IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

0378

Focus on IFA's work

Edition 6/2016 617.0-IFA:638.81

ErgoKiTa: Prevention of musculoskeletal stresses in nursery schools

Problem

The tasks of childcare professionals involve elevated physical and mental stresses. These include low working heights geared only to the body dimensions of small children; the lifting and carrying of children; and the performance of several tasks simultaneously (multitasking). Possible consequences include elevated musculoskeletal complaints, and unfitness for work as a result.

The ErgoKita intervention study therefore had the purpose of recording precisely the musculoskeletal stresses associated with particular tasks during day-to-day work in children's day-care facilities, and of developing and evaluating strategies for solutions by which the occupational and health situation of the childcare personnel in these facilities could be improved.

The project was launched by the German Social Accident Insurance Institutions for the public sector in Rhineland-Palatinate, North Rhine-Westphalia and Hesse and the German Social Accident Insurance Institution for the health and welfare services (BGW). The scientific studies were headed by the IFA, the Institute of Ergonomics of Darmstadt University of Technology and the Institute of Occupational, Social and Environmental Medicine of the Goethe University in Frankfurt.

Activities

In the ErgoKita project, 265 children's day-care facilities in North Rhine-Westphalia, Rhineland-Palatinate and Hesse were first consulted regarding current underlying conditions, advanced and further training of the personnel, and the facilities' equipment. 24 representative day-care facilities (seven each in North Rhine-Westphalia and Hesse, ten in Rhineland-Palatinate) were selected and studied more closely by way of detailed site inspections and surveys of physical and mental stresses. The analyses of the status quo were extended by comprehensive measurements of the physical stresses and by computer-aided task

Childcare professional fitted with the CUELA measurement system during use of a newly developed dressing aid. Source: German Social Accident Insurance Institution for the public sector in Rhineland-Palatinate

analyses conducted over 36 working shifts in nine day-care facilities.

Based upon these findings, a range of preventive measures were identified and evaluated in conjunction with the childcare professionals for the task areas of playing, eating, sleeping and bodily care.

Results and Application

The measurements revealed specific stress hotspots during work with the trunk bent at low working heights. Load manipulation was influenced by the proportion of work involving care for under-threes and the use of unsuitable equipment for transport. The relatively high proportions of kneeling postures and constrained seated postures with the knees at an unfavourable angle were conspicuous. The high proportion of multitasking situations was also confirmed.

Ergonomic restructuring of the workplaces in the day-care facilities forming the subject of the intervention yielded measurable improvements in the musculoskeletal stress situation. The use of ergonomic furniture considerably reduced the proportions of the working shift in which the childcare professionals work in postures placing stress upon the knee. The use of special chairs for childcare professionals emphatically improved the seated postures, for example during eating tasks.

The physical stress peaks recorded by measurement systems were presented illustratively to the childcare personnel in a dedicated ergonomics workshop. Alternative ergonomic procedures were then developed together for everyday activities in the children's day-care facilities. The efficacy of these optimized procedures was in turn quantifiable by the instruments. Work in postures with the trunk strongly bent, for example, was reduced significantly.

In order for stresses to be reduced sustainably, health-conscious behaviour on the part of the trained childcare personnel was particularly important. The results of the ErgoKita project are currently being implemented in practice in children's day-care facilities. An example is the construction of an ergonomic model children's day-care facility with the support of the German Social Accident Insurance Institution for the public sector in Rhineland-Palatinate and the IFA. A longer-term objective is for the findings of the ErgoKita project to be used for tuition modules for the training of childcare professionals and as materials for the teaching of behavioural ergonomics.

Area of Application

Children's day-care facilities, childcare professionals

Additional Information

- Sinn-Behrendt, A.; Sica, L; Bopp, V.; Bruder, R.; Brehmen, M.; Groneberg, D.; Burford, E.M.; Schreiber, P.; Weber, B.; Ellegast, R.: Projekt ErgoKiTa – Prävention von Muskel-Skelett-Belastungen bei Erzieherinnen und Erziehern in Kindertageseinrichtungen (IFA Report 2/2015). Published by: German Social Accident Insurance, Berlin 2015

- Ellegast, R.; Groneberg, D.; Bruder, R.: Die Studie ErgoKita. DGUV Forum (2016) No 5, pp. 30-34

Expert Assistance

IFA, Institute management

Literature Requests

IFA, Central Division

Published and printed by:
Deutsche Gesetzliche Unfallversicherung e. V.
(DGUV), Glinkastrasse 40, 10117 Berlin

ISSN (online): 2190-006X
ISSN (print): 2190-0051

Edited by: Professor Dr Rolf Ellegast
Institut fuer Arbeitsschutz der Deutschen
Gesetzlichen Unfallversicherung (IFA)
Alte Heerstrasse 111, 53757 Sankt Augustin, Germany
Phone: +49 2241 231-02/Fax: -2234
E-mail: ifa@dguv.de, Internet: www.dguv.de/ifa