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Research review on rehabilitation and return to work

Report

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Abbreviations

AFW	absence from work
ENWHP	European Network for Workplace Health Promotion
ESA	Employment and Support Allowance
EU	European Union
EU-OSHA	European Agency for Safety and Health at Work
EWCS	European Working Conditions Survey
GDP	gross domestic product
GP	general practitioner
HR	human resources
HWE	healthy worker effect
ICF	International Classification of Functioning, Disability and Health
ILO	International Labour Organization
ISSA	International Social Security Association
LBP	low back pain
LFS	Labour Force Survey
MSD	musculoskeletal disorder
OECD	Organisation for Economic Co-operation and Development
OSH	occupational safety and health
QOL	quality of life
RC	rotator cuff
RCT	randomised controlled trial
RTW	return to work
SME	small and medium-sized enterprise
WHO	World Health Organization
WPDM	workplace disability management

Executive summary

This review is part of a project of the European Agency for Safety and Health at Work (EU-OSHA), initiated by the European Parliament, on the safety and health of older workers. The objective of the review is to provide an up-to-date summary of knowledge regarding vocational rehabilitation and return-to-work systems, programmes and interventions and their different components.

The challenge for rehabilitation and return to work

The European Union (EU) is currently confronted with an ageing workforce. Ageing is often accompanied by an increased risk of developing disorders, (chronic) diseases and other health issues, which can lead to functional limitations and disability at work. Chronic diseases, such as heart disease, stroke, cancer, diabetes and depression, are becoming increasingly prevalent within the ageing workforce (Varekamp and van Dijk, 2010). In addition, work-related health problems, such as musculoskeletal disorders (MSDs) and mental health conditions, are considered the primary causes of long-term sickness absence and disability retirement. However, non-fatal chronic diseases tend to receive less public health resources than other types of disorder (Andersson, 1999; Steenstra et al., 2005; EU-OSHA, 2010).

Both early disability retirement and long-term sickness absence are associated with high disability and sickness benefit costs (OECD, 2010). Sickness absence costs are shared among employers, individuals and the state (Black and Frost, 2011). The relative proportions depend on a number of factors, including national social systems and national recognition that a disease is work related.

Because of these high costs, it is crucial that work is designed in a way that helps to prevent the occurrence (or aggravation) of illnesses, and ensures that the ability of older employees to work is maintained until retirement age. If prevention is not possible, many chronic diseases can be effectively managed through appropriate workplace adjustments, allowing for the return to work (RTW) of employees after periods of sickness absence.

Definitions of disabilities vary greatly in the literature, and currently there is no uniform understanding or concept across Europe. There is also considerable inconsistency in the language used to refer to (work) disability across European countries. A standardised definition is, however, a crucial foundation for the development of further policies and intervention strategies. The World Health Organization (WHO) International Classification of Functioning, Disability and Health (ICF) classifies a person's functioning, activity limitations and participation restrictions, and the individual factors that influence them. The ICF describes functioning from three perspectives: the body, the person, and the societal perspectives (WHO, 2001). Despite being regarded as the international standard for describing and measuring health and disability, the ICF is insufficiently promoted as a comprehensive means of understanding disability (ENWHP, 2013).

The perspective on disability and RTW after sickness absence is evolving. Research has shown that a shift is needed — from focusing on only physical factors towards a more holistic framework that also takes account of contextual factors. There are two key models for the conceptualisation of disability, namely the biomedical model and the more recently described biopsychosocial model (Waddell and Burton, 2005; Schultz et al., 2007).

In the biomedical model, individuals who are unable to work are considered to have a medical diagnosis, and their illness is connected to a solely physical pathology. From this perspective, work disability is addressed either by pain relief or by curing the disability-causing disease. Contextual factors have no place in this model or in the associated RTW process. This model is therefore considered insufficient to explain conditions, such as chronic non-specific back pain, that do not have a clear physical pathology (Dunstan and Covic, 2006; Schultz et al., 2007).

On the other hand, the biopsychosocial model, upon which the ICF is based (WHO, 2001), integrates both biomedical and social perspectives, and the RTW process is considered to be influenced by interactions between the biological, psychological and social components of an individual's ability to work (Waddell and Burton, 2005). The ecological case management model, in line with the biopsychosocial model, also reflects the shift from disease and biomedical models towards person and environment models within RTW processes (Loisel et al., 2009).

This biopsychosocial and/or ecological model has had an important influence on the development of multidisciplinary approaches in rehabilitation programmes (Guzman et al., 2001; Stanos and Houle., 2006). More specifically, this model shifts the responsibility for rehabilitation outcomes from the healthcare provider–patient relationship to a more complex multi-player system influenced by different professional, legal, administrative and cultural (societal) interactions. Several stakeholders are involved in the RTW process, each with their own understanding of RTW and its desired outcomes.

One example of an operational, rather than theoretical, model is the Sherbrooke model, which takes a biopsychosocial perspective and is based on the principles of the ecological case management model (Loisel et al., 1997; Schultz et al., 2007). It can help with the development or testing of an intervention, programme, policy or practice, and it is used by rehabilitation and occupational health services. The main objective of the Sherbrooke model is an early RTW through the integration of the workplace into the treatment programme (Schultz et al., 2007).

There is a clear need for not only standardised definitions and models, but also evidence-based policies and practices on RTW. The development of a consistent conceptual framework could provide reliable criteria for identifying organisational barriers and facilitators and for establishing appropriate RTW strategies. This review focuses on the effectiveness of rehabilitation and RTW interventions and their associated success factors. Particular attention is paid to the following questions: (1) 'What are the prerequisites for a successful system?', (2) 'What partnerships and cooperation are necessary across policy areas to achieve a successful strategy?', and (3) 'What kinds of support do employers need with regard to RTW, specifically, what are their occupational safety and health (OSH) needs?'.

