fit for work europe

THE WORK FOUNDATION
PART OF LANCASTER UNIVERSITY

Fit For Work?

Musculoskeletal Disorders and the Estonian Labour Market

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Acknowledgements

We would like to thank all those who participated in the expert interviews for this project for their valuable time and advice, as well as our partners – the Estonian Society for Rheumatology, the Estonian Rheumatism Association and the Estonian Chamber of Disabled People – who reviewed and provided helpful comments on earlier drafts of the report. We would also like to thank our colleagues at The Work Foundation for their help in the preparation of this report, in particular, Ann Hyams and David Shoesmith. Additionally, we would like to acknowledge the content contributions of Robin McGee, Tatiana Quadrello, Michelle Mahdon and Eleanor Passmore.

This piece of work was supported by a grant from Abbott.

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1. Executive summary

The economic downturn has hit Estonia hard. The speed with which the unemployment rate was growing indicates the many individual, social and economic ramifications of the recession. However, some people are leaving the labour market simply because they are not healthy enough to perform their jobs. At least 22 per cent of the working age population are inactive due to full or partial disability, and are therefore at high risk of financial hardship. On the other hand, there is overwhelming evidence that worklessness is, itself, bad for health. Job retention and return to work can positively affect physical health, psychological well-being and raise people out of poverty.

Musculoskeletal disorders (MSDs) such as back pain, arm or neck strains or diseases of the joints inhibit performance of at least half of the Estonian workforce. The conditions of this group incur direct costs of almost 400 million euros a year and are among the leading causes of sickness absence and disability. Yet, tackling the impact of MSDs in Estonia has not become a priority.

Policy-makers, employers, health care professionals and even individuals themselves do not recognise the significance of early detection and intervention for timely diagnosis of MSDs and prevention of disability. Already a large proportion of the Estonian workforce is not fit enough to perform to their full capacity, yet are not receiving appropriate treatment and rehabilitation. Fundamental changes need to occur in the way the management of long-term conditions and disability is approached in Estonia. Work has to become more of a priority outcome, as job retention and return to work can positively affect physical health, psychological well-being and reduce the social burden of disease. Better mechanisms of diagnosis and management of the disease have to be put in place in order to prevent and minimise the long-term impact of musculoskeletal conditions.

The 'Fit for Work?' project

This project, part of a wider programme of work across 27 European and other countries, has looked in some detail at the impact that MSDs have on the working lives of thousands of Estonian workers, the adequacy of the treatment and support they receive, their experiences at work, the effect of their condition on their family and colleagues, and the human and financial costs involved. Specifically, we have looked at back pain, work-related upper limb disorders (WRULDs) – two groups of conditions which are usually characterised by non-specific and short episodes of pain and incapacity – and rheumatoid arthritis (RA) and spondyloarthropathy (SpA), specific conditions that are often progressive and increasingly incapacitating. We conducted a review of the recent academic and practitioner research on the relationship between these MSDs and labour market participation, and conducted interviews with acknowledged experts in this field.

The Impact of MSDs on the Estonian workforce

MSDs have a significant impact on people's ability to work; not only on an individual but an aggregate basis. Together, they affect the productivity and labour market participation of thousands of Estonian workers. Evidence suggests that:

- In 2009 the work capacity of 59 per cent of employees aged 15-64 was limited due to long- term problems with hands, legs, back or neck;
- On average four people are diagnosed with a case of MSD daily, requiring an average of 6.7 days hospital stay;
- Over 95,000 cases of MSDs were registered among the working age population in 2010, accounting for direct costs of almost 400 million euros. The prevalence is particularly high for 40-65 year-old women;
- Estonia has the highest rate of disability-adjusted life years (DALYs) lost per 1,000 population due to musculoskeletal disorders;
- In 2008 almost 6.4 million work days in Estonia were compensated due to temporary incapacity caused by illness, of which MSDs are estimated to account for 16 per cent. Different estimations suggest that sickness absence costs the Estonian economy between 6 and 15 per cent of GDP.

The effects of incapacity and pain from these and other MSDs can impact on several aspects of an individual's performance at work, including:

- Stamina;
- Cognitive capacity or concentration;
- Rationality/mood;
- Mobility;
- Agility.

It is becoming clearer that people with MSDs are also likely to have depression or anxiety problems related to their conditions, and are therefore reluctant to disclose those to their employers. Delays in treatment can affect the severity of the condition, the ability of the individual to remain in work, the length of time they spend away from work and the ease with which they can be rehabilitated. Research suggests that a significant proportion of general practitioners (GPs), employers and even individuals with MSDs do not fully appreciate the long-term impact of poor health on their performance and ability to stay in work. This is partially due to poor communication and lack of coordination between GPs and employers regarding occupational health issues.

Work can be both cause and cure. Whilst the physical conditions of work may cause or aggravate musculoskeletal symptoms, the impact or outcome on individuals (absence from work and disability) is strongly associated with psychosocial factors. Concerned with legal compliance, GPs and employers may mistakenly believe that employees have to be 100 per cent fit to perform their jobs. However, evidence suggests that a phased return to work can help ameliorate the deterioration of many conditions and help recovery from MSDs. The **biopsychosocial model** of health emphasises the interplay between the **biological** (eg disease, strain, joint damage), the **psychological** (eg disposition, anxiety) and the **social** (eg work demands, family support) and represents a helpful way of assessing the causes of some MSDs, of planning treatment and management and of approaching rehabilitation into the workplace.

Looking to the future, with prospects for an ageing workforce, a growth in obesity and smoking rates, a reduction in exercise and physical activity and overall fitness in the general population, it is likely that the incidence and effects of MSDs will intensify and worsen rather than improve in the medium-to-long term. We are concerned that this will affect the quality of working life of many Estonian workers, and that the productive capacity of the Estonian workforce will be adversely affected at a time when we need it to be on top form.

What can be done?

There are six main principles which GPs, employers, employees and the government should focus on if we are to improve the working lives of workers with MSDs.

- **Early intervention is essential**. The overwhelming evidence is that long periods away from work are usually bad for MSD patients – the longer they are away from work, the more difficult it is for them to return. Early action, preferably in a partnership between GPs, patients and their employers, can help those with MSDs to keep their jobs and to achieve a balance between the individual's need for respite and their need to work. For some MSD patients early access to physiotherapy or to drug therapies can reduce the severity, impact or progression of the condition – a delay in diagnosis or treatment can make recovery, job retention or rehabilitation much more difficult. Once the economic upturn arrives – which it assuredly will – the Estonian economy cannot afford for its recovery to be inhibited by a shortage of skilled, motivated and healthy workers.
- **Educate health care professionals**. Both GPs and specialist consultants should bring to bear their understanding of the biopsychosocial model and – most importantly – the limitations of the biomedical model in diagnosis and assessment of the role that a job might play in helping someone to stay active and avoid isolation. GPs are ideally placed to identify the early presentation of many MSDs and have to be able to recognise specific conditions and refer patients to specialist teams as early as practicable, to

enable management of the condition to begin. Organisations, such as the Estonian Rheumatism Association and the Estonian Chamber of Disabled People should play a role in educating GPs and specialist consultants about the physical, social and psychological aspects of chronic diseases.

- **Disclosure is crucial for timely intervention**. Employees can underestimate the impact of MSDs, continuing to work at their full capacity and potentially exacerbating their condition. Often individuals fear losing their wages or even their jobs if they take days off work because of illness. Managers should support employees on their journey back to full productive capacity by giving alternative work tasks or providing flexible working hours. If GPs were asked to issue more patients with a 'Fit Note' rather than a 'Sick Note' then it would be clearer what the worker was still able to do at work.
- **Think beyond legal compliance**. Employers have to be aware of the implications of ill health of employees on engagement and productivity. Simple interventions will help manage existing MSDs and prevent new cases of occupational diseases at the workplace. Managers should work together with employees in adjusting the ways work is organised to help prevent existing MSDs getting worse and to help people with MSD to stay in, or return to, work. They need to do this in a way which preserves job quality, avoids excessive or damaging job demands and takes heed of ergonomic good practice.
- **Assess the direct *and* indirect costs of MSDs**. We need some better measures to assess the social, economic and work impact of MSDs to allow the Estonian Health Care Board and Estonian Labour Inspectorate to monitor both the clinical and labour market impact of MSDs in a more 'joined-up' way. Currently the data on the costs and prevalence of MSDs in Estonia, their impact on sickness absence from work and lost productivity are insufficiently comprehensive and reliable to allow good analysis or informed policy-making. A national register of occupational diseases would improve data quality considerably.
- **A national plan for MSDs.** Such is the impact of MSDs on the working age population of Estonia we suggest that a national plan for the early diagnosis, treatment and rehabilitation of people with MSDs be established. This plan might establish national standards of diagnosis and treatment, support coordinated effort between local and state government and establish mechanisms which help GPs and employers to support job retention and return to work among people of working age with MSDs. Other countries (eg Ireland) have also appointed a National Clinical Director with oversight of such plans. We recommend that Estonia considers such an appointment.

The evidence presented in this report illustrates that a large proportion of working age people in Estonia are, or will be, directly affected by musculoskeletal conditions (MSDs) in the coming years. This can have very significant social and economic consequences for these individuals and their families, it can impede the productive capacity of the total workforce and parts of Estonian industry, and it can draw heavily on the resources of both the health system and the benefits regime.

We have found important clinical, epidemiological, psychological and economic evidence and expert opinion on the nature, extent and consequences of the MSD problem in Estonia. However, there still seems to be a lack of coherence or 'joined-up' thinking and action which focuses on the MSD **patient as worker**. While the number of advocates of the biopsychosocial model as it applies to all MSDs is growing, we noted that some of those who can have most impact on fulfilling the labour market participation of workers with MSDs have yet to embrace its principles as fully as they might.

2. Introduction

2.1 Why is workforce health in Estonia important?

Until 2008 the Estonian economy had been experiencing a period of sustained economic growth. During this time the employment rate was one of the fastest-growing in Europe (Estonian Ministry of Social Affairs, 2009a), bringing many social and consumption benefits with it.

However, an equally drastic drop in the size of labour force has been observed since the economic downturn began. The employment rate decreased from 69.8 per cent in 2008 to 63.4 per cent in 2009; the impact was particularly critical for the male and non-Estonian population (Estonian Ministry of Social Affairs, 2009a). Companies have cut numbers of employees in order to reduce their costs in the difficult economic situation, which resulted in a 33 per cent growth in part-time labour, while the number of full-time employees decreased by 13 per cent (Estonian Ministry of Economic Affairs and Communications and Estonian Ministry of Finance, 2010). Aiming to achieve the same-level or higher performance targets with a smaller workforce, organisations have presented employees with more demanding tasks.[1] More than a quarter of Estonian employees reported a considerable increase in work-related physical effort, while almost 43 per cent experienced growing mental pressure (Woolfson, Calitre and Kallaste, 2008).

As the economy is recovering from the recession, Estonia is understandably keen to place emphasis on the need to maximise the productivity of its workforce in order to extract the most economic benefit. Along with skills, training and qualifications, one of the most significant drivers of labour productivity in Estonia is workforce health and well-being (World Health Organisation (WHO), 2006b). A large-scale survey conducted in Estonia has shown that for at least 15 per cent of individuals aged 20-79 disease negatively affected studies and working lives, with over 8 per cent reporting 'severe limitations' (Altmets, Puur, Uusküla, Saava, Sakkeus, et al., 2010). At the same time, it appears to be common for Estonian employees to continue work even if they are experiencing health problems[2], which hints at potentially high levels of presenteeism among the Estonian workforce.

Additionally, due to financial hardship, previously inactive people have considered re-entering the labour market. Estonia ranks among the top European countries for employment of older people: more than 60 per cent of individuals over 65 years old choose to stay in the labour force (Estonian Ministry of Social Affairs, 2009a). As poor health and chronic health conditions may have a significant impact on performance of the elderly, Estonian Ministry of Social Affairs (2009a, p.31) emphasises that it is *'important that people preserve their capacity and desire for work in older age'*.

[1] Expert interview
[2] Expert interview

Having a significant proportion of the working age population not performing to their full capacity due to ill-health – even in a favourable economic climate – can reduce the aggregate level of labour productivity in an economy and damage the competitiveness and effectiveness of private and public sector employing organisations. Furthermore, a significant burden of ill-health or chronic disease can also have a number of damaging social consequences. These arguments inform a number of important implications.

First, the competitiveness of the Estonian economy has been – and will be – substantially driven by the skills, experience and knowledge of its workforce. Indeed Estonia has been making good progress towards becoming a 'knowledge economy' as envisaged by the EU's 2000 Lisbon Strategy (Lisbon European Council, 2000). A 2006 report estimated the number of knowledge workers in Estonia exceeded European average by 6 per cent (Technopolis, 2006). The risk is that poor health will drain the Estonian economy of the much-needed skills and knowledge it requires and makes the longer-term vision of the 'knowledge economy' more difficult to attain and sustain.

Second, unemployment and job loss have serious financial and health consequences for individuals. Studies have shown widespread deterioration in aspects of physical and mental well-being among those who lose their jobs which can persist for many months (Armstrong, 2006; Brinkley, Clayton, Coats, Hutton, and Overell, 2008). In a review of health of Estonian population Roováli (2006) observed that employed individuals reported overall better health status than the unemployed.

Third, it is essential that job loss is not concentrated in the most vulnerable parts of the workforce, especially among those with a disability or with a long-term or chronic health condition. Finding ways of improving job retention for these workers is vital as we know that, once they become detached from the labour market, their chances of finding meaningful work again are severely damaged. As unemployment starts to rise again, it will be important to ensure that those with illness or long-term conditions are not disproportionately affected.

Fourth, once the upturn arrives – which it assuredly will – the Estonian economy cannot afford for its recovery to be inhibited by a shortage of skilled, motivated and healthy workers. It is on this last point which much of this report focuses.

Despite the benign economic conditions, the health and well-being of the Estonian workforce has given cause for concern for a number of years, and these concerns will continue in the light of both the economic downturn and of the ageing of the Estonian workforce (WHO, 2008). The following data points illustrate some of the highlighted trends:

- Estonia ranks second among other European countries for the prevalence of long-standing illness or health problems, which affect over 40 per cent of the Estonian population (National Institute for Health Development, 2010b).
- Estonia is among the top five EU countries for employees' concerns about the negative impact of work on their health (59 per cent of employees, compared to 33 per cent European average) (Parent-Thirion, Macías, Hurley and Vermeylen, 2007).
- About 22 per cent of the working age population is inactive because of illness or disability (Estonian Ministry of Social Affairs, 2009a).
- Employment rate of disabled people of working age was 32.6 per cent in 2006. Over 1 million euros (16 million EEK) were spent in 2006 to support return to work for unemployed disabled persons (Training for Vocational Rehabilitation Services (TRAVORS), 2009).
- 220,697 cases of MSDs were registered in 2008 (National Institute for Health Development, 2010a).
- Over 95,000 cases of MSDs among the working age population were compensated in 2010 accounting for direct costs of almost 400 million euros (Estonian Health Insurance Fund, 2011).
- On average four people are diagnosed with a case of MSD daily, requiring an average of 6.7 days hospital stay (National Institute for Health Development, 2010b).
- MSDs are the third leading cause of both sickness absence and disability after cardiovascular disease and cancer (National Institute for Health Development, 2010a).
- In 2008 at least 6.4 million work days in Estonia were lost due to illness. MSDs are estimated to account for 16 per cent of all sick leave episodes (Osila, Karu and Nurmela, 2010).

Despite the significant impact of health on the Estonian workforce, demonstrated above, tackling high rates of musculoskeletal conditions among Estonian employees has not yet become a priority for policy-makers and employers.[3] It is important to raise awareness of direct and indirect costs of ill health for organisations and society to evaluate its potential long-term consequences.

2.2 MSDs: The European context

In the European Union (EU) context, concern in the European Commission and among the social partners over the prevalence and impact of work-related MSDs has been growing for several years. Chronic musculoskeletal pain (CMP) is estimated to affect 100 million people in Europe (Veale, Woolf and Carr, 2008), MSDs affect more than 40 million workers in the EU and account for about half of all work-related disorders in EU countries (European Trade Union

[3] Expert interview

Institute (ETUI), 2007), representing an estimated cost to society of between 0.5 and 2.0 per cent of gross domestic product (GDP) ((Cammarota, 2005). For Estonia that would account for at least 110 million euros a year (Kahn, Moks, Pille and Vain, 2007).

The fourth European Working Conditions Survey published by the European Foundation (Parent-Thirion et al., 2007) has shown that 25 per cent of workers across the EU experience backache and 23 per cent report muscular pain. Indeed, the European Commission estimates that MSDs account for 50 per cent of all absences from work lasting three days or longer and for 60 per cent of permanent work incapacity. If the European, knowledge-based economy is to recover and compete against the US and the growing economies of Asia the health and productivity of the EU workforce must be a policy priority. This report looks at Estonia in this wider EU context and assesses where Estonia is doing well and where it has challenges to confront. In addition, Appendix 3 compares labour market, welfare and health care systems indicators across a number of European countries.

2.3 Objectives of the study

More specifically, this project has sought to address each of the following questions:

1. What is the impact of MSDs on employment and economic performance in Estonia? How is this likely to change in the context of future demographic, workforce and lifestyle changes?
2. What is the relationship between work and MSDs? What impact do biological, psychological and social factors, including workplace factors, have on MSDs?
3. How well do employers, governmental bodies, general practitioners (GPs) and occupational health professionals understand and deal with MSDs as they relate to the workplace? How well equipped is the health sector to provide early intervention, rehabilitation and other support for people with these conditions?
4. What early interventions can policy-makers and employers deliver to ensure that those with MSDs a) retain their jobs b) maximise their quality of working life and their contribution to society and c) maintain access to (and routes back into) employment?

