRITERIA:

- Age group of 60 years and above. Both male and female older adults.
- Have had one or more falls in the last 6 months or have difficulty in at least one daily living task
- having balance problem for minimum 1 year
- patient should able to walk 5 meters with walking stick
- patient should able to stand for 1 min without support

EXCLUSION CRITERIA:

- presence of acute medical conditions or chronic conditions severely limiting mobility

RESULTS

DATA ANALYSIS

The statistical analysis was done with the SSPP version 5. The data were analyzed by using Wilcoxon Signed Rank test which is a non-parametric test for the intra group comparison to know the improvement in all 3 groups. To check the inter group comparison for the improvement in balance Mann – Whitney U test was used which is non-parametric test. The Kruskal Wallis test was also used to check the inter group comparison for the improvement in balance which is parametric test.

The formula for Wilcoxon Signed Rank test, Mann – Whitney U test and Kruskal Wallis test is as under.

1. WILCOXON SIGNED RANK TEST (WILCOXON MATCHED PAIRED TEST):

$$Z = T – U_T / \sigma_T$$

Where,

T = the sum of negative ranks and the sum of positive ranks

$U_T = n (n + 1) / 4$

σ_T = square root of $[n (n +1) (2n + 1) / 24]$

n = [(no of given matched pairs) – (no of drooped out pairs, if any)]

2. KRUSKAL WALLIS TEST OR H TEST:

$$H = 12 / n (n + 1) \sum Ri^2 / n_i – 3 (n + 1)$$

Where,

$n = n1 + n2 + n3……. + n_k$

Ri = the sum of the ranks assigned to n_i observations in the *i* the sample

3. MANN- WHITNEY U TEST:

$$U = n1\ n2 + n1\ (n1 + 1) / 2 – R1$$

Where,

n1 = sample size of group 1

n2 = sample size of group 2

R1 = the sum of ranks assigned to the values of the first sample

RESULTS

TABLE: 1

GENDER WISE DISTRUBITION IN THE GROUPS

		Group			
		FLENKRAIS GROUP	ALEXANDER GROUP	CONTROL	Total
SEX	F	7	9	8	24
		46.7%	60.0%	53.3%	53.3%
	M	8	6	7	21
		53.3%	40.0%	46.7%	46.7%
Total		15	15	15	45
		100.0%	100.0%	100.0%	100.0%

x2 = 0.536, p=0.765, NS

Each group was having 15 individuals with total 53.3 % females and 46.7 % males had participated. According to the data, there were 46.7 % female participants and 53.3 % male participated in Feldenkrias exercise group, 60 % female and 40 % male participated in Alexander exercise group, & 53.3 % female and 46.7 % male participated in conventional exercise group.

The gender wise comparison was done by the Chi square (x^2) test which suggested that there was no significant difference among the groups with gender (P = 0.765 > 0.05).

GRAPH: 1

GENDER WISE DISTRIBUTION

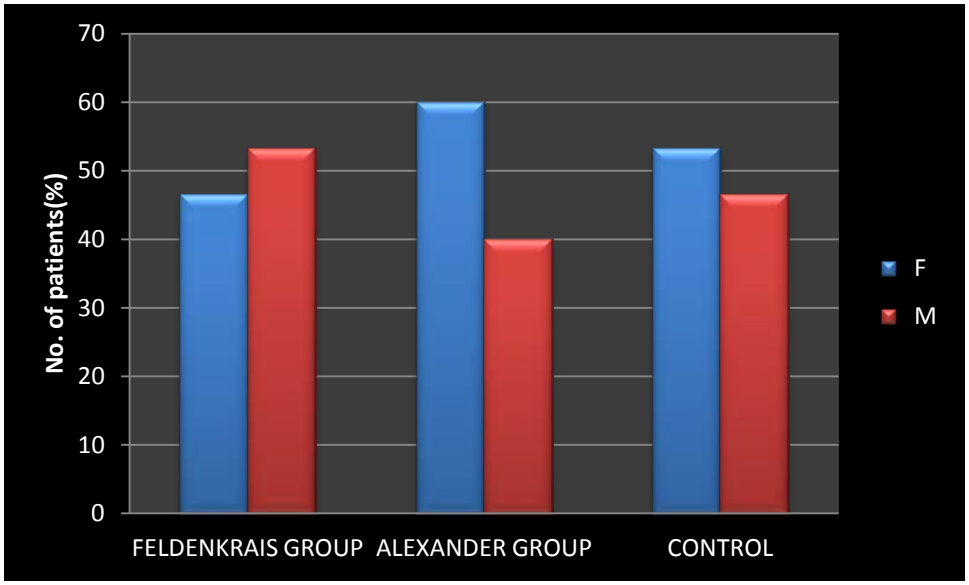


TABLE: 2

AGE WISE DISTRIBUTION:

AGE

Group	N	Minimum	Maximum	Mean	Std. Deviation	Median	ANOVA F value	p value
FLENKRAIS GROUP	15	60	89	70.67	9.469	69.00	.821	.447
ALEXANDER GROUP	15	60	87	69.67	8.550	67.00		NS
CONTROL	15	60	92	73.73	9.130	75.00		
Total	45	60	92	71.36	9.021	70.00		

The study consists of 45 individuals with a mean age group of 71.36 years. According to the data analysis the mean age in Feldenkrias group was 70.67 years; in Alexander group mean age was 69.67 years, and in control group mean age was 73.73 years.

Based on the ANOVA analysis, the results suggested that there was no significant difference in the groups with respect to age ($P = 0.447 > 0.05$).

