ABSTRACT: Ergonomics is the science of developing a work environment according to the needs of humans. It uses psychological and physiological principals to design a product, process or systems. Ergonomics is applied with aim of ensuring safety and comfort of the employees at their work places. The word Ergonomics can be split into two different Greek words “egron” meaning work and “nomos” meaning laws on the whole it means Laws of Work. The concept of Ergonomics first came up in Greek where they used this concept to develop their tools for work. Later it was adopted in different areas varying from industries to aviation. In Ergonomics there are three main areas of research namely physical, cognitive, organizational economics. Specialisations has also being made in the area of environmental ergonomics to know about the interaction of humans with the environmental factors. A company not following the Ergonomics principals have their workers doing jobs with a wrong posture as the machines or the process was not developed according to the needs of the employees because of which they might be effected by Musculoskeletal Disorder (MSD) which effects the body muscles, joints, ligaments and nerves. Implementing Ergonomics in an organization has various benefits like fewer injuries, productive employees, fewer workers compensation claims. In recent days digital tools and advanced software are used to record employee’s movement and detect the hazardous posture there by eliminating it.

Keywords- Physiological, Greek, Cognitive, Musculoskeletal Disorder, Digital Tools

1. INTRODUCTION

In the earlier days of industrialization the work and the work environment was totally different from what we see today. In the past output and profits was considered as the major components that would determine the success and sustainability of an organization. In those days when even machine was not so hi-tech as it is now man force was put into rigorous work. The people at that point of time had to work very hard because most of the things was manual and the works has to be performed stressing various part of human body. Which ultimately lead to various disorders and diseases in the labors. At this very point of time the industrialization knew the importance of man force and there well being in general. To solve the issue of various diseases that are caused to work force by working in the industries they took a scientific approach. Ergonomics was the solution which they came up with. The later part of industrialization gave importance to their workers as they realised there importance of them. Ergonomics can be said as studying the best way of designing a work place or a machine in which humans has to work. The design is done is such a way that the humans don’t have to stress while doing their work and does not lead to any health issues due to wrong posture. Now a day’s every organization whether big or small use Ergonomics in there company. Now days the company considers there workers as one of their stake holders so they give them the same level of priority that they give to customers and others. Scientifically there is a angle, length, posture that we sit , work if these things are not followed properly it will lead to disorders in our body. Ergonomics studies all this and help in developing things that we use to do work. It is not a recent area of study, Studies on Ergonomics has started long back and still continuing.
2. ERGONOMICS

Ergonomics was developed with an intention to promote health and safety and to optimize productivity of the works in the organization. Ergonomics is the science of developing a work environment which is so designed according to the needs of the workers. It also involves application of psychological and physiological principals while designing a product, system or a process which makes the workers comfortable, and increase their productivity and reduce their errors. Ergonomics had originated from the Greek words “ergon” meaning work and “nomos” meaning laws, by putting both together we get it as Law of Work. Basic knowledge of Ergonomics is required for both employee and employer since both of them share an equal responsibility of a safer worker environment. The knowledge of Ergonomics is important because it plays an important role in reducing the workplace injuries and illnesses which ultimately reduces the workers compensation costs, medical claims. Ergonomics is the combination of sociology, psychology, engineering, biomechanics, industrial design, physiology, anthropometry, interaction design, visual design, user interface design and user experience. Ergonomics is said as the study of designing equipments, processes and devices which are made to fit the human body and its cognitive abilities. A proper Ergonomics design is necessary to prevent strain injuries and others musculoskeletal disorders, which can develop over time and can lead to long-term disability.

3. RISK FACTORS IN WORKPLACE

Risk factors in workplace include injuries due to high force, high repetition, awkward posture, direct trauma or contact stress from hard or sharp surface, prolonged exposure to cold ambient temperature and exposure to whole body or segmental vibration. In case of cumulative trauma disorders risk factors may be present at times of hand-tool use, in manufacturing assembly or packaging jobs, or at time of working at computer workstations. The bigger rates of CTDs are found in office, construction, and manufacturing trades. Workers involved in manual materials handling including truck drivers, nurses and nurses aides, forklift operators and construction workers are mostly prevalent with back injuries. Experts recognize that most of the back injuries, and CTD are developed gradually over the period of time by the wear and tear on the nervous, vascular and connective tissues of the body. In order to reduces such sort of injuries and diseases Ergonomics was developed and has being used in the organizations.

4. ADVANTAGES

a. Increased in Saving

By applying Ergonomics in the organization the injuries to the workers of the organization will be reduced which lead to increase in the productivity of the workers and as a result of fewer injuries the company don’t have to pay workers compensation to their employees by which they can save this amount.

b. Reduction in Pain

By the implementation of Ergonomics the employees don’t have to stress and do their job. They are made comfortable and their works don’t lead to any sort of pain since it is specially designed for them.

c. Rise in Productivity
Ergonomics make the work place a better place to work on. By making the comfortable they are able to increase their efficiency and they contribute more to the organization.

d. Increase in Moral

By making the work place of the employee a much safer place to work on employee feel a sense of satisfaction and a belonging to the organization which motivates them to best out of them to grow the organization.

5. SPECIALIZATION

Ergonomics has three main field of specialization: Physical, Cognitive and Organizational Ergonomics.

a. Physical Ergonomics

It is the science of designing a user interaction with equipment and workplace so as to fit the users. They mainly deal with human anatomy and some of the anthropometric, physiological and bio mechanical characteristics as they relate to physical activity. They are widely used to design industrial and consumer goods.

b. Cognitive Ergonomics

They are related to mental processes, which include perception, memory, reasoning and motor response, since they affect interaction between humans and other elements of a system.

c. Organizational Ergonomics

Organizational Ergonomics is related to the optimization of socio-technical system, including their organizational structure, policies and process.

6. ERGONOMICS IN PRESENT DAY

In present days Ergonomics is operated by digital tools and advanced software’s which helps in analysis of the work place. In this system employees movement is recorded in the work place and the accurate models of the workers are represented biomechanically. Then they evaluate different posture of the workers, they conduct test on it and come up with a work station design which suits all the workers in the organization.

7. WAYS FOR PREVENTATION

To reduce the risk factor we have to redesign the work station which is considered as the most practical way to reduce back injuries and CTDs. Developing the workstation in such a way that it can adjust a range of body sizes of employees and providing specific training in risk avoidance goals and adjustment procedures are central to prevention. Alternative ways to reduce this risk is by providing a system for managers and employees to work jointly towards identifying and resolving problems, employee and supervisor training on risk factor and symptoms.

8. CONCLUSION

In country like India where almost all the industries are labour intensive the importance of Ergonomics is more prevalent. For any organization to grow it requires a healthy and productive work force who contribution plays an important and vital role in the expansion of the company. Be it a small or a big industry no one can expand only by their customers.
the most important contribution is done by the workers of that particular organization, they are considered as the one of the important stake holders of any company in the recent days. So it is the responsibility of the company that they provide a safe and healthy environment to work on. Any industry can increase their production by machines or other equipments but to retain their growth and make it a sustainable one they have to definitely adopt the Ergonomics into their organization. By doing so they will be able to develop a environment for the workers to work and do their organizational activities, it creates a sense of belonging towards the organization which enhances their productivity and helps in the contribution in the growth process of the organization.

9. REFERENCE

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