



Effect of shift work on stress and eating behaviour (the NeuroFAST study)

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The workplace could be the origin of various health inequalities since working conditions have been found to be associated with employees' health behaviour and health. Shift work in particular has been linked with adverse health and unhealthy behaviours including obesity,⁽¹⁾ cardiovascular disease,^(2,3) increased snacking,⁽¹⁾ fatigue, sleep and digestive problems, depression, anxiety, disruptions in circadian rhythm and perceived stress.⁽⁴⁾ One in five workers in Europe are employed on shift work involving night work and over one in 20 work extended hours.⁽⁵⁾ The present workplace study is part of the NeuroFAST project, which examines the link between stress and eating behaviour in shift workers. We recruited emergency responders (fire service & ambulance) and prison staff, all working variable shifts (n = 117); 93 male and 24 female shift workers with a mean age of 38.7 (0.72) years and mean BMI of 26.8 (0.32) kg/m². We analysed data from this cohort using subjects as their own control, to examine variables as 'on shift' v's 'off shift'. Perceived stress levels were measured using hourly visual analogue scales, which are a subjective means of assessment to record temporal changes throughout the day, over 7-day period. The shift workers reported significantly elevated stress when on shift compared to off shift (15.7 and 19.6 mm, p < 0.001). Energy intake (EI) was measured by 7-d weighed intake food diary record and energy expenditure was assessed objectively using an accelerometer. The shift workers report eating significantly less calories at a meal eating episode when on shift, in comparison to off shift days (462 and 412 kcal, p < 0.001). This is reflected in the significantly higher protein (g), fat (g), carbohydrate (g) and alcohol (g) intake when off shift (p < 0.001). Not surprisingly, these subjects were in physically demanding jobs, and thus, physical activity and number of steps were significantly higher when on shift, in comparison when off shift (p < 0.001). As we often eat two or more meals a day at work, these data support the ethos that shift workers require access to healthy food to support adequate nutrition and hydration during working hours. Some shift work professions do not have protected break time, which can lead to unhealthy eating styles of snacking or grazing on smaller meals. Although these shift workers consumed less and expended more calories on shift, they will have compensated calories when off shift, as they did not lose weight over the diary week reporting. The workforce of Britain is becoming obese with 65% of our firefighters are overweight, 30% of office workers and 47% of offshore shift workers overweight and there is need for evidence based advice for workplace health initiatives.⁽⁶⁾

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