GRAPH: 2

AGE WISE DISTRIBUTION

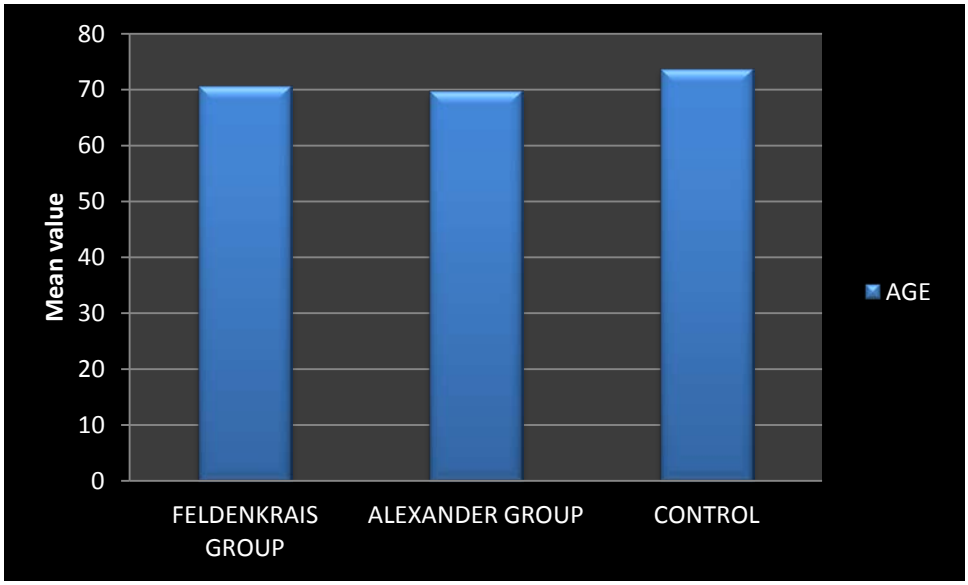


TABLE: 3

INTRA GROUP COMPARISON FOR BBS

Parameter	Group		N	Minimum	Maximum	Mean	Std. Deviation	Median	Wilcoxon Signed Ranks Test	p value	
BBS	FLENKRAIS GROUP	PRE	15	31	50	41.60	4.997	43.00	3.44	.001	HS
		POST	15	39	53	46.73	3.863	47.00			
	ALEXANDER GROUP	PRE	15	17	50	40.47	8.692	43.00	3.47	.001	HS
		POST	15	22	54	45.80	8.719	49.00			
	CONTROL	PRE	15	16	52	42.33	8.312	43.00	3.42	.001	HS
		POST	15	20	54	45.80	7.975	46.00			

In Alexander group, the pre test mean value of total score for the BBS was 40.47 with standard deviation of 8.692. The post test mean value of total score for BBS was 45.80 with standard deviation of 8.719. The mean difference between pre and post test value was 5.33. The Wilcoxon Signed Rank value was 3.47 (P = 0.001) which was found statistically highly significant.

In Feldenkrias group, the pre test mean value of total score for BBS was 41.60 with standard deviation of 4.997. The post test mean value of total score for BBS was 46.73 with standard deviation of 3.863. The mean difference between pre and post test value was 5.13. The Wilcoxon Signed Rank value was 3.44 (P = 0.001) which was found statistically highly significant.

In control group, the pre test mean value of total score for BBS was 42.33 with standard deviation of 8.312. The post test mean value of total score for BBS was 45.80 with standard deviation of 7.975. The mean difference between pre and post test value was 3.47. The Wilcoxon Signed Rank value was 3.42 (P = 0.001) which was found statistically highly significant.

Therefore, it is inferred that all groups showed better improvement in the balance after one month of training program when it was assessed with BBS.

GRAPH: 3

INTRA GROUP COMPARISON WITH BBS

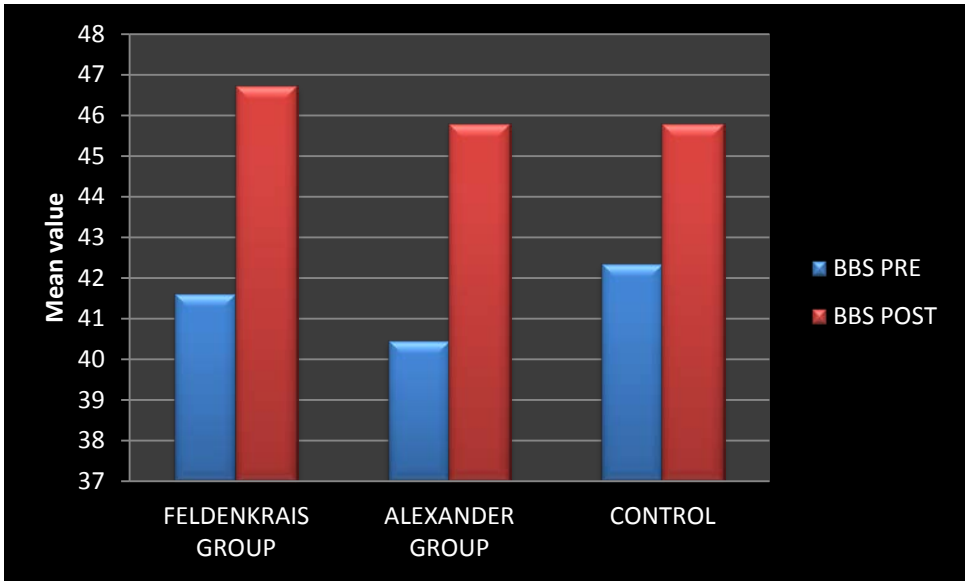


TABLE 4:

PRE TO POST COMPARISON AMONG THE GROUPS FOR BBS

	Parameter	Group	N	Minimum	Maximum	Mean	Std. Deviation	Median	Kruskal-Wallis Test value	p value
Diff. pre - post	BBS	FLENKRAIS GROUP	15	-8	-3	-5.13	1.552	-5.00	11.302	.004
		ALEXANDER GROUP	15	-7	-2	-5.33	1.234	-6.00		HS
		CONTROL	15	-6	-1	-3.47	1.598	-4.00		

According to the results, in Alexander group comparison for BBS mean value was 5.33 with standard deviation of 1.234; in Feldenkrais group comparison for BBS mean value was 5.13 with standard deviation of 1.552; in control group comparison for BBS mean value was 3.47 with standard deviation of 1.598.

The Kruskal Wallis test value was 11.302 (P = 0.004) which was found that statistically highly significant.

