

## **Ergonomics issues among operators in composite manual hand layup activities: A systematic literature review**

### **Abstract**

Two laying techniques are used for composite manufacturing. They are done automatically and hand layup manually. These two laying techniques are used widely in the world. In Malaysia, the manual hand layup is more preferable in producing the secondary structures due to it being a cost-effective and efficient technique. However, it puts the operators at risk and may lead to musculoskeletal disorders. Previously, the management of one composite manufacturing company received complaints from the operators regarding musculoskeletal disorders. This paper aims to get the ideas of the potential for future ergonomics studies on the manual hand layup in composite manufacturing. A systematic literature review has been applied in this study. The main results show that there have not been many kinds of ergonomics studies in this field. Only six previous related studies were found in the past six years recently. In future works, it is suggested that more ergonomics studies are needed to be conducted in composite manufacturing. The information gathered may be helpful for employers to take action to prevent their operators from getting musculoskeletal disorders. In addition, future researchers may extend the existing findings from previous studies.