

List of figures

Figure No.	Figure Caption	Page No.
Figure 1.1	Muscle Fatigue	2
Figure 1.2	Neck Pain	3
Figure 2.1	Cervical Traction	10
Figure 3.1	Neck Pain with Cervical Radiculopathy	25
Figure 3.2	Anatomy of Cervical Vertebrae	29
Figure 3.3	Cervical Vertebrae (C1-C2)	30
Figure 3.4	Wireless EMG Systems with the Sensor	31
Figure 3.5	Clinical Photograph of Cervical Traction	32
Figure 3.6	Clinical Photograph during Cervical Traction Application of the Sensor	32
Figure 3.7	Raw EMG Signal	33
Figure3.8 (a)	Time domain features during traction in sitting position for the first day (Fd)	37
Figure3.8(b)	Frequency domain features during traction in sitting position for the first day (Fd)	38
Figure3.8 (c)	Time domain features during traction in sitting position for the last day (Ld)	38
Figure3.8(d)	Frequency domain features during traction in sitting position for the last day (Ld)	39
Figure3.9 (a)	Time domain features during traction in sitting position for the first day (Fd)	40
Figure3.9(b)	Frequency domain features during traction in sitting position for the first day (Fd)	41
Figure3.9 (c)	Time domain features during traction in sitting position for the last day (ld)	41

Figure 3.9(d)	Frequency domain features during traction in sitting position for the last day (Ld)	42
Figure 4.1	Neck Pain (Spondylosis Pain)	45
Figure 4.2	Cervical Spondylosis	46
Figure 4.3	Positions of Cervical Pain	49
Figure 4.4 (a)	Time domain features during traction in sitting position for the first day (Fd)	52
Figure 4.4 (b)	Frequency domain features during traction in sitting position for the first day (Fd)	52
Figure 4.4 (c)	Time domain features during traction in sitting position for the last day (Ld)	53
Figure 4.4 (d)	Frequency domain features during traction in sitting position for the last day (Ld)	53
Figure 4.5 (a)	Time domain features during traction in sitting position for the first day (Fd)	56
Figure 4.5 (b)	Frequency domain features during traction in sitting position for the first day (Fd)	56
Figure 4.5 (c)	Time domain features during traction in sitting position for the last day (Ld)	57
Figure 4.5 (d)	Frequency domain features during traction in sitting position for the last day (Ld)	57
Figure 5.1	Clinical Picture of cervical traction application of sensor	63
Figure 5.2 (a)	LabVIEW block diagram for Pre-EMG data import and feature extraction	64
Figure 5.2 (b)	LabVIEW block diagram for post-EMG data import and feature extraction	64
Figure 5.3(a)	LabVIEW front panel VI showing no relaxation in neck pain	67
Figure 5.3 (b)	LabVIEW front panel VI showing relaxation in neck pain	67
Figure 6.1	Framework elucidates the method to classify Fatigue level	75