

## Musculoskeletal ergonomics in the construction industry



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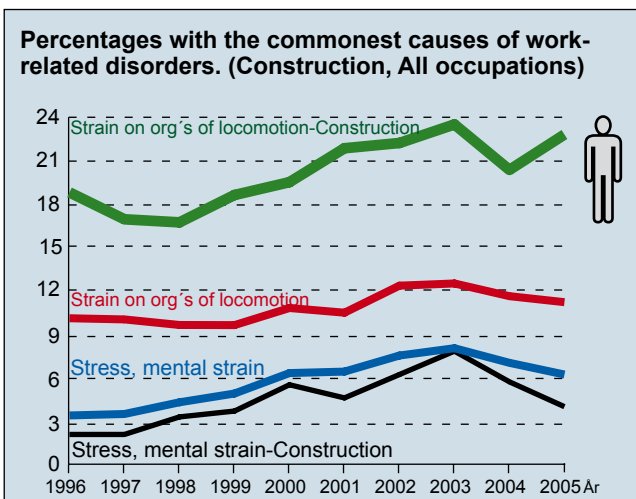
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Musculoskeletal ergonomics is concerned with the effects of work postures, working movements, physical loads and other conditions on the muscles and joints. More than 1.5 million workers find their daily work ergonomically strenuous. In the construction industry this experience is shared by over 130,000 men (male workers constitute 92% of a work force numbering just over 240,000). This is the commonest individual cause of reported work-related disorders and also of reported work injuries.

Prop. of employees, 1999/2003	Per cent		
	Men Cstr.	Men All	M+W All
<b>Work environment issues:</b>			
<i>Experience at work</i>			
- strenuous work postures	58	33	36
- strenuously heavy work	57	27	27
- strenuous, repetitive working movements	40	27	29
- work restricted and inflexible	7	15	18
<i>Obligated several times daily to</i>			
- lift at least 15 kg at a time	39	21	17
- bend and twist the body in the same way several times per hour	31	24	26
<i>Demands and influence</i>			
- unable to decide when different tasks are to be performed	34	37	43

Stress and other mental strains at work present the most dramatic development in recent years. But the commonest cause of work-related disorders has been on a higher level and relatively constant throughout the period, namely physical strain on the organs of locomotion (e.g. heavy manhandling, strenuous work postures and short, repetitive operations). In the construction industry more than one man in five – twice as many as for all men employed – reports musculoskeletal disorders of the organs of locomotion. This corresponds to 50,000 men.



### Musculoskeletal injuries reported – occupations affected

1,800 new musculoskeletal injuries were reported in the construction industry in 2004. Of these, 1,300 were due to prolonged strain on the body and were classed as musculoskeletal illnesses. Upwards of 500 are referable to abnormal physical exertion and are classed as musculoskeletal accidents. Altogether musculoskeletal injuries account for 39 per cent of all reported work-related illnesses and work accidents in the construction industry.

The following table shows occupational categories in the construction industry employing at least 1,000 persons annually and having the highest number of reported musculoskeletal injuries for 2002-2004 in relation to the number of persons employed. Total figures are for all employees in Sweden.

Musculoskeletal illnesses reported 2002-04 Construction trades with the highest relative frequency	W/M	Musc. illness /1000	No. cases 2002-2004
Concrete workers etc.	M	14	279
Roofing workers	M	11	60
Floor-layers	M	11	158
Bricklayers etc.	M	8	212
Civil engineering workers etc.	M	8	365
Miners & rock wkrs, quarry wkrs	M	7	62
Painters	M	7	380
Crane drivers etc.	M	7	70
Carpenters, joiners	M	6	1064
All occupational categories	W+M	3	40,000

Musculoskeletal accidents reported 2002-04 Construction trades with the highest relative frequency	W/M	Musc. acc. /1000	No. cases 2002-2004
Concrete workers etc.	M	6	127
Civil engineering workers etc.	M	5	224
Roofing workers	M	5	26
Building services fitters etc.	M	4	183
Carpenters, joiners	M	4	578
Crane drivers etc.	M	3	36
Electrical contracting workers	M	3	244
Insulation fitters	M	3	15
All occupational categories	W+M	2	24,000

The commonest contributory causes given for the occurrence of musculoskeletal disorders in 2004-05 are heavy lifting and moving of loads, work with the arms above shoulder height and work in a kneeling position. Floor surfaces and slippery conditions underfoot (snow, ice) are also given as contributory causes of accidents. The disorders are mainly located in the hip, knee, leg and foot, the back and the upper extremities.