

Research on Ergonomics in Animal Production in Sweden

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Abstract

Ergonomics in animal production involves not only the working environment legislation, but also the human welfare legislation. As an example: in the car manufacturing industry you can handle a car in an optimal way to create ergonomical good solutions for the worker. This is not possible when you are working with animals. Swedish research on ergonomics in animal production are trying in collaboration with farmers and the industry to develop and evaluate ergonomical solutions which benefits production as well as animal and human welfare. Active research involves milk production, pig production, poultry production, as well as work with horses and the involvement of children in agriculture.

Keywords: ergonomics, animal production, milking, horses, pigs, children, Sweden

Introduction

Research on ergonomics in agriculture is active in Sweden, with a focus on ergonomics and animal production. A recent PhD dissertation presented studies on the employee perspectives on ergonomics in milk- and pig- production (Kolstrup, 2008, Kolstrup et al 2006, 2008). Among her findings it was concluded that the livestock workers assessed their psychosocial work environment and mental health as good, although the quality of leadership, feedback and social support was experienced as being slightly poorer on dairy farms compared to pig farms. No psychosocial risk factors were identified for musculoskeletal disorders (MSD). Dairy farm workers working with healthy cows had poorer physical and mental health than those working with less healthy dairy cows. The livestock workers were contented with their psychosocial work environment; however, they reported high frequencies of MSD. The prevalence of MSD seemed to be associated with the physical rather than the psychosocial work environment.

The above mentioned thesis and a number of studies are performed by a research group at the Agricultural University in Alnarp (in the very south of Sweden) with a focus on ergonomics, injury prevention and leadership in agriculture, with a special focus on animal production.

Milk production

Several studies over the years have involved epidemiological, clinical and ergonomic studies in different types of milking parlours, technical and housing solutions

(Lundqvist 1988, Lundqvist et al 1997, 2003, Pinzke 2003, Pinzke et al 2003, Stål et al 1997, 2003, 2004). A number of the studies have been adopted by the industry which means better products for the end users.

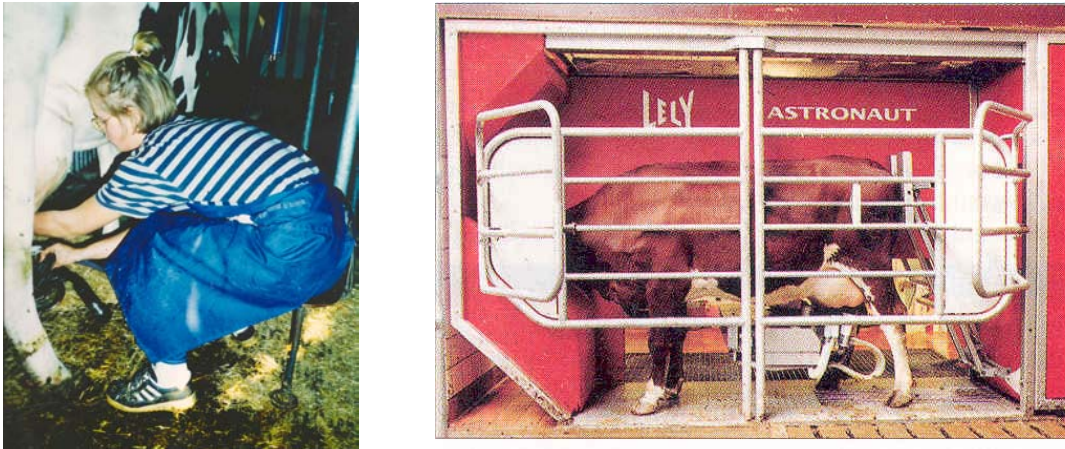


Figure 1. Ergonomics in milking is an essential part of the working conditions. All milking solutions have their positive and negative factors – still there is no perfect solution.

Working with horses

There are also a number of ongoing studies in Sweden involving ergonomics during work with horses, one is focusing on riding instructors (Löfqvist et al , 2009), and another one on hand held tools for manual work operations.



Figure 2. Working with horses involves a number of ergonomic challenges.

Pig and poultry production

Ergonomic studies on work with pigs has been quite rare until recent year, but now a number of studies has shown the frequency of musculoskeletal disorders together with in-depth studies of different manual work operations (Gustafsson & Lundqvist 2003, Stål & Englund 2005, Kolstrup 2008).

The changes of the animal welfare legislation which banned small cages for poultry production led to a number of scientific studies of ergonomics and injuries in alternative housing systems (Lundqvist, 1995, 1997).



