
Movement Assessment of an Inclusive Case through Kinematic Technology

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Abstract: In order to provide benefit of the field to special people, the project was started under the guidance of specialists dealing with schools, organizations and clinics for the mentally challenged people. The project was mainly undertaken with the motive of implementing the subject of physical education on the special people (mentally retarded-border line case) and benefitting them. Specialized MOTION PRO and SIMI MACHIX software were used to analyze the movements of the subject.

The main variables undertaken were:

- i. Right knee bend angle during walk
- ii. Left Knee bends during walking
- iii. Right Ankle angle during walk
- iv. Left Ankle angle during walk
- v. Walking deviation from the starting point or walking line.
- vi. Body Inclination while walking.

It is concluded that some body movements are corrected through the proper implementation of Physical education.

Key words: *Inclusive, Movement and Kinematic.*

Introduction:

Physical education involve ample of body movement experiences and provide wide range of activities in order to bring grace and health to the related body. The field of physical education provides great opportunities to keep oneself fit and healthy.

In order to provide benefit of the field to special people, the project was started under the guidance of specialists dealing with schools, organizations and clinics for the mentally challenged people. Many mentally challenged people receive many deformities or improper ways of performing some basic movements - like extra movements of extremities, walking with extra bend knees, walking deviation (walk away), body inclination, foot outward walking etc. It is well noted that there are some walking faults, that occurring not because of any permanent or temporary physical deformity but lack of care leading to improper movements. Mental retardation may be the major reason for the improper movements but a successful attempt is made for the borderline case to omit undemanded movements with proper guidance and training in a very planned and systematic way.

Objective and subject specification:

The project was mainly undertaken with the motive of implementing the subject of physical education on the special people (mentally retarded- border line case) and benefitting them.

Subject Specification: Male, 5'8'', 17 year, Interest- Playing cricket

Methodology:

Motion analization was done with the help of specialized motion analysis software. As the subject is mentally challenged (border line case) and not aware or trained before about the correct walking style. The subject was therefore systematically trained, for the time duration of complete five months under the guidance of experienced supervisors and physical educationists. A well planned training schedule was prepared for the said duration with the objective of correction of movements. Training program included (free from weight) Arm and leg extension and flexion exercises, Practice of walking forward on a straight line, Practice of walking backward on a straight line, Practice of walking with toe pointing the direction of walk, Practice of walking on markers placed at comfortable distance, Raise the knee high and then drop it with accurate foot placement. Modified recreational play with motive of improving body movements. All the activities were planned in such a manner that the subject would feel comfort and enjoy. It was all situational type of play in which the trainers were also involved to perform the activities, so that the subject could perform in a free manner and stay friendly. After every month assessment of improvement was recorded and minor changes/improvements were always noticed.

Video Analysis

Specialized MOTION PRO and SIMI MACHIX software were used to analyze the movements of the subject.

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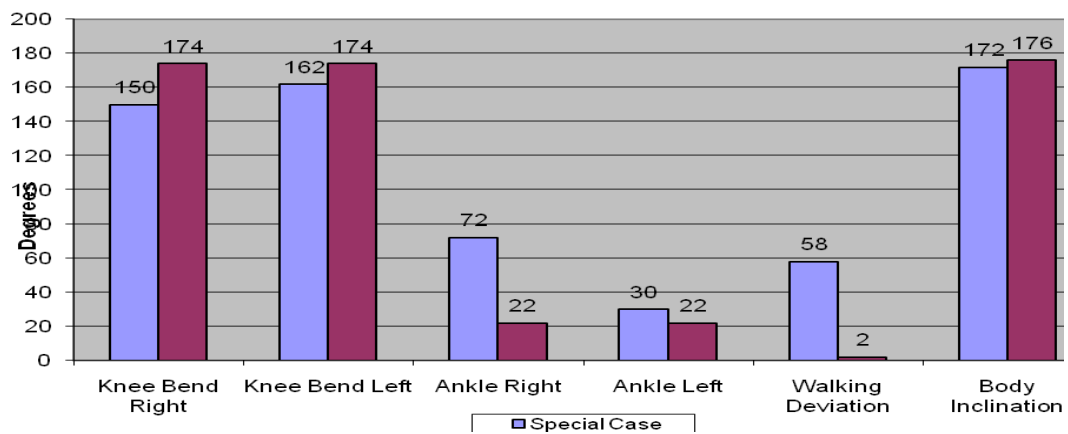
A 10meter straight line was marked and subject was asked to walk on it from the starting to end point. Two high speed video cameras were placed 10.5 m away (front and Lateral side) to record the walking movements of the subjects. One assistant walker was also provided for the comfort of the main subject and accurate analization.



