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### Comparison of peripheral endothelial function in shift versus nonshift workers.

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#### Abstract

Shift working is related to increased cardiovascular morbidity. Peripheral endothelial dysfunction, an inherent feature of early atherosclerosis, has been suggested as a surrogate marker of cardiovascular risk. Whether shift working is associated with peripheral endothelial dysfunction has not been investigated to date. A total of 48 male shift workers (SWs) and 47 male nonshift workers (NSWs) (mean age  $43 \pm 5$  years) were recruited from a glass manufactory. The SWs and NSWs were matched according to age, body mass index, smoking habits, family history of premature coronary artery disease, prevalence of hypercholesterolemia and hypertension, and work place. Their sport habits were also documented. Peripheral endothelial function was assessed using the EndoPAT technique to determine the peripheral arterial tone (PAT) index. According to the study design, no difference was found in the risk factor profiles between the SWs and NSWs. Despite a greater percentage of regular physical activity among the SWs (16.7 vs 4.3%,  $p = 0.05$ ), shift working was associated with a reduced PAT index compared to working only on the day shift (PAT index  $1.73 \pm 0.4$  vs  $1.94 \pm 0.5$ ,  $p = 0.03$ ). In the NSW group, the participants with regular physical training ( $n = 16$ ) had a greater PAT index than those without regular physical activity ( $n = 12$ ; PAT index  $2.28 \pm 0.45$  vs  $1.86 \pm 0.51$ ,  $p = 0.03$ ). No such difference was found in the SWs. In conclusion, SWs had a reduced PAT index compared with NSWs, suggesting endothelial dysfunction. Therefore, the known increased cardiovascular risk in those shift working might be related to endothelial dysfunction.

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