TABLE 5:

INTER GROUP COMPARISON FOR BBS

Pairwise Comparisons - by Mannwhitney test

Dependent Variable	Parameter	(J) Group	(I) Group	Mean Difference (I-J)	Std. Error	Mann-Whitney Test pvalue	
Diff. pre - post	BBS	FLENKRAIS GROUP	ALEXANDER GROUP	-.200	.537	.326	NS
			CONTROL	1.667	.537	.016	sig
		ALEXANDER GROUP	CONTROL	1.867	.537	.001	HS

The inter group comparison for BBS between Feldenkrais group with control group showed mean difference of 1.667. The Mann Whitney Test P value was 0.016 which was found that statistically significant.

The inter group comparison for BBS between Alexander group with control group showed mean difference of 1.867. The Mann Whitney Test P value was 0.001 which was found that statistically highly significant.

The inter group comparison for BBS between Alexander group and Feldenkrais group showed mean difference of 0.200. The Mann Whitney Test P value was 0.326 which was found that statistically non significant.

Therefore, it was interpreted that the Alexander and Feldenkrais exercises showed better improvement in balance than conventional balance exercises, but there was equal improvement with Alexander and Feldenkrais exercises after one month of training program when it was assessed with BBS.

TABLE 6:

INTRA GROUP COMPARISION FOR FRT SITTING

Parameter	Group		N	Minimum	Maximum	Mean	Std. Deviation	Median	Wilcoxon Signed Ranks Test	p value	
FRT SITTING	FLENKRAIS GROUP	PRE	15	1	18	6.40	4.517	6.00	3.10	.002	HS
		POST	15	3	21	7.93	4.559	8.00			
	ALEXANDER GROUP	PRE	15	2	9	6.33	2.498	7.00	2.56	.010	sig
		POST	15	4	10	7.20	2.111	8.00			
	CONTROL	PRE	15	2	9	5.00	2.330	5.00	3.56	.000	HS
		POST	15	3	10	6.07	2.344	6.00			

In Alexander group, the pre test mean value of total score for the FRT sitting was 6.33 with standard deviation of 2.498. The post test mean value of total score for FRT sitting was 7.20 with standard deviation of 2.111. The mean difference between pre and post test value was 0.87. The Wilcoxon Signed Rank value was 2.56 (P = 0.010) which was found statistically significant.

In Feldenkrias group, the pre test mean value of total score for FRT sitting was 6.40 with standard deviation of 4.517. The post test mean value of total score for FRT sitting was 7.93 with standard deviation of 4.559. The mean difference between pre and post test value was 1.53. The Wilcoxon Signed Rank value was 3.10 (P = 0.002) which was found statistically highly significant.

In control group, the pre test mean value of total score for FRT sitting was 5.00 with standard deviation of 2.330. The post test mean value of total score for FRT sitting was 6.07 with standard deviation of 2.344. The mean difference between pre and post test value was 1.07. The Wilcoxon Signed Rank value was 3.56 (P = 0.000) which was found statistically highly significant.

Therefore, it is inferred that all groups showed better improvement in the balance after one month of training program when it was assessed with FRT sitting.

GRAPH 4

INTRA GROUP COMPARISON FOR FRT SITTING

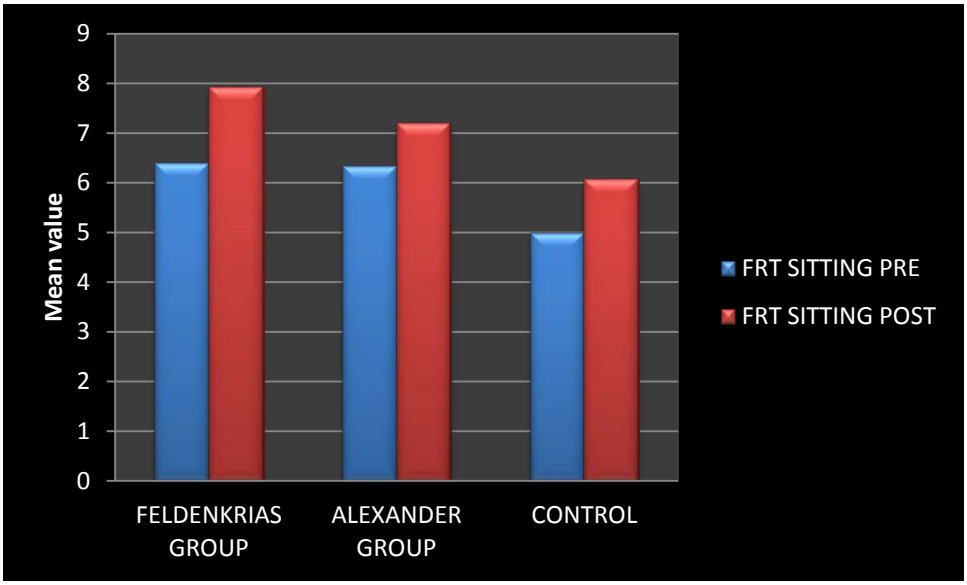


TABLE 7

PRE TO PSOT COMPARISON AMONG GROUP FOR FRT SITTING

	Parameter	Group	N	Minimum	Maximum	Mean	Std. Deviation	Median	Kruskal-Wallis Test value	p value
Diff. pre - post	FRT SITTING	FLENKRAIS GROUP	15	-3	0	-1.53	1.125	-1.00	3.556	.169
		ALEXANDER GROUP	15	-3	0	-.87	.990	-1.00		NS
		CONTROL	15	-2	0	-1.07	.458	-1.00		

According to the results, in Alexander group comparison for FRT sitting mean value was 0.87 with standard deviation of 0.990; in Feldenkrais group comparison for FRT sitting mean value was 1.53 with standard deviation of 1.125; in control group comparison for FRT sitting mean value was 1.07 with standard deviation of 0.458.

The Kruskal Wallis test value was 3.556 (P = 0.169) which was found that statistically not significant.

Therefore, the results interpreted that there is statistically equal improvement in the balance after one month of training program when assessed with FRT sitting.

