

### 17 BAUA FACTSHEET

Knee pain occurs frequently in the working population and can lead to impairments both at work and in everyday life. Even today, working in unfavourable postures is still widespread in many occupations. The BIBB/BAuA 2012 Employment Survey shows that frequent work in unfavourable postures, such as kneeling, is associated with an increased risk of knee pain at work. This factsheet identifies occupation groups that are particularly affected and highlights preventive measures.

#### What do we know about knee pain?

In addition to backache, knee pain is a common feature of everyday life. Depending on the intensity of the knee pain and the degree of expression, it is associated with physical limitations and a reduction in quality of life. It takes on economic relevance if the pain prevents the sufferer from working. Knee pain is known to occur more often in older people, often points to overloading of the knee joint, and is a common precursor or sign of wear marks, e.g. arthrosis of the knee joint.

Knee pain can be attributed to a wide range of causes originating in everyday life and work. Heavy loads on the knee occur above all in overweight individuals and in so-called stop-and-go sports (e.g. football). In contrast to this, other types of sport (e.g. swimming) relieve the burden on the knees. Other risk factors include injuries to the knee joint as a result of accidents, for example. This factsheet focuses on the occupational activity that places the greatest burden on the knee: working while kneeling. The risk of knee pain is also increased by squatting, by lifting and carrying heavy loads, and by working in unfavourable climatic conditions, such as cold, wetness, moisture or draught.

#### How common is knee pain in the working population?

Of the BIBB/BAuA 2012 Employment Survey's 20,036 respondents in total, approx. 21% report knee pain during the last 12 months during work or on working days. Knee pain occurs in all age groups and increases with age from 15% among women aged 15 to 24 to 26% among those aged 55 to 64 (see Fig. 1). Men suffer from knee pain slightly more often, with the frequency increasing from 19% to 28%. Just over a quarter of employees aged between 55 and 64 suffer from knee pain in connection with their current job.

The frequency of knee pain also varies from one sector to the next. Compared to administrative employees, men working in the following sectors are twice as likely to report knee

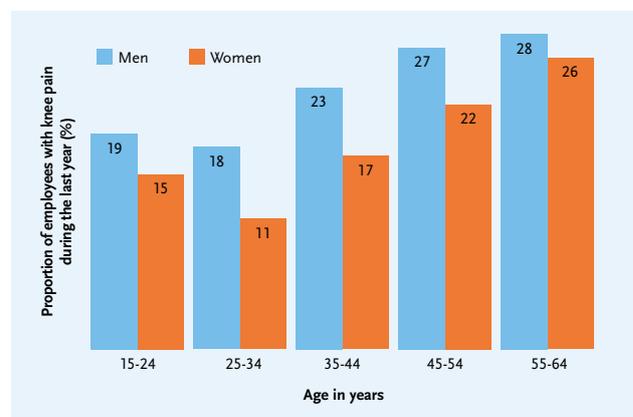


Fig. 1: Work-related knee pain in male and female employees, according to age (in %)

pain: raw material extraction, production and manufacturing, construction, architecture, surveying and building technology, transport, logistics, protection and security, and the military. Women are particularly affected if they work in agriculture, forestry and fisheries, horticulture, raw material extraction or production and manufacturing, or in the fields of transport, logistics, or protection and security.

#### How frequently do employees work in unfavourable postures?

The BIBB/BAuA 2012 Employment Survey asks about the frequency of unfavourable postures, i.e. working in a bent-over, squatting, kneeling or lying position or working overhead. For knee pain, the key occupational risk factors are working while kneeling or bending over. In general, approx. 18.5% of men and 14.5% of women report frequently working in unfavourable postures.

Figure 2 shows how often various occupation groups are required to adopt unfavourable postures. Worst affected by this are employees in agricultural, manual and service occupations. Semiprofessions (e.g. nurses) are also affected.

On the other hand, unfavourable postures are rare in administrative occupations and especially for managers and professionals (e.g. doctors).

