

ERGOMAT® - FOR A BETTER WORK ENVIRONMENT

“Of the pleasures that life offers,
the pleasure of work is the most enduring”

(Henry Heerup)

CONTENTS

New findings from research
into standing work positions **PAGE 3**

ERGOMAT® improves both
the work environment and
productivity **PAGES 4-5**

The benefits for employees,
the company and society **PAGES 6-7**

Increasing international
recognition of the importance
of the work environment **PAGES 8-9**

Work place mats which work **PAGE 10**

ERGOMAT® – work place mats **PAGE 12**

NEW FINDINGS FROM RESEARCH INTO STANDING WORK POSITIONS

Working while standing up can be an ergonomic problem, causing physical strain if the work is of long duration. Inappropriate working conditions can, in this way, lead to discomfort, tiredness or pain – with a risk of both acute and chronic health problems.

At the Center for Sensory-Motor Interaction at Aalborg University, leading international research has been conducted for many years into the relationship between pain and discomfort in the body's locomotive apparatus and the motor function.

In 1996, the Center conducted a scientific study to establish whether significant differences could be measured, among workers whose jobs require them to stand for long periods, between those who stand on hard flooring and those who stand on an ERGOMAT® – a soft surface.

THE RESULTS OF THE STUDY SHOW:

- that the discomfort which comes from standing on a hard surface *gives rise to increased muscular activity* and consequently causes a slight increase in the strain placed on the muscles in the lower legs.
- that increased sensitivity can be recorded in the muscles of the lower leg in those who stand on a hard surface. This is a consequence of an *increased mechanical strain on the soles of the feet and the ankles*.
- that workers who stand still for long periods experience *significantly less discomfort* as a result of standing on an ERGOMAT® – than they do from standing on hard flooring.
- that extended periods of working while standing on an ERGOMAT® are associated with a *high degree of comfort* as well as a reduction in involuntary movements *with no risk of the legs swelling*.



ERGOMAT® – FOR A BETTER WORK ENVIRONMENT

ERGOMAT® IMPROVES BOTH THE WORK ENVIRO

Discomfort, stress or Repetitive Strain Injury can now be countered – the effects have been documented.

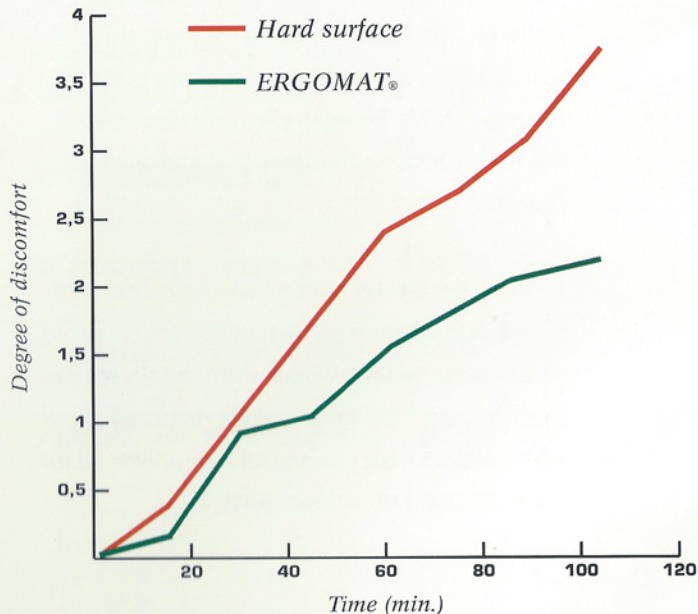
Using a soft, flexible floor-covering – such as ERGOMAT® – has a positive effect on both the work environment and productivity.

THE CENTER FOR SENSORY-MOTOR INTERACTION

In the Laboratory for Experimental Pain Research, at the Aalborg University Center for Sensory-Motor Interaction, work is carried out into methods of measuring muscle and joint pain in humans. The center conducts studies into pain, studies which include both patients who are in real pain as a result of illness or injury and people subjected to different levels of standardised pain.

