

## **Investigating the Relation between Ergonomic Risk Factors and Musculoskeletal Disorder (MSDS) of Computer Operators**

**Mohammad Iqbal**

**Department of Industrial & Production Engineering  
Shahjalal University of Science and Technology  
Sylhet-3114, Bangladesh**

**Salma Akhter**

**Department of Chemical Engineering and Polymer Science  
Shahjalal University of Science and Technology  
Sylhet-3114, Bangladesh**

**Abdullahil Azem**

**Department of Industrial & Production Engineering  
Bangladesh University of Engineering and Technology (BUET)  
Dhaka-1000, Bangladesh**

### **Abstract**

Industrial revolution has advanced the present world since nineteenth century. In the late 1960s, human beings then combined machineries and computers to shorten the production time with the occurrence of information revolution. However, the application of a computer is not limited to the industrial practices. Computers have adapted everyone's life including working, education system and games. Because of the convenience of computers, the population of using computers increases day by day that can not be restrained. Although the applications of computers bring the advantages, the problems are also accompanied. Using computer for a long time, fatigue of eyes, pain of shoulders, wrist pain and back pain due to improper sitting position occurs. The paper aimed at investigating the relations between ergonomic risk factors and musculoskeletal disorder of computer operators (MSDs). The survey subjects include 30 office staffs, 40 computer typist and 30 computer graphics designers (out of 100 computer operators). According to the research results, the most popular pain position of the computer graphics designers are the eye (56%), neck (61%), wrist/hand (73%), lower back (63%), and knee (74%). Similarly for typist, most pain position is eye (60%), neck (62%), Shoulder (85%), wrist/hand (71%), upper back (57%), lower back (87%), and feet (71%). Lastly for office computer operator, pain position is upper back (62%), feet (32%), lower back (30%) and wrist/hand (29%). Besides, this study also confirms that the musculoskeletal disorders were associated with the improper postures, time of using computers per day, the body weight, poor neck posture are also the causes of MSDs. Those findings of the current studies can be applied in determining adequate ergonomics interventions to reduce the MSDs in computer work. Lastly recommendations and suggestions for future work have been highlighted.

### **Keywords**

Ergonomic, Risk Factors, Computer, Musculoskeletal Disorder and Pain.