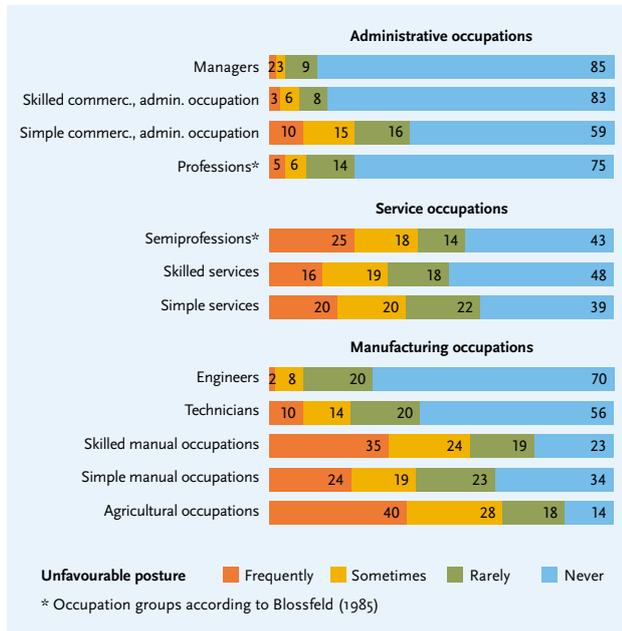


Fig. 2: Frequency of unfavourable postures at work for various occupation groups (in %)

**What are the effects of working in unfavourable postures?**

For both men and women, more-frequent reporting of unfavourable postures is accompanied by more-frequent knee pain (see Fig. 3). Knee pain affects just under 12% of employees that never work in unfavourable postures but is reported by 44% of men and over 36% of women who frequently work in unfavourable postures.

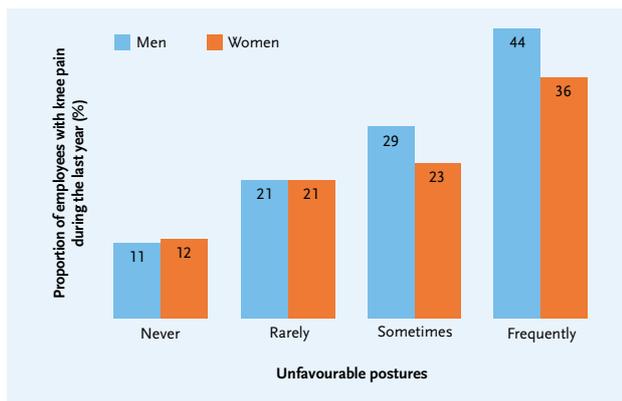


Fig. 3: Work-related knee pain in employees, broken down by frequency of unfavourable postures (in %)

The analysis also shows that those working in unfavourable postures are also frequently required to meet other physical demands at work. These especially include lifting and carrying heavy loads. This exposure to multiple forms of stress occurs in 10% of employees. People who frequently working in unfavourable postures have a 60% higher risk

of knee pain. Likewise, the frequent lifting and carrying of heavy loads also increases the risk of knee pain.

**What can be done?**

In the workplace, occupational safety measures can reduce the occurrence of knee pain. Activities that place a burden on the knees, such as those involving kneeling or squatting for longer than an hour a day or the regular lifting and carrying of heavy loads, should be avoided or at least reduced. Ergonomic and work-organisation measures make sense in such cases. Floor fitters, for example, need not kneel when applying adhesives but rather can use special equipment to apply the adhesive in a standing position. Employers are required to take unfavourable postures into account when analysing, evaluating and, if necessary, modifying workplaces (risk assessment pursuant to the Occupational Safety and Health Act). Employees must be informed of corresponding hazards and provided with corresponding training. For example, if they perform activities in a kneeling or squatting position for one hour a day or more, they are entitled to a consultation with their medical officer (optional preventive occupational health care pursuant to the Ordinance on Occupational Medical Prevention). Companies also offer individual preventive measures within the framework of workplace health promotion (company sports, nutritional advice, etc.). If the worker is reintegrated into the activity, knee disorders also fall within the scope of the employer’s statutory duty to provide support. Separately from measures taken in the workplace, employees can also take independent preventive action against knee pain. The most important thing is to avoid becoming overweight, which can be achieved by eating a balanced diet and by regularly practising sports that do not place a burden on the knees. Sport not only normalises body weight but also strengthens the muscles and improves coordination. This protects the knee joint from excess loads, for example in the event of accidents.

**Would you like to find out more?**

Occupational Health Rule (AMR) 13.2 (2014). “Tätigkeiten mit wesentlich erhöhten körperlichen Belastungen”. GMBI. ([www.baua.de/dok/5810368](http://www.baua.de/dok/5810368))

Latza, U. et al. (2013). “Körperliche Beanspruchung und physische Belastungen bei der Arbeit”. Forum Public Health. ([www.dx.doi.org/10.1016/j.phf.2013.03.011](http://www.dx.doi.org/10.1016/j.phf.2013.03.011))

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