Methodology

An assessment of the academic literature was carried out on relevant EU and research institutes' websites. Further searches were undertaken to identify other grey literature, using Scirus and OpenGray. Searches were carried out based on a defined protocol. Relevant publications, including titles and abstracts (if available), were identified and details were stored in the RefWorks database. An initial screening of the titles and abstracts was carried out by two researchers, independently, using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The full-text publications were obtained for those considered by both researchers to fit the inclusion criteria. The focus of the analysis was on systematic reviews, meta-analyses, literature reviews, guidance and grey literature. Data were extracted from each of the included publications to summarise the evidence available.

Effectiveness of rehabilitation and return-to-work interventions

The evidence for the effectiveness of interventions is presented separately for MSDs (number of interventions reviewed (n) = 16), mental health problems (n = 5) and cancer (n = 1). Eight additional reviews, which cover different or unspecified disorders, were also included.

Musculoskeletal disorders

With regard to MSDs, previous research has consistently found the strongest scientific evidence of effectiveness for low back pain (LBP) programmes. More recent studies, however, show that the same results apply to a number of common MSDs, as most principles relate to communication and coordination among stakeholders, and the content of the RTW intervention rather than any disorder-specific action (Waddell et al., 2008).

Evidence shows that employer participation is important during the RTW process, with early contact between workers and their workplaces significantly reducing the duration of work disability (Franche et al., 2005; Tompa et al., 2008). Communication, cooperation and commonly agreed goals among the worker, the occupational health professionals (e.g. occupational health physician), the primary healthcare provider (e.g. general practitioner (GP)) and the workplace supervisors or employer are crucial for improving clinical and occupational health management and outcomes. Interventions that include close collaboration among these different stakeholders seem to be more effective than those that do not (Waddell and Burton, 2001; Dunstan and Covic, 2006; Waddell et al., 2008; Carroll et al.,

2010). RTW interventions are more effective if all players recognise their roles, take responsibility and communicate openly and positively (Franche et al., 2005; Bongers et al., 2006).

Reassurance by healthcare providers, along with encouragement to resume normal activities during the acute phase of disability, are important in establishing an early RTW. If necessary, duties can be initially modified and then gradually adjusted until the worker regains the full ability to work. According to the literature, early RTW leads to shorter periods of work loss during the following year, although it is unclear whether or not this effect acts in isolation or in combination with other intervention components (Waddell et al., 2008).

Workers' needs differ with the length of their sickness absence. Simple and inexpensive healthcare and workplace interventions (i.e. good clinical and workplace management and practice) in the early stages of sickness absence are effective at increasing RTW rates and reducing long-term disability. There is also strong evidence that structured vocational rehabilitation interventions are effective if they take place between 1 and 6 months after the onset of sickness absence. More complex biopsychosocial rehabilitation is required for more prolonged sickness absence (of > 6 months) (Frank et al., 1996, 1998; Waddell and Burton, 2004).

Various clinical treatments used to treat chronic LBP have been shown to produce some clinical improvement, but there is strong evidence to suggest that they are ineffective in aiding patients' RTW. However, interventions with a workplace component (e.g. lighter or modified duties, accommodations in the workplace and work adjustments, including the improvement of work organisation) are more likely to reduce both short-term and long-term sickness absence and enhance RTW (Gabbay et al., 2011). There is also strong evidence that multidisciplinary interventions that address individual (including health) and workplace factors are a cost-effective means of improving occupational outcomes (Bongers et al., 2006).

Mental health problems

The literature on stress-related disorders and mental health is limited and chiefly addresses clinical outcomes, with little attention paid to social results. Although there is evidence that some medical and psychological treatments for anxiety and depression can improve symptoms and quality of life, there is as yet only limited evidence of their positive impact on work outcomes (Waddell et al., 2008).

Cancer

No significant conclusions can be drawn on the effect of RTW interventions for cancer patients, because of the limited nature of the relevant studies and evidence. Only one review was identified that focused on RTW or rehabilitation strategies for employees with cancer (Tamminga et al., 2010). The most frequently reported work-related components of the interventions included counselling about work or work-related subjects, vocational or occupational training, and workplace adjustments. Enhancing RTW or work retention were not important objectives in the context of this type of intervention.

Prerequisites for a successful system

Evidence points to the beneficial effects of work on health and well-being (ISSA, 2013). In addition, interventions that contain a workplace component (e.g. workplace accommodations or modified duties) appear to be more effective at reducing the duration of sickness absence and increasing RTW rates than interventions that do not have a workplace component. The sooner an intervention takes place, the more effective it is likely to be. In this context, this review has identified some key elements for establishing successful RTW processes at the national, intervention and organisational levels.

National level

At the national level, governments should move away from the deficit-oriented approach, towards a system that encourages clinicians and employers to focus on workers' capabilities rather than their disabilities. This requires the establishment of national assessment systems for 'disability' (or 'loss of work ability'), which focus on multiple aspects of an individual's functioning, in accordance with the ICF framework. In order to be effective, considerable guidance must be provided to healthcare professionals (ENWHP, 2013; The Work Foundation, 2013). Black and Frost (2011) also call for the establishment, at the national level, of independent authorities that would provide guidance on the most

effective means of achieving successful RTW, particularly for complex cases or for workers who have been absent for a long time.

Working and staying at work has clear benefits for the individual and for society and should be rewarded. Incentives for workers and employers should be provided, with some researchers suggesting that governments should provide financial support for employers who invest in sickness absence management and RTW processes. Other suggestions for support at the national level include reducing the administrative burden for employers by simplifying the procedures that govern sickness absence and RTW (ILO, 2002; Black and Frost, 2011; ENWHP, 2013).

Early intervention for workers with chronic conditions is more cost-effective than paying long-term disability benefits, suggesting that a greater proportion of national health spending should be directed towards prevention and early intervention measures. In particular, the identification of those at risk of long-term sickness absence would provide a basis for action, and these at-risk individuals could then be referred to the appropriate professionals for intervention delivery.