THE SCIENTIFIC STUDY

At the Laboratory, a study was conducted involving 10 subjects standing on a hard surface and 11 subjects standing on an ERGOMAT®.



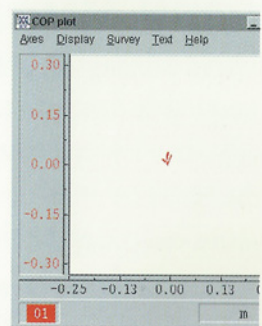
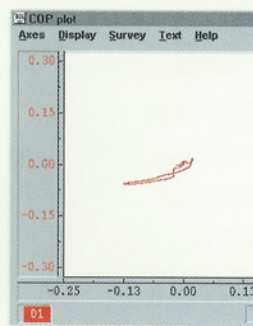
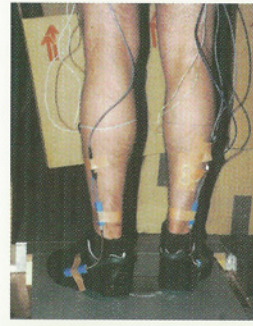
The subjects' subjective assessment of discomfort was recorded throughout the study. The results of this part of the study are presented in the above graph. The increasing difference over time between the levels of discomfort felt by those standing on a hard surface and those standing on an ERGOMAT® is obvious and very significant.

COMFORT AND PRODUCTIVITY

The entire study included the physiological and bio-mechanical effects of the long-lasting, low-level strain on the human muscle and joint systems.

In realistic working situations, the subjects were studied for 2-hour periods. Before, during and after the study the effects of working while standing were measured and recorded.

Using EMG (Electromyographic) external electrodes, goniometers, power platforms and thermography, electronic data concerning a number of physiological and bio-mechanical factors was recorded at intervals of 5 sec/min. These factors included changes in the diameter of the calf, surface temperature, EMG activity from the anterior soleus and tibialis muscles, ankle movements and changes in body-weight pressure against the floor surface.



The power platform records that the person on the left, standing on a hard surface, moves the body weight from side to side. The person on the right, standing on an ERGOMAT®, hardly moves his feet at all.

A reprint of the entire study – published by the Center for Sensory-Motor Interaction – in the European Journal of Applied Physiology and Occupational Physiology is available from ERGOMAT®A/S.



BENEFITS FOR EMPLOYEES, THE COMPANY AND

Man is designed to move. A muscle moves best when it retracts and extends alternately. When stationary in an upright position, the body-weight alone puts strain on 38 joints, and all major muscles in the back, lower back, legs, calves and feet become tense – the opposite of their state when walking or sitting.

TYPICAL STRAINS

When working standing for just one or two hours at a time, the body and its locomotive apparatus are often subjected to strains higher than those for which normal physiological adjustments can compensate, such as:

- aches, tension and stiffness of muscles and joints.
- impaired blood circulation, lower oxygen intake and reduced toxin removal.
- a significant increase in the temperature of and the volume of blood in the lower leg.

SHORT- AND LONG-TERM CONSEQUENCES OF STRAIN

When standing still on hard surfaces of the type often found in work places – such as painted concrete – the short-term consequences are a change in the pattern of movement, inappropriate movements, swelling of the veins, short or long-lasting muscular pain and loss of concentration. All these factors can result in employees having to take sick-leave and losing income as a consequence.

In the longer term, working standing up increases the risk of reduced or damaged muscle function, reduced elasticity of the spine, varicose veins, chronic diminution of blood circulation in the legs – and perhaps permanent inability to work.

SOCIETY

SOFT SURFACES MEAN LESS DISCOMFORT

The Center for Sensory-Motor Interaction has documented the beneficial effect of the ERGOMAT® on the employees' perception of their work environment when standing and working long periods. Employees experience feelings of well-being and notice a higher degree of comfort.

LESS STRAIN - FEWER PERMANENT CONSEQUENCES

Employees working standing for prolonged periods will, if working on a soft surface – such as an ERGOMAT® work place mat – be subjected to far less strain and significantly fewer risks of short- or long-term discomfort, pain or actual occupational injuries. The result is fewer days of illness and a lower risk of loss of income.

