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Study: Childbirth Delivery Support System Is a True Innovation in Ergonomics

The Relaxbirth® delivery support system has been designed to provide midwives with an adjustable work station and to enable mothers to relax their bodies and naturally find the most effective pushing position.

In the study by the Finnish Institute of Occupational Health, the delivery support system, which has electronic height adjustment, made the midwife's work lighter and enabled her to maintain a straight back during almost the entire (79%) second stage of labour. In traditional deliveries, the midwife worked with a straight back for 18% of the corresponding period.

The use of the delivery support system enables mothers to choose different delivery positions according to their needs, to relax their bodies during the first stage and to gather their strength for the second stage.

Midwives reported better access and visibility when the delivery support system was used. In traditional deliveries, midwives' self-perceived strain in the neck and shoulder area, back, arms and legs was over twice as high as in deliveries where the delivery support system was used. With the delivery support system, midwives can adjust the height to their own needs and work either in a standing position or sitting with a straight back.

The best delivery positions reported by mothers were a sitting position on delivery support and side-lying on the bed using the delivery support. These positions were also the least strenuous for the midwife. The delivery position where the mother sits on a traditional low stool caused the most strain to the midwife. In this position, the midwife has to work close to the floor, forcing her back and legs into awkward positions. The worst delivery position reported by mothers was the common half-sitting position on the bed. This position also forces the midwife to rotate her back.

The study was carried out in two stages at the Kätilöopisto Maternity Hospital in Helsinki and the Kanta-Häme Central Hospital in Hämeenlinna. The delivery support system was tested by 48 volunteer mothers, midwives and doctors. In the first stage of the study, the prototype was tested in situations mimicking real-life deliveries. The users were expecting mothers in the last month of their pregnancy and midwives and doctors mimicking a real-life delivery situation.

A number of improvements were then made in the support system based on these tests. In the second stage of the project, the improved support system was tested in ten actual childbirths. In addition, reference data was collected from traditional deliveries managed by the same midwives. The research data included video recordings of the deliveries, user interviews and a range of questionnaires.

The Relaxbirth® delivery support system was developed on the basis of user-based experiences. Ergonomics data were integrated in the product development process with the help of the research unit of the Finnish Institute of Occupational Health. The views and experiences of the users – mothers, midwives and doctors – were taken into account in product development. As a result, the commercial product will be as compatible as possible with the requirements of the delivery process and the users. The study was funded by the Finnish Work Environment Fund.

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