

Ergonomic Work Flow Design as a Measure to Prevent Physical Ailments



It is a well known fact that a close connection exists between psychological processes (e.g. stress) and physiological reactions, which may express themselves in the form of psychosomatic disturbances. The direct mutual influence of satisfying work and muscular-skeletal illness was demonstrated in a number of studies. In contrast to illness of the hand, the risk of developing a shoulder injury is 8 times higher if the content of the work is unsatisfactory [1]. This could be based in the fact that hand injuries have a direct connection with physical strain, whereas shoulder injuries may also be attributed to psychosomatic causes [1]. According to a study by Björkstén et al. from 1994 [1], versatile work is an important parameter for a healthy work environment, as seen from a physical and mental perspective, where versatile work may be generated by implementing the above mentioned measures for re-organizing the work space.

Besides avoiding monotonous and boring work, one has to ensure that all workers receive sufficient information and training for the duties they perform. Under these conditions they will be more efficient, make fewer mistakes and perceive joy during and for their work.

They will understand what they are doing!

Work should be divided: When a complex pipetting task is to be performed, asking colleagues for support is natural. This approach offers two advantages: the length of a repetitive task is reduced for each individual, and the versatility of work is increased.

Cognitive aspects also play a role when considering the workflow in the laboratory. The easier it is to disassemble, clean and assemble it, the more often it will be cleaned and serviced. Insufficient maintenance and cleaning of a pipette leads to high systematic error and high operational forces. As a result, pipetting errors, as well as hand strain, will increase. The entire work flow is disrupted.

When purchasing devices and instruments, it is important to ensure not only the satisfaction of all ergonomic requirements, but also the availability of product services provided by the manufacturer. Good product service radiates several positive effects: it is a prerequisite for long product life and time loss through periods of disrepair and errors are prevented and operational forces are kept low.

Literature

- [1] Björkstén MG, Almby B, Jansson ES, 1994: Hand and shoulder ailments, *Applied Ergonomics*, 25. Jg. (2), S. 88-94.

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