

## ABSTRACT

*Musculoskeletal Disorders is a common phenomenon experienced by workers who perform manual materials handling activities. Manual materials handling activities consist of the lifting, pushing, pulling, and carrying. For manual handling activities that are dominated by the activity of lifting, musculoskeletal disorder that often occurs is a disorder of the spine. The factors that could cause disturbance to the spine is awkward body postures, excessive force, repetitive, and duration of employment (OHSCOs, 2007).*

*In 1991, the National Institute for Occupational Safety and Health (NIOSH) conducted a study on removal activities manually using the three criteria of physical assessment of workers, namely biomechanics, physiology, and psycho-physical to reduce the risk of disturbance to the spine. From this research, NIOSH recommends the institution of the proposed recommendations for weight lifting activity was 23 Kg manually as an attempt to reduce the risk of disruption to the spine.*

*In the steel cutting unit in PT ACSET, still finding it manually lifting activities. In the event the appointment is found that there is still heavy material raised above the weight of recommendations proposed by the NIOSH. Materials that exceed the weight recommendation is steel size 19, 22, 25, and 32 mm. Therefore manual removal activity analysis to identify increased risk of musculoskeletal disorders.*

*According to NIOSH, if the lifting index greater than one, then the increased risk of low back pain will occur. From the calculation of lifting index for the removal of steel the size of 19, 22, 25, and 32 respectively at 1.64, 2.25, 1.48, and 2.25. From lifting the value of this index can be concluded that the activity is at risk of removal of the steel to produce a low back pain. Based on the approach to ergonomics in the design work, a work plan should be tailored to man in general physical capacity for work may be done by all the population without causing harm. Therefore, the increased risk must be done so that work activities can be performed by all workers, especially in the construction industry in Indonesia, many using untrained labor.*

*Addition operator and posture changes when the appointment is not to reduce the disturbance to the spine for the removal of all material. So the proposed efforts to reduce the risk of spinal problems is to redesign work stations into a semi-automated. Gain design work stations to be semi-automated (mechanical) removal activity in addition to avoiding the risk to low back pain by eliminating manual lifting, this activity is also able to increase the productivity of appointment.*

**Key Words :** *NIOSH method, ergonomic, low back pain*