A REAL ECONOMIC ADVANTAGE FOR THE COMPANY AND SOCIETY

Employee absence due to injuries or illness resulting from damage to the locomotive apparatus is today the single largest cost to companies and society.

By using the latest research results from Denmark and other countries, problems such as loss of production, lower profits, and the rising cost of sick pay, treatment and hospital expenses can be significantly reduced or eliminated completely.

Providing employees with ERGOMAT® work place mats to stand on rapidly pays for itself.



INCREASING INTERNATIONAL RECOGNITION OF

Denmark is not the only country to recognise that prolonged stationary standing work can cause physical inconvenience and increase the risk to health. There is growing international awareness of the need to identify serious ergonomic problems, and to guarantee employees a good, safe work environment.

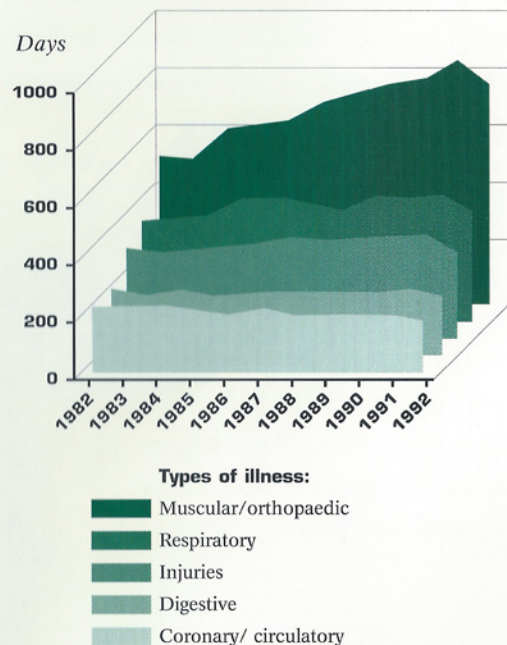
FRANCE

A French survey from 1993 involving 3,000 people clearly shows the correlation between working standing up and vein disorders. The survey concludes that venous disorders are more common in people who have to stand up to work than in people who sit, and that the risk of vein problems increases directly with the period spent working standing up.

Source: E. Pariselle, J. Ducord et al., *Etude épidémiologique des troubles veineux des membres inférieurs selon la posture de travail*, Archives de maladies professionnelles, (Epidemiological Study of Venous Disorders in the Lower Limbs depending on Working Position, Archives of Occupational Medicine) vol. 54, no. 1, 1993, pp. 60-61.

GERMANY

German occupational medicine research – published by the 'Bundesverband der Betriebskrankenkassen' (Federal Association of Health Insurance Companies) – has documented that, seen over a ten year period, musculo-skeletal damage is far and away the largest cause of sick leave and the incapacity to work.



Source: Bundesverband der Betriebskrankenkassen.

THE IMPORTANCE OF THE WORK ENVIRONMENT

CANADA

Northern Telecom Ltd., Belleville is one of the many ERGOMAT® customers who have purchased work place mats.

"Our employees in the Goods Inwards Department were complaining about sore legs and feet", says Bill Juby. "Today they have far fewer problems, even though they have to work standing still for long periods."

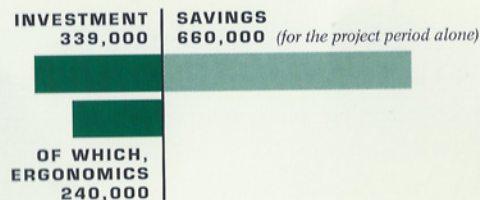
"ERGOMAT®'s work place mats are our best protection against physical, workrelated ailments," concludes Bill Juby.



Bill Juby, Northern Telecom Ltd., Belleville

NORWAY

Alcatel STK in Norway has implemented a number of initiatives to improve the work environment at the company, one of the aims being to reduce the risk of Repetitive Strain Injuries. The total amount invested in improving the work environment was NOK 339,000 of which NOK 240,000 was allocated to ergonomics. Total savings from reductions in sick leave alone during the project – due to musculo-skeletal diseases – amounted to NOK 660,000.