Intervention level

Interventions should be tailored to each individual worker, the length of sickness absence and each specific situation. Thus, multidisciplinary interventions, based on the biopsychosocial model, that address individual (including health-related) and workplace factors have proven to be an effective approach. More specifically, the 'stepped-care approach', which takes into account the individual needs of workers and the barriers experienced during sickness absence, is an optimal framework. It proposes three levels of care, starting with simple, low-intensity, low-cost interventions, which will be adequate for most sick or injured workers, and provides progressively more intensive and structured interventions for those who need additional help to return to work (Lindstrom et al., 1992a).

Primary care management — particularly by GPs — plays an important role in the RTW process. Simple clinical management and reassurance for workers with mild conditions is often sufficient to achieve an early RTW. Health professionals should be encouraged and trained to consider RTW as a key clinical outcome (Waddell et al., 2008; The Work Foundation, 2013).

Organisational level

At the organisational level, RTW policies should be integrated into broader company policies for occupational safety and health, sickness absence management and disability management (Waddell et al., 2008). A number of workplace adjustments (including the provision of lighter or modified duties, accommodations at the work station and improvements in work organisation) have been found to reduce the duration of sickness absence and facilitate RTW (Weir and Nielson, 2001; Williams and Westmorland, 2002; Bongers et al., 2006; Tompa et al., 2008; Waddell et al., 2008; Carroll et al., 2010; Palmer et al., 2012).

While the literature on the RTW of workers with mental health problems is scarce and mainly focuses on clinical outcomes, there is a general consensus that organisational level interventions, characterised by improved communication, early contact with workers who are absent, agreed rehabilitation plans, flexibility in work organisation and RTW arrangements, are applicable to mental health problems. The evidence for improved work outcomes in these cases is limited; however, they represent good practice across the broader spectrum of sickness absence (Waddell et al., 2008).

Partnerships and cooperation across policy areas for a successful strategy

The prevention and mitigation of common health problems, such as mild or moderate MSDs, mental health problems and other conditions causing short- or long-term disability, should be prioritised as action areas in employment, OSH and health policies, ultimately leading to joined-up policy-making in these areas. The development of vocational rehabilitation mechanisms should also be integrated into broader government policies on health, employment and OSH.

Many public and private stakeholders are involved in the implementation of employment and health policies, often with different and/or concurrent priorities and budgets. Communication among all players and recognition of individual roles and responsibilities are crucial in facilitating the successful RTW of individuals. In particular, coordination mechanisms should be developed and implemented across the

various public actors involved in the RTW process (e.g. social security bodies, employment agencies and health institutions) (The Work Foundation, 2013).

Support for employers for return to work processes, specifically with regard to aspects related to occupational safety and health

Employers have a key role in vocational rehabilitation and the re-integration of workers after sickness absence. To stimulate a proactive approach, governments should design policies and provide technical support to employers (and associated OSH and human resources (HR) staff) regarding the basic principles of good healthcare and workplace management.

In order to raise awareness of better sickness management and RTW policies in companies, governments should involve key stakeholders (i.e. unions, employers, insurers and health professionals) in developing business cases for vocational rehabilitation, thereby promoting better understanding and ownership of such multidisciplinary approaches.

Finally, effective and innovative workplace practices should be promoted and shared among organisations, particularly among small and medium-sized enterprises (SMEs), which may have limited resources to develop company-specific programmes (ENWHP, 2013; The Work Foundation, 2013).7

Conclusions

MSDs and common mental health conditions should be prioritised in both employment and health policies, and in healthcare delivery, as the two most significant causes of sickness absence and early retirement linked to work disability. There is enough evidence to support the positive effects of several aspects of RTW and rehabilitation strategies for workers with MSDs. While it is assumed that the general principles for workers with MSDs are also applicable to other conditions, the effects of interventions that target mental health issues have been less researched to date.

Optimal RTW interventions should include the following factors:

- early healthcare interventions;
- reassurance and encouragement by healthcare professionals during the acute phase of disability;
- early contact between employer and employee;
- good communication and collaboration among all stakeholders;
- a multidisciplinary rehabilitation, that is, the application of the biopsychosocial approach, addressing health, individual factors and workplace factors, in situations of long-term sickness absence; and
- a combination of clinical interventions and workplace components.

Effective RTW interventions would be facilitated by:

- the integration of work outcomes as key measures in primary health care;
- the education of healthcare professionals on effective RTW interventions;
- a paradigm shift towards the use of the ‘fit note’, with relevant guidance and training provided for healthcare professionals;
- the inclusion of work outcomes in health policies, clinical guidelines, research and audits, in order to reinforce the importance of vocational rehabilitation to full health;
- the standardisation of disability definitions and assessment systems;
- the establishment of clear systems and strategies for effective communication and cooperation among stakeholders;
- clearly defined incentives for all stakeholders;
- coordinated cross-government action (e.g. on employment and public health) and budgeting, with a clear focus on prevention and early intervention;
- the integration of vocational rehabilitation into organisational health and well-being strategies, as well as broader government policies on (occupational) health and employment;
- the education of employers on proactive approaches to RTW interventions; and
- the sharing of good workplace practices for and approaches to RTW, especially for SMEs.

1 Introduction

1.1 Problem statement

1.1.1 The ageing workforce

The European Union (EU) is currently confronted with an ageing workforce. In the 28 EU Member States, the 55- to 64-year-old population is expected to increase by about 16 % between 2010 and 2030. Policies aim to tackle this demographic phenomenon by enabling older workers to remain active and productive and by underscoring prevention of premature retirement and the prolonging participation in the workforce (EU-OSHA, 2013).

Ageing is often associated with an increased risk of developing disorders, (chronic) diseases and other health issues, which can lead to functional limitations and disability at work (Varecamp and van Dijk, 2010). Work-related health problems such as musculoskeletal disorders (MSDs) and mental health conditions are considered to be the primary diagnostic causes of long-term sickness absence and disability retirement (OECD, 2010). Unfortunately, too many workers leave the labour market permanently as a result of health problems or disability, and too few people with reduced work capacity manage to remain in employment (EU-OSHA, 2013).