TABLE 8:

INTRA GROUP COMPARISON FOR FRT STANDING

Parameter	Group		N	Minimum	Maximum	Mean	Std. Deviation	Median	Wilcoxon Signed Ranks Test	p value	
FRT STANDING	FLENKRAIS GROUP	PRE	15	1	18	4.80	4.693	3.00	3.40	.001	HS
		POST	15	2	21	6.73	5.133	5.00			
	ALEXANDER GROUP	PRE	15	1	6	3.80	1.859	3.00	3.14	.002	HS
		POST	15	1	8	5.00	2.138	5.00			
	CONTROL	PRE	15	1	10	3.67	2.350	3.00	3.00	.003	HS
		POST	15	1	10	4.83	2.447	4.00			

In Alexander group, the pre test mean value of total score for the FRT standing was 3.80 with standard deviation of 1.859. The post test mean value of total score for FRT standing was 5.00 with standard deviation of 2.138. The mean difference between pre and post test value was 1.20. The Wilcoxon Signed Rank value was 3.14 (P = 0.002) which was found statistically highly significant.

In Feldenkrias group, the pre test mean value of total score for FRT standing was 4.80 with standard deviation of 4.693. The post test mean value of total score for FRT standing was 6.73 with standard deviation of 5.133. The mean difference between pre and post test value was 1.93. The Wilcoxon Signed Rank value was 3.40 (P = 0.001) which was found statistically highly significant.

In control group, the pre test mean value of total score for FRT standing was 3.67 with standard deviation of 2.350. The post test mean value of total score for FRT standing was 4.83 with standard deviation of 2.447. The mean difference between pre and post test value was 1.16. The Wilcoxon Signed Rank value was 3.00 (P = 0.003) which was found statistically highly significant.

Therefore, it is inferred that all groups showed better improvement in the balance after one month of training program when it was assessed with FRT standing.

GRAPH 5

INTRA GROUP COMPARISON FOR FRT STANDING

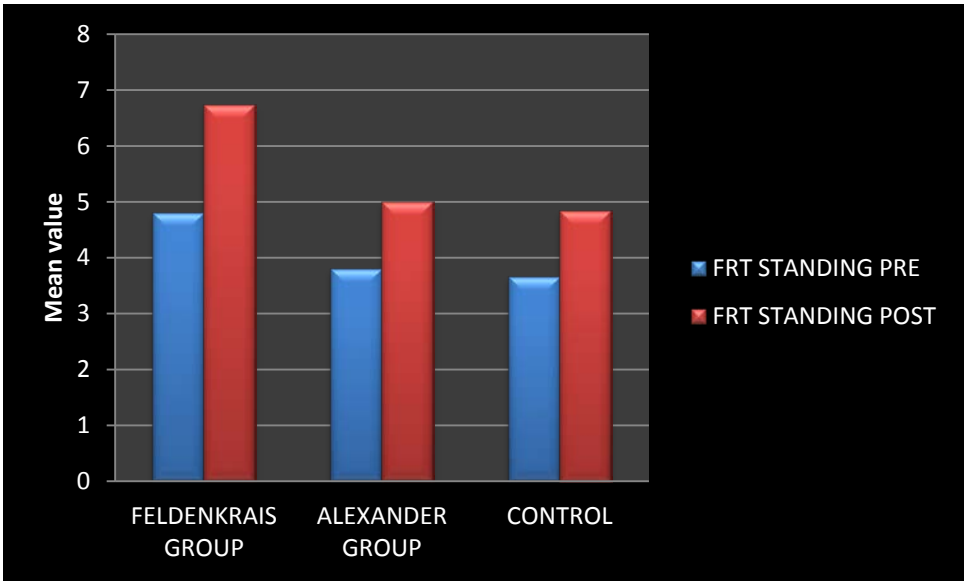


TABLE 9

PRE TO POSTCOMPARISON AMONG GROUPS FOR FRT STANDING

	Parameter	Group	N	Minimum	Maximum	Mean	Std. Deviation	Median	Kruskal-Wallis Test value	p value
Diff. pre - post	FRT STANDING	FLENKRAIS GROUP	15	-3	0	-1.93	.799	-2.00	7.558	.023
		ALEXANDER GROUP	15	-3	0	-1.20	.862	-1.00		sig
		CONTROL	15	-2	0	-1.17	.838	-1.00		

According to the results, in Alexander group comparison for FRT standing mean value was 1.20 with standard deviation of 0.862; in Feldenkrais group comparison for FRT standing mean value was 1.93 with standard deviation of 0.799; in control group comparison for FRT standing mean value was 1.17 with standard deviation of 0.838.

The Kruskal Wallis test value was 7.558 (P = 0.023) which was found that statistically significant.

TABLE 10

INTER GROUP COMPARISON FOR FRT STANDING

Pairwise Comparisons - by Mannwhitney test

Dependent Variable	Parameter	(J) Group	(I) Group	Mean Difference (I-J)	Std. Error	Mann-Whitney Test pvalue	
Diff. pre - post	FRT STANDING	FLENKRAIS GROUP	ALEXANDER GROUP	.733	.304	.019	sig
			CONTROL	.767	.304	.015	sig
		ALEXANDER GROUP	CONTROL	.033	.304	.948	NS

The inter group comparison for FRT standing between Feldenkrais group with control group showed mean difference of 0.767. The Mann Whitney Test P value was 0.015 which was found that statistically significant.

The inter group comparison for FRT standing between Alexander group with control group showed mean difference of 0.033. The Mann Whitney Test P value was 0.948 which was found that statistically non significant.

The inter group comparison for FRT standing between Alexander group and Feldenkrais group showed mean difference of 0.733. The Mann Whitney Test P value was 0.019 which was found that statistically significant.

Therefore, it was interpreted that the Feldenkrais exercises showed better improvement in balance than conventional balance exercises, but there was equal improvement with Alexander and conventional balance exercises. The Feldenkrais exercises showed better improvement than the Alexander exercises after one month of training program when it was assessed with FRT standing.