In addressing the objectives outlined above, we have used the following approaches:

1. Desk research: Here we have drawn on existing published research from the medical, occupational health and health economics literature. This has enabled us to draw together the evidence on the nature, extent, impact and costs of MSDs to the Estonian economy, to employers and to individuals. We have examined a range of MSDs to assess the extent to which their impact varies and where policy and practice has been both strong and weak in preventing and intervening.

2. Secondary data analysis: We have used data from domestic and European studies and surveys to examine the prevalence and costs of MSDs in the working age population in Estonia.
3. Expert interviews: We have conducted interviews with Estonian experts across a number of disciplines (including occupational health, ergonomics, rheumatic disease and work-related diseases) to identify the main areas of policy and practice which need to be addressed by policy-makers, health professionals and by employers.

In addition to the wider picture, to focus the research, we have chosen to concentrate on four categories or groups of MSDs. These are:

- Back pain;
- Work-related upper-limb disorders (WRULDs);
- Rheumatoid arthritis (RA);
- Spondyloarthropathy (SpA).

Back pain and the majority of WRULDs are categorised as non-specific and episodic conditions which may frequently be caused by, or be made worse by, work. They manifest themselves in disparate ways and may cause periods of intense discomfort and incapacity which may affect the ability of the individual worker to carry out their work. They may also abate for long periods. Many people with these conditions, such as back pain, never seek treatment and most recover on their own but the conditions can cause significant absence from work or lost productivity. Back pain and WRULDs are often included in the occupational health and safety guidelines and literature. Occupational health practitioners typically deal with these conditions.

On the other hand, RA and SpA are specific and progressive rheumatic diseases which are not caused by work, but may be made worse by work and are often handled by general practitioners and specialists, not within the occupational health arena. They are clinically diagnosed conditions that progress in a broadly predictable way, if untreated. They can have a significant impact on functional capacity at work and, in the long-term, participation in the labour market. Most people with these conditions require clinical interventions over a prolonged period of time and the management of these conditions for those of working age should involve the frequent and active participation of clinicians, employers and occupational health professionals.

Together, these MSDs illustrate the effects of conditions from which half of Estonian workers may report at any one time. Improving our understanding of the effects of these conditions, how staying in work can be beneficial, and what might be done to alleviate their impact, can yield significant social and economic benefits.

2.4 A note on definition

In the absence of a consensus on a clinical definition of many MSDs, navigating the literature on their prevalence, incidence, diagnoses, epidemiology, treatment and cost to Estonian society is a difficult task. The lack of standardisation and validation of the terminology and classification of MSDs is one of the reasons for the contradictory findings in the literature regarding the diagnosis, epidemiology, treatment and rehabilitation of these conditions (WHO, 2003). Some clinicians differentiate between 'musculoskeletal conditions' and 'musculoskeletal disorders'. The former refers to all clinical conditions affecting the musculoskeletal system and the latter, to borrow a definition from the ETUI (2007), meaning 'any affliction of the musculoskeletal system that appears at work and causes discomfort, difficulty or pain when performing work'.

In Estonia there is currently no national register of occupational diseases. The Working Life Department of the Estonian Ministry of Social Affairs relies on the European Commission recommendation for the European schedule of occupational diseases.[4] The list issued in 2003 includes only the following MSDs (Commission of the European Communities, 2003):

- Osteoarticular diseases of the hands and wrists caused by mechanical vibration;
- Diseases of the periarticular sacs due to pressure;
- Pre-pattellar and sub-patellar bursitis;
- Olecranon bursitis;
- Shoulder bursitits;
- Diseases due to overstraining of the tendon sheaths;
- Diseases due to overstraining of the peritendineum;
- Diseases due to overstraining of the muscular and tendonous insertions;
- Meniscus lesions following extended periods of work in a kneeling or squatting position;
- Carpal tunnel syndrome;
- Disc-related diseases of the lumbar vertebral column caused by the repeated vertical effects of whole-body vibration (recommended for consideration).

These conditions focus predominantly on upper limb and soft tissue disorders, while other EU countries more frequently include low back pain, inflammatory conditions and spinal conditions. Furthermore, the listed conditions are linked to specific causal factors such as vibration or working in awkward positions. This suggests that the existent definition of MSDs may be unhelpfully narrow as a reflection of MSD prevalence and impact specific to the Estonian population. Production of a national register of occupational diseases would be conducive to a consistent approach to prevention and management of occupational diseases in Estonia.

[4] Information provided by an in-country expert

2.5 Structure of the report

This report is structured as follows:

- Section 3 examines the extent of MSDs in Estonia and the impact they have on productivity and attendance at work, on labour market participation and on the wider Estonian economy.
- Section 4 reviews the range of interventions, including vocational rehabilitation, which can improve job retention and labour market participation among those with MSDs.
- Section 5 sets out our recommendations for employers, employees, GPs, occupational health professionals and for the Estonian government.
- Appendix 3 provides a benchmarking grid in which a number of indicators covering the labour market, the welfare system and the health care system are presented for each of the countries involved in the Fit for Work project.

3. Work and MSDs in Estonia

This section sets out what we know about the impact of musculoskeletal disorders (MSDs) on people of working age in Estonia. It uses data, research and interview evidence from Estonian sources where this is available, and paints a picture of the challenges faced by both current and future Estonian workers, their families, their employers and, ultimately, state agencies. It looks at four main issues:

1. The inadequacy of the data on MSDs in Estonia and the consequences of this;
2. The impact that MSDs have on people's ability to work;
3. The impact that work can have on MSDs;
4. The wider economic and social impact of MSDs in Estonia.

We begin by looking at data quality.

3.1 An unclear picture

Although many have tried, it remains difficult to quantify precisely the extent of MSDs in the working age population of Estonia. The European Foundation for the Improvement of Living and Working Conditions (Eurofound, 2007a) has repeatedly found it difficult to build a reliable statistical portrait of MSDs in Estonia. Although the data is collected both through national registers and employee surveys (Eurofound, 2007a), many episodes of occupational diseases are unreported due to employee fears of losing their jobs (WHO, 2009). Even the Estonian Labour Inspectorate has only patchy data about the prevalence of a narrow range of MSDs. This is a troubling picture for a number of reasons:

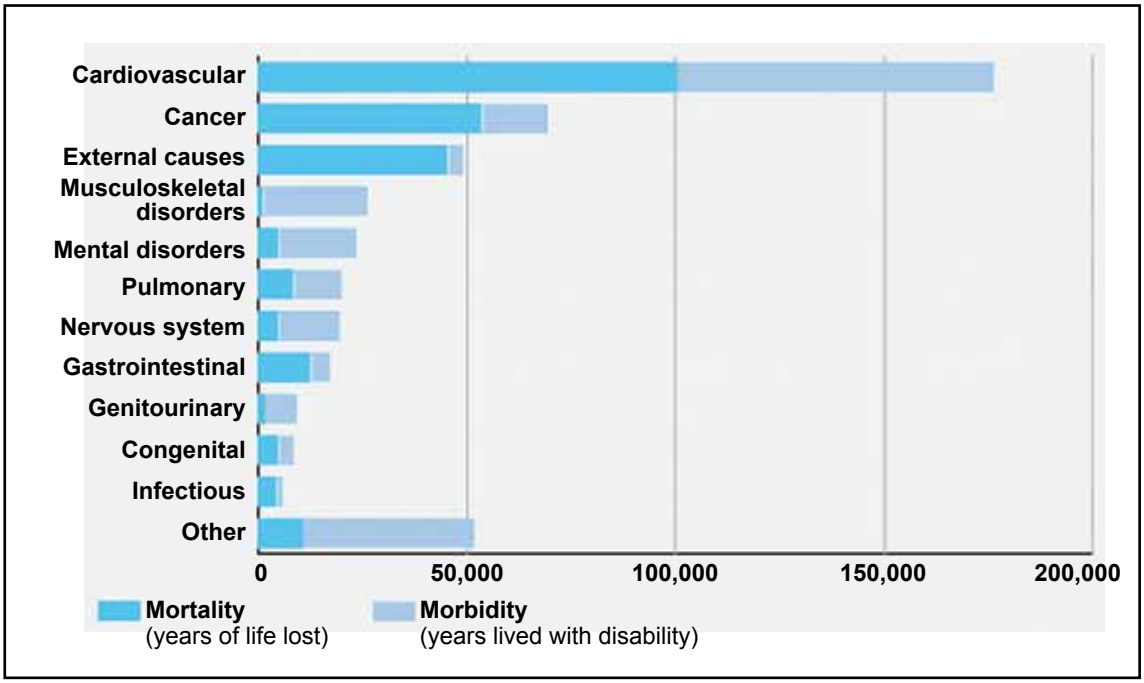
- It is impossible to be accurate about the economic consequences of MSDs, their productivity impact or their social costs to the nation, to its workers and to their families.
- If, as is likely, the prevalence of MSDs increases as the average age of the Estonian workforce increases, the absence of good baseline data today makes forecasting the future impact of MSDs very difficult.
- Poor data make it difficult to make a compelling case for action to Estonian employers or to Estonian policy-makers.
- The benefits of clinical, labour market or workplace interventions are made all the more difficult to quantify (or justify) if there are no reliable or comprehensive data on the extent or impact of MSDs in the Estonian workforce.

Despite this, The Work Foundation is confident that there is sufficient evidence in Estonia to argue strongly for MSDs to be a policy priority in the coming years.

What we do know is that, compared with other EU member states, a significantly higher proportion of the Estonian workforce currently reports having regular backache or muscular pain (Eurofound, 2007a).[5] In 2009 the work capacity of 59 per cent of employees aged 15-64 was limited due to long- term problems with hands, legs, back or neck.[6]

A recent analysis (Lai and Köhler, 2009) shows that the morbidity burden of MSDs in Estonia is higher than for mental illness, as in many other countries (see Figure 3.1).

Figure 3.1: Burden of disease (total DALYs lost), by disease group, broken down by years of life lost due to mortality and years of healthy life lost to disability



Source: Lai and Köhler, 2009

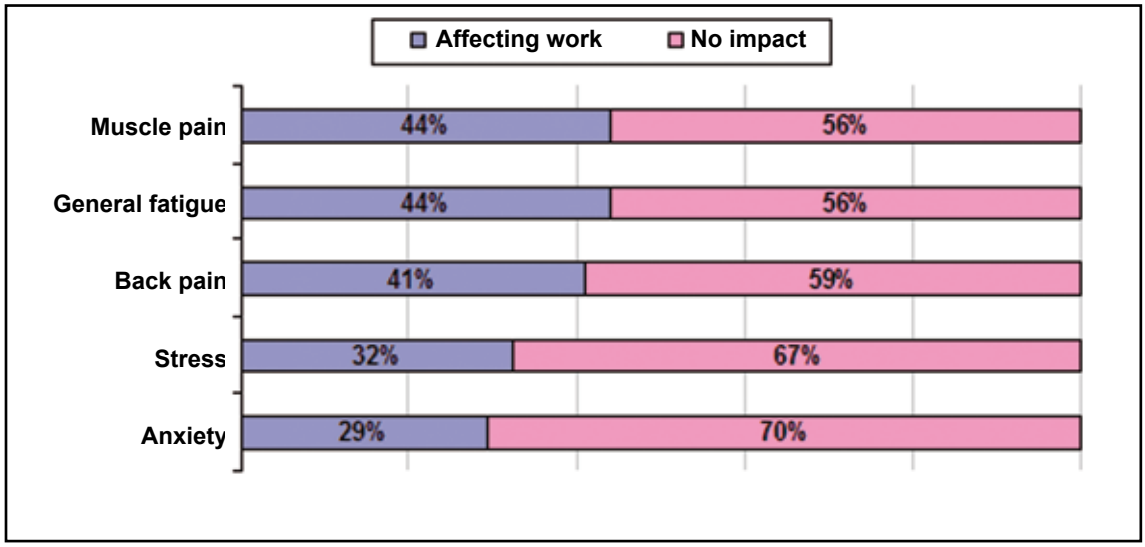
Experience from economies with older age distributions indicates that the burden of MSDs can have significant economic and social consequences. Estonia must stand ready to anticipate and manage the almost certain increase in the numbers of MSDs in the coming years, particularly among the individuals of working age.

[5] See Appendix 3 for cross-country comparison
[6] See Statistics Estonia. (2011). http://www.stat.ee/

3.2 The impact of MSDs on ability to work

The impact of MSDs on individuals and their ability to work varies significantly from person to person. Attempts to measure relative work disability differ according to methods of data collection, respondent selection and definitions of work disability. Work disability usually refers to cessation of employment, reduced working hours or claiming of disability benefits. These estimates rarely include estimations of lost productivity whilst at work. Figure 3.2 highlights that muscular pain and backache are in top five most prevalent health problems affecting work performance (Sotsialministeerium, 2005).

Figure 3.2: Top five health conditions with most impact on work, as reported by Estonian employees



Source: Adapted from Sotsialministeerium (2005)

MSDs can cause work-limiting pain and fatigue which many people feel unable to disclose at work. Research shows that up to 30 per cent of workers with conditions such as rheumatoid arthritis (RA) are reluctant to disclose their condition to their colleagues and managers out of a fear of discrimination (Gignac, Cao, Lacaille, Anis and Badley, 2008) and 22 per cent of workers do not tell their employers about their condition (Gignac, Badley, Lacaille, Cott, Adam et al., 2004). In-country experts confirm that Estonian employees rarely disclose their health conditions to managers due to fear of losing wages or their jobs, as well as the social stigma associated with ill health.[7]

[7] Expert interviews

MSDs, as outlined in Section 2, can be non-specific or specific. The effects of specific MSDs are discussed below with particular reference to RA and spondyloarthropaties (SpAs). Other, largely non-specific MSDs are described in relation to two main categories, back pain and work-related upper limb disorders (WRULDs). The effects of pain from MSDs can thus impact on the following aspects of one's performance at work:

- Stamina and resilience;
- Cognitive capacity or concentration;
- Rationality/mood;
- Fatigue;
- Mobility;
- Agility.

An MSD can also have effects on safety aspects of work. If concentration or movement is affected by the condition or associated pain then some aspects of work may become unsafe. It must also be noted that, following diagnosis, some treatments can have significant side effects which affect an individual's ability to perform. Where particular hazards such as heavy machinery or driving are involved then safety aspects of job performance will also be of concern.

3.2.1 Back pain

Back pain is a very common complaint in Estonia, though good data on prevalence are not collected systematically. The fourth EWCS (Parent-Thirion et al., 2007) shows that 40 per cent of Estonian workers report work-related back pain. A slightly higher estimation of 42 per cent was reported by Oha, Viljasoo and Merisalu (2010) for office workers. In the vast majority of patients with back pain no specific diagnosis is given.

Back pain is common, episodic, often recurrent and generally self-limiting. It is defined as recurrent if several episodes occur in one year for a duration of less than six months, acute if an episode lasts for less than six weeks, sub-acute (7-12 weeks) and chronic if it endures for over 12 weeks. Back pain is a recurrent problem for many people, although this does not necessitate that symptoms will worsen. For the majority of people pain will disappear of its own accord within four to six weeks. In a European study of people visiting their family doctors because of back pain, 65 per cent were free of symptoms within 12 weeks (van der Hoogen et al., 1998 in Bekkering, Henriks, Koes, Oostendorp, Ostelo et al., 2003). Recorded absence is greatest amongst the minority of individuals whose condition is chronic or recurrent. Most people who are affected by back pain either remain in work or return to work promptly. About 85 per cent of people with back pain take less than seven days off, yet this accounts for only half of the

number of working days lost. The rest is accounted for by the 15 per cent who are absent for over one month (Bekkering et al., 2003).

It is important to recognise that there is a difference between having symptoms, care seeking, lost productivity and disability, and the factors that contribute to them (Burton, 2005). This means that whilst individuals may experience musculoskeletal pain (in their back, for example), it is not possible to predict their strategies for dealing with illness or injury (seeking medical attention for example), how it will affect their work performance, whether they will take time off work and whether, ultimately, they will become one of the very small minority who become permanently disabled by their condition. The important question is therefore why, when so many people experience back pain, does it have such an adverse effect on some and not others? There is a growing consensus that psychological factors are the differentiating factor as they are strongly associated with the progression of back pain from an acute to a chronic condition that affects 2 to 7 per cent of people (Burton, 2005), and to disability (Burton, 2005; Bekkering et al., 2003).

3.2.2 Work-related upper limb disorders

According to the fourth EWCS (Parent-Thirion et al., 2007), 43 per cent of Estonian workers report that they have experienced muscular pain in their neck, shoulders and upper limbs. Oha et al. (2010) found neck pain to be the most common MSD among 52 per cent of office workers, with fewer respondents reporting pains in hands and wrists (35 per cent) and elbows (15 per cent).

WRULDs are MSDs affecting the upper part of the body caused or aggravated by work and the working environment. However, there is considerable debate about the definition and diagnostic criteria for WRULDs, which are also commonly referred to as ‘sprains or strains’, ‘repetitive strain injuries or disorders’, or ‘cumulative trauma disorders’. Both specific and non-specific disorders and symptoms can be covered by this category. Van Eerd, Beaton, Cole, Lucas, Hogg-Johnson et al. (2003) identified 27 different classification systems for work-related MSDs, of which no two were found to be alike. The fact that a single disorder is often described in different ways only amplifies the problem. Critically, van Eerd et al. (2003) found that the different classification systems did not agree on which disorders should be included. This definitional problem makes it difficult to calculate the number of people with WRULDs and to develop a common understanding of the associated risk factors

Whilst no agreed classification exists there is a common consensus that symptoms of WRULDs can present in the tendons, muscles, joints, blood vessels and/or the nerves and may include pain, discomfort, numbness, and tingling sensations in the affected area. WRULDs can be specific and non-specific conditions (Aptel, Aublet-Cuvelier and Cnockaert 2002) and attempts

at classification tend to focus either on the affected body area or on the cause. Examples of WRULDs by body part include the following:

- Elbow: Epicondylitis (tennis or golfer's elbow);
- Hand, wrist and forearm: Carpal tunnel syndrome; repetitive strain injury (RSI), de Quervain's syndrome;
- Shoulder: Tendinitis of the shoulder;
- Neck: Neck pain.

