

Ergonomic postures assessment of workers during milking of she asses

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Abstract

The aim of this study is to examine the work position of the workers during the milking of she-asses due at risks deriving from repetitive upper limb movements. The assessment concerns the whole daily exposure to risk, taking into account the other activities carried out by the worker, that are strictly connected with milking. The analysis carried out in this paper will be useful to the farm in perspective of a plan based on increasing of head in number.

We selected three typical farms situated in Eastern Sicily (Italy). The first was on the slope of Mt. Etna at 550 m a.s.l. It has around 80 heads, 40 adult female (18 – 20 in lactation), the second farm has around 12 female in lactation and is equipped with a bucket milking machine, while the third farm has 8-10 female in lactation and the milking is performed manually.

We assessed the musculoskeletal risk to the upper limbs by means of the OCRA Checklist (Colombini et al., 2005). The tasks processes were broken down into fundamental phases (CIOSTA – AIGR methodology). The examination of video films shot during the work period made it possible to deduce or confirm information about frequency, posture and the stereotypical nature of the work.

The research shows that in she-asses farming workers are exposed to musculoskeletal risks due to repetitive movements and incorrect postures. Those equipped with a milking parlour with pit parlour show the same problems observed in cow farming, but the small number of head per farm makes small the connected health problems.

Keywords: WMSDs, operator safety, milking parlour, pit parlour

Objectives

The demand for she-asses milk is increasing because of its recognised anti-allergic qualities (Chiarelli and Di Michele, 2007; D’Amico et al., 2007; Nazzaro et al., 2007). But it is not easy to obtain a commercial quantity of she ass milk, because the female in lactation can’t be more than 1 to 4 heads with a very limited production of about 1200-1500l/day. As concerns the milking parlour, the level of mechanization in most of farms is rather limited. In this working conditions, the milker expose oneself to musculoskeletal disorders, as already demonstrated by other research on cows and other animals (Gustafsson and Lundqvist, 1987; Gustafsson and Lundqvist, 2003; Kolstrup C., 2008; Lundqvist et al., 1997; Lundqvist, 2010). The aim of this study is to examine the work position of the workers during the milking of she-asses due at risks deriving from repetitive upper limb movements. The assessment concerns the whole daily exposure to risk, taking into account the other activities carried out by the worker, that are strictly connected with milking. The analysis carried out in this paper will be useful to the farm in perspective of a plan based on increasing of head in number.

Methods

We selected three typical farms situated in Sicily (Italy). The first has around 80 heads, 40 adult female (18 – 20 in lactation) and has a milking parlour with milking pit (*Figure 1*), the second farm has around 12 female in lactation and is equipped with a bucket milking machine (*Figure 2*), while the third farm has 8-10 female in lactation and the milking is performed manually (*Figure 3*).

We assessed the musculoskeletal risk to the upper limbs by means of the OCRA Checklist using the software “midaOCRAMulticompti” (Colombini *et al.*, 2005; Occhipinti E., Colombini D., 2007). The studied heads were in good health and far off from the calving. The tasks processes were broken down into fundamental phases (CIOSTA – AIGR methodology). The tasks processes were broken down into fundamental work phases (CIOSTA – AIGR methodology). The examination of video films shot during the work period made it possible to deduce or confirm information about frequency, posture and the stereotypical nature of the work.

Results

The research shows that in she-asses farming workers are exposed to musculoskeletal risks due to repetitive movements and incorrect postures. Those equipped with a milking parlour with pit parlour show the same problems observed in cow farming, but the small number of head per farm makes small the connected health problems.

As concerns Farm 1, the final daily Checklist score, weighted for the net duration of the repetitive tasks is 7.60, a low but existing risks.

As regards Farm 2, the milker assuming bad postures but thank to the short milking time the final score is low, as long as the herd is less than 12 - 14 heads.

As concerns Farm 3, due to highly incorrect postures (*Figure 4*) and other factors (repetitiveness and frequency above all), the final score is a red one: 16.25 (left arm) and 18.50 (right arm).

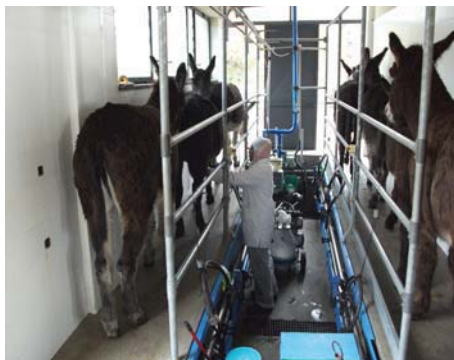


Figure 1. Milking parlour of farm 1



Figure 2. Milking in farm 2



Figure 3. Milking in farm 3



Figure 4. Uncorrected posture in farm 3

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