

# Perancangan Ulang Workstation pada Perusahaan Komponen Otomotif dalam Mengurangi Risiko Musculoskeletal Disorders (MSDs) = Workstation Redesign at an Automotive Component Company to Reduce the Risk of Musculoskeletal Disorders (MSDs)

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## Abstrak

Work-related Musculoskeletal Disorders (WMSDs) adalah gangguan sistem otot yang sering dialami pekerja manufaktur di sektor komponen otomotif yang masih tradisional karena berkaitan dengan postur buruk, repetitif tinggi, beban kerja yang berat, dan fasilitas yang tidak memadai. Penelitian dilakukan pada lima stasiun kerja dengan 14 aktivitas untuk penilaian postur. Nordic Body Map digunakan untuk mengetahui keluhan sakit anggota tubuh pekerja serta metode RULA, REBA, OWAS, dan LBA diolah menggunakan Tecnomatix Jack yang menghasilkan nilai Posture Evaluation Index (PEI). Perbaikan workstation menggunakan metode perancangan produk rasional oleh Nigel Cross menghasilkan rancangan desain Standing Back Support, Sit-Stand Chair, dan Mounting Machine yang terbukti dapat memperbaiki postur kerja, memberikan aspek ergonomis dan kenyamanan pada pekerja. Desain yang dihasilkan telah disesuaikan dengan antropometri pekerja laki-laki di Indonesia. Nilai PEI pada aktivitas blanking, shearing, dan aktivitas memasang sekrup setelah implementasi desain bernilai lebih kecil dibandingkan sebelum implementasi. Penurunan nilai PEI menunjukkan rancangan desain mampu memperbaiki postur yang lebih ergonomis dengan risiko MSDs yang lebih rendah pada pekerja.

.....Work-related Musculoskeletal Disorders (WMSDs) are muscular system disorders that are often experienced by manufacturing workers in the traditional automotive components sector because they are associated with poor posture, high repetition, heavy workloads and inadequate facilities. The research was conducted at five work stations with 14 activities for posture assessment. Nordic Body Map is used to determine workers' complaints of limb pain and the RULA, REBA, OWAS and LBA methods are processed using Tecnomatix Jack which produces Posture Evaluation Index (PEI) values. Repairing workstations using rational product design methods by Nigel Cross resulted in designs for Standing Back Support, Sit-Stand Chair, and Mounting Machine which were proven to improve work posture, provide ergonomic aspects and comfort for workers. The resulting design has been adapted to the anthropometry of male workers in Indonesia. The PEI value for blanking, shearing and screwing activities after design implementation is smaller than before implementation. The decrease in the PEI value shows that the design is able to improve a more ergonomic posture and lower the risk of MSDs in workers.