Classification by occupational causes refers to actions such as vibration of the hand and arm, which can result in Raynaud's syndrome, for example. The breadth of the category of WRULDs means that almost all symptoms and impacts on work associated with MSDs are associated with WRULDs. Specific symptoms and impacts of MSDs are therefore discussed in more detail below with reference to back pain, RA and SpA conditions.

3.2.3 Rheumatoid arthritis

Rheumatoid arthritis (RA) is an example of a specific MSD. This form of inflammatory arthritis affects people of any age, although peak incidence is in the mid age range of the working age population, between the ages of 25 and 55 years. Epidemiological studies have shown that RA shortens life expectancy by around 6-10 years.

Prevalence of RA is between 0.3 per cent and 1 per cent in most industrialised countries (WHO, 2003). One epidemiological study conducted in Harju County, Estonia, has found that for the age group 20 years and older prevalence of RA was about 0.46 per cent, with significant differences between women and men: 0.7 per cent and 0.16 per cent respectively (Otsa, Tammaru, Vorobjov, Esko and Pärsik, 2009). Another recent estimate suggests that 5,124 Estonians over 19 years of age have RA (Kobelt and Kastaeng, 2009).

The exact cause of RA is unknown. Evidence suggests that it is an immune disease, presenting as an inflammation affecting joints and other tissues. Risk factors include gender, family history of RA and specific leukocyte antigen (HLA) (WHO, 2003). Whilst at an individual level the clinical course of RA is extremely variable, its features include pain, stiffness in the joints and tiredness, particularly in the morning or after periods of inactivity, weight loss and fever or flu-like symptoms. It affects the synovial joints, producing pain and eventual deformity and disability. The disease can progress very rapidly, causing swelling and damaging cartilage and bone around the joints. It can affect any joint in the body, but it is often the hands, feet and wrists that are affected. RA can also affect the heart, eyes, lungs, blood and skin.

The course of RA varies, meaning that it can go from a mild and even self-limiting form of the disease, to being severe and destructive within a short time (Young, Dixey, Cox, Davis, Devlin et al., 2000). RA is usually chronic (persistent) and people with the condition often have 'flares' of intense pain frequently associated with fatigue, although the reason for these is not known. In effect, 'flares' mean that one day someone will be able to perform their duties and the next they cannot. This can be difficult for colleagues and managers to comprehend, and can make planning workloads challenging. Managing these 'flares' in employment requires close communication and understanding between employees and employers.

The effects of the disease can therefore make it difficult to complete every day tasks, often forcing many people to give up work. Work capacity is restricted by two-thirds within one year and 40 per cent of those diagnosed with RA stop working after three years because of their RA (Bone and Joint Decade, 2005). With the overall prevalence of RA as low as 0.06 in the age group 20-29 years, for women over 60 years of age the prevalence remains between 1 and 2 per cent (Otsa et al., 2009). In Estonia RA – at least partially – affects the ability to work of 37 per cent of patients (Laidmäe and Tulva, 2008). Even among those employed the condition is suggested to inhibit educational and promotional opportunities (van Jaarsveld, Jacobs, Schrijvers, van Albada-Kuipers, Hofman et al.,1998).

However, a variety of financial and personal considerations may impact the decisions to leave work among individuals with chronic health conditions. It appears that, compared to other developed western economies, a relatively high proportion of RA patients in Estonia stay in work. For 20-44 year-old RA patients in Estonia the employment rates are 71 per cent for women and 85 per cent for men; only about a quarter of 45-64 year-old female and male RA patients were unemployed (Kobelt and Kastaeng, 2009). Sokka, Kautiainen, Pincus, Verstappen, Aggarwal et al. (2010) observe that it is typical for Estonian individuals to continue working with greater degree of disease severity, as withdrawal from the labour market would present them with financial difficulties.

Similarly, in a small-scale qualitative study to highlight the specific issues associated with RA in Estonia Tammaru, Strompl, Maimets and Hanson (2004) suggest that impact of disease on patients' quality of life may be underestimated when assessed with 'Western measures' due to poorer communication with medical system, lack of funds and culture of non-disclosure in Eastern Europe. Furthermore, a large quantitative survey conducted by Laidmäe, Leppik, Tulva and Hääl (2009) has shown that RA patients experienced severe family and social problems affecting their quality of life in addition to financial difficulty. It was typical for RA patients to downplay their need for assistance, as they felt humiliated to show their helplessness (Laidmäe et al., 2009).

3.2.4 Spondyloarthropathies

Spondyloarthropathies (SpAs) represent a family of chronic inflammatory conditions which include:

- Ankylosing spondylitis (AS);
- Reactive arthritis (ReA)/ Reiter syndrome (RS);
- Psoriatic arthritis (PsA);
- Spondyloarthropathy associated with inflammatory bowel disease (IBD);
- Undifferentiated spondyloarthropathy (USpA).

Recent research on the frequency of SpAs across the European population concludes that the prevalence has long been underestimated, and SpAs may have a similar prevalence rate to RA (Akkoc, 2008). No prevalence data was found for the Estonian population.

Ankylosing spondylitis (AS) is a specific progressive and chronic rheumatic disorder that mainly affects the spine, but can also affect other joints, tendons and ligaments. Its prevalence in the general population is most commonly reported to be 0.1-0.2 per cent with a 3:1 to 2:1 male : female ratio (Dagfinrud, Mengshoel, Hagen, Loge and Kvien, 2004).

First diagnosis is often made when people are in their teens and early twenties (the mean age of onset is 26). Research suggests that there is a strong genetic component to the cause of AS. Although anyone can get AS, it affects men, women and children in slightly different ways (Dagfinrud et al., 2004). In men, the pelvis and spine are more commonly affected, as well as the chest wall, hips, shoulders and feet. Women are supposed to have a later age of onset, milder disease course, longer asymptomatic periods but more extraspinal involvement. Accurate diagnosis can often be delayed since the early symptoms are frequently mistaken for sports injuries; Sieper, Braun, Rudwaleit, Boonen and Zink (2002) suggest an average of seven years between disease onset and diagnosis. Typical AS symptoms include pain (particularly in the early morning); weight loss, particularly in the early stages; fatigue; fever and night sweats and improvement after exercise. Again, as with RA, the temporal aspects of the disease require good management to ensure that individuals can perform their job but do not make work impossible.

Approximately half are severely affected whilst others report very few symptoms. AS is generally considered to be a disease in which many individuals can maintain relatively good functional capacity (Chorus, Boonen, Miedema and van der Linden, 2002), yet reported unemployment

rates are three times higher among people with AS than in the general population (Boonen, Chorus, Miedema, van der Heijde, Landewé et al., 2001).

Recent research has provided evidence that physical health related quality of life of people with RA (Chorus, Miedema, Boonen and van der Linden, 2003) and AS (Gordeev, Maksymowych, Evers, Ament, Schachna et al., 2010) was positively influenced by work. Chorus et al.'s conclusion was that work '*might be an important factor in positively influencing patients' perception of their physical performance'.* This finding concurs with Waddell and Burton (2006a) that overall, good quality work has health and recuperative benefits for workers. The extent to which the workplace can have a positive or negative effect on development of MSDs is discussed below.

Psoriatic arthritis (PsA) is a form of joint inflammation affecting between 0.2 and 1 per cent of the general population (Wallenius, Skomsvoll, Koldingsnes, Rødevand, Mikkelsen et al., 2008) and between 10 and 20 per cent of individuals with psoriasis. When joints are inflamed they become tender, swollen and painful on movement. The joints are typically stiff after resting, early in the morning or while resting in the evening. Tissues such as ligaments, tendons around the joints may also be involved. Inflammation of tendons or muscles (such as tennis elbow and pain around the heel) are also features in those with psoriatic arthropathy. In approximately 80 per cent of cases the arthritis develops after the appearance of psoriasis. Men and women are considered to be equally affected, and comparative studies have showed that patients with PsA have a burden of illness which is comparable to that of patients with RA or AS (Wallenius et al., 2008).

There are several features that distinguish PsA from other forms of arthritis: one pattern of inflammation is usually in the end of finger joints. Another pattern is involvement of the joints of the spine and sacroiliac joints which is called spondylitis (similar to ankylosing spondylitis). Neck pain and stiffness can occur or an entire toe or finger can become swollen or inflamed (dactylitis). There can also be a tendency for joints to stiffen up and sometimes to fuse together. Importantly the absence of rheumatoid factor in the blood helps distinguish PsA from RA. It is usual for the condition to develop in the teenage years. In women there may be an increased incidence following pregnancy or the menopause. As PsA affects both the skin and the joints, this has a negative impact on the quality of life of people with PsA; due to emotional problems, in fact, they may experience more pain and role limitations than patients with RA (Husted, Gladman, Farewell and Cook, 2001). A higher level of mortality compared to the general population has also been reported among people with PsA (Wallenius et al., 2008).

3.3 Risk factors for MSDs

The risk factors for MSDs are wide ranging. Whilst there is broad consensus among experts that work is a risk factor for MSDs, non-work activities such as sport and housework can contribute to musculoskeletal strain. Furthermore, National Health Plan 2009-2020 (Estonian Ministry of Social Affairs, 2008) highlighted that poor lifestyle choices exacerbated the impact of health conditions on individuals' lives.

3.3.1 Intrinsic factors and lifestyle choices

Progress of MSDs may be influenced by an array of factors. Some studies, for example, have noted that a higher prevalence of musculoskeletal pain among working women may be linked to the fact that women are responsible for doing the majority of housework (Punnett and Wegman, 2004). Intrinsic risk factors also have a part to play in the onset and deterioration of MSDs. Some intrinsic factors can be altered, others, such as genetic predisposition, cannot. WHO (2003) suggests several intrinsic risk factors for non-specific MSDs, including:

- Obesity, height;
- Spinal abnormalities;
- Genetic predisposition;
- Pregnancy;
- Psychosocial stress: self-perception;
- Health beliefs: locus of control, self-efficacy, perception of disability and expectation;
- Family stress;
- Psychological stress: somatisation, anxiety and depression;
- Ageing.

Great concerns also arise over the ageing of the Estonian workforce (Estonian Ministry of Social Affairs, 2009a). The proportion of the population aged 65 and over increased from 11.7 per cent in 1991 to 17.1 per cent in 2007, and is predicted to reach 27 per cent by 2050 (WHO, 2008). At the same time, the employment rate of older workers in Estonia (aged between 55 and 64 years) is one of the highest in the EU with 60 per cent in employment with average exit age of 62.5 (Eurofound, 2007a). While advances in health care may allow people to contribute at work longer, some individuals will have to continue working due to financial hardship.[8] Deteriorating health, in particular higher rates of MSD prevalence among the older workforce (Eurofound, 2007b), require special attention to the job design of these employees. A study of older MSD patients in Estonia found that 51.4 per cent of individuals in the study experienced depression along with an MSD (Suija, Kalda and Maaros, 2009).

[8] Expert interview

One of important health issues in Estonia is the growth of obesity – a risk factor for bone and joint conditions (as well as cardio-vascular disease and diabetes). The latest data suggest that the proportion of obese and overweight people is increasing. In 2008 more than 10 per cent of 25-44 year olds and 25 per cent of those over 45 years of age were obese (WHO, 2010). Although the obesity rates are below the European average and lower than the prevalence in other Eastern European countries (Organisation for Economic Co-operation and Development (OECD), 2010), a worrying increase in child obesity rates was observed in the last decade The proportion of obese 13 year old boys grew at nearly one percentage point a year between 2001 and 2005 (WHO, 2010). At the same time the percentage of individuals engaged in regular physical activity is low. A third of Estonians reported a low physical activity level at work, while 43 per cent restricted their leisure time to sedentary activities (Pomerleau, McKee, Robertson, Vaask, Kadziauskienne et al., 2000). The trends are particularly salient among the younger population, partially due to a higher awareness of the older employees of the significance of exercise breaks at work and an active lifestyle in general (AS Medicover Eesti, 2006).

Smoking has been found to have an impact on the progress of RA disease (Bone and Joint Decade, 2005). The proportion of adult smokers in Estonia was relatively high at 26 per cent in 2008, compared to the OECD average of 23 per cent (OECD, 2010). Further risks are associated with exposure of children and non-smokers to environmental tobacco smoke (WHO, 2009).

Another risk factor for MSDs is a sedentary lifestyle (AS Medicover Eesti, 2006). Increasing demand for knowledge workers means that larger numbers of employees may spend work days sitting at their desks. Zhang, Álvarez-Casado, Occhipinti and Mondelo (2010) highlight that relatively high levels of physical overload and prolonged computer use contributed to the development of MSDs among Estonian employees. Additionally, the amount of physical activity engaged in, especially by young Estonians, is already insufficient and decreasing (Estonian Ministry of Social Affairs, 2008). Low levels of exercise may aggravate the severity of MSDs, in particular back pain (Viir, Virkus, Laiho, Rajaleid, Selart et al., 2007).

Finally, it seems that attitudes to disability may contribute to delays in seeking care by patients – a trend particularly typical for the Estonian workforce.[9] Tammaru et al. (2004) identify the legacy of Soviet identity in low social acceptability of disclosure of health conditions at the workplace. Fear of appearing 'socially uncompetitive' as a result of a disability may entail delayed access to treatment, even when it is available (Tammaru et al., 2004). Similarly, the long standing tradition of neglecting health issues at the workplace leads to a sceptical attitude towards the link

[9] Expert interview

between health and performance among many employers.[10] As a result, many cases of MSDs may be diagnosed too late, when an individual's work capacity has decreased severely and irreversibly (Reinhold, Tint, Tuulik and Saarik, 2008). Policy-makers should encourage the gradual changes in attitudes to disability over the next decade.

3.3.2 The impact of the workplace on MSDs

In terms of evidence and risk factors for the impact of work on MSDs a distinction needs to be made between 'work-related' disorders and 'occupational' disorders (Punnett and Wegman, 2004). Certain MSDs are recognised as occupational diseases by some European governments, such as wrist tenosynovitis, epicondylitis of the elbow, Raynaud's syndrome or vibration white finger and carpal tunnel syndrome (Eurostat, 2004). As such, the fact that work can cause and contribute to these conditions is widely recognised in Estonia (Jansen, Luik, Viljasoo, Ereline, Gapeyeva et al., 2010; Oha, Viljasoo and Merisalu, 2010). Similarly, there is a strong correlation between physically demanding jobs and backache and muscular pain (Parent-Thirion et al., 2007). In Estonia MSDs resulting from work activity account for over half of all cases of MSDs.[11]

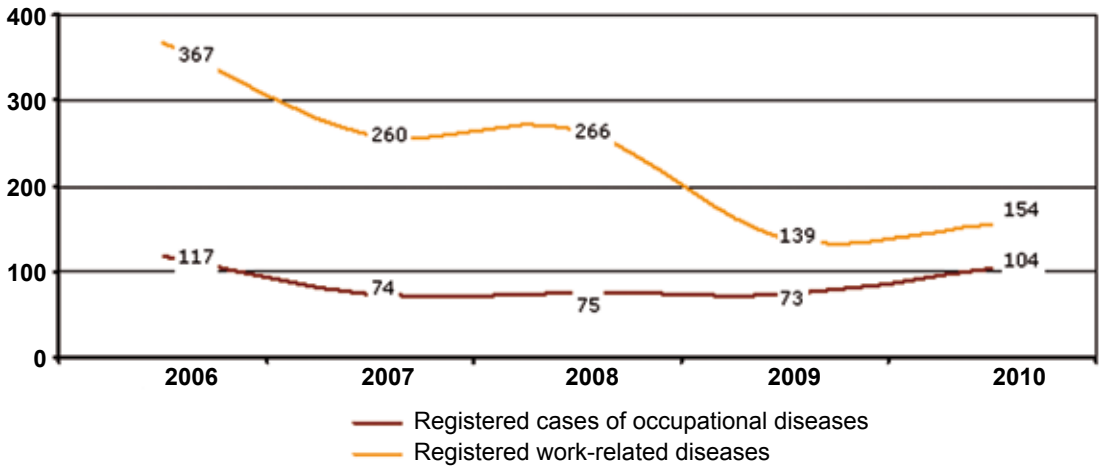
It is clear that work is not the cause of rheumatic diseases such as RA and SpAs, though RA has been linked to occupational risks such as vibrations, repetitive trauma, knee bending and lifting heavy weights (Prüss-Üstün and Corvalán, 2006). Additionally, physical work demands, lack of support, self-stigma and lack of flexibility over working time can each make job retention or return to work more difficult for patients with specific MSDs (der Tempel and van der Linden, 2001; Gignac et al., 2004).

The Estonian Labour Inspectorate highlights that physical overload contributes to the incidence of occupational diseases and exacerbates work-related MSDs, resulting in high rates of carpal tunnel syndrome and back pain in particular (Tööinspektsioon, 2010). While the prevalence of occupational diseases is lower than in some of the previous years (see Figure 3.3 on the next page), there are concerns that some cases may have been unreported due to either financial or legal concerns.[12]

The evidence linking non-occupational MSDs and work is not conclusive and attributing cause and effect between specific aspects of work and particular parts of the body is difficult. However, many of the established risk factors that may contribute to the development of non-specific MSDs can be encountered at work; even if work does not cause a condition it may have an

[10] Expert interview
[11] Expert interview
[12] Reiterated in expert interviews

Figure 3.3: Registered cases of occupational and work-related diseases



Source: Tööinspektsioon (2010)

impact on it. Moreover, if we consider risk factors beyond the physical, then the impact of the workplace on MSDs is likely to be much greater.