TABLE 11

INTRA GROUP COMPARISON FOR TUG

Parameter	Group		N	Minimum	Maximum	Mean	Std. Deviation	Median	Wilcoxon Signed Ranks Test	p value	
TUG	FLENKRAIS GROUP	PRE	15	15	45	28.67	9.537	25.00	2.97	.003	HS
		POST	15	15	45	25.13	9.273	20.00			
	ALEXANDER GROUP	PRE	15	20	70	29.33	12.517	25.00	2.71	.007	HS
		POST	15	20	60	26.33	11.095	20.00			
	CONTROL	PRE	15	20	75	28.67	14.695	25.00	2.45	.014	sig
		POST	15	20	75	26.67	14.598	20.00			

In Alexander group, the pre test mean value of total score for the TUG was 29.33 with standard deviation of 12.517. The post test mean value of total score for TUG was 26.33 with standard deviation of 11.095. The mean difference between pre and post test value was 3. The Wilcoxon Signed Rank value was 2.71 (P = 0.007) which was found statistically highly significant.

In Feldenkrias group, the pre test mean value of total score for TUG was 28.67 with standard deviation of 9.537. The post test mean value of total score for TUG was 25.13 with standard deviation of 9.273. The mean difference between pre and post test value was 3.54. The Wilcoxon Signed Rank value was 2.97 (P = 0.003) which was found statistically highly significant.

In control group, the pre test mean value of total score for TUG was 28.67 with standard deviation of 14.695. The post test mean value of total score for TUG was 26.67 with standard deviation of 14.598. The mean difference between pre and post test value was 2. The Wilcoxon Signed Rank value was 2.45 (P = 0.014) which was found statistically significant.

Therefore, it is inferred that all groups showed better improvement in the balance after one month of training program when it was assessed with TUG.

GRAPH 6

INTRA GROUP COMPARISON FOR TUG

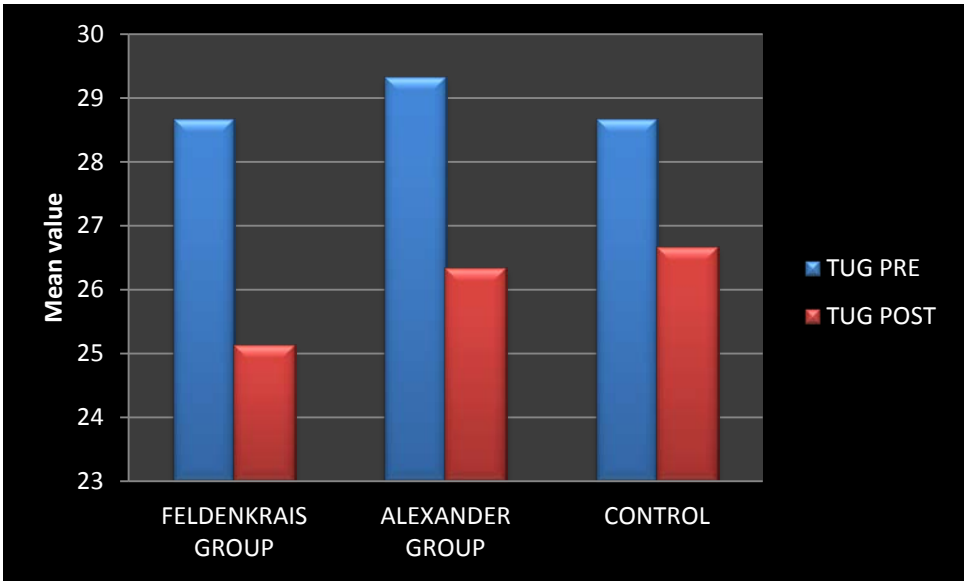


TABLE 12

PRE TO POST COMPARISON AMONG GROUP FOR TUG

	Parameter	Group	N	Minimum	Maximum	Mean	Std. Deviation	Median	Kruskal-Wallis Test value	p value
Diff. pre - post	TUG	FLENKRAIS GROUP	15	0	10	3.53	2.949	5.00	1.940	.379
		ALEXANDER GROUP	15	0	10	3.00	3.162	5.00		NS
		CONTROL	15	0	5	2.00	2.535	.00		

According to the results, in Alexander group comparison for TUG mean value was 3.00 with standard deviation of 3.162; in Feldenkrais group comparison for TUG mean value was 3.53 with standard deviation of 2.949; in control group comparison for TUG mean value was 2.00 with standard deviation of 2.535.

The Kruskal Wallis test value was 1.940 (P = 0.379) which was found that statistically not significant.

Therefore, the results interpreted that there is statistically equal improvement in the balance after one month of training program when assessed with TUG.

DISCUSSION

The purpose of this study was to compare the effectiveness of Feldenkrais technique and Alexander technique to improve the balance in older adults.

The study consists of 45 patients who were randomly assigned into three groups. Where group I underwent Alexander methods of exercises, group II underwent Feldenkrais methods of exercises & group III underwent the normal balance exercises to improve the balance in older adults. The entire groups assessed before and after the intervention to determine the extent of improvement in balance by using BBS, FRT & TUG.

The individuals who have diabetes mellitus and hypertension was also included in the study because in the age above 60 years, most of the individuals may have the endocrine or cardiovascular diseases, which will be under control with the regular medication. The structural changes in the cardiovascular system with aging are more consistent and leads to the physiological changes due to which individual suffers with hypertension. Age related changes also involving decreased insulin sensitivity in the peripheral tissues and reduced insulin control of hepatic glucose output, which may cause the diabetes mellitus in the older individuals.

Group I who received, Alexander methods of exercises, showed a mean difference in pre and post test score on BBS as 3.47 ($P = 0.001$), FRT sitting as 2.56 ($P = 0.010$), FRT standing as 3.14 ($P = 0.002$) & TUG as 2.71 ($P = 0.007$); this results indicates that there was improvement in the balance after the one month of intervention with Alexander methods of exercises in older adults.

Dennis RJ had done the study on the effect of learning the Alexander technique on balance by using functional reach as a clinical measure of balance. Understanding and improving body mechanics and body awareness is a proposed benefit of learning the Alexander technique; this may improve balance and reduce falls in the elderly. This study suggests clinical gains in functional reach using a limited number of Alexander technique training sessions in a group setting.[19]

Group II who received, Feldenkrias methods of exercises, showed a mean difference in pre and post test score on BBS as 3.44 (P = 0.001), FRT sitting as 3.10 (P = 0.002), FRT standing as 3.40 (P = 0.001) & TUG as 2.97 (P = 0.003); the results indicates that there was improvement in the balance after the one month of intervention with Feldenkrais methods of exercises in older adults.

