

# The Risk of Musculoskeletal Disorders for Workers due to Repetitive Movements during Tomato Harvesting

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**ABSTRACT** *Tomatoes are the most common crop in Italy. The production cycle requires operations in the field and factory that can cause musculoskeletal disorders due to the repetitive movements of the upper limbs of the workers employed in the sorting phase. This research aims to evaluate these risks using the OCRA (occupational repetitive actions) index method. This method is based firstly on the calculation of a maximum number of recommended actions, related to the way the operation is performed, and secondly on a comparison of the number of actions effectively carried out by the upper limb with the recommended calculated value. The results of the risk evaluation for workers who manually sort tomatoes during harvest showed a risk for the workers, with an exposure index greater than 20; the OCRA index defines an index higher than 3.5 as unacceptable. The present trend of replacing manual sorting onboard a vehicle with optical sorters seems to be appropriate to reduce the risk of work-related musculoskeletal disorders (WMSDs) and is supported from both a financial point of view and as a quality control measure.*

**Keywords.** *Musculoskeletal disorders, Repetitive movements, Tomato harvesting.*

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