The most frequently cited risk factors for MSDs encountered in the workplace include the following:

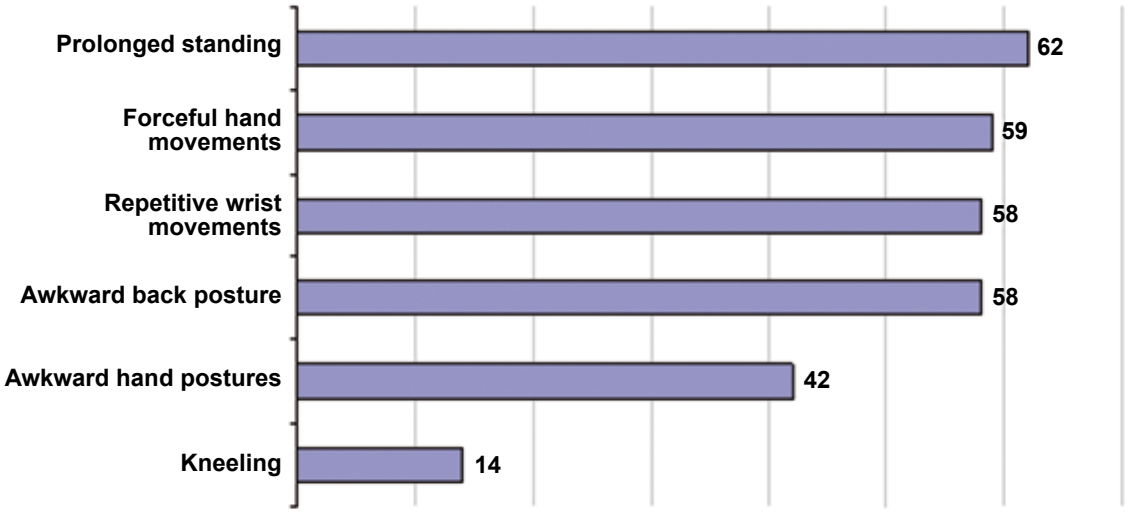
- Rapid work pace and repetitive motion patterns;
- Heavy lifting and forceful manual exertions;
- Non-neutral body postures (dynamic or static), frequent bending and twisting;
- Mechanical pressure concentrations;
- Segmental or whole body vibrations;
- Local or whole-body exposure to cold;
- Insufficient recovery time (Punnett and Wegman, 2004).

MSDs affect employees in all kinds of industries and occupations, although some are more high risk than others, and certain occupations are associated with strain on specific parts of the musculoskeletal system. About 30 per cent of the Estonian workforce are performing jobs that increase the risk of work-related MSDs (Kahn et al., 2007).[13] This is partially due to the distribution of occupational sectors in the Estonian economy: large proportions of the workforce are employed in physically-demanding industries such as manufacturing and agriculture. About 43 per cent of Estonian employees work with heavy machinery and almost 40 per cent of

[13] Reiterated in expert interviews

employees are involved in handling heavy loads (Parent-Thirion et al., 2007). One indicator highlighting the intensity of physical overload in the Estonian work environment is the incidence of serious and fatal accidents at work, with Estonia leading at 124 episodes a year, compared to the EU average of 80 (Reinhold et al., 2008). Figure 3.4 illustrates the high prevalence of work-related causes contributing to physical exhaustion among Estonian employees (Sotsialministeerium, 2005).

Figure 3.4: Causes of physical strain reported by Estonian employees



Source: Sotsialministeerium (2005)

Much of the attention that employers pay to the issue of MSDs and the impact of the workplace on their onset or deterioration is driven by a concern to avoid or limit litigation and ensure that they are fulfilling their duty of care, for example, by performing workstation assessments and giving guidance on manual handling.[14] However, this neglects a wider issue that other work associated factors can also contribute to MSDs. These aspects are often missed out in the literature and advice on dealing with health and safety. Even where 'stress' is mentioned, the connection between psychosocial factors and physical conditions is omitted, reinforcing the primary focus on safety.

Generally there is an increased risk of injury when any of the physical risk factors mentioned above are combined, or adverse psychosocial factors, personal or occupational are present (Devereux, Rydstedt, Kelly, Weston and Buckle, 2004). Psychological and organisational factors

[14] Also reiterated in expert interviews

can also combine with physical factors to influence the probability of an individual leaving work prematurely (Reinhold et al., 2008). Research on low back pain shows that an employee's belief that work itself produces pain precedes sickness behaviour and is a risk factor for chronic work disability (Werner et al., 2007). Sokka and Pincus (2001) reviewed 15 studies and showed that physically demanding work, a lack of autonomy, higher levels of pain, lower functional status and lower educational levels were predictors of someone with RA leaving work early. The evidence from Sokka and Pincus (2001) highlights that it is not only the physical elements of work that can influence someone's functional work capacity and likelihood of staying in the labour market. We must also consider the psychosocial and organisational factors of work.

Psychosocial and organisational factors associated with MSDs include:

- Rapid work pace or intensified workload;
- Perceived monotonous work;
- Low job satisfaction;
- Low decision latitude/low job control;
- Low social support;
- Job stress.

Job stress is a broad term and can result from a variety of sources such as high job demands or a mismatch between skills and job requirements. In addition stress can result from abuse or violence at work, as well as discrimination or fear of losing a job. Figure 3.2 above highlights that stress affects almost a third of Estonian workforce.

Again, it is important to recognise the connection between the psychological and the physical. While job stress, including violence and discrimination at work, might lead to lost productivity due to stress or common mental health problems, it may also lead to MSDs caused by tension or strain (AS Medicover Eesti, 2006). An increased probability of experiencing a high level of pain has also been associated with low social support, low social anchorage or low social participation (Katz, 2002). 'Good work' and the provision of high quality jobs is therefore crucial (Coats and Max, 2005, Coats and Lehki, 2008).

3.4 The wider economic and social impact of MSDs

The effect that MSDs can have on individuals' ability to work and the time they may require to be absent from work means that MSDs have significant associated costs to the individual, their family, the employer and the wider economy. Calculating the exact costs is not straightforward (Lundkvist, Kastäng and Kobelt, 2008). Several factors need to be considered, and obtaining accurate, reliable and consistent figures is almost impossible. However, existing figures on

the economic impact of MSDs based on conservative approximations show that MSDs are a significant economic burden to Estonia.

To calculate the cost of MSDs (or any illness) the following factors must be estimated:

- **Direct costs** including medical expenditure, such as the cost of prevention, detection, treatment, rehabilitation, long-term care and ongoing medical and private expenditure. They are often further separated into medical costs occurring in the health care sector and non-medical costs occurring in other sectors (Lundkvist, Kastäng and Kobelt, 2008);
- **Indirect costs** including lost work output attributable to a reduced capacity for activity, such as lost productivity, lost earnings, lost opportunities for family members, lost earnings of family members and lost tax revenue;
- **Intangible costs** including psychosocial burden resulting in reduced quality of life, such as job stress, economic stress, family stress and suffering (WHO, 2003).

These costs vary considerably depending on the condition, the severity of the symptoms and whether these cause short or long term absence or disability. Moreover, they vary depending on the particular methods used to calculate the costs. Some factors which affect the calculations include the following:

- Severity of patient's conditions;
- Mix of patient demographics in a study;
- Calculation method for productivity;
- Definitions of work disability;
- Treatment costs or outcomes due to treatments (the year costs were calculated which is also a factor not least because treatment processes can change);
- Change in health care financing systems;
- Incidence or prevalence based estimates of costs.

Intangible costs are rarely included in cost calculations as it is almost impossible to properly express the intangible costs in monetary terms (Sieper et al., 2002). However, the evaluation of intangible costs gives useful information regarding the price paid by people with MSDs in terms of quality of life (QoL) and these measures should be used as further indicators to measure the effectiveness of interventions (Leardini, Salaffi, Montanelli, Gerzeli and Canesi, 2002). Presently the two measures most widely used are:

1. **Disability adjusted life years (DALYs)**. This is a measure of the overall disease burden which attempts to tally the complete burden that a particular disease exacts. Key elements include the age at which disease or disability occurs, how long its effects linger, and its impact on quality of life. One DALY, therefore, is equal to one year of healthy life lost. For example, RA accounted for 0.75 per cent of all DALYs lost in Estonia, (Lundkvist, Kastäng and Kobelt, 2008). WHO (2009) reports that Estonia has the highest rate of disability-adjusted life years (DALYs) lost per 1,000 population due to musculoskeletal disorders.
2. **Quality adjusted life years (QALYs)**. The QALY is also a measure of disease burden, including both the quality and the quantity of life lived. It is used in assessing the value for money of medical interventions and is based on the number of years of life that would be added by these interventions. A QALY gives a measure of how many extra months or years of life of a reasonable quality a person might gain as a result of treatment and helps in the assessment of the cost-utility of this treatment.

Both measures are the subject of debate, but have become accepted as helpful in making comparative judgements across medical conditions and internationally.

3.4.1 Direct costs

As mentioned above, cost-of-illness estimates require input from a number of different factors, and great variation is found across different studies. For low back pain (LBP), the most significant direct costs are related to physical therapy, inpatient services, drugs, and primary care (Dagenais, Caro and Haldeman, 2008). Nachemson, Waddell and Norlund (2000) calculated that some 80 per cent of health care costs are generated by the 10 per cent of those with chronic back pain and disability. For RA, although direct health care costs have been relatively small in the past (Lundkvist, Kastäng and Kobelt, 2008), a number of studies indicate that direct costs increase as functional capacity decreases – making functional capacity a major cost driver (Huscher, Merkesdal, Thiele, Schneider and Zink, 2006; Kobelt, 2007; Leardini et al., 2002). The Estonian Health Insurance Fund (2011) reports that the direct costs of MSDs adds up to 400 million euros just in 2010. Compared across population groups, the costs were highest for 40-65 year-old females.

Direct costs, compared to indirect costs, usually represent a minority of the total costs (Dagenais et al., 2008; Kavanaugh, 2005; Kobelt, 2007; Lundkvist, Kastäng and Kobelt, 2008). However, for RA, large cross-countries variations of estimates of direct costs are found in the literature due to the different uptake of particular treatments in different countries (Lundkvist, Kastäng and Kobelt, 2008).

Table 3.1 shows some of the specific direct costs associated with musculoskeletal conditions (MSCs) in general, and RA and low back pain in particular, as found in the literature (Woolf, 2004 as cited in The Bone and Joint Decade, 2005; Kavanaugh, 2005; Dagenais et al., 2008).

Table 3.1: Direct costs associated with MSCs, RA, and low back pain

	MSCs	RA	Low back pain
Health care costs	Physician visits	Physician visits	Physician visits
		Other health professional visits	Chiropractic visits
	Outpatient surgery	Outpatient surgery	Outpatient surgery
	Emergency room	Emergency room	Emergency room
	Rehabilitation service utilisation (physiotherapist, occupational therapist, social worker)		Physical therapy and rehabilitation service utilisation
			Complimentary and alternative medicine
	Medications	Medications (including administration costs)	Medications
	Diagnostic / therapeutic procedures and tests	Imaging Laboratory monitoring Toxicity (diagnosis, treatment)	Imaging
	Devices and aids	Medical assist devices	
	Acute hospital facilities (with and without surgery)	Hospitalisations (related to RA or its treatment): orthopaedic surgery, extended care / rehabilitation facilities	
	Non acute hospital facilities		
Personal costs	Transportation		
	Patient time		
	Carer time		
Other disease related costs	Home health care services		Mental health services
	Environmental adaptations		
	Medical equipment		
	Non-medical practitioner, alternative therapy		

Source: Woolf, 2004 as cited in The Bone and Joint Decade 2005; Kavanaugh, 2005; Dagenais et al., 2008

From a patient perspective Suhrcke, Rocco and McKee (2007) estimate that being in poor health compared to good health resulted in 12 fewer working hours per week for men and 8 fewer hours for women, reducing monthly salaries by 30 and 20 per cent respectively.

Calculations of the costs of treatment tend to evaluate the clinical costs and benefits of treatments. The wider impact of people with MSDs remaining in work or returning to work early extends to the biopsychosocial and economic effects to the individual of being in work and to the reduced costs to the Health Insurance Fund and other government departments. Taking a wider joined-up approach to an analysis of costs of treatments for illness in general and MSDs in particular may provide a different and perhaps more realistic assessment of the costs and benefits of treatments.

3.4.2 Indirect costs

There are two main types of indirect costs most commonly measured in association with ill health in employees. These are absence from work and what is termed ‘presenteeism’, or loss of productivity in an employee while they are at work with an illness or incapacity. Presenteeism is extremely difficult to measure and there are no Estonian data on presenteeism costs.

Most estimates of indirect costs are therefore based on absence data, which is rarely accurate. Because the first three days of sick absence are not compensated, the Estonian Health Insurance Fund has no statistical data on the extent of short-term absence (Eurofound, 2007a). Consequently, costs of sickness absence are calculated based only on the number of days compensated. In 2008 almost 6.4 million work days in Estonia were compensated due to temporary incapacity caused by illness, of which MSDs are estimated to account for 16 per cent (Osila, Karu and Nurmela, 2010). Different estimations suggest that sickness absence costs the Estonian economy between 6 and 15 per cent of GDP (Osila, Karu and Nurmela, 2010).

Similarly the methods of collecting sickness absence data in organisations have limitations. For example with the self-reported surveys, employees might report sickness on days when they were not due to work anyway. With employer surveys the responses are limited by the quality of the absence records employers keep (for example, employees do not always record absence accurately or categories for recording causes are not adequate). This is partially due to the low awareness of the impact of ill health on work. For example, only one of ten employers estimated losses related to MSDs (Eurofound, 2007b). Employer surveys are also subject to response biases where only organisations with good methods to measure absence are likely to be able to respond quickly to the survey request. In all cases records and reports are subject to biases. Managers, for instance, tend to underreport their own absence.

Not only are indirect costs associated with sickness absence and presenteeism, but indirect costs are also associated with early retirement among people with MSDs (Dagenais et al., 2008; Alavinia and Burdorf, 2008). In 2007 at least 44 per cent of registered work incapacity pensioners in Estonia were in the 40-54 age group (TRAVORS, 2009). In the literature, high variation is found about early retirement rates depending on the country, the year of the study and the sample included. Suhrcke, Võrk and Mazzuco (2006) estimate that 40 per cent of men and 30 per cent of women in 'poor health' are more likely not to participate in the labour force. Early retirement due to poor health may result in 6 to 15 per cent potential decrease in future GDP per capita (Suhrcke, Võrk and Mazzuco, 2006).

However, these figures still underestimate the true cost of conditions such as MSDs. Most people with MSDs (even those with diagnosed conditions) continue to work (Waddell and Burton, 2006a), experiencing the emotional distress of fearing to lose wages and jobs.[15] Additional costs are associated with the reduced ability of an individual to live independently. Such indirect costs may include hiring household help (Kavanaugh, 2005), as well as foregoing the income of family members who leave the labour market to provide informal care (Pugner, Scott, Holmes and Hieke, 2000). Although informal care is difficult to identify, quantify and value (what is considered 'informal care' by some people may be considered 'normal' by others), Lundkvist, Kastäng and Kobelt (2008) reported that for RA the annual cost of informal care in Estonia was equal to 723 euros per patient. In a different study Kobelt and Kastaeng (2009) arrived to a lower estimation of 556 euros per patient, which was significantly below the European average of 2,012 euros, but slightly higher compared to other Eastern European countries (average 513 euros).

3.4.3 Total costs

Calculating the costs for specific MSDs is fraught with the same difficulties as for MSDs as a whole. The majority of studies estimating the economic burden of RA have provided cost estimates specific to the US population and health care system (Cooper, 2000). The cost of AS to society is less well established (Chorus et al., 2002). More research has been done on cost in the US, Canada and other European countries, particularly the Netherlands, France and Belgium, than in Estonia. However, findings across countries with respect to work disability rates are generally not directly comparable given the differences in working terms and conditions, such as the length and conditions of statutory sick pay (Sieper et al., 2002).

Lundkvist, Kastäng and Kobelt (2008) found that the total cost of treating RA patients in Estonia was 5,546 euros per patient per year resulting in 50 million euros overall costs. A later

[15] Reinterated in expert interviews

estimation by Kobelt and Kastaeng (2009) concluded lower RA costs of 3,929 euros per patient per year, or 20.1 million euros in total. These included medical costs, drug costs, non-medical costs, the costs of informal care and other indirect costs, but do not differentiate between those of working age and those above retirement age. These figures are significantly lower, per patient, than those for other Western European countries, but comparable to Eastern European average.

The limitations of data collection outlined above highlight some of the difficulties encountered in trying to cost the impact of MSDs for employers and society.

3.5 Summary

In this section we have considered the impact that MSDs have on a person's ability to work, both physically, as a result of the condition itself, and from the associated effects, such as loss of concentration from pain. We have also discussed the impact that the workplace can have on MSDs, both at onset and during the development of the conditions. Whilst there are many intrinsic risk factors for MSDs it is clear that the workplace has the potential to expose employees to other risk factors, both physical and psychosocial. Some of the well-established workplace risk factors such as vibrations and workstation ergonomics are already recognised by many employers and assessed in order to minimise their impact. However, the impact of other workplace risk factors such as job quality and support of disclosure, are not as widely understood.

We have also highlighted that it is important to distinguish between risk factors for the onset of MSDs and risk factors for chronic illness and disability. Whilst the physical conditions of work may cause or aggravate musculoskeletal symptoms, the impact or outcome on individuals (absence from work and disability) is strongly associated with psychosocial factors (Waddell and Burton, 2006b).