Ullmann G. Williams, et. al had done the study to examine the effects of Feldenkrais exercise in improving balance, mobility, and balance confidence in older adults. 47 individuals participated for the study. They had concluded that Feldenkrais exercises are an effective way to improve balance and mobility, and thus offer an alternative method to help offset age related declines in mobility and reduce the risk of falling among community dwelling older adults.[18]

Connors KA, *et. al.* had done the study to investigate the effects of Feldenkrais methods balance classes on balance and mobility in older adults. 63 community dwelling older adults are participated for the study. They had concluded that the Feldenkrais method balance classes are helpful in improving the balance and mobility in older adults.[9]

Vrantsidis F *et al* Getting Grounded Gracefully: effectiveness and acceptability of Feldenkrais in improving balance. Fifty-five participants' High class attendance and survey feedback indicate that the program was viewed positively by participants and might therefore be acceptable to other older people. Further investigation of the Getting Grounded Gracefully program is warranted as suggested by them.[22]

Group III who received, conventional balance exercises, showed a mean difference in pre and post test score on BBS as 3.42 (P = 0.001), FRT sitting as 3.56 (P = 0.000), FRT standing as 3.00 (P = 0.003), & TUG as 2.45 (P = 0.014); the results indicates that there was improvement in the balance after the one month of intervention with conventional balance exercises in older adults.

Patima Silsupadol1 *et. al.* had done the study on Training of Balance Under Single- and Dual-Task Conditions in Older Adults With Balance Impairment. They had concluded that the patients who received balance training under dual-task conditions showed dual-task training benefits; these training benefits were maintained for 3 months. The patients who received variable-priority training showed improvement on novel dual tasks.[24]

Mary E. Tinetti, *et. al* had done the study on a multi-factorial intervention to reduce the risk of falling among the elderly people living in the community. They had done the study on 301 individuals and concluded that the multiple risk factor intervention strategy resulted in a significant reduction in the risk of falling among elderly persons in the community. They also suggested that risk factor modification may partially explain the reduction in the risk of falling.[17]

The inter group comparison was done by the Mann-Whitney U Test. The inter group comparison between the group I & group III showed on BBS as 1.867 ± 0.537 (P = 0.001), FRT sitting as 0.200 ± 0.330 (P = 0.273), FRT standing as 0.033 ± 0.304 (P = 0.948), TUG as 1.000 ± 1.057 (P = 0.394). The results suggested that there was significant improvement in BBS, but there was no significant improvement in FRT sitting, FRT standing & TUG between groups. Still according to the intra group analysis of FRT sitting, FRT standing & TUG showed that there was better improvement in group I than group III even though it was statistically negligible. The result suggested that the Alexander method of exercises improves the balance better than the conventional balance exercises.

The statement supported by **Dennis RJ** that the Alexander methods of exercises are improving the balance in older adults. The Alexander methods of exercises based on the body mind connection and help in the inhibiting the habitual patterns and helps in changing the habitual patterns which helps in providing the relaxation. So, the Alexander technique for improving the balance is improving the balance better than the normal balance exercises in older adults.

In inter group comparison showed between group II and group III on BBS as 1.667 ± 0.537 (P = 0.016), FRT sitting as 0.467 ± 0.330 (P = 0.231), FRT standing as 0.767 ± 0.304 (P = 0.015), TUG as 1.533 ± 1.057 (P = 0.164). The results suggested that there is significant improvement in the BBS and FRT in standing, but there is no significant improvement in the FRT sitting and TUG between groups. Still according to the intra group analysis in FRT sitting and TUG showed that there was better improvement in the group II than the group III even though it was statistically negligible.

The results suggested that the Feldenkrais method of balance exercises improves the balance better than the conventional balance exercises.

This statement by **Connor KA** had supported that Feldenkrais method of balance exercises will improve the balance in older adults. The statement by **Ullmann G. Williams** also supported that the Feldenkrais exercises are an effective way to improve balance and mobility, and thus offer an alternative method to help offset age related declines in mobility and reduce the risk of falling among community dwelling older adults. The Feldenkrais method of balance exercises are based on the principles of motor relearning and postural control retraining exercises. So, the Feldenkrais methods of balance exercises are better in improving the balance in older adults.

In inter group comparison showed between group I and group II on BBS as 0.200 ± 0.537 (P = 0.326), FRT sitting as 0.667 ± 0.330 (P = 0.097), FRT standing as 0.733 ± 0.304 (P = 0.019), TUG as 0.533 ± 1.057 (P = 0.629). The result suggested that there was significant improvement in FRT standing in group II, but there was no significant improvement in BBS, FRT sitting & TUG between groups.

The intra group comparison done by Kruskal Wallis test for group II on BBS as 5.13 ± 1.552, FRT sitting as 1.53 ± 1.125, FRT standing as 1.93 ± 0.799 & TUG as 3.53 ± 2.949. The intra group comparison done by Kruskal Wallis test for group I on BBS as 5.33 ± 1.234, FRT sitting as 0.87 ± 0.990, FRT standing as 1.20 ± 0.862 & TUG as 3.00 ± 3.162. The results suggested that there was significant improvement in the balance with FRT standing in group II than group I.

The Alexander technique has the head-neck-back relationship as the principle; and is the key to good overall coordination and the elimination of habits of tension, instead of exercises or manipulation; but the Feldenkrais technique has Specific criteria for well-organized movement includes using minimal effort, increasing the flexibility of joints, and distributing effort evenly within the neuro-muscular system. The Feldenkrais method uses two formats, group work (movement sequences) and individual work (manipulation).

A typical Alexander Technique lesson involves taking a close look at the individual's pattern of habitual tension during common movements: bending, walking, reaching, sitting, talking or singing and playing one's instrument. The individual learns not to respond to stressful situations with muscular tension, thus improving overall coordination. Part of each lesson is devoted to the release of tension while the individual is lying horizontally.

