

## **Work strain, work ability and health WHEN CHANGING FROM AN OLD TO A NEW SLAUGHTERHOUSE**

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*The aim of present study was to evaluate the effects of a change into a new chicken slaughter on the perceived work strain and capacities of the workers. In the old factory and in the new factory workers answered a questionnaire about work strain and health. The results suggested that moving into the new factory caused in general no changes in strain among the workers, although the perceived capacity and health decreased. There were more changes among the older than among the younger workers in both perceived work strain and capacities. The results could partly be explained by increased productivity, difficulties in the production technique, changes in the management and that some of the planned actions could not be realised.*

### **1. Introduction**

An old chicken slaughterhouse was modernized by building a completely new factory in the beginning of 1998. The factory building and technique was supposed to be one of the most modern chicken slaughters in Europe according to facilities, production techniques and ergonomics. The productivity in the old factory was about 23000 chickens daily and in the new factory more than 30000. The number of workers were in both factories the same, just behind one hundred. The work in a chicken slaughter is physically heavy and partly repetitive monotonous work. The workers suffer from a high frequency of repetitive strain injuries in the upper extremities. The new factory was planned and build to increase the efficiency and productivity but also to lower work strain by using ergonomics in the design. The aim of present study was to analyze what effects the change into the new chicken slaughter had on the perceived work strain, work ability and health with special emphasis on the age of the workers.

### **2. Material and methods**

In all 85 workers in the old (1997) and 97 workers in the new slaughterhouse (1999), of which 2/3 were women, answered a questionnaire. Fifty persons were the same in both years. The mean age of the workers was 32 (18-55) years in 1997 and 33 (19-57) years 1999. The questionnaire included questions about perceived work stress, physical capacity and health on a scale from 0 (not at all) to 10 (very much) and perceived physical exertion on a scale from 6 (very, very little) to 20 (very, very high). For the estimation of the work ability the "Work ability index"-method was used. In the analysis of the data, 95 % confidence intervals were used for interpreting of statistical differences between the means.

### **3. Results**

The perceived mental and physical strain remained almost the same from the old to the new factory (3.6 to 3.8 and 14.1 to 13.9, respectively) (Table 1). The perception of physical capacity

and health had decreased statistically significant from the old factory to the new. The work ability index decreased from 41.7 to 39.8 in average.

Table 1. Perceived mental and physical strain, physical capacity, health and work ability among workers in the old (n=85) and new slaughterhouse (n=97).

Variable		Old	New
Mental strain	Mean	3.6	3.8
	95% ci	3.1-4.2	3.3-4.3
Physical strain	Mean	14.1	13.9
	95% ci	13.7-14.6	13.3-14.6
Perceived health	Mean	8.7	7.9
	95% ci	8.4-9.0	7.6-8.3
Perceived physical capacity	Mean	8.5	7.6
	95% ci	8.2-8.8	7.2-8.0
Work ability index	Mean	41.7	39.8
	95% ci	40.6-42.7	38.6-41.0

There were in average more changes among the workers above 40 years of age than those under. Especially noteworthy was the increase in perceived mental strain from 3.1 (1.8-4.5) to 5.2 (3.8-6.6) (Figure 1), the decrease in perceived health from 8.7 (8.0-9.4) to 7.1 (6.1-8.1) (Figure 2), and the decrease in work ability from 40.9 (37.7-44.0) to 37.1 (33.2-41.0) (Figure 3) among those between 40 and 49 years of age.

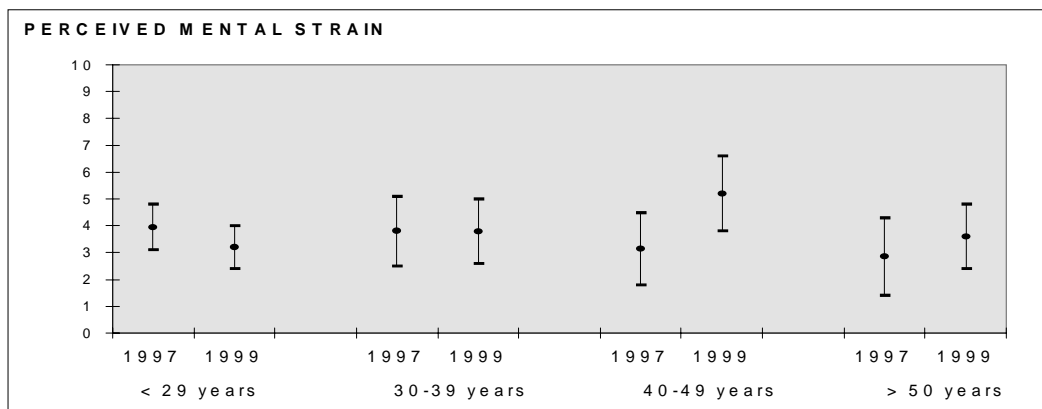


Figure 1. Perceived mental strain of workers according to age in the old (1997) and the new (1999) factory, means and 95% confidence intervals.