Both long-term sickness absence and early retirement from the workforce are major burdens for the individual, the workplace and society and are critical to the inflow of disability benefits. They generate costs for all involved parties and have an impact on the economy. It is crucial, therefore, to organise work and design workplaces in a way that prevents the manifestation (or, at least, the aggravation) of illnesses, and ensures that more employees are able to return to work and stay active until retirement age. In addition, more insight into the effects of specific workplace exposures on the normal ageing process should be investigated; longer careers are likely to be associated with an increase in the lifetime exposure to hazards (EU-OSHA, 2013).

1.1.2 Work-related health problems and chronic diseases in an ageing workforce

Work-related health problems

The 2007 Labour Force Survey (LFS) identified work-related health problems, which occurred in the previous 12 months, in 8.6 % of all workers, aged between 15 and 64 years, of the then 27 Member States of the EU, that is, 23 million workers. Several other surveys, such as the 2005 European Working Conditions Survey (EWCS) and the 2009 European Survey of Enterprises on New and Emerging Risks (ESENER), and numbers from Eurostat (1999-2007) indicate that MSDs were most often reported as the main problem (60 %), followed by stress, depression or anxiety (14 %) (Eurostat, 2010). The differences between men and women were small: 8.6 % of men and 8.5 % of women reported work-related health problems. If only employed workers are taken into account, these percentages are 7.8 % for men and 8 % for women. The occurrence of work-related health problems increased with age, yet decreased between the ages of 55 and 64 years, as a result of the 'healthy worker effect' (HWE)[1].

According to the 2007 LFS, 50 % of people with work-related health problems experienced some or considerable limitations with regard to carrying out day-to-day activities, and 22 % experienced considerable limitations, the extent of which strongly increased with age. Work-related health problems resulted in sick leave of 1 day or more in 60 % of workers and 1 month or more in 22 % of workers in the previous 12 months. Long-term sickness absence is shown to be more prevalent among older workers. Sick leave of more than 1 day and less than 1 month decreased with age, whereas sick leave of more than 1 month increased with age. The occurrence of work-related health problems increased from 4.7 % in 1999 to 7.1 % in 2007 in nine European countries.

[1] The 'HWE is a phenomenon initially observed in studies of occupational diseases: Workers usually exhibit lower overall death rates than the general population because the severely ill and chronically disabled are ordinarily excluded from employment' (Last, 1995).

Chronic diseases

Of the working population in the EU Member States, 23 % suffer from chronic illness and 19 % state that they have long-standing health problems (ENWHP, 2013). The ageing of the workforce is one of the main reasons for these numbers (Eurofound, 1999; Ilmarinen, 1999; Ilmarinen and Rantanen, 1999). Various chronic diseases, such as heart diseases, stroke, cancer, diabetes and depression, are highly prevalent, and are becoming increasingly so, within this ageing workforce (Varecamp and van Dijk, 2010). Older workers, that is, those over 50 years of age, exit the workforce early for a variety of reasons related to health and discrimination (EC, 2003). While not all early retirement is for health reasons, there is ample evidence to suggest that health issues make a significant contribution. In particular, chronic illnesses, whether or not related to lifestyle, injuries from accidents and, increasingly, stress and mental health problems all play a role.

The relationship between age and long-standing health problems or disability is almost linear and accelerates among older workers. In 2011, less than 10 % of people in the 15- to 24-year age range reported a long-standing health condition (in the 28 EU Member States). The corresponding figure for the 55- to 64-year age range was above 20% (Eurostat, 2015). In addition, a recent Dutch study showed that, in a working population of people aged 45 years or older, one out of every three workers indicated a chronic health condition (Koolhaas et al., 2012). Consequently, chronic diseases are likely to hamper the contribution of the working-age population to the work process; this applies especially to workers over 45 years of age.

However, a systematic review by Crawford et al. (2010) revealed that many chronic diseases can be controlled and that adjustments can be put in place within the work environment. Crawford et al. (2010) suggest that occupational health interventions can reduce the risk of early retirement from the workplace. From the older workers' point of view, health promotion interventions are considered positive. To ensure equal access of all workers is important (Crawford et al., 2010).

1.1.3 Long-term sickness absence

The main causes of long-term sickness absence are MSDs and mental health issues (Andersson, 1999; Steenstra et al., 2005; EU-OSHA, 2010). For example, in the public health sector of the United Kingdom, mental health issues and stress have been identified as the main causes of long-term sickness absence for non-manual workers, whereas musculoskeletal injuries and back pain affect mostly manual workers (CBI, 2006). International comparison studies are limited in number, and the methods used to capture relevant data vary. This restricts the validity and reliability of international comparisons (OECD, 2003).

According to the fifth EWCS (carried out in 2010), more than two-fifths (43 %) of European workers reported being absent from work because of health problems for at least 1 day within the previous 12 months, and 23 % reported absences of more than 5 days. The average duration of absence for health reasons was 14 days per year for those who took health-related leave. In a further breakdown of these statistics, nearly half (46 %) of those absent from work for health-related reasons in the previous 12 months were absent for less than 6 days, 42 % for 6-21 days and 13 % for 21 days or more.

While younger workers are more likely to take frequent, short periods of sick leave, the total average time spent on sick leave increases with age. In Germany, in 2010, for example, workers in the construction sector aged below 25 years spent, on average, 17 days on sick leave, while workers aged 55-65 years in the same economic sector were absent for about 35 days because of ill health; in comparison, administrative workers in these age groups were absent for, on average, 8 days and 19 days, respectively (BKK, 2011). Thus, while absenteeism increases with age, there are also significant differences among professions and economic sectors: older workers in sectors that demand more physical labour are more likely to take sick leave than workers in other sectors. The further differentiation of the data on the basis of gender reveals that, from the age of 35 years, men spend, on average, more days on sick leave than women. One hypothesis to explain this difference is that more men than women perform work involving physical labour, and, as mentioned above, physically demanding professions are associated with more sick-leave days (BKK, 2011). The evidence suggests that older workers are often in less favourable socio-economic situations than younger workers. Furthermore, they more often experience health challenges, such as long-term disabilities and short-term diseases. Differentiation by profession and gender shows that specific groups of older workers are more vulnerable than others, and that these groups are particularly in need of affordable health care (BKK, 2011).