In Feldenkrais group work individuals lie on the floor and are guided through many different sequences that help differentiate functions of movement. Flexibility and efficiency are achieved through reprogramming the individual's nervous system so individual can make finer distinctions in what is moving, not moving and what level of muscular effort is being used. The goal of manipulation during an individual session is to re-educate the neuro-muscular system toward an accurate sensing of the self.

So, the results suggested that there is equal significant improvement in all the groups after the one month of intervention. So, the study the Feldenkrais methods of

exercises and the Alexander methods of exercises are equally effective in improving balance in older adults.

STUDY LIMITATION

- The number of subjects for this study was 45 individuals which is a very small sample size
- The duration of study for this study was one month which is very small.

SCOPE FOR THE FURTHER STUDY

- Further study can be done involving different techniques for improving the balance.
- Further study can be done with the particular disease like cerebral palsy, stroke, etc.

CONCLUSION

The results of the study suggested that group I (Alexander group), group II (Feldenkrais group) & group III (control group) have good effect on improving balance in older adults. But when comparison was done in between the groups, the Feldenkrais group and the Alexander group gained better balance than the control group. While comparing the Feldenkrais group and the Alexander group, there was no significant difference in improving the balance in older adults in groups.

So, the study concluded there was no significant difference statistically in between the Feldenkrias method of balance exercises & the Alexander method of balance exercises. The study concluded that the any of these exercises will help in improving the balance in older adults.

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ANNEXURE

ANNEXURE I

CONSENT FORM:

I voluntarily accept to participate in the study entitled **"EFFECTIVENESS OF THE ALEXANDER TECHNIQUE AND THE FELDENKRAIS TECHNIQUE FOR IMPROVING THE BODY BALANCE IN OLDER ADULTS : A COMPARATIVE STUDY".**

The nature and hazards involved in these studies have been fully explained to me. I understand that I may withdraw from this study at any time.

I consent to the data being collected and stored at the department of physiotherapy and for the data to be used for research purposes. I understand that I am assured of anonymity, and that the data will be treated as a confidential document.

I understand that I may also contact the central ethical committee, NITTE UNIVERSITY, if I feel I have been unfairly treated.

DATE:

SIGNATURE:

WITNESS: SIGNATURE NAME:

Investigator's statement:

I have carefully explained the nature of the above studies to the subjects.

DATE: SIGNATURE:

NAME:

ANNEXURE II

ASSESSMENT FORM

Subjective assessment:

Sl No.:

Name:- Sex:- Age:-

Date of Assessment:-

Address:-

Objective assessment:

Chief Complaints:-

History:-

1. Present History:

2. Past Medical/Surgical History:

3. History Of Fall:

4. Personal History:

5. Socioeconomic History:

Balance Test Score:-

TEST		PRE TREATMENT SCORE Date:	POST TREATMENT SCORE Date:
BERG BALANCE SCORE (MAX SCORE 56)			
TIME UP AND GO TEST (IN MINUTES)			
FUNCTIONAL REACH TEST (IN CENTIMETERS)	SITTING		
	STANDING		

SIGNATURE OF PHYSIOTHERAPIST:

ANNEXURE III

Berg Balance Scale

The Berg Balance Scale (BBS) was developed to measure balance among older people with impairment in balance function by assessing the performance of functional tasks. It is a valid instrument used for evaluation of the effectiveness of interventions and for quantitative descriptions of function in clinical practice and research. The BBS has been evaluated in several reliability studies. A recent study of the BBS, which was completed in Finland, indicates that a change of eight (8) BBS points is required to reveal a genuine change in function between two assessments among older people who are dependent in ADL and living in residential care facilities.

Description:

14-item scale designed to measure balance of the older adult in a clinical setting.

Equipment needed: Ruler, two standard chairs (one with arm rests, one without), footstool or step, stopwatch or wristwatch, 15 ft walkway

Completion:

Time: 15-20 minutes

Scoring: A five-point scale, ranging from 0-4. “0” indicates the lowest level of function and “4” the highest level of function. Total Score = 56

Interpretation: 41-56 = low fall risk

21-40 = medium fall risk

0 –20 = high fall risk

A change of 8 points is required to reveal a genuine change in function between 2 assessments

Berg Balance Scale

Name: _____ Date: _____

Location: _____ Rater: _____

ITEM DESCRIPTION SCORE (0-4)

Sitting to standing _____

Standing unsupported _____

Sitting unsupported _____

Standing to sitting _____

Transfers _____

Standing with eyes closed _____

Standing with feet together _____

Reaching forward with outstretched arm _____

Retrieving object from floor _____

Turning to look behind _____

Turning 360 degrees _____

Placing alternate foot on stool _____

Standing with one foot in front _____

Standing on one foot _____

Total _____

GENERAL INSTRUCTIONS

Please document each task and/or give instructions as written. When scoring, please record the

lowest response category that applies for each item.

In most items, the subject is asked to maintain a given position for a specific time. Progressively more points are deducted if:

• The time or distance requirements are not met

• The subject's performance warrants supervision

• The subject touches an external support or receives assistance from the examiner

Subject should understand that they must maintain their balance while attempting the tasks. The choices of which leg to stand on or how far to reach are left to the subject. Poor judgment will adversely influence the performance and the scoring.

Equipment required for testing is a stopwatch or watch with a second hand, and a ruler or other indicator of 2, 5, and 10 inches. Chairs used during testing should be a reasonable height. Either a step or a stool of average step height may be used for item # 12.

BERG BALANCE SCALE

SITTING TO STANDING

INSTRUCTIONS: Please stand up. Try not to use your hand for support.

( ) 4 able to stand without using hands and stabilize independently

( ) 3 able to stand independently using hands

( ) 2 able to stand using hands after several tries

( ) 1 needs minimal aid to stand or stabilize

( ) 0 needs moderate or maximal assist to stand

STANDING UNSUPPORTED

INSTRUCTIONS: Please stand for two minutes without holding on.

( ) 4 able to stand safely for 2 minutes

( ) 3 able to stand 2 minutes with supervision

( ) 2 able to stand 30 seconds unsupported

( ) 1 needs several tries to stand 30 seconds unsupported

( ) 0 unable to stand 30 seconds unsupported

If a subject is able to stand 2 minutes unsupported, score full points for sitting unsupported. Proceed to item #4.

SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR ON STOOL

INSTRUCTIONS: Please sit with arms folded for 2 minutes.

( ) 4 able to sit safely and securely for 2 minutes

( ) 3 able to sit 2 minutes under supervision

( ) 2 able to able to sit 30 seconds

( ) 1 able to sit 10 seconds

( ) 0 unable to sit without support 10 seconds

STANDING TO SITTING

INSTRUCTIONS: Please sit down.

( ) 4 sits safely with minimal use of hands

( ) 3 controls descent by using hands

( ) 2 uses back of legs against chair to control descent

( ) 1 sits independently but has uncontrolled descent

( ) 0 needs assist to sit

TRANSFERS

INSTRUCTIONS: Arrange chair(s) for pivot transfer. Ask subject to transfer one way toward a seat with armrests and one way toward a seat without armrests. You may use two chairs (one with and one without armrests) or a bed and a chair.

( ) 4 able to transfer safely with minor use of hands

( ) 3 able to transfer safely definite need of hands

( ) 2 able to transfer with verbal cuing and/or supervision

( ) 1 needs one person to assist

( ) 0 needs two people to assist or supervise to be safe

STANDING UNSUPPORTED WITH EYES CLOSED

INSTRUCTIONS: Please close your eyes and stand still for 10 seconds.

( ) 4 able to stand 10 seconds safely

( ) 3 able to stand 10 seconds with supervision

( ) 2 able to stand 3 seconds

( ) 1 unable to keep eyes closed 3 seconds but stays safely

( ) 0 needs help to keep from falling

STANDING UNSUPPORTED WITH FEET TOGETHER

INSTRUCTIONS: Place your feet together and stand without holding on.

( ) 4 able to place feet together independently and stand 1 minute safely

( ) 3 able to place feet together independently and stand 1 minute with supervision

( ) 2 able to place feet together independently but unable to hold for 30 seconds

( ) 1 needs help to attain position but able to stand 15 seconds feet together

( ) 0 needs help to attain position and unable to hold for 15 seconds

REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING

INSTRUCTIONS: Lift arm to 90 degrees. Stretch out your fingers and reach forward as far as you can. (Examiner places a ruler at the end of fingertips when arm is at 90 degrees. Fingers should not touch the ruler while reaching forward. The recorded measure is the distance forward that the fingers reach while the subject is in the most forward lean position. When possible, ask subject to use both arms when reaching to avoid rotation of the trunk.)

( ) 4 can reach forward confidently 25 cm (10 inches)

( ) 3 can reach forward 12 cm (5 inches)

( ) 2 can reach forward 5 cm (2 inches)

( ) 1 reaches forward but needs supervision

( ) 0 loses balance while trying/requires external support

PICK UP OBJECT FROM THE FLOOR FROM A STANDING POSITION

INSTRUCTIONS: Pick up the shoe/slipper, which is in front of your feet.

( ) 4 able to pick up slipper safely and easily

( ) 3 able to pick up slipper but needs supervision

( ) 2 unable to pick up but reaches 2-5 cm (1-2 inches) from slipper and keeps balance independently

( ) 1 unable to pick up and needs supervision while trying

( ) 0 unable to try/needs assist to keep from losing balance or falling

TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING

INSTRUCTIONS: Turn to look directly behind you over toward the left shoulder. Repeat to the right. (Examiner may pick an object to look at directly behind the subject to encourage a better twist turn.)

( ) 4 looks behind from both sides and weight shifts well

( ) 3 looks behind one side only other side shows less weight shift

( ) 2 turn sideways only but maintain balance

( ) 1 needs supervision when turning

( ) 0 needs assist to keep from losing balance or falling

TURN 360 DEGREES

INSTRUCTIONS: Turn completely around in a full circle. Pause. Then turn a full circle in the other direction.

( ) 4 able to turn 360 degrees safely in 4 seconds or less

( ) 3 able to turn 360 degrees safely one side only 4 seconds or less

( ) 2 able to turn 360 degrees safely but slowly

( ) 1 needs close supervision or verbal cuing

( ) 0 needs assistance while turning

PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED

INSTRUCTIONS: Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times.

( ) 4 able to stand independently and safely and complete 8 steps in 20 seconds

( ) 3 able to stand independently and complete 8 steps in > 20 seconds

( ) 2 able to complete 4 steps without aid with supervision

( ) 1 able to complete > 2 steps needs minimal assist

( ) 0 needs assistance to keep from falling/ unable to try

STANDING UNSUPPORTED ONE FOOT IN FRONT

INSTRUCTIONS: (DEMONSTRATE TO SUBJECT) Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. (To score 3 points, the length of the step should exceed the length of the other foot and the width of the stance should approximate the subject's normal stride width.)

( ) 4 able to place foot tandem independently and hold 30 seconds

( ) 3 able to place foot ahead independently and hold 30 seconds

( ) 2 able to take small step independently and hold 30 seconds

( ) 1 needs help to step but can hold 15 seconds

( ) 0 loses balance while stepping or standing

STANDING ON ONE LEG

INSTRUCTIONS: Stand on one leg as long as you can without holding on.

( ) 4 able to lift leg independently and hold > 10 seconds

( ) 3 able to lift leg independently and hold 5-10 seconds

( ) 2 able to lift leg independently and hold L 3 seconds

( ) 1 tries to lift leg unable to hold 3 seconds but remains standing independently.

( ) 0 unable to try of needs assist to prevent fall

( ) TOTAL SCORE (Maximum = 56)

ANNEXURE IV

TIMED UP AND GO TEST

These are the following steps involved in the test below:

The patient here is seated comfortably in a firm chair with arms and back resting against the chair.

The patient is then instructed to do –

1. To rise from chair
2. Stand still momentarily
3. Walk 3 meters towards the wall at a normal walking speed
4. Then turn without touching the wall
5. Return to the chair, turn and sit down

The outcome tool is the walking distance which is measured by measuring tape and time taken to complete the task is calculated by using stopwatch.