Finally, we have looked at the economic and social impact of MSDs and have discussed the direct, indirect and total costs of MSDs. Direct costs of MSDs among the working age population were estimated at just under 400 million euros in 2010. Unfortunately, total cost estimates as found in the literature do not take into account the enormous intangible costs born by people with MSDs. This is due to the difficulty of expressing intangible costs in monetary terms. Total overall costs of RA were found to be 20.1 million euros for all patients over 19 years old. However, data for RA in particular, point out how direct and indirect costs increase with the progression of the disease. As a consequence, the development of strategies and interventions to stop this progression and ensure that those with MSDs are supported to enjoy full and productive working lives appears necessary. The next section will discuss for each condition the most common and appropriate interventions outside and within the workplace.

4. Interventions

The impact of MSDs, as we have seen, can be significant to the people living with them, to employers and to society as a whole. Their impact on the workforce has recently started to receive greater recognition. Whilst it is widely acknowledged that early intervention is an essential part of addressing the onset of MSDs and absence caused by these conditions, there is still some way to go before people with MSDs are given the best support possible to remain in work or return to work. Long waiting times for care, certain employer's lack of capacity to deal with sickness, lack of employee awareness about conditions and their management, and mixed messages on the effectiveness of various methods of workplace interventions or return to work programmes are all barriers to making good and healthy work a reality for those with MSDs.

Improved health has been shown to have positive effect on overall economic growth (WHO, 2006b). For example, Suhrcke et al. (2006) predict that reduction of adult mortality rate in Estonia by 1.5 per cent would result in 14 per cent higher GDP per capita over 25 years. This section looks at the kinds of interventions which are most likely to help workers with MSDs to stay in work, to return to work, to remain productive, to derive health benefits from work and to continue to make a contribution to society. In addition, Appendix 3 provides a wide number of indicators that may help to identify both enablers and barriers to early intervention in Latvia, and to compare Estonia to countries with similar or different labour market, welfare and health care systems.

4.1 The case for early intervention

Ensuring that workers who have MSDs get access to the appropriate treatment and support as quickly as possible must be a top priority for employers and health care professionals. Epidemiological studies of employees whose absence is caused by low back pain have shown that the longer the sick leave, the more difficult it is to get the employee to return to work and the higher the economic cost (Frank, Sinclair, Hogg-Johnson, Shannon, Bombardier et al., 1998; Meijer, Sluiter, Heyma, Sadiraj, and Frings-Dresen, 2006). Sick leave has also been shown to have a negative psychological impact on employees (Meijer, Sluiter, and Frings-Dresen, 2005). Early intervention is therefore crucial to individual recovery and self-management, and may contribute to reducing the number of working days lost and reduced productivity caused by MSDs (although the evidence on the cost-effectiveness of specific return to work programmes is inconclusive).

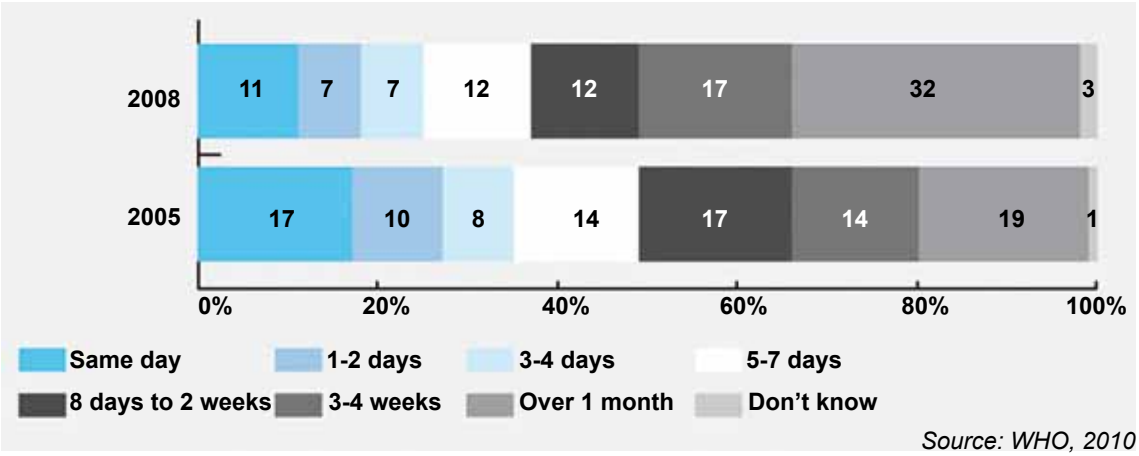
It is also in the employer's best interests to act early if they are to minimise the costs to the health of employees and to their business through absence. Based on a review of the available evidence Breen, Langworthy and Bagust (2005) recommend that employees and employers should discuss and adjust work within the first week of pain. If employees have concerns

about their condition they should consult a health care professional and, following referral or diagnosis, advice and planned action, a review should be conducted within four weeks.

Job retention and return to work programmes are contingent on patients receiving appropriate medical care as quickly as possible. Since GPs are the first point of call for most people with MSDs and the signatory of sick notes, they have a vital role to play in ensuring that patients are able to manage their conditions, and are pivotal in either obstructing or facilitating an individual's return to work. Yet the length of referral time to be seen by a medical specialist is a complaint that is heard frequently from Estonian patients.

A 2004 review of the health care system reform in Estonia (Kallikorm and Tender, 2004) concluded that transition to a referral system significantly improved quality of RA care, observing a positive shift in early diagnosis as medical specialists were better equipped to provide appropriate care for RA patients. The authors forecast a decrease in direct and indirect costs following early treatment of severe rheumatic diseases. At the same time, in-country experts suggest that referrals may be inhibited by the inability of GPs to recognise MSDs.[16] Recent data suggest that waiting times for accessing specialist medical care in Estonia are increasing (see Figure 4.1).

Figure 4.1: Percentage of respondents reporting waiting times for specialist services (number of days between registration and visit)



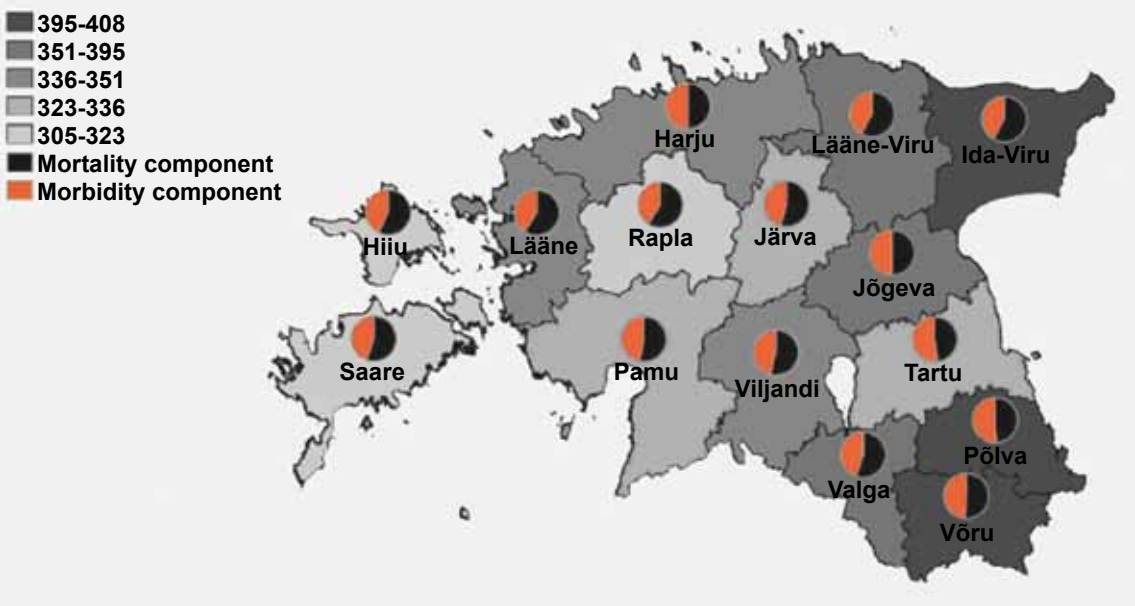
Source: WHO, 2010

[16] Expert interviews

There are currently 40 rheumatologists is Estonia[17], which is a good rate compared other European countries.[18] At the same time, there is still a considerable variation in access to medical care across counties, as well as between rural and municipal areas. Because local hospitals are more accessible for patients, particularly for those in rural areas, the waiting list for receiving specialist help is much longer in eastern regions of Estonia, as only one rheumatologist is available for consultation.[19] Noorkõiv and Leoma (2010) concluded that overall numbers of medical personnel are decreasing, with lowest number of physicians in Jõgeva (15) and Lääne-Viru (16) counties, compared to 63 specialists in Tartu. Similarly, Pert (2011) concludes that the number of occupational health physicians is not sufficient and is likely to be decreasing due to retirement of older specialists and lack of appropriate educational programmes.

Consequently people in some regions may be affected by the disease more severely. Figure 4.2 illustrates regional variation in the burden of the disease on the working age population.

Figure 4.2: Burden of disease per 1,000 persons in Estonian counties along with mortality and morbidity proportions, 2006



Source: Lai and Köhler (200)

[17] Information provided by an in-country expert
[18] See Appendix 3 for cross-country comparison
[19] Information provided by an in-country expert

Due to shortages of medical professionals, only local initiatives are in place to provide early treatment of RA. The case study below illustrates the benefits of early intervention for RA patients in Estonia.[20]

Box 1: Case study 1: Early intervention for patients with rheumatoid arthritis

Longitudinal research conducted at East Tallinn Central Hospital recognises the value of intervention during the early stages of RA. Data collected since 2005 indicates that patients who were diagnosed and received treatment soon after onset of the disease were likely to avoid exacerbation of their symptoms.

Building on the recognised value of early intervention for RA patients (for example, Bone and Joint Decade, 2005) and drawing on the results of a similar study conducted in Norway, this local initiative prioritises rheumatologic consultations for patients at early stages of the disease. A clinic has been set up at the hospital to decrease waiting times for patients, who were referred to a specialist within three months of the onset of disease. Those individuals were sometimes able to receive a consultation and start treatment within a few days of the diagnosis, as compared to almost one month of waiting that it normally takes.

The patients were then treated according to regular procedures with drug therapy, physiotherapy or other rehabilitation services. 30-35 per cent of all patients who received medical help early on showed no signs of disease after two years of treatment. While no comparison of the clinical outcomes across groups of patients with different timing of diagnosis is available, it is suggested that early treatment inhibited progress of inflammatory activity.

One of the benefits of early intervention is preserved working ability. People with active RA may have to leave work within two years of the onset of disease. All 220 patients in the study were employed at the time of admittance for treatment, as the intervention was accessed at very early stages of RA. Of the half of the patients still in treatment two years later only a quarter of the cases progressed into chronic erosive arthritis.

Cont.

[20] Expert interview

Cont.

Several challenges are reported by the programme:

- Lack of experience to recognise RA among GPs. Often patients are not referred to consultants early enough to benefit from early intervention programmes.
- Low awareness of the significance of early referral among individuals. Some RA patients did not report their symptoms to medical professionals until later stages of the disease.
- Gaps in patient data recorded by rheumatologists. Possible explanations include lack of protocol for collecting such data.
- Lack of reimbursement for physiotherapy and other rehabilitation procedures, much needed in the course of RA treatment. While drug therapy is fully covered by the insurance policies, the value of other medical interventions is not recognised, partially due to the lack of appropriate cost-effectiveness studies.
- Lack of support from policymakers. Wider application of the programme is inhibited by deficiencies in decision-making processes.

The programme aims to raise awareness of symptoms and the value of early interventions both among GPs and individuals, however, joined-up support is needed to realise the potential of the medical services available to reduce impact of RA for individuals and society.

Sometimes medical help is available, but patients do not refer to it. While work-related MSDs may be clinically diagnosed, employees continue to work and are reluctant to disclose the conditions to their employers. Neither employers nor employees recognise the long-term impact.[21] It is important to raise awareness of the availability and the importance of early treatment of the disease.

One initiative for patient empowerment is carried out on the state level through an e-health database, which makes health care records transparent to patients. The system aims to reduce bureaucracy in the process of delivery of health care, as well as shorten waiting times for referrals.[22] Estonia is one of the leading countries of e-health in Eastern Europe (Koppel, Kahur, Habicht, T., Saar, Habicht, J. et al., 2008). However, Tammaru, Polluste and Lember (2010) concluded that out-patients with RA often did not receive sufficient information about their disease from physicans.

[21] Expert interview
[22] See Estonian e-Health Foundation. (2011). http://eng.e-tervis.ee/

More preventive work should be done, including that by employers. However, 55 per cent of primary health care professionals reported that insufficient remuneration is the major barrier to preventive work (Pertel, Koppel, Kalda, Töetmets, Vaask et al., 2010) in Estonia.

4.2 The social security regime for the work disabled

It is clear that, in most EU member states, interventions made by the social security system can make a significant difference to citizens of working age with long-term, chronic or work-disabling conditions. Estonia, among other European countries, is transforming the welfare system to incentivise and support return to work for disabled persons.

At the same time the existing system of sick leave reimbursement may force employees to go to work even if they experience considerable health problems.[23] Recent reform of the sickness benefit system prescribed that the length of the non-compensated period of absence would increase from one to three days,[24] which may mean that employees are more reluctant to lose their wages by taking time off work. Delays in appropriate medical and workplace interventions may exacerbate health conditions and lead to disability.[25]

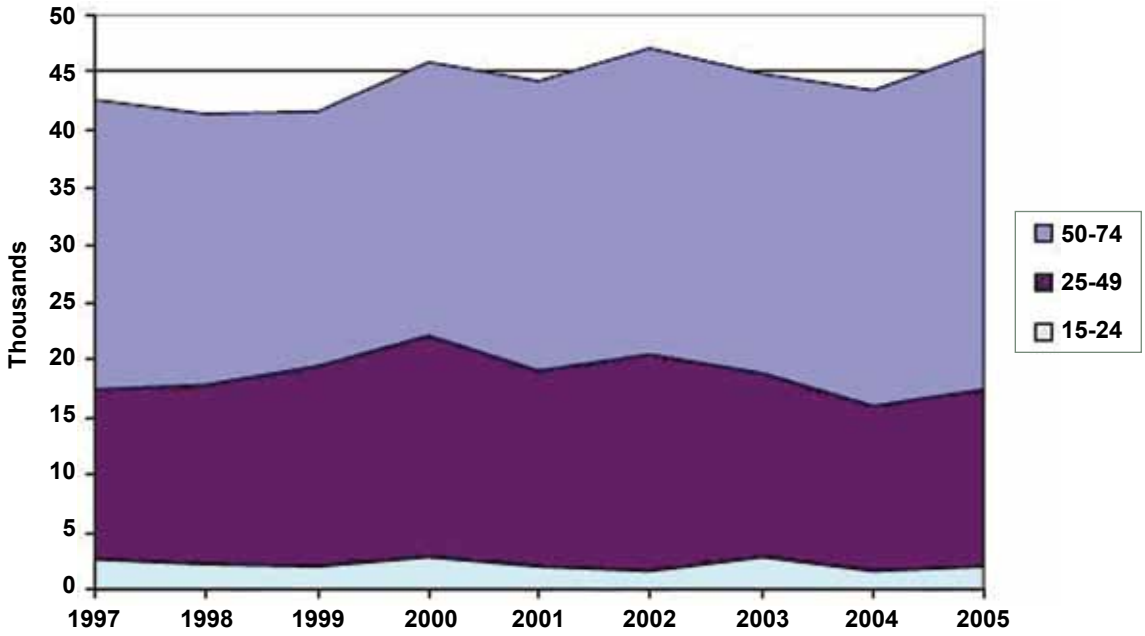
The number of people with disabilities is growing. In 2010 there were more than 120,000 disabled people in Estonia, almost 9 per cent of the total population.[26] MSDs are among the leading causes of disability in Estonia (Lai and Köhler, 2009). In 2002 MSDs accounted for 2.5 per cent of DALYs for males and 6.4 per cent of DALYs for females, causing a respective loss of 12.6 per cent and 17.1 per cent life years (WHO, 2006a). Disability presents Estonian society with large societal costs. Total welfare expenditure for disabled adults reached over 10 million euros (160 million EEK) in 2008 (Estonian Ministry of Social Affairs, 2009b).

Further indirect costs of disability result from the impact of long-term health conditions on individual's ability to participate in the labour market. About 41 per cent of the 14,800 individuals certified with disability in 2008 were of working age.[27] Figure 4.3 on the next page illustrates the growing number of economically inactive people in Estonia.

On the other hand, some previously inactive people may choose to return to the labour market in the context of financial hardship. Ill health may compromise their chances of finding work. At least 34.8 per cent of the Estonian working age population experience activity limitations because of long-term illness.[28] Of these, the labour force participation rate was 41.5 per cent in

[23] Expert interview
[24] See Estonian Ministry of Social Affairs. (2011). http://www.sm.ee/
[25] Expert interviews
[26] Statistics Estonia. (2011). http://www.stat.ee/
[27] See Estonian Ministry of Social Affairs. (2011). http://www.sm.ee/
[28] See Statistics Estonia. (2011). http://www.stat.ee/

Figure 4.3: Number of inactive people due to illness or disability, 1997-2005



Suhrcke, Võrk and Mazzuco (2006)

2009, increasing by over 3 per cent compared to 2008, however, the employment rate in this population group dropped by 2.6 per cent over the same period of time (30.7 per cent in 2009).

Financial support and rehabilitation services are available to people with disabilities. The size of incapacity allowance depends on the degree of impairment (profound, severe or moderate). In 2008 67,459 individuals were receiving pensions of whom the large majority were disabled with 80-100 per cent incapacity.[29] At the same time, the average incapacity pension is only 60 per cent of the size of the average pension, which in turn comprises just around 40 per cent of the average income (Academic Network of European Disability experts (ANED), 2007). The monthly allowance for disabled persons of working age is set at 25.57 euros for 2011.[30] These figures indicate that incapacitated people are under a high risk of poverty.

