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**Nutrition and Shift Work**

The Effect of Work Hours on Dietary Intake, Meal Patterns and Nutritional Status Parameters

Akademisk avhandling som för avläggande av doktorsexamen i medicinsk vetenskap vid Uppsala universitet, kommer att offentligen försvaras i Skoogsalen, ingång 78-79, Akademiska sjukhuset, fredagen den 14 maj 1993, kl. 13.15.

**Abstract**

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One food consumption survey (n=16 three-shift workers) and one nutrition survey (N=96; 37 day-workers + 34 two-shift workers + 25 three-shift workers) were undertaken to assess *diet* (meal patterns, energy, nutrients, coffee/tea, alcohol), *nutritional status* parameters (Body Mass Index=BMI, serum cholesterol, serum triglycerides, blood glucose) and *psychosomatic factors* (gastrointestinal problems, mental fatigue, sleep problems, diurnal type) in male workers. Data collection involved repeated 24- and 48-hour dietary recalls (80+611 24-hour days), questionnaires, anthropometric measures and blood-sampling. A new qualitative method for meal classification was developed and tested.

There were no major differences between *groups* with regard to average dietary intake or quality (E%, nutrient density) of diet, nor in coffee/tea consumption, BMI or blood variables. Nor was there any major differences between *shift days* (within two-shift and three-shift workers respectively). *Days off*, however, showed increased intake of alcohol (all groups), reduced intake of carbohydrates and coffee/tea (day- and three-shift workers) and reduced intake of sucrose (day-workers). The intake during the eight hours of *night shift* was considerably reduced when compared to morning- and afternoon work shifts.

The frequency of *meals* and *snacks* and their nutrient content did not differ between days in three-shift workers (not analysed in the other groups).

Correlation analyses between dietary intakes *and* BMI and blood variables in three-shift workers showed that a redistribution of eating from day to night was associated with increased levels of serum total cholesterol and LDL-cholesterol.

It was concluded that two- and three shift work has a negligible impact on total dietary intake, dietary quality or coffee/tea consumption, but causes a redistribution of food intake to the night in three-shift workers. This redistribution may be related to serum total and LDL-cholesterol.

**Key words:** Nutrition survey, shift work, meal patterns, blood lipids, BMI, coffee.

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