Source: The Report: Tjen penger på Helse, Miljø, Sikkerhet, eksempler fra 24 norske bedrifter. (Make money on Health, the Environment, and Safety, Examples from 24 Norwegian Companies) Published by NHO, Oslo, 1991



ERGOMAT® – FOR A BETTER WORK ENVIRONMENT

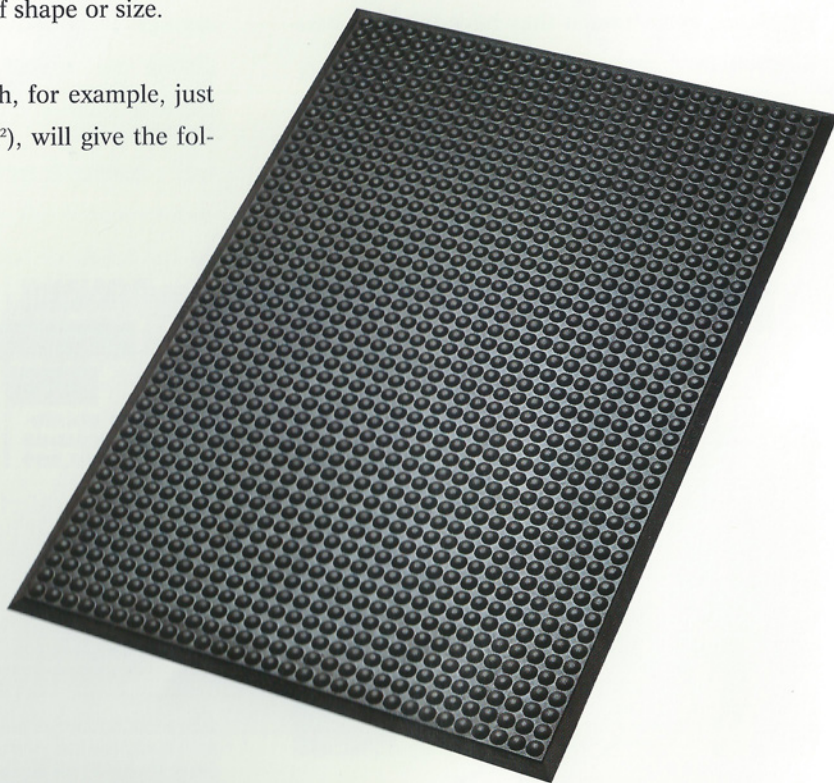
WORK PLACE MATS WHICH WORK

ERGOMAT® offers its customers a wide range of mats for the work place. Although these mats are developed and tailored to meet a variety of specific requirements, all of them have the same ergonomically beneficial qualities.

ERGOMAT® work place mats are available either in standard sizes, or joined together to meet specific requirements of shape or size.

Equipping a work place with, for example, just two ERGOMAT® Mats (1 m²), will give the following benefits:

- More contented employees
- Increased concentration and efficiency at work
- Less strain and thus a lower risk of occupational injuries
- Lower insurance expenses
- Increased productivity and profitability



"The future comes by itself;
progress does not."

(Poul Henningsen)

ERGOMAT® WORK PLACE MATS



Tinby A/S develops, produces and markets ergonomic work place mats for all sectors where people are obliged to work standing up for extended periods.

Tinby A/S is a company with modern management and a highly motivated work force.

Tinby A/S is based in the heart of Denmark and currently exports to more than 20 countries both inside and outside the EU.

The objective for both the company and its employees is always to be able to find the best possible solution for the customer through positive, motivated co-operation. The company gives the highest priority to quality, commitment, employee development and an excellent level of service.



TINBY A/S · SNAVEVEJ 6-10 · DK-5471 SØNDERSØ

TEL: +45 64 89 14 40 · FAX: +45 64 89 39 49

E-MAIL: TINBY@TINBY.DK