Figure 3. Working with pigs still involves a lot of manual lifting and handling

Guidelines for farm children on animal farms

Another Swedish initiative have been the development of guidelines for children and adolescents on farms (Alwall Svennefelt, & Lundqvist, 2006) giving the family directions on what work operations could be suitable for children to be involved in and what considerations needs to be taken, such as age, strength, body postures and other issues of importance.

Work Material **Safe horse care and handling** **Stable clothing** **> 13 år**

Main Hazards

Photo
Hälsstämman visar kan orsaka fallolyckor och andra skador.

Photo
Bulag jacka som fastnar i en krok eller grind.

Photo
Bild som illustrerar ett barn som leder en häst och håller i en gränskåll utan läderhandskar - hästen drar till och barnet är farligt skadat i handen.

Photo
Ett barn utan redöförmål - illustrerar en häst som speglar till sin då ett barn gör bakom hästen i spålan.

To think about

- ☐ Det midskålliga barnet skall vara rätt klädd vid sin omgivning!
- ☐ Hjälmen och skyddsväret är en giltig kläddet när barnet vistas bland hästar - vare sig de isär eller pysslar om hästen!
- ☐ Barnet bör använda lämpliga kläder för att minska risken för att falla och/eller skadade hästen.
- ☐ Barnet använder en halvkört sko/stövel för att undvika fallolycka.
- ☐ Långt hår skall vara uppsatt! Häst kan fälla i ansiktet - medan barnet tar bort hästen från sin ansikte kan olyckan vara framme!
- ☐ Flocka bort smycken som broschering, ring i näsan etc. - hästen kan välla till med rymmen och falla i smycket.
- ☐ Lång skjorta och byxor är nödvändiga i byxor/öfvan! Bulag jacka kan fastna i kro, bestyrren till hästen skall lösas ut ur stället.
- ☐ Barnet inte får behålla vid arbete med hästar - denna kan falla och dra åt om hästen häls. Barnet kan kvävas!
- ☐ Hjänskador kan orsakas vid hantering av nyfödsgränskåll - använd läderhandskar!

Adults Responsibility

- ☐ Viktigt är att komma ihåg att det är barnet är sig mest av oss, både när det gäller utbildning och uppträdande. Barnen får lära sig om sina förebilder' skall vi vara bra förebilder är det viktigt att alltid uppträda korrekt. Den vuxne skall aldrig göra något undantag, eftersom barn inte förstår varför det är ett undantag. Agrens konsekvens!
- ☐ Be att den midskålliga visar att han eller hon har förtärd anvisningarna. Om Du som vuxne känner dig osäker ta råd från någon mer erfaren hästskötare.
- ☐ Det är viktigt att den vuxne i handling med den midskålliga visar och gör! Repetera kontinuerligt tillsammans.
- ☐ Ser barnet att den vuxne vistas i stallet med löstnande och befäga kläder - kommer barnet med stor sannolikhet komma att göra det när hon eller han är ensam. Barn under 13 år gör bara som den vuxne och förklarar inte riskerna med det.
- ☐ Ser barnet att den vuxne vistas bland hästar utan hjälmer - kommer de med stor sannolikhet att göra det när de är ensamma i stallet.

Remember

- Hjälmen och skyddsväret
- minst en skor med trampskydd
- Lämpliga kläder för skydd
- Uppsett hår

How much Supervision is needed?
Some advice - but always remember that it depends on the individual child

Ålder 13 - 15 år KONTROLLERA då och då. En vuxen skall finnas till hands ifall barnet behöver hjälp. När barnet visar att det kan hantera situationen själv och har förtärd och uppvisat kunskap kring de anvisningar som den vuxne anggett - lämna kortare stunder.

Ålder 16 år - 16 år+ KONTROLLERA då och då. När barnet visar att det kan hantera situationen själv och har förtärd och uppvisat kunskap kring de anvisningar som den vuxne anggett - lämna kortare stunder.

Figure 4. Guidelines have been developed for farm families in order to find the right work operations for their children with a special focus on ergonomics and safety on animal farms

Discussion and conclusions

Ergonomics is a key issue for the future of animal production. Improving ergonomical working conditions often also leads to a reduction of injuries. Working conditions on farms which includes safety, a good leadership and well designed ergonomical solutions makes the farm an attractive work place which makes it easier to find and keep skilled employees.

The interest for ergonomics in agriculture goes international and the International Association of Ergonomics (IEA) has an agricultural section (<http://www.iea.cc/>). Also the European Union supports more and more efforts in order to improve ergonomics in agriculture. A joint project in this field has just been reported "Musculoskeletal problems in Agriculture" and has a home page with useful information (<http://www.agri-ergonomics.eu/>). Further collaboration and wider networks are needed on the road to good ergonomics in agriculture – on all farms!

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