1.1.4 Consequences of early retirement and sickness absence

Black and Frost (2011) described sickness absence costs as being shared among employers, individuals and the state. Workers have to face a loss of income and bear the emotional and physical costs due to ill health. Employers are responsible for (1) sick pay; (2) the costs of staff turnover; (3) the time spent managing sickness absence; and (4) providing occupational health services (if offered). The state bears the costs of sickness benefits, foregone taxes and extra health care (Black and Frost, 2011). Vingard et al. (2004) are in agreement with Black and Frost (2011) and stated that long-term sickness absence or disability has an impact on different stakeholders, including workers, families, colleagues and employers. Long-term sickness absence is related to extra costs for social security systems and employers; this can also lead to job exclusion, eventual labour market exclusion and early retirement (Vingard et al., 2004).

Hence, early disability retirement and long-term sickness absence lead to high expenditures on disability and sickness benefits. These expenditures have become a large burden on public finances in most countries covered by the Organisation for Economic Co-operation and Development (OECD), which, consequently, has influenced their economic growth (OECD, 2010). In 2007, within all OECD countries, the average public spending on disability and sickness benefits amounted to 2 % of the gross domestic product (GDP) — except for Norway, the Netherlands and Sweden, for which it amounted to 4-5 % of GDP. On average, around 6 % of the working-age population rely on disability benefits; this figure is as high as 12 % in some northern and eastern European countries. The number of beneficiaries of disability benefits is highest among older workers, aged between 50 and 64 years, with, on average, 10-15 % of this population receiving such benefits; in Sweden, Norway and Hungary, more than 20 % of this population receive disability benefits. In addition, the employment rate among people with disabilities is 40 % less than the level of employment among the general population, and unemployment rates are typically twice the level of the general population (OECD, 2010).

However, fewer workers would have to face long-term sickness absence, work disability or early retirement if appropriate measures were taken to facilitate return to work (RTW), rehabilitation and re-integration. It is important to promote the labour market participation of older workers, older workers with chronic diseases and people with disabilities, in order to help prevent future labour force shrinkage — not only to avoid long-term economic costs to both society as a whole, and to individuals, but also to preserve their valuable experience and knowledge. Therefore, it is important to mitigate negative impacts on economies and societies through, for example, effective measures to retain people at work (Nikolic et al., 2011).

1.1.5 Disability definitions and models as a base for disability policies

Definition of disability

The definitions of disabilities vary greatly in the literature and a uniform understanding and concept does not exist throughout Europe. Many attempts have been made to define the term ‘disability’, which has often been described as a ‘deviation from the norm’. Yet, this definition totally ignores all other individual, societal and contextual factors, such as the historical aspects, cultural aspects and legislation, which, collectively, constitute this phenomenon. Providing a universal definition applicable to all people and situations is, therefore, impossible. For example, disability can be defined as: ‘An environmentally determined effect (e.g. preventive, corrective and compensatory measures) of an impairment that, in interaction with other factors and within a specific social context, is likely to cause an individual to experience an undue disadvantage in his or her personal, social or professional life (i.e. work disability)’ (Geiecker et al., 2011). In other words, an impairment (i.e. a work disability) that may cause a disadvantage in one environment may not have any significant consequence in a different environment with fewer barriers (i.e. no work disability) (Geiecker et al., 2011).

A similar definition of work disability refers to ‘a reduced capacity and restriction of functioning in an occupational context, and is the primary target of sick pay and social security financial benefits’ (Waddell and Burton, 2004).

This definition of work disability can be an important foundation for further policies and interventions. It also underlies two international framework definitions of the International Labour Organization (ILO) and the World Health Organization (WHO). The 1983 Vocational Rehabilitation and Employment Convention of the ILO provides clarification of what disability means in the context of employment and labour measures. It states that '[a] disabled person is an individual whose prospects of securing, retaining and advancing in suitable employment are substantially reduced as a result of a duly recognized physical or mental impairment' (ILO, 1983). The International Classification of Impairments, Disabilities and Handicaps of the WHO offers definitions in the area of health policy, and differentiates between impairment [2], disability [3] and handicap [4], using a hierarchical system of classification. Impairment, disability and handicap can be compared with various phases of rehabilitation, that is, curative treatment, rehabilitation of functional and psychosocial limitations, and vocational rehabilitation or training for an independent pursuit of life (Geiecker et al., 2011).

Disability model

Systems and classifications that are aimed at favouring and promoting a common language with regard to (work) disability are, unfortunately, not generally employed. The International Classification of Functioning, Disability and Health (ICF) is a classification of health and health-related domains (see Figure 1). It is a hybrid universal model of disability that encapsulates a wide range of conditions from minor to severe. The ICF is a system used to classify a person's functioning, activity limitations and participation restrictions, and the health and personal factors that influence them. Since the functioning and disability of an individual occurs in context, the ICF also includes a list of environmental factors. It also provides a conceptual way to describe the dynamic interactions between states and factors within the model.

More specifically, the ICF describes functioning from three perspectives: the 'body', the 'person' and 'societal'. The ICF organises information in two parts. The first part deals with functioning and disability, and the second part covers contextual factors. The components of functioning and disability are divided into (1) the 'body' component, including body functions and anatomical structures — a problem in body function or structure is considered an impairment; (2) the 'activity' component; and (iii) the 'participation' component. 'Activity' is referred to as 'the execution of a task or action by an individual'. 'Participation' is defined as 'involvement in a life situation'. A difficulty at individual level would be noted as an activity limitation, and a difficulty at the societal level would be considered a participation restriction. The components of contextual factors are independent and integral to the classification, and are divided into (1) 'environmental factors' and (2) 'personal factors'. 'Environmental factors' have an impact on all components of functioning and disability, but 'personal factors' are not classified in the ICF. The conceptualisation provided by the ICF makes it impossible to understand disability without the consideration and description of environmental factors.