Rehabilitation services are in place in Estonia to support disabled people to return to work. In 2006 Estonia invested just 3,700 euros (57,827 EEK) in rehabilitation and up to 5,200 euros (80,997 EEK) in technical aids (ANED, 2007). That year 2,274 disabled persons received a rehabilitation allowance and the re-training of 51 individuals was supported financially. By 2008

[29] See Estonian Ministry of Social Affairs. (2011). http://www.sm.ee/
[30] See Estonian Ministry of Social Affairs. (2011). http://www.sm.ee/

the number of disabled persons of working age using rehabilitation services increased to 5,392 (Estonian Ministry of Social Affairs, 2009b). There is an in-service training allowance of up to 613.68 euros over a three year period. A further 255.70 euros over three years are available to disabled people to compensate for the costs incurred by the impairment to their work.

The Estonian Ministry of Social Affairs supports employment of partially incapacitated people through an initiative similar to the 'Fit' Note in the UK. Patients can receive a medical assessment stating how much capacity is preserved with regard to their health condition. They are then allocated to an alternative place of work according to their capabilities, or receive recommendations to adjust their current workload or work environment.[31] However, some people with disabilities are either unaware of or struggle to access assistance with return to work.[32]

Additionally, the Occupational Health and Safety Act states that the work environment must be adjusted to the individual physical and mental capabilities of disabled employees (Riigikogu, 1999). In 2007 and 2008 6.4 million euros (100 million EEK) were spent each year on workplace adjustments and technical aids (Estonian Ministry of Social Affairs, 2009b). However, many employers delay or even neglect measures needed to accommodate health conditions at the workplace.[33] One programme provides disabled people with a 'working with a support person' service to assist and supervise them at the workplace, gradually increasing the proportion of time worked independently.[34]

A focus on rehabilitation services will increase social inclusion of disabled people, as well as maintain a pool of skilled workers participating in the labour market. It is important that people with limited abilities are better integrated into society and the labour market in particular. Coping with the impact of health conditions has to become a priority both at the state and organisational level.

4.3 Condition-specific interventions

For those with specific musculoskeletal conditions, speedy referral to the appropriate specialist for investigation and treatment is usually vital. Those with MSDs can experience numerous problems associated with long term care, including long waits, failure to undertake a multidisciplinary approach, poor advice on pain management, and a lack of clear integrated pathways. Notwithstanding this, there are a number of condition-specific interventions which have been shown to be effective in improving job retention and return to work.

[31] Expert interview
[32] Expert interview
[33] Expert interview
[34] See Estonian Ministry of Social Affairs. (2011). http://www.sm.ee/

4.3.1 Non-specific MSDs

The primary focus of this report has been to examine the interventions and other factors which affect job retention, labour market participation and job quality among those with MSDs. As we have seen, there is evidence that physical impairment can represent a barrier to each of these aspects, but that many people – even those with serious and chronic incapacity – can and do lead full and fulfilling working lives. Since back pain and the majority of work-related upper limb disorders are not diseases to be cured, and there is very limited evidence that prevention is possible, it has been argued that the focus of treatment should be on returning to the highest or desired level of activity and participation, and the prevention of chronic complaints and recurrences (Burton, 2005; Bekkering et al., 2003) rather than eradicating the cause of the problem or returning to normal function.

Whilst treatment to ease or relieve the symptoms of non-specific MSDs will always be a priority, medical intervention is not necessarily the only, or the best route to recovery or helping those with non-specific MSDs to manage their condition. In fact, for non-specific conditions, an individual's recovery and chances of returning to work can be adversely affected by 'over-medicalising' their condition. The limitations imposed by sick notes, statutory sick leave and formalised return to work programmes may serve to reinforce the 'illness' of the patient and can tie employers hands. Based on evidence that psychosocial factors are a determinant of chronicity and disability in those with back pain, there is a strong argument for re-conceptualising this condition and its treatment, which has important lessons for other types of non-specific musculoskeletal pain (Burton, 2005).

Waddell and Burton (2006b) summarise the challenge neatly in their work on vocational rehabilitation. They point out that, whilst many non-specific MSDs do not have clearly defined clinical features and have a high prevalence among the working age population, most episodes resolve themselves and most people with these conditions remain at work or return to work very quickly. In their view, a focus on incapacity alone can be unhelpful:

> *'..the question is not what makes some people develop long-term incapacity, but* ***why do some people with common health problems not recover as expected?*** *It is now widely accepted that biopsychosocial factors contribute to the development and maintenance of chronic pain and disability. Crucially, they may also act as obstacles to recovery and return to work. The logic of rehabilitation then shifts from dealing with residual impairment to* ***addressing the biopsychosocial obstacles that delay or prevent expected recovery****.'* (Waddell and Burton, 2006b, p.7) [bold in original text]

The biopsychosocial model is an explanatory framework that recognises the importance of psychological and social factors in determining how those with MSDs cope with their conditions. The following section provides a brief overview of the biopsychosocial model and outlines the implications that it has for the workforce.

4.3.2 Rheumatoid arthritis

The importance of effective and early treatment of RA in reducing joint damage and disability is now widely acknowledged (Pugner et al., 2000). Since there is currently no 'cure' for RA, the focus of treatment is on controlling signs and symptoms, enabling the patient to manage their condition and improving quality of life. Medical treatments for RA are directed at suppressing one or other part of the joint damaging processes, the effectiveness of which has improved in recent years. Since it is well documented that the functional capabilities of RA patients will decline over time, it is critical that patients should be treated as quickly as possible with disease-modifying anti-rheumatic drugs (DMARDS) to control symptoms and disease progression (Scottish Intercollegiate Guidelines Network (SIGN), 2000). One study found that there is a 73 per cent risk of erosive damage in patients who wait over a year between symptom onset and referral to rheumatology clinics (Irvine, 1999 in Luqmani, Hennell, Estrach, Birrell, Bosworth et al., 2006).

Growing clinical evidence demonstrates that anti-TNF drug therapies can have a more powerful effect on RA than DMARDs, especially in improving job retention and work participation (Halpern, Cifaldi, and Kvien, 2008). However, only 1.8 per cent of people with RA in Estonia receive biological treatment, that proportion is lower than in most European countries (Orlewska, Ancuta, Anic, Codrenau, Damjanov et al., 2011). It seems that, due to long waiting lists and insufficient number of consultants in some regions in Estonia, treatment is delayed for some RA patients who can benefit from anti-TNF drug therapies.[35] As Estonian patients carry the partial costs of treatment, up to 40 per cent of individuals in the study conducted by Laidmäe and Tulva (2008) reported financial difficulties in obtaining medication.

Medical interventions in the form of drug therapy to control inflammation and disease progression, and surgery to redress structural damage are only part of managing the care of RA patients. Other important elements include patient education and empowerment, practical self-management to help deal with symptoms and specialist support to help live with the disease and its consequences. The effective management of RA has to involve not only the clinical team (including GPs, consultant rheumatologists, physiotherapists, occupational therapists, chiropodists, podiatrists, pharmacists, primary care nurses and orthopaedic surgeons), but the

[35] Expert interview

participation of the patient and, ideally, their employers and relevant patient groups. In-country evidence (Laidmäe and Tulva, 2008) – and experts interviewed for this research – suggest, however, that access to rehabilitation is even worse than availability of drug treatment. It appears that the lack of cost-effectiveness studies of various interventions limits compensation of some treatments, such as physiotherapy.[36]

4.3.3 Spondyloarthropathies

Prompt referral to specialists for confirmation of a diagnosis and the start of treatment is also essential for those with AS and other rheumatic conditions. Since (similarly to RA) there is no cure for AS, the aim of therapeutic intervention is to reduce inflammation, control pain and stiffness, alleviate systemic symptoms such as fatigue, and to slow or stop the long-term progression of the disease. The prescription of non-steroidal anti-inflammatory (NSAIDS) or anti-TNF drugs coupled with regular physiotherapy forms the current basis for the treatment of AS.

As AS typically affects relatively young people, its potential to disrupt or even curtail an individual's labour market participation may be significant. As we have discussed, there are important clinical, social and economic benefits to keeping these patients in work as long and consistently as possible. Depending on the severity of their condition, AS patients can benefit from workplace adjustments, flexible working arrangements, exercise regimes and physiotherapy (Boonen et al., 2001).

4.4 The biopsychosocial model and work

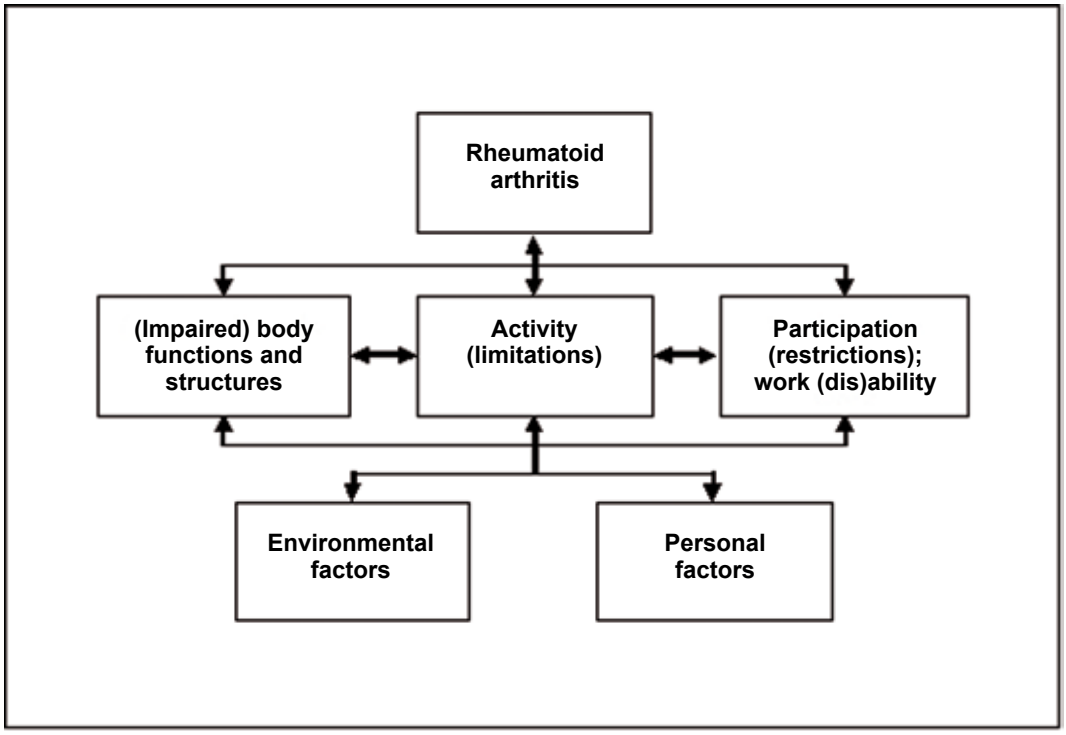
The biopsychosocial model advocates that clinicians, occupational health professionals and others should assess the interplay between the **biological** (eg disease, joint damage), the **psychological** (eg disposition, anxiety) and the **social** (eg work demands, family support). Clearly, the psychological disposition and behaviour of a patient can have a significant impact on the way a physical 'injury' (such as back pain) is approached by a patient. In some cases the patient risks entering a self-reinforcing cycle of incapacity, delayed recovery and even depression if their dominant response to pain is to 'catastrophise' it. Of course there may be many factors which affect an individual's disposition to 'catastrophise', including personality, previous medical history, levels of family support or job satisfaction (Sullivan and D'Eon, 1990). It is evident that the interaction of the biological, psychological and social dimensions can have a significant impact on the development, progression of, and rehabilitation from, a musculoskeletal condition.

[36] Expert interview

Since it was first proposed in the late 1970s, a growing body of evidence has developed to support the biopsychosocial model. For example, research has demonstrated that job dissatisfaction can be an important predictor of speedy and successful return to work (Bigos, Battie and Spengler, 1992). On the issue of social support, studies have shown that limitations in functioning attributable to MSDs can stress family systems and lead to family conflicts if the patient is unable to perform normal family duties (Hamberg, Johansson, Lindgren and Westman, 1997; MacGregor, Brandes, Eikermann and Giammarco, 2004; Kemler and Furnée, 2002). On the other hand, an overly solicitous family (or, by extension, manager or colleague) may reinforce MSD patient passivity and encourage the patient to adopt a 'disabled' role (Kerns, Haythornthwaite, Southwick and Giller, 1990; Block, Kremer and Gaylor, 1980).

de Croon, Sluiter, Nijssen, Dijkmans, Lankhorst et al. (2004) looked at the research on work disability among people with RA and concluded that psychosocial factors were often a better predictor of work disability than standard bio-medical factors. In Figure 4.4, below, the authors highlight how wider environmental and personal factors enhance the explanatory power of the International Classification of Functioning, Disability and Health (ICF) in the case of work disability and RA.

Figure 4.4: ICF model applied to work disability in RA



Source: de Croon et al., 2004

Some critics of the biopsychosocial model (McLaren, 2006) have focused on this last point, highlighting concerns that this approach may encourage or 'permit' helplessness in some patients or that, in other circumstances, it may alienate patients who feel that they are being told that their condition is 'all in the mind'. Clearly, care must be taken in the way that clinicians and others mitigate these risks, but the balance of the literature – and of the expert opinion offered during the course of our interviews – is strongly in support of the biopsychosocial model and its role in informing the management of MSDs in both clinical and occupational settings (Smyth, Stone, Hurewitz, and Kaell, 1999; Carter, McNeil and Vowles, 2002; Zampolini, Bernardinello, and Tesio, 2007). Indeed, it forms the basis of the World Health Organisation's *International Classification of Functioning, Disability and Health* (ICF) which has been widely embraced as an authoritative guide for vocational rehabilitation (WHO, 2001).

An example of successful intervention to reduce sickness absence based on the biopsychosocial model is provided by Ektor-Andersen, Ingvarsson, Kullendorff and Ørbæk (2008). In their study Ektor-Andersen et al. developed a tool based on the cognitive behavioural theory (CBT) method of functional behaviour analysis according to which risk factors for long-term sick leave due to musculoskeletal symptoms were identified in four different domains: the community, the workplace, the family/spare time and the health care system. Care-seekers were examined by each member of the interdisciplinary team and risk factors were identified and classified as stable or dynamic. Dynamic factors were the ones the care-seekers and the team agreed to intervene on. Some of these interventions involved CBT sessions and other focused more on physiotherapy which were then administered for a year. Results from the study show that this type of intervention is effective in significantly reduce sick leave and social security expenditure already four months after the intervention started. Although the cost-benefit analysis presented by Ektor-Andersen et al. (2008) underestimates the total savings by taking into account social security costs only, the costs of this type of intervention are balanced out by the reduced costs in sickness allowance during the first year.

As Waddell and Burton (2006b) have argued, the goals of the biomedical model are to relieve symptoms, whereas the goals of clinical management informed by the biopsychosocial model – especially in occupational settings – should be to control symptoms and to restore function. This suggests that employers contribute to the 'social' part of the biopsychosocial model and that their actions can make a difference to the outcome for individuals with MSDs.

4.5 The role of employers

4.5.1 Awareness of conditions and their management

Many employers remain unaware of the nature of MSDs, both in terms of the immediate impact on functional capacity at work and, where relevant, the manifestations and progression of the conditions. For example, employees with RA or SpA may be susceptible to periodic 'flares' of inflammation and severe pain followed by fatigue and possible depressed mood. Unless employers are aware that these symptoms are expected or 'typical', they can adopt an unhelpful or over-cautious approach to return to work.

Whilst the message about manual handling and work design may have got through to many employers, the fact that absence and even reduced work requirements can be counter-productive has yet to become common currency. Few Estonian employers prioritise employee health, as sustained performance and job retention have not yet become valued organisational outcomes as it is in many foreign-based companies operating in Estonia.[37] Furthermore, the structure of the taxation system may disincentivise employers from providing a wider range of employee benefits.[38] Some large size organisations have more resources to have an occupational specialist on staff and are therefore more likely to recognise the impact of ill health on performance. At the same time, such employers often benefit from a continuous inflow of new candidates and may be less motivated to retain unhealthy employees.[39] Provisions for occupational health and safety in SMEs and micro-sized organisations are virtually non-existent, mostly due to financial reasons.[40] Only 14 per cent of those employed by micro-enterprises had a health and safety representative at work as compared to 23 per cent of employees of large organisations (Woolfson, Calite and Kallaste, 2008).

Changing attitudes and raising awareness about the management of MSDs is an important part of reducing their burden to employers and society. The case study below illustrates an example of proactive management of MSDs in an Estonian hospital.

[37] Expert interview
[38] Expert interview
[39] Expert interview
[40] Expert interview

Box 2: Case study 2: Prevention of musculoskeletal disorders among nursing and care staff

Nursing and care staff comprise just over 40 per cent of all employees in a large Estonian hospital, where management has worked to established a safe working environment among employees through relevant training and workplace adjustments. The programme has aimed to reduce the impact of long-term disabilities resulting from MSDs, as well as to relieve the burden falling on healthy employees covering for those on sick leave. The programme sought to address concerns associated with reducing the risk of jeopardising the quality of health care as a result of staff shortages and high turnover due to low job satisfaction among nursing and care staff.

The health of nurses and caregivers is under high risk, as these jobs are often associated with lifting, holding and carrying people (Ernits, 2007). Poor posture and physical effort may exacerbate or contribute to the development of work-related musculoskeletal problems. A survey of 156 employees has reported that almost two-thirds of its nurses and carers were exposed to occupational hazard through continuous muscle tension, resulting in low back pain (50.6 per cent of surveyed), neck (28 per cent) and upper limb disorders (21.8 per cent).