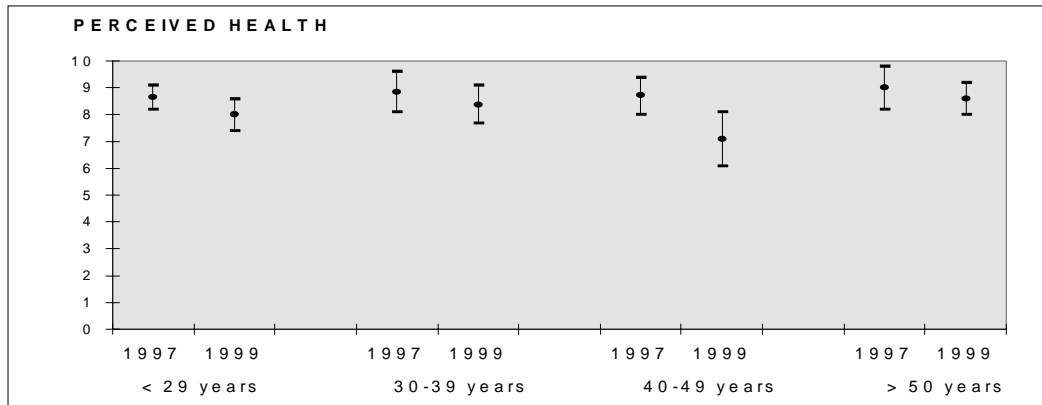


Figure 2. Perceived health of workers according to age in the old (1997) and the new (1999) factory, means and 95% confidence intervals.

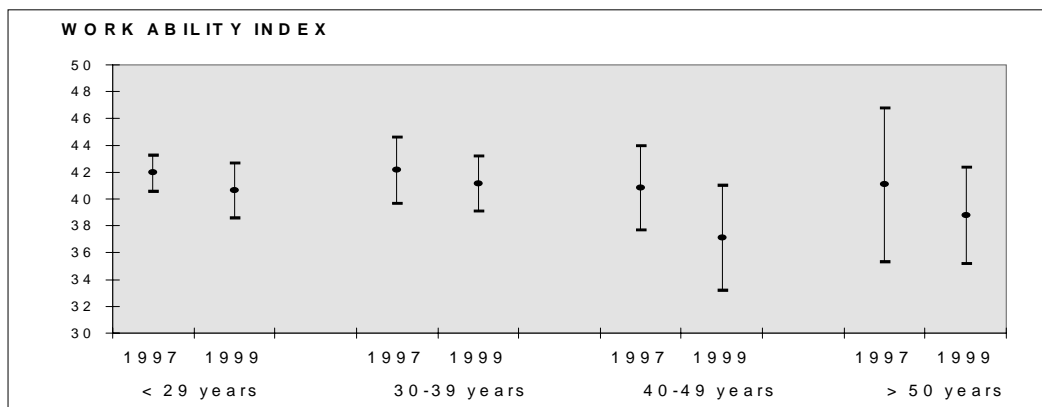


Figure 3. Work ability of workers according to age in the old (1997) and the new (1999) factory, means and 95% confidence intervals.

#### 4. Discussion

The moving into the new factory caused no changes in work strain among the workers in general. The perceived capacity and health had, however, in general decreased. Also a trend towards a decrease in work ability was seen. In general there were more changes among the workers above 40 years of age than younger. These preliminary results suggest that the perceived work strain and capacity had not changed positively when moving from the old to the new factory. This may partly be explained by increased productivity, difficulties in the production technique, changes in the management and that some of the planned actions could not be realized. Especially the older workers seem to have had more difficulties in moving from the old factory to the new. The results are partly unexpected because in the planning and designing of the new factory, a participative approach was used, where the workers were involved much more than earlier in this enterprise. Training was also offered before the work in the new factory started. The workers expectations of their work in the new factory were because of that very high and because some parts of the plans were not realized it may have produced disappointment, which may be reflected in their answers in the questionnaires.