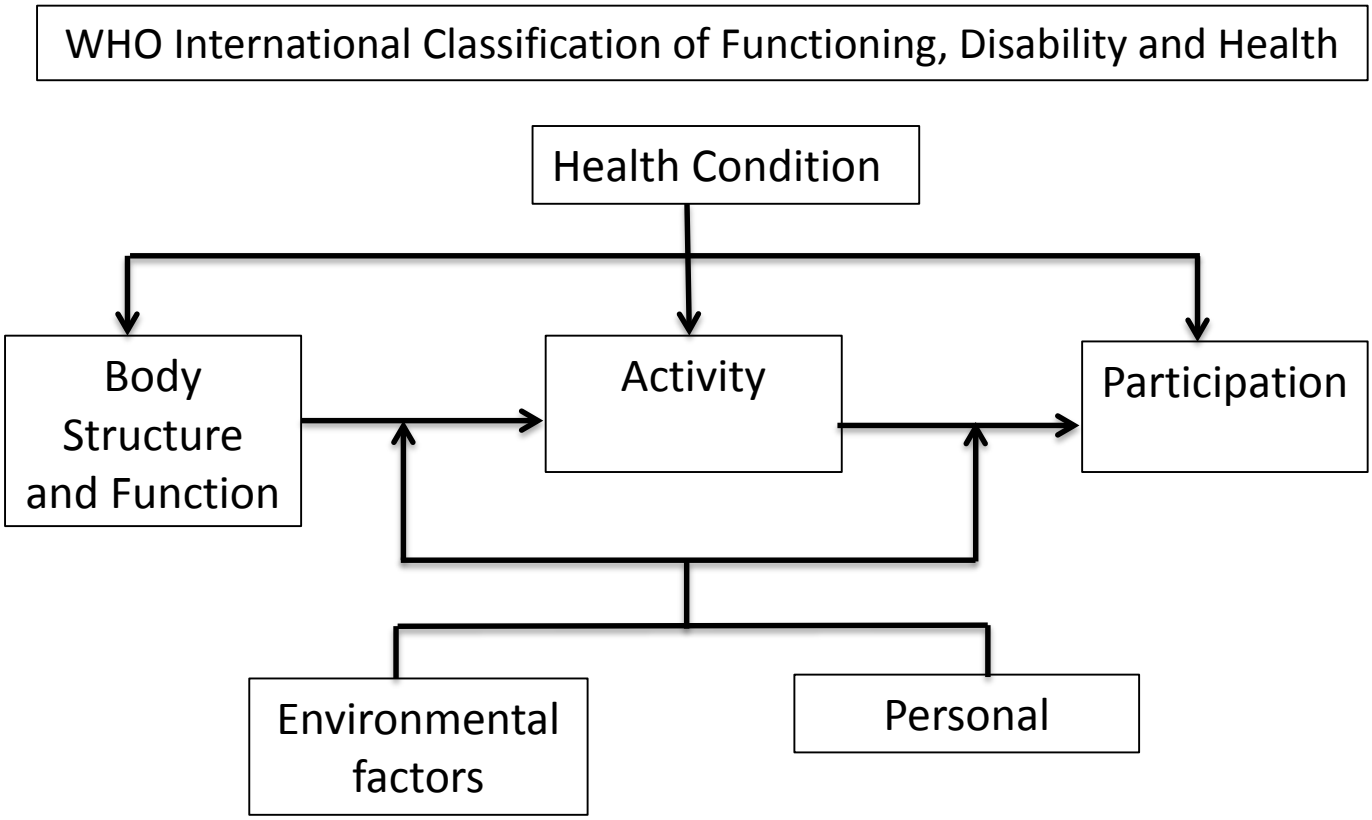
The ICF is the WHO framework for measuring health and disability at both individual and population levels. All 191 WHO member states, in the 54th World Health Assembly, officially endorsed the ICF, on 22 May 2001 (Resolution WHA 54.21), as the international standard for the description and measurement of health and disability. Since then, the ICF has been applied in various settings at national and international levels. Several countries have started the process of incorporating the ICF into their health and social information, standards, and legislation. In clinical settings, the ICF is used for functional status assessments, goal setting, and treatment planning and monitoring, as well as for outcome measurements (WHO, 2001).

[2] In the context of health experience, an 'impairment' is any loss or abnormality of psychological function, or anatomical structure or function.

[3] In the context of health experience, a 'disability' is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a person.

[4] In the context of health experience, a 'handicap' is a disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

Figure 1: ICF classification (WHO, 2001)



Perspectives on disability and the return-to-work process

The perspectives on disability and subsequent RTW processes have changed over the years. Research into the factors that mediate and maintain work disability has led to the conclusion that a shift away from only physical factors, towards those informed by a more comprehensive theoretical framework, is required for clinical reasoning and practices (BSRM, 2000).

There are two key models for the conceptualisation of disability: the biomedical model and the more recently described biopsychosocial model.

Biomedical model

From the biomedical perspective, individuals who are unable to work are viewed as having a medically determined diagnosis, and their illness is connected to a physical pathology (Schultz et al., 2007). More specifically, a work-related injury leads to a physical pathology that causes pain and produces a disability. From this perspective, a work disability would be resolved by either pain relief or curing the physical pathology (Dunstan and Covic, 2006). Hence, treatment focuses on the restoration of lost work ability by attempting to overcome, adapt or compensate for this loss. Physicians set the diagnosis and treatment plans, regardless of the contextual factors, for example the social context of the individual (Waddell and Burton, 2005). The biomedical perspective of the RTW process has been criticised for neglecting the contextual factors of illness and disability, that is, personal and psychological prerequisites; environmental and social prerequisites (Waddell and Burton, 2005); and political and economic factors (Michailakis, 2003). Evidence shows that injury, pain and disability after an MSD are moderately correlated, yet do not share a linear relationship as suggested by the biomedical model. This model is insufficient to explain conditions that lack a clear physical pathology, such as chronic non-specific back pain (Dunstan and Covic, 2006).