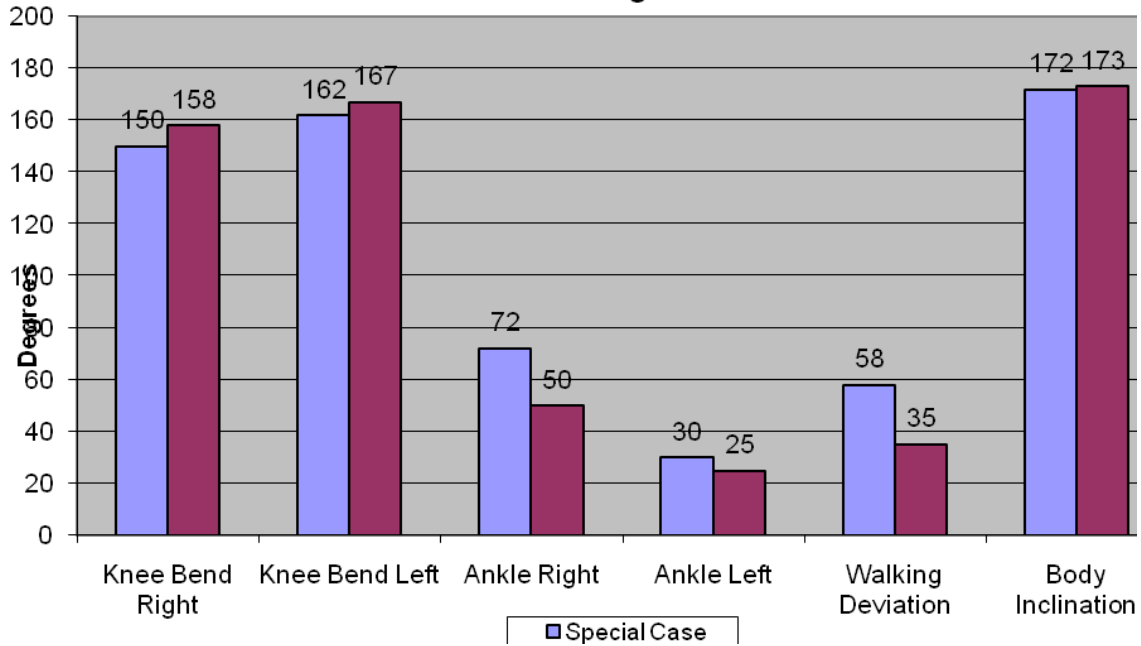
Results:

After five months of systematic and regular training following results existed:

Comparison Between Special Case and General Case



Graph Showing Improvement in Special Case After 5 Months Training



| Variables | Special Case | General Case |
|-------------------|--------------|--------------|
| Knee Bend Right | 150 | 174 |
| Knee Bend Left | 162 | 174 |
| Ankle Right | 72 | 22 |
| Ankle Left | 30 | 22 |
| Walking Deviation | 58 | 2 |
| Body Inclination | 172 | 176 |
| Special Case | | Improvement |
| Knee Bend Right | 150 | 158 |
| Knee Bend Left | 162 | 167 |
| Ankle Right | 72 | 50 |
| Ankle Left | 30 | 25 |
| Walking Deviation | 58 | 35 |
| Body Inclination | 172 | 173 |

Conclusion

It is concluded that some body movements are corrected through the proper implementation of Physical education. It is further assessed that Physical education is well valuable for special people also.

Recommendations

Physical education should essentially be practiced by the specialists dealing with special people.

References

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