A number of work environment factors presenting a risk of developing bone and musculoskeletal disorders were identified in the research. Nursing and care staff often had unstable or poor posture and inappropriate shoe wear. Having to move patients, they frequently exerted intense and continuous physical effort, and could expect to suddenly have to move into kneeling positions. Generally poor levels of training in ergonomics were observed.

The approach to prevention of MSDs relied on creating a system of communication between the departments and services aimed at raising health and safety awareness. Measures taken as part of the intervention programme included:

- Risk assessment conducted by occupational health specialists;
- Line manager involvement in health and safety awareness;
- Regular medical check-ups and hospital rehabilitation services for staff;
- Health and safety training as part of neurological, critical, perioperative, and geriatric care training;
- Equipment to improve working conditions.

Cont.

Cont.

Most importantly, adjustments to work environment were made to improve health and safety of the workplace:

- Hospital beds with access from three sides;
- Smooth floor surfaces, no elevated doorsteps;
- Easy access to wheelchairs, beds, walking frames to reduce effort of moving the patients;
- Corridors fitted with hand rails to reduce patient demand for assistance;
- Showers substituted with baths fitted with rails and benches to assist patients more easily, without the staff having to work in bent and kneeling positions.

The initiative has shown to be effective in improving occupational health (see Table).

	2005	**2007**
Overall demand for medical examinations among staff	835	585
Employees advised to improve patient handling techniques	209	63
Employees prescribed from handling loads	21	3

The costs of the intervention comprised of training (educator fees, teaching aids, videos) at 6,400 euros (100 000 EEK), equipment at around 1 million euros (15 million EEK) and adjustments to work environment (including ergonomic workstations) at 128,000 euros (2 million EEK). On the other hand, the observed benefits (although not expressed monetarily) included avoided costs of treatment and disability benefits, time savings, and reduced work-related stress conducive to improved quality of patient care and patient satisfaction.

However, it is not just employers that need to know more about MSDs and their treatment. One of the most persistent (and pernicious) myths about back pain, for example, is that bed rest is the best solution. Health promotion campaigns, such as 'Lighten the Load 2007' (Kergenda Kandamit),[41] have been shown to be effective at getting the message across that experiencing pain does not necessarily mean that the condition has worsened or that being active is bad for you (Buchbinder, Jolley and Wyatt, 2001; Bone and Joint Decade, 2005) and have provided recommendations of how to prevent and manage pain in the workplace. This demonstrates that

[41] See European Agency for Safety and Health at Work Estonia. http://osh.sm.ee/good_practice/e-nadal-2007.htm

with sufficient commitment and investment from central government, campaigns of this scale can have an impact on public perceptions of common MSDs. One way to raise awareness of good work environmental practices within on a country level is realised through the European Network for Workplace Health Promotion, covering around 70 enterprises in Estonia.[42]

The Estonian Ministry of Social Affairs supports employers' participation in improving the health status of employees, encouraging their integration in the workplace[43], for example through tax relief.[44] However, cost concerns prevent many organisations from taking advantage of that incentive.[45] The major reason for low awareness of employers is lack of communication between various stakeholders in tackling a high prevalence of MSDs among employees. A national centre for occupational health would be one helpful institution to coordinate information and activities in improving health outcomes for Estonian workers.[46]

Furthermore, experts emphasise that employees are equally unaware of the principles of healthy behaviour.[47] Risk assessment of work environments under the 'Lighten the Load 2007' (Kergenda Kandamit) campaign in Estonia confirms that some employees fail to comply with recommended safety procedures in the workplace, even when ergonomic aids are available.[48] A positive approach and encouragement to improve safety standards rather than penalising employees for poor practice appears to be efficient in increasing awareness of the long-term effects of unhealthy behaviour.

4.5.2 Intervention and adjustment of work demands

Not only has evidence shown that work is good for you but returning to modified work can help recovery (Feuerstein, Shaw, Lincoln, Miller and Wood, 2003; van Duijn and Burdorf, 2008). Among occupational health specialists, the use of vocational rehabilitation has long been an accepted mechanism for ensuring that individuals with illness, injury or incapacity can return to work (even to perform adjusted work) as soon and as sustainably as possible. There have been concerns that rehabilitation is not well-integrated into mainstream clinical practice and that return to work is not seen by a sufficient proportion of clinicians as a valued outcome for the patient (Frank and Chamberlain, 2006). It is also important to stress that vocational rehabilitation is not the preserve of professionals. In practice effective management is as, if not more, important than formal rehabilitation.

[42] Expert interview. See European Network for Workplace Health Promotion http://www.enwhp.org/
[43] See Astangu Kutserehabilitatsiooni Keskus http://www.astangu.ee/
[44] See Estonian Ministry of Social Affairs http://www.sm.ee/eng/for-you/employers/hiring-a-person-with-a-disability.html
[45] Expert interview
[46] Expert interview
[47] Reiterated in expert interviews
[48] Information provide by an in-country expert

Yet, employers, if they think about this at all, invariably consider the physical job demands which need to be met by an employee with an MSD.[49] The biopsychosocial model requires that the mental demands of the work are also considered as part of the return to work process. There is a growing body of work which shows that adjusting a variety of work demands can support successful return to work among those with a range of MSDs (Schultz, Stowell, Feuerstein and Gatchel, 2007; de Croon et al., 2004; Feuerstein, Shaw, Nicholas and Huang, 2004; Chorus, Miedema, Wevers and van der Linden, 2001). The success with which both employee and employer can manage the process of re-adjustment during return to work can also depend on the beliefs that both parties have about the extent to which the work itself is (at least in part) caused by or related to the incapacity. However, a survey of employees with occupational diseases has shown that only 6 per cent of respondents were retrained to accommodate their condition, while 73 per cent experienced a negative attitude from their employer regarding their diagnosis (Kahn et al., 2007).

There are numerous types of work-based intervention for assisting those with MSDs, ranging from ergonomic adjustments to providing access to physiotherapy, modifying work programmes to cognitive behavioural therapy, or a combination of various strategies. Evidence on the success of these interventions at tackling non-specific MSDs is mixed (Meijer et al., 2005).[50] A systematic review of multidisciplinary treatments of patients with low back pain, for example, demonstrated that whilst the treatment improved function and decreased pain in individuals, it could not be demonstrated that this was linked to employees returning to work earlier than those who had not received it (Guzman, Esmail, Karjalainen, Malmivaara, Irvin et al., 2001). Whilst biomechanical or ergonomic factors may be related to the onset of back pain, evidence that interventions based on these principals will prevent re-occurrence or progression to chronicity is thin on the ground (Burton, 1997). In fact, it has proved virtually impossible to determine whether one treatment is significantly more effective than another (Ekberg, 1995). Even for specific conditions such as RA, the evidence for the effectiveness of vocational rehabilitation is slim (Backman, 2004; de Buck, Schoones, Allaire and Vliet Vlieland, 2002).

There is nonetheless broad agreement on the principles for managing non-specific MSDs, particularly back pain, that are outlined in Box 3 below. This includes advice and a number of relatively simple measures for employees and employers to follow on how to deal with back pain.

[49] Reiterated in expert interviews
[50] Findings from an evaluation of the effectiveness of return-to-work treatment programmes were inconsistent

Box 3: Principles of managing non-specific MSDs

- Early treatment should be sought for back pain.
- Most back pain is not due to a serious condition.
- Simple back pain should be treated with basic pain killers and mobilisation.
- It is important to keep active both to prevent and to treat back pain.
- Getting back to work quickly helps prevent chronic back pain.
- Adopt the correct posture while working.
- All workplace equipment should be adjustable.
- Take breaks from repetitive or prolonged tasks or postures.
- Avoid manual handling and use lifting equipment where possible.
- Clear information should be provided to employees about back care.
- Health and safety policies should be implemented to cover all aspects of day-to-day work and should be reviewed regularly.

Source: Health and Safety Executive (HSE), 2002

This requires employers to think beyond their statutory duty to address health and safety risks, and to recognise that sickness absence management, effective return to work programmes and rehabilitation are, at bottom, principles for effective management (Waddell and Burton, 2006b). Much is dependent on raising awareness about how to manage the symptoms of MSDs amongst employees and their managers, and ensuring that the latter have the skills and confidence to support employees in work.

4.5.3 Line managers

What is clear is that the role of line managers in early intervention is crucial, both in work retention and rehabilitation. Yet many line managers feel ill-equipped to manage long-term absence and incapacity. They may find aspects of mental ill-health or chronic incapacity awkward and embarrassing to talk about or confront, and are therefore unable to manage disclosure of ill health appropriately. Additionally, managers may be concerned about challenging or asking for more information about GP sick notes, making home visits or telephoning staff at home for fear of being accused of harassment or falling foul of the law and landing themselves and their organisation in a tribunal. They are also ignorant of, or uncomfortable with, the idea of rehabilitation. Although the Occupational Health and Safety Act (Riigikogu, 1999) requires employers to make adjustments to support employees with long-term illness or injury 'if necessary', regular inspections of workplaces find that few managers proactively think about changing job design and schedule to accommodate employee needs.[51]

[51] Expert interview

Given that MSDs are the most common work-related health problem, and the importance of psychosocial factors in determining whether employees remain in work or return to it as soon as they can, managers need to have the skills to deal with staff who have them, or the costs to their organisation may be significant, particularly for small and medium enterprises. Small employers also have issues with employees with MSDs, as their absence from work can have, potentially, more impact on customer service, productivity and business performance.

4.5.4 Improved employer-clinician dialogue

On the face of it, many of the return to work challenges faced by employees with MSDs may be improved if there was an improved level of mutual understanding between employers and clinicians. As highlighted above, the clinical appreciation of most MSDs by employers can be cursory to say the least. It is often argued that most GPs, in their turn, have little or no appreciation of the vocational or occupational dimension of many MSDs. Medical students in Estonia spend a very small proportion of their time learning about occupational health (Akesson, Dreinhofer and Woolf, 2003), in particular health promotion and disease prevention (Pertel et al., 2010). In addition, many GPs feel uncomfortable or incompetent when asked to assess 'workability' (Arrelov, Alexanderson, Hagberg , Lofgren, Nilsson et al., 2007; Swartling, Hagberg, Alexanderson and Wahlstrom, 2007), as they often have little understanding of specific tasks undertaken by employees and the work environment in general. As a result, GPs may feel that a return to work would exacerbate a condition unless an individual is 100 per cent fit.

For their part, employers will only very rarely challenge a GP's sick note, or ask for a second opinion on the potential for a beneficial return to work for a patient. The consequence of this mutual lack of understanding and resulting dearth of dialogue can often be that the MSD patient either continues to work without necessary adjustments to the health condition, or is stranded in unemployment, with no clear pathway back to work and, more importantly, no voice. A proactive, inclusive, multi-disciplinary, capability-focused approach to vocational rehabilitation, informed by the biopsychosocial model and delivered through case management is widely regarded as the most enlightened and effective approach to take in the majority of work-related MSD cases. Quite often both employers and GPs will focus on the aspects of the job which an MSD patient cannot currently perform, rather than on those which they can. More patients should be issued with a 'Fit' Note, which is proving to be a successful practice to help partially incapacitated people to return to work.

One of the attractions of the biopsychosocial model is that it 'joins up' the three core strands of the MSD patient's experience, and management of, their condition. It offers a comprehensive framework with which to look at the diagnosis and treatment of a range of MSDs, especially when an important outcome for the individual is to stay in, or to return swiftly to, work.

4.6 Summary

This section has outlined the case for early intervention, first and foremost to benefit the health of those with MSDs, but also to ensure that they remain productive members of the workforce. However, it also demonstrates that interventions should ideally begin before those experiencing musculoskeletal pain visit their GP, and extend beyond the signing of a sick note. The biopsychosocial model clearly illustrates the need for a more comprehensive understanding of the factors that contribute to the development of non-specific MSDs, taking into account individual or psychological factors as well as the social milieu in which individuals live their lives, in which work plays a large part. To achieve this, employers, employees and clinicians need to talk to one another more effectively. Whilst this is challenging, and undoubtedly not common practice today, the costs of not addressing this problem were highlighted in this chapter.

5. Conclusions and recommendations

Work is, unambiguously, good for our health. It provides income, generates social capital and gives purpose and meaning. At the same time, the evidence presented in this report illustrates that workability of a large proportion of working age people in Estonia is, or will be, directly affected by MSDs. This can have very significant social and economic consequences for these individuals and their families, it can impede the productive capacity of the total workforce and parts of Estonian industry and it can draw heavily on the resources of both the health service and the benefits regime.

If Estonia's workforce is to be productive and competitive in the global economy, and if the quality of their working lives is to be enhanced, it is important that a high proportion of the workforce is, as far as possible, fit for work. Estonia's National Health Plan (Estonian Ministry of Social Affairs, 2008) and the Tallinn Charter (WHO, 2008) are first steps towards prevention of ill health, however, there seems to be a lack of coherence or 'joined-up' thinking and action by government, clinicians and employers which focuses on the MSD **patient as worker.** The Work Foundation has a number of recommendations for several interested parties in this field. Our intention is to encourage some of the key players to recognise that more can be done to ensure that continued active participation in the labour market is almost always a strongly positive force for health, fulfilment and for prosperity.

GOVERNMENT should prioritise reducing the costs of MSDs for individuals, employers and the labour market and consider a national plan for people with MSDs, driven forward by a dedicated representative at the Ministry of Social Affairs.

- Tackle the regional variation in access to consultant rheumatologists and clinical staff (eg physiotherapists) and invest in clinical services that enable early diagnosis and treatment and prevent premature withdrawal of individuals form the labour market. Similarly, the government should support access to the occupational health specialists to facilitate job retention and return to work for individual employees.

- Learn from local good practices and examples from other countries to implement effective measures on a wider scale. The past experience of national campaigns should inform future actions to improve health and well-being of Estonian employees. The government should review the extent of collaborative working between the Estonian Ministry of Social Affairs, Estonian Health Insurance Fund and Labour Inspectorate to assess and act on the health profile of the Estonian workforce.

- Train GPs in handling occupational health issues and bring forward proposals to replace the current system of sickness certificates with a UK-style 'Fit Note' which encourages GPs to indicate what a worker is still capable of performing.

- Improve the quality of data in Estonia on MSDs among its working age population to inform policy-making and targeting of expertise and resources. It is almost impossible to build up an accurate or comprehensive picture of levels of absence from work, work-related incapacity and its causes and the level of mental illness in the workforce.

EMPLOYERS should give individuals a voice in making decisions about workplace organisation. Acknowledge invaluable skills of employees and support job retention through workplace and working time adjustments to hasten recovery or rehabilitation.

- Use occupational health advice and tailor vocational rehabilitation to the individual needs. Make use of government incentives supporting workplace interventions. Recognise that managing employee well-being beyond legal compliance can bring benefits for employee engagement and productivity.

- Train line managers in tackling the impact of MSDs. Even with an occupational health specialist within an organisation, managers are in the front line of staff absence and are in a better position to spot the early warning signs of a problem and to help rehabilitate employees after a period away from work.

- Imaginative ergonomic adjustments and job design will assist rehabilitation. Changes in the ways work is organised (including simple changes to workplace and working time arrangements) will help prevent MSDs getting worse and to help people with MSDs to return to work even if they are not 100 per cent fit.

EMPLOYEES should not delay talking to their doctors about their symptoms. Carrying on with a regular workload when unwell may lead to complications in the future. If your MSD is causing you difficulty, discuss your needs for working time or environment adjustments together with your doctor and your manager.

- Know your rights. As both a patient and as a worker you should know what support and advice you are entitled to if you are ill, without fear of losing your job. If you are a trade union member, your union should be able to guide you on much of this.

- Focus on capacity not incapacity. It's natural to be anxious or even guilty about the parts of your job which you may find difficult to perform because of your MSD. Work with your managers and your colleagues to find out how you can maximise your impact at work within the constraints of your condition.

- Play an active part in the management of your condition. You shouldn't let your MSD control your life at home and at work. Find out more about your condition, watch for patterns in pain or fatigue and learn how you can minimise its impact on your functioning and your mood. The Estonian Chamber of Disabled People and Estonian Rheumatism Association may be a valuable source of support and information on dealing with health conditions.

HEALTH CARE PROFESSIONALS should work in partnership with the patient and their employer for early intervention and phased return to work. Identify where job retention or early return to work is good for the patient.

- Consider the evidence for the beneficial impact of work on health and well-being. It is easy to assume that work is unambiguously bad for patients, especially if aspects of their job are making their symptoms worse. Staying at work on lighter duties or with adjusted hours might still be a better option than a prolonged absence from work.

- Seek to refer patients to specialist teams as early as practicable, to enable management of the condition to begin. GPs are ideally placed to identify the early presentation of many MSDs. Consider the expertise of other stakeholders, such as physiotherapists, medical professionals and patient groups regarding the physical, social and psychological aspects of chronic diseases.

- Encourage patient self-management. A feeling of empowerment and control will help their mood and ensure that they can keep on top of important aspects of their incapacity while at work. Occupational health professionals should play a proactive part in mediating between employer and employee, or employer and GP to ensure that the patient can use return to work as a positive way of managing their condition, on the one hand, but at the same time is not afraid to admit being unwell and take reasonable time off work.