Biopsychosocial model and ecological case management model

The biopsychosocial model (Waddell and Burton, 2005) has emerged as a reaction to the biomedical model's limitations. It integrates biomedical and social perspectives (Schultz et al., 2008). In this model, the RTW process is seen as the interactions between the biological, psychological and social prerequisites of an individual's work ability (Waddell and Burton, 2005). Additionally, in recognition of its validity, the biopsychosocial model was adopted by the WHO as the means of classifying the determinants of health, functioning and disability. More specifically, the ICF described above is based on the biopsychosocial model (WHO, 2001).

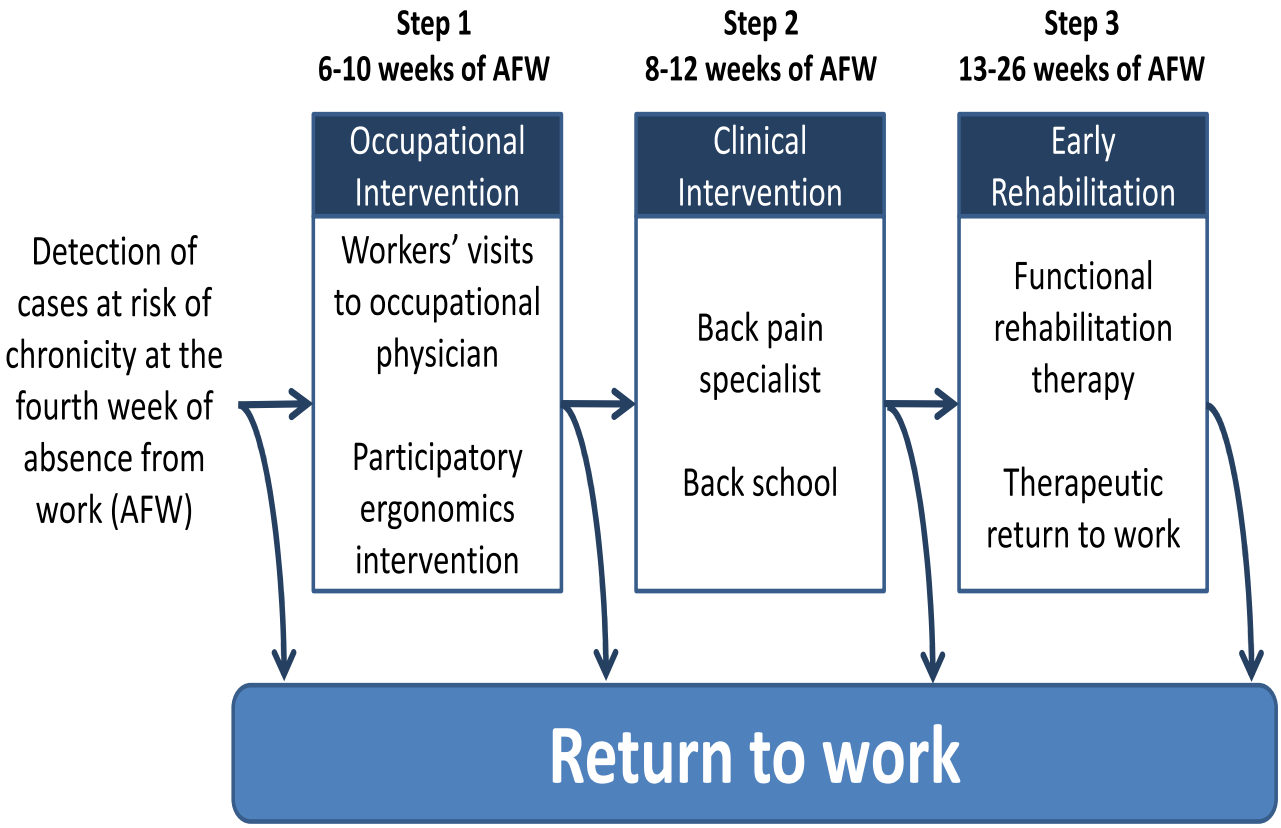
The ecological case management model is in line with the biopsychosocial model. The ecological case management model symbolises the shift from personal disease and biomedical models towards person and environment models within the RTW context, which incorporate the biopsychosocial model (Loisel et al., 2009). The responsibility for rehabilitation outcomes shifts from the healthcare provider–patient relationship to a multi-player decision-making system influenced by different professional, legal, administrative and cultural (societal) interactions (Loisel et al., 2005). The underlying idea of the model is that the RTW process is impacted by many determinants. It is argued that the RTW process should be understood in a systematic context that considers the interplay between the macro-system (societal context, culture and politics), the meso-system (workplace, health care, legislative and insurance system) and the micro-system (the worker). The model also highlights the fact that several stakeholders are involved in the RTW process, and each of these stakeholders has their own understanding of RTW and the outcomes they expect (Schultz et al., 2007).

This biopsychosocial and ecological perspectives have an important impact on the development of multidisciplinary approaches in rehabilitation programmes offered to people on long-term sickness absence (Guzman et al., 2001; Stanos and Houle, 2006). Such rehabilitation includes, and focuses on, a global analysis of the work-disability situation, the readiness to commit to a rehabilitation process, the perception of the situation, the adjustment of expectations, the feeling of self-efficacy, a return to the role of a worker and the establishment of a favourable context (Briand et al., 2007, 2008). Based on the understanding of the biopsychosocial nature of work disability, guidelines have been produced with regard to interventions for integration into workplace-based injury management programmes (Dunstan and Covic, 2006).

