Postural problems are going to become a global threat and static posturing in day to day life is causing novel health problems. A total of 30 male and female subjects of age group 20 to 30 years with Forward head posture underwent the intervention. Subjects were assigned on the basis of sample of convenience and randomly allocated into two groups- Experimental group: receiving application of Anterior head weighting with treadmill walking and conventional group: receiving conventional stretching and strengthening exercise to specific muscles. Intergroup comparison showed statistically significant difference in forward head posture and deep cervical flexor muscle endurance (p<0.01). Pettibon’s anterior head weighting system is more effective in improving forward head posture and deep cervical flexor muscle endurance as compared to conventional protocol in young adults.

INTRODUCTION
Globally many researchers show a strong correlation between sedentary workers, postural deviations and neck complaints found in them.1-3 Postural abnormalities (eg. forward head posture) associated with pain complaints were found prevalent in healthy adults between the ages of 20-50 years.4 There is significant correlation between forward head posture and neck pain, cervicogenic headache, interscapular pain4 as well as cranial or Craniomandibular dysfunction.4-6

Muscles respond to dysfunction in one of the two ways, either by becoming overactive or by becoming inhibited and weak. Vladimir Janda has described a predictable model of shortening (facilitation) and weakness (inhibition) of muscles groups due to postural positioning in sedentary environment and repetitive work task. This pattern in occipito-cervical-thoracic region is named by him as proximal or upper crossed syndrome.

Based on this model only the conventional method of forward head posture correction has been designed which includes stretching of the shortened muscles i.e. Sub Occipital Muscles, SCM, Levator Scapulae, P. Major, P. Minor, Scalini etc. and strengthening of the weak lengthened muscles i.e. Multi-fidi, Deep Cervical Flexors, Mid and Lower Trepezius, Serratus Anterior etc. While this is a proven treatment, there is lack of sufficient literature supporting its effect in radiographic improvements in posture. And on the other hand this method is supposed to be nonphysiologic as the muscles are trained voluntarily and separately in different antigavity positions, which may improve their individual function but their reflexive coordinated function is yet questionable. Even about how long the beneficial effects last is not yet defined.

For the reason above it is felt necessary now to develop a more sophisticated system of spinal correction which enables the therapist and the patient to comply more easily and which can cause a better improvement in context with reflexive training, time consumption, complexity, and finally results obtained from which are more sustainable.

On the basis of above concept revolutionary study of Saunders et al.7 showed the effect of anterior head weighting on cervical lordosis and forward head posture. After that Morningstar et al conducted a pilot study on the same concept and presented a few case studies of the patients benefitted by the Pettibon head weighting system.8,9 Morningstar et al has also demonstrated successful treatment of scoliosis with the help of spinal manipulation and Pettibon head weighting system.9 As it is evident that there is lack of proper randomized clinical trials on the efficacy of Pettibon head weighting system, this study is an effort to measure the comparative effectiveness of Pettibon head weight-
Screening of forward head posture (FHP):
Forward head posture was assessed in a relaxed standing position without shoes. To attend natural head posture the "self balance position" was used which has been described and used by Goldstein et al. 10, and Watson⁴.

This self balance position is achieved by subject performing large amplitude cervical flexion-extension, gradually decreasing to rest in the most comfortably balanced position.

A small plumb line is hanged through the tragus of the ear. If it fell anterior to the midpoint of acromian process, subject was said to have forwarding head posture. If it fell anterior to medial end of clivus, forward head posture was profound.

Marking System
For Forward Head Posture:
As the standard lateral cervical radiograph was obtained, the accurate hard palate line was erected on it. For the position of the head to be accurately neutral, the palate line should be 90° plus or minus 2° from the edge of the X-ray. Now a vertical line of gravity was drawn (perpendicular to the palate line) passing through the anterior margin of sella turcica (assumed centre of gravity of skull) extending up to the bottom of film. Normally in the correct head posture this line passes through the anterior portion of the C4-C5 disc. If it was anterior to it, forward head posture was taken to be evident. Perpendicular distance of the LOC from anterior border of C4-C5 is measured in millimeters and recorded. (Normal distance = 00 mm)

RESULTS
The mean values of Age, Height, Weight and BMI mentioned in table 1 indicate that there was no statistically significant difference between Group A & B. This shows both groups were homogenous and fairly comparable.

Table 1: Demographic profile of subjects (mean±SD)

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
<th>Independent t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>24.20 ± 1.14</td>
<td>23.83 ± 2.03</td>
<td>0.557 (NS)</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>171.66 ± 8.67</td>
<td>170.75 ± 8.40</td>
<td>0.278 (NS)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>65.06 ± 11.42</td>
<td>66.25 ± 11.77</td>
<td>-0.263(NS)</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>22.05 ± 2.82</td>
<td>22.50 ± 2.73</td>
<td>-0.423(NS)</td>
</tr>
</tbody>
</table>

The values of baseline forward head posture (in mms) and deep cervical flexor muscle endurance (in seconds) indicate that there was no statistically significant difference between Group A & B. This shows that both groups were homogenous and fairly comparable.

Deep Cervical Flexor Muscle Endurance (DCFME)
Comparison of means of Post intervention DCFME values for both groups A (82.23 ± 28.71) and B (73.95 ± 34.31) show a highly significant difference between groups (p=0.002). Deep Cervical Flexor Muscle Endurance showed significant mean change of 44.64 ± 14.34 and 21.51 ± 18.55 for group A and B respectively as depicted in table 2.

Forward Head Posture
Comparison of mean change in Forward Head Posture of both the groups A (43.35 ± 23.56) and B (11.0± 20.24) showed a highly significant difference (p< 0.01) between two groups as shown in the table 2.

Table 2: Inter-group comparison of FHP and DCFME. (mean±SD)

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
<th>Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FHP</strong></td>
<td>82.23 ± 28.71</td>
<td>73.95 ± 34.31</td>
<td>0.669 (NS)</td>
</tr>
<tr>
<td><strong>DCFME</strong></td>
<td>37.58 ± 24.98</td>
<td>82.23 ± 28.71</td>
<td>-1.395 (NS)</td>
</tr>
<tr>
<td><strong>Mean change</strong></td>
<td>44.64 ± 14.34</td>
<td>21.51 ± 18.55</td>
<td>3.552**</td>
</tr>
</tbody>
</table>

Note: ** p< 0.01, NS non-significant

DISCUSSION
The results of the present study are encouraging and showed a significant difference in management of deep cervical muscle endurance by pettibon HWS in contrast to conventional methods of treatments. One remarkable observation is that all fifteen subjects from experimental group have shown positive improvements in FHP after treatment but the case is not same with conventional group. Deep cervical flexor muscle endurance was included in the study with an objective to assess the effect of both protocols in increasing the endurance of the cervical flexors. Increased endurance of the cervical flexors may be helpful in sustaining normal head posture for longer periods of time.

CONCLUSION
This study provides important information about effect of two different treatment techniques of posture correction in young adults. Furthermore conclusion of the study will be helpful in designing a holistic approach for posture correction and prevention of posture induced ailments in future.