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Appendix 1: Interviews and consultation with experts

The following people shared their views and information with us during the course of our research and we are very grateful for the time each spent. We have taken their views into account in writing this report, though their participation in the study does not in any way imply endorsement of the report's conclusions

Mr Nikolai Dežin	Charitable disability organisation 'Miloserdie'
Mr Kristjan Jansen	Estonian Ergonomics Society
Mr Meelis Joost	Estonian Chamber of Disabled People
Dr Karin Laas	East Tallinn Central Hospital
Ms Kadri Laugen	Working Life Development Department Estonian Ministry of Social Affairs
Ms Kristel Oha	Institute of Technology Estonian University of Life Sciences
Ms Liisa Pert	Health Board Bureau of Occupational Health
Dr Toomas Põld	Qvalitas Health Centre
Ms Ingrid Põldemaa	Estonian Rheumatism Association
Mrs Silja Soon	Estonian Labour Inspectorate
Dr Piia Tint	Chair of the Labour Environment and Safety Tallinn University of Technology
Ms Sirje Vaask	Department of Health Care Estonian Health Insurance Fund
Dr Tiina Veldi	East Tallinn Central Hospital
Dr Ahe Vilkis Dr Evelyn Aaviksoo	Estonian Society of Occupational Health Physicians

Appendix 2: Sample 'Fit' Note

Statement of Fitness for Work
For social security or Statutory Sick Pay

Patient's name: Mr, Mrs, Miss, Ms

I assessed your case on: / /

and, because of the following condition(s):

I advise you that:

- ☐ you are not fit for work.
- ☐ you may be fit for work taking account of the following advice:

If available, and with your employer's agreement, you may benefit from:

- ☐ a phased return to work
- ☐ amended duties
- ☐ altered hours
- ☐ workplace adaptations

Comments, including functional effects of your condition(s):

This will be the case for

or from / / to / /

I will/will not need to assess your fitness for work again at the end of this period.
(Please delete as applicable)

Doctor's signature

Date of statement / /

Doctor's address

Med 3 04/10

Source: Department for Work and Pensions (2010).

Appendix 3: Benchmarking grid

The Fit for Work Europe study has looked across 27 European countries. This approach allows us to explore how far early intervention is implemented across Europe. It also enables us to see how far we may identify both enablers and barriers to early intervention given the different approaches to policies that affect the labour market, the welfare system and the health care system. To explore this we have looked widely at a number of indicators covering the:

- Labour market;
- Welfare system;
- Health care system.

The data presented below come from various international data sources. Where possible we used 2009 data to allow for comparisons across countries for a number of different indicators. The data mainly come from the Eurostat. We present a selection of indicators below.

Appendix 3: Benchmarking grid

	GDP per capita in PPP	% of the population of working age	% of the population aged ≥65	Unemployment rate (%)		Long term unemployment rate, % of active population	Prevalence of disability as a percentage of 20-64 population	Average age of withdrawal from the labour market		Labour productivity per hour, relative to EU-27 (=100)	Hourly labour costs
				M	F			M	F		
Austria	29,300	84.9	17.4	5.0	4.6	1.0	14.4	62.6	62.6	113.2	€26.33
Belgium	27,400	83.1	17.1	7.8	8.1	3.5	14.0	61.2	61.2	125.5	€32.56
Bulgaria	10,400	86.6	17.4	7.0	6.6	3.0	--	--	--	39.9	€1.89
Croatia	15,100	84.7	17.2	8.0	10.3	5.1	--	--	--	78.7*	--
Czech Republic	19,200	85.9	14.9	5.9	7.7	2.0	13.8	62.0	62.0	72.9	€7.88
Denmark	28,400	81.7	15.9	6.5	5.4	0.5	20.7	61.4	61.4	103.3	€34.74
Estonia	15,000	85.1	17.1	16.9	10.6	3.8	23.0	--	--	65.5	€6.60
Finland	26,600	83.3	16.7	8.9	7.6	1.4	20.5	62.0	62.0	108.9	€27.87
France	25,400	81.5	16.5	9.2	9.8	3.3	13.2	59.4	59.4	120.9	€31.06
Germany	27,400	86.4	20.4	8.1	7.3	3.4	17.5	62.6	62.6	105.1	€27.80
Greece	22,100	85.7	18.7	6.9	13.2	3.9	8.3	61.6	61.6	98.9	--
Hungary	15,300	85.1	16.4	10.3	9.7	4.2	22.1	--	--	53.5	€7.13
Ireland	29,800	79.1	11.0	14.9	8.0	3.4	13.3	--	--	130.5	--
Italy	24,400	86.0	20.1	6.8	9.3	3.5	9.0	61.0	61.0	111.7	--
Latvia	12,200	86.3	17.3	20.3	13.9	4.6	--	--	--	53.0	€4.41
Lithuania	12,900	84.9	16.0	17.1	10.4	3.2	--	--	--	57.3	€5.09
Netherlands	30,800	82.3	15.0	3.7	3.8	0.9	16.8	64.2	64.2	111.2	--
Norway	42,000	81.0	14.7	3.6	2.6	0.5	16.3	64.1	64.1	146.9	--
Poland	14,300	84.7	13.5	7.8	8.7	2.5	11.3	61.4	61.4	46.7	€6.78
Portugal	18,900	84.7	17.6	9.0	10.3	4.3	18.7	62.9	62.9	75.6	€11.32
Romania	10,900	84.8	14.9	7.7	5.8	2.2	--	--	--	47.9	€3.41
Slovakia	17,200	84.6	12.1	11.4	12.8	6.5	14.0	59.7	59.7	80.7	€6.41
Slovenia	20,700	86.0	16.4	5.9	5.8	1.8	15.0	--	--	82.4	€12.09
Spain	24,300	85.2	16.6	17.7	18.4	4.3	11.1	61.8	61.8	109.8	€16.39
Sweden	28,000	83.3	17.8	8.6	8.0	1.1	18.1	64.2	64.2	109.9	€33.30
Switzerland	34,000	84.7	16.6	--	--	--	10.4	64.6	64.6	108.1*	--
Turkey	10,700	73.7	6.8	12.5	12.6	2.8	--	--	--	61.6*	--
UK	26,500	82.5	16.3	8.6	6.4	1.9	17.6	63.6	63.6	106.6	€26.39
EU-27*	23,600	84.4	17.2	9.0	8.9	3.0	--	61.9*	61.9*	100.0	--

*Sources: Eurostat Statistical Database; OECD 2009; *OECD Statistics*

	GDP per inhabitant in PPS, 2008	Social benefits (% GDP)	Health expenditure (% GDP)	% spent of benefits spent on*:			Generosity of the welfare system
				Sickness/health care	Disability	Unemployment	
Austria	31,100	18.1	9.7	26.1	7.8	5.0	5.46
Belgium	28,800	16.0	9.8	28.4	7.1	12.5	4.38
Bulgaria	10,900	10.1	6.9	29.4	7.7	2.3	--
Croatia	15,900	--	--	--	--	--	--
Czech Republic	20,200	12.8	6.9	33.3	8.2	3.5	5.15
Denmark	30,800	14.8	9.3	23.3	15.2	4.8	5.40
Estonia	17,000	10.6	5.9	32.4	9.9	2.1	--
Finland	29,500	15.4	7.7	26.8	12.6	7.1	2.60
France	26,700	17.7	10.7	29.8	6.0	5.8	5.24
Germany	28,800	17.0	10.3	30.5	7.8	5.4	6.11
Greece	23,500	19.3	--	29.0	4.7	5.1	--
Hungary	16,200	15.8	7.1	25.0	9.4	3.7	4.75
Ireland	33,300	12.4	--	40.9	5.5	8.7	--
Italy	26,000	17.7	--	26.4	5.9	1.9	--
Latvia	14,100	8.1	6.2	29.5	7.3	4.1	--
Lithuania	15,300	11.0	6.3	29.4	10.4	2.5	--
Netherlands	33,500	10.3	8.9	32.8	8.8	3.8	3.40
Norway	47,300	6.1	8.1	32.7	17.6	1.9	--
Poland	14,100	14.0	6.6	24.4	8.8	1.9	4.58
Portugal	19,500	15.1	9.2	28.0	9.3	4.5	4.75
Romania	11,700	10.4	5.3	25.2	9.8	1.4	--
Slovakia	18,100	11.3	7.0	32.5	9.0	4.0	5.00
Slovenia	22,800	14.7	8.1	33.8	7.8	2.0	--
Spain	25,900	12.4	8.7	30.8	7.2	13.6	4.75
Sweden	30,800	14.8	8.8	26.0	15.1	3.0	6.73
Switzerland	35,800	10.5	10.6	26.4	12.5	2.6	5.09
Turkey	11,700	--	--	--	--	--	--
UK	28,700	13.1	--	33.3	11.0	2.5	3.87
EU-27	25,100	--	--	29.7	8.1	5.2	--

Sources: Eurostat Statistical Database; Osterkamp and Rohn, 2007

	Sickness absence due to health reasons (%)	Average days absent'	Present-eeism (%)	DALYs MSDs (% of total)	DALYs RA (% of total)	Prevalence work-related backache (working population)	Number of RA patients in the general population (prevalence)	Total annual cost of RA, mln. €	Physicians per 100,000 inhabitants	
									Rheumatologists**	GPs
Austria	20.9	3.4	34.5	4.34	0.85	24.0	30,536 (0.47)	420.67	--	153.3
Belgium	28.8	7.0	48.0	4.11	0.80	19.4	39,209 (0.48)	618.32	2.4	170.9
Bulgaria	20.2	4.3	22.6	4.31	0.76	29.2	29,711 (0.48)	61.30	1.4	66.8
Croatia	19.4	9.4	38.1	3.50	0.70	41.5	--	--	--	17.1
Czech Republic	28.6	5.5	36.7	3.54	0.70	22.9	37,037 (0.46)	223.95	1.3	51.2
Denmark	32.9	6.6	55.2	3.95	0.78	18.8	23,676 (0.58)	399.39	2.6	74.4
Estonia	27.5	4.6	43.5	4.07	0.79	40.2	5,124 (0.49)	20.13	3.0	105.3
Finland	44.7	8.5	50.7	4.07	0.84	26.2	24,279 (0.60)	339.07	1.9	40.6
France	19.4	5.5	47.9	4.23	0.81	21.6	226,750 (0.48)	4,653.45	4.2	164.1
Germany	28.2	3.5	38.8	4.41	0.83	18.8	328,844 (0.50)	6,179.46	0.8	99.2
Greece	14.1	2.8	29.9	4.56	0.86	47.0	42,574 (0.48)	487.91	2.3	35.5
Hungary	23.8	5.0	37.7	4.23	0.77	31.6	37,907 (0.48)	198.93	5.6	65.2
Ireland	21.4	3.9	41.8	3.84	0.79	14.5	15,035 (0.49)	253.25	0.5	69.9
Italy	25.2	3.8	23.5	4.97	0.96	24.3	235,898 (0.49)	2,723.69	--	--
Latvia	23.9	4.1	40.6	3.92	0.73	44.1	8,771 (0.49)	27.71	0.5	54.7
Lithuania	21.8	4.3	34.5	4.03	0.80	38.0	12,213 (0.47)	41.17	1.2	52.6
Netherlands	33.7	8.6	41.1	4.48	0.88	13.8	56,934 (0.46)	1,027.49	1.2	46.4
Norway	27.3	7.1	47.6	4.25	0.86	22.7	19,486 (0.56)	402.99	2.2	47.1
Poland	19.9	5.5	24.7	5.11	0.98	45.8	131,546 (0.45)	489.37	2.3	15.2
Portugal	13.5	8.6	24.5	3.92	0.77	30.7	39,379 (0.47)	295.03	1.0	45.6
Romania	11.4	2.0	39.0	4.29	0.79	42.4	74,832 (0.45)	162.39	1.2	80.9
Slovakia	22.8	5.2	44.4	4.91	0.93	38.9	17,567 (0.43)	74.88	1.8	36.3
Slovenia	28.3	8.7	59.2	3.84	0.76	45.9	7,461 (0.47)	58.85	--	26.0
Spain	14.2	3.6	37.8	4.66	0.89	29.1	159,535 (0.45)	1,586.36	--	--
Sweden	28.0	6.7	54.7	4.61	0.90	27.8	41,576 (0.60)	543.11	2.0	60.2
Switzerland	19.2	4.0	--	4.97	0.97	18.1	27,469 (0.47)	536.93	5.3	47.1
Turkey	18.7	4.8	49.8	4.09	0.90	34.7	137,905 (0.31)	320.92	--	--
UK	22.6	3.7	51.2	4.11	0.81	10.8	263,672 (0.57)	3,163.27	--	--
EU-27	22.9	4.6	39.2	--	--	24.7	(0.49 Europe excl. Turkey)	24,072.62	--	--

Sources: Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2007; European Working Condition Survey, 2010; WHO, 2006, 2007; Lundkvist, Kastäng and Kobelt, 2008; Lundkvist, Kastäng and Kobelt, 2008; Eurostat Statistical Database.

Variable	Definition – Provided by source	Source
Labour indicators		
GDP per inhabitant in PPS 2009	GDP (gross domestic product) is an indicator for a nation's economic situation. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size.	Eurostat (n.d.)
Working age population, % 2009	Share of total population of age of 15 and above.	Eurostat (n.d.)
Unemployment rate by gender 2009	Unemployment rates represent unemployed persons as a percentage of the labour force. The labour force is the total number of people employed and unemployed. Unemployed persons comprise persons aged 15 to 74 who were: a. without work during the reference week, b. currently available for work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week, c. actively seeking work, i.e. had taken specific steps in the four weeks period ending with the reference week to seek paid employment or self-employment or who found a job to start later, i.e. within a period of, at most, three months.	Eurostat (n.d.)
Long-term unemployment, % of total active population 2009	Long-term unemployed (12 months and more) persons are those aged at least 15 years not living in collective households who are without work within the next two weeks, are available to start work within the next two weeks and who are seeking work (have actively sought employment at some time during the previous four weeks or are not seeking a job because they have already found a job to start later). The total active population (labour force) is the total number of the employed and unemployed population. The duration of unemployment is defined as the duration of a search for a job or as the length of the period since the last job was held (if this period is shorter than the duration of the search for a job).	OECD, 2009

Variable	Definition – Provided by Source	Source
Labour indicators, continued		
Average age of withdrawal from the labour market – retirement 2007	The indicator gives the average age at which active persons definitely withdraw from the labour market. It is based on a probability model considering the relative changes of activity rates from one year to another at a specific age. The activity rate represents the labour force (employed and unemployed population) as a percentage of the total population for a given age. The indicator is based on the EU Labour Force Survey. The survey covers the entire population living in private households. The definitions used follow the guidelines of the International Labour Office.	Eurostat (n.d.); OECD (n.d.)
Labour productivity per person employed – GDP in PPS per person employed relative to EU-27 (EU-27 = 100), 2009	Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per person employed is intended to give an overall impression of the productivity of national economies expressed in relation to the European Union (EU-27) average. If the index of a country is higher than 100, this country's level of GDP per person employed is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Please note that 'persons employed' does not distinguish between full-time and part-time employment.	Eurostat (n.d.); OECD (n.d.)
Hourly labour costs 2007	Average hourly labour costs, defined as total labour costs divided by the corresponding number of hours worked.	Eurostat (n.d.)

Variable	Definition – Provided by Source	Source
Welfare indicators		
GDP per inhabitant in PPS 2008	GDP (gross domestic product) is an indicator for a nation's economic situation. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size.	Eurostat (n.d.)
Social benefits (% of GDP) 2008	Social benefits (other than social transfers in kind) paid by government (ESA95 code D.62) are transfers to households, in cash or in kind, intended to relieve them from the financial burden of a number of risks or needs (by convention: sickness, invalidity, disability, occupational accident or disease, old age, survivors, maternity, family, promotion of employment, unemployment, housing, education and general neediness), made through collectively schemes, or outside such schemes by government units.	Eurostat (n.d.)
Health care expenditure (% of GDP), 2008	Current expenditure on health measures the economic resources spent by a country on health care services and goods, including administration and insurance. Total expenditure on health care represents current expenditure on health enlarged by the expenditure on capital formation of health care providers.	Eurostat (n.d.)
Sickness/healthcare benefits – % of total benefits 2008	Social benefits consist of transfers, in cash or in kind, by social protection schemes to households and individuals to relieve them of the burden of a defined set of risks or needs. The functions (or risks) are: sickness/healthcare, disability, old age, survivors, family/children, unemployment, housing, social exclusion not elsewhere classified (n.e.c).	Eurostat (n.d.)

Variable	Definition – Provided by Source	Source
Welfare indicators continued		
Disability – Social benefits by function – % of total benefits 2008	Same as above.	Eurostat (n.d.)
Unemployment – Social benefits by function – % of total benefits 2008	Same as above.	Eurostat (n.d.)
O&R generosity index	Seven different measures of generosity were combined to construct a single measure of generosity that ranges from between 0 and 7, where 7 indicates the highest level of generosity. The seven variables include waiting period, self-certification, total maximum duration of payment, employer maximum duration of payment, employer amount of payment, sickness fund amount of payment and external proof.	Osterkamp and Rohn (2007)
Health outcomes		
Average days absent due to health reasons 2005	The median number of days absent because of health.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen, (2007)
% sickness absence due to health reasons 2005	% reporting absence caused by ill-health.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen, (2007)

Variable	Definition – Provided by Source	Source
Health outcomes continued		
Presenteeism, %, 2010	Over past 12 months did you work when you were sick?	European Working Conditions Survey (2010)
DALYs – MSDs, male and female	Disability adjusted life years (DALYs) are frequently used to assess the burden of disease. The WHO's definition of DALY – 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	WHO, 2006, 2007)
DALYs – RA	DALYs are frequently used to assess the burden of disease. The WHO's definition of DALY – 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	Lundkvist, Kastäng and Kobelt (2008)
Prevalence – Backache 2005	% reporting work-related backache in the EWCS.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen (2007)
Number of people with RA	Estimated number of people with RA. The percentage is calculated from the number of people with RA divided by the population numbers listed in the article.	Lundkvist, Kastäng and Kobelt (2008)
Practicing rheumatologists, density per 1,000 population	Number of practising rheumatologists per 1,000 population. The definition that was used to derive the ratio for rheumatologists may differ by country depending on the source, which makes comparability difficult.	Eurostat (n.d.)
Practicing general practitioners (GPs), density per 1,000 population 2005	Number of practicing GPs per 1,000 population.	Eurostat (n.d.)

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First published: October 2011

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Supported by a research grant from Abbott