ABSTRACT

One crucial aspect of food processing is the mixing process of raw materials. The mixing process plays a significant role in determining the final quality of the food product. In this regard, a Mixing Machine can significantly accelerate and facilitate the mixing process of raw materials. Based on an initial interview with the owner of Schotel Van Java, it was found that there is a risk of Musculoskeletal Disorders (MSDs) among workers, due to the manual and continuous stirring process. A product design Mixing Machine should meet the needs of workers and also consider ergonomic aspects, thereby improving the design of the Mixing Machine to correct workers' postures.

From this issue, a design Mixing Machine was designed using the ergonomic function deployment (EFD) method by conducting a postural analysis using the Rapid Entire Body Assessment (REBA) calculation. The design of the Mixing Machine used the EFD method, considering the ergonomic concept EASNE (Effective, Safe, Healthy, Comfortable, Efficient).

The design of the Mixing Machine began with direct observation and interview, and calculating existing work postures using REBA calculations. The REBA analysis was conducted because workers use their entire bodies during the stirring process of white sauce, so REBA analysis can be done to evaluate the posture and work posture from the neck, back, arm, wrist, and leg. In addition, interviews were conducted to determine worker needs, so that the proposed design Mixing Machine would be suitable for worker needs.

After designing the Mixing Machine and conducting a simulation of worker posture using Tecnomatix Jack 8.2 software, a REBA result of 2 was obtained, which means that the design of the Mixing Machine has been ergonomized, so workers can be prevented from suffering from MSDs.

Keywords: Musculoskeletal Disorders, Rapid Entire Body Assessment, Ergonomic Function Deployment, Mixing Machine