Sherbrooke model

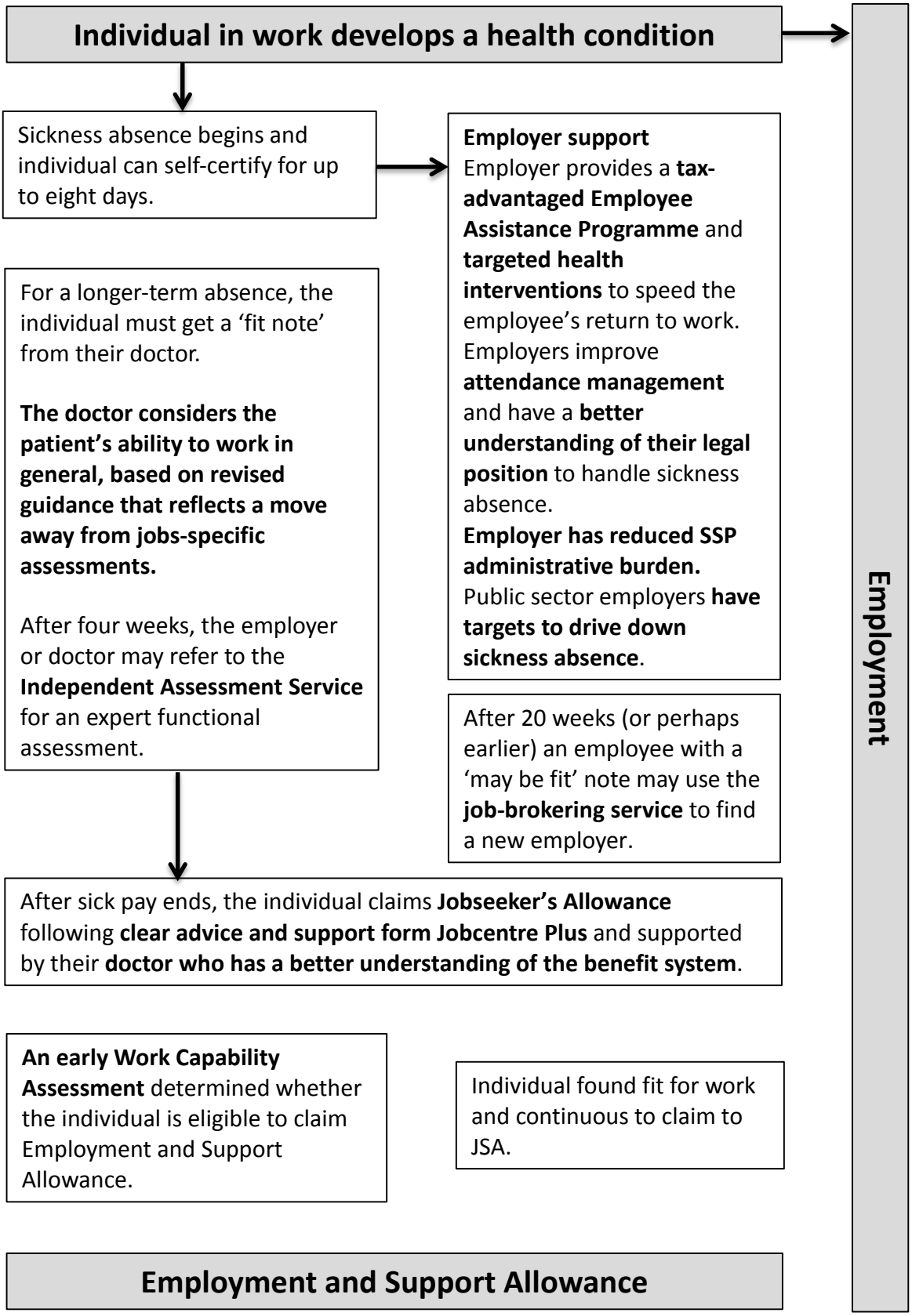
The results of a study conducted in Canada during the late 1990s by Loisel et al. (1997) led to the Sherbrooke model (Figure 2). This is an operational model rather than a theoretical framework, based on the ecological case management model and the biopsychosocial perspective. This kind of operational model can help guide or test an intervention, a programme, a policy or a practice, and is used by rehabilitation and occupational health services. The ultimate goal of applying the Sherbrooke model is to achieve early RTW through integrating the workplace into the treatment programme. Evidence now indicates that this type of workplace-based intervention is more effective than the usual healthcare interventions for reducing sick leave and preventing work disability among workers with MSDs. The Sherbrooke model combines clinical and occupational interventions (Schultz et al., 2007).

Figure 2: Sherbrooke model (Loisel, 1997)



As a result of a review of the United Kingdom sickness absence system, Black and Frost (2011) proposed a 'journey from work, through sickness absence, and back to work' (Figure 3) to help people stay in work, reduce costs and contribute to economic growth. Their review revealed that the way individuals, employers and the state currently manage ill health and work is problematic, primarily because of unclear or diffused incentives in the current system; for instance, the state gains from employers investing in sickness absence management, while the design of tax and benefit systems does not take this into account. As a result, sickness absence is increasing, employers are less competitive in the global market and individuals with health conditions are inappropriately denied the advantages of work (Black and Frost, 2011).

Figure 3: A new stylised 'journey from work, through sickness absence, and back to work' (Black and Frost, 2011)



1.1.6 Need for evidence-based rehabilitation or return-to-work strategies

There is an urgent need for evidence-based policies and practices for RTW. This was emphasised in the OECD report of 2008, in the EU Strategic Framework on Health and Safety at Work 2014-2020 and in several national programmes, for example the 2009 Swedish Council for Working Life and Social Research (OECD, 2008a, 2008b, 2010; EC, 2014). Therefore, it is important to examine the effectiveness of the specific measures intended to prevent long-term absence or definite exit from the labour market resulting from work-related or chronic health conditions. The focus of research should be on systematic, integrated and collaborative approaches that follow general evidence-based principles, but that are adaptive to varying contexts and needs for action. Models or coordinated action and cooperation among occupational safety and health (OSH) services, healthcare providers, employers and workers have to be investigated with respect to their potential for improving work re-integration and retention (PEROSH, 2012).

A major challenge for OSH research is to contribute to the development of solutions that are common across conditions and work situations, but at the same time recognise 'the unique impact of specific cultures, economic and insurance systems, workplaces and work arrangements, as well as the unique characteristics of the affected worker' (Pransky et al., 2011). Moreover, a consistent conceptual framework that provides reliable criteria for arranging appropriate RTW strategies and helps to identify organisational barriers and facilitators is required (Viikari-Juntura and Burdof, 2011).

1.2 Research questions

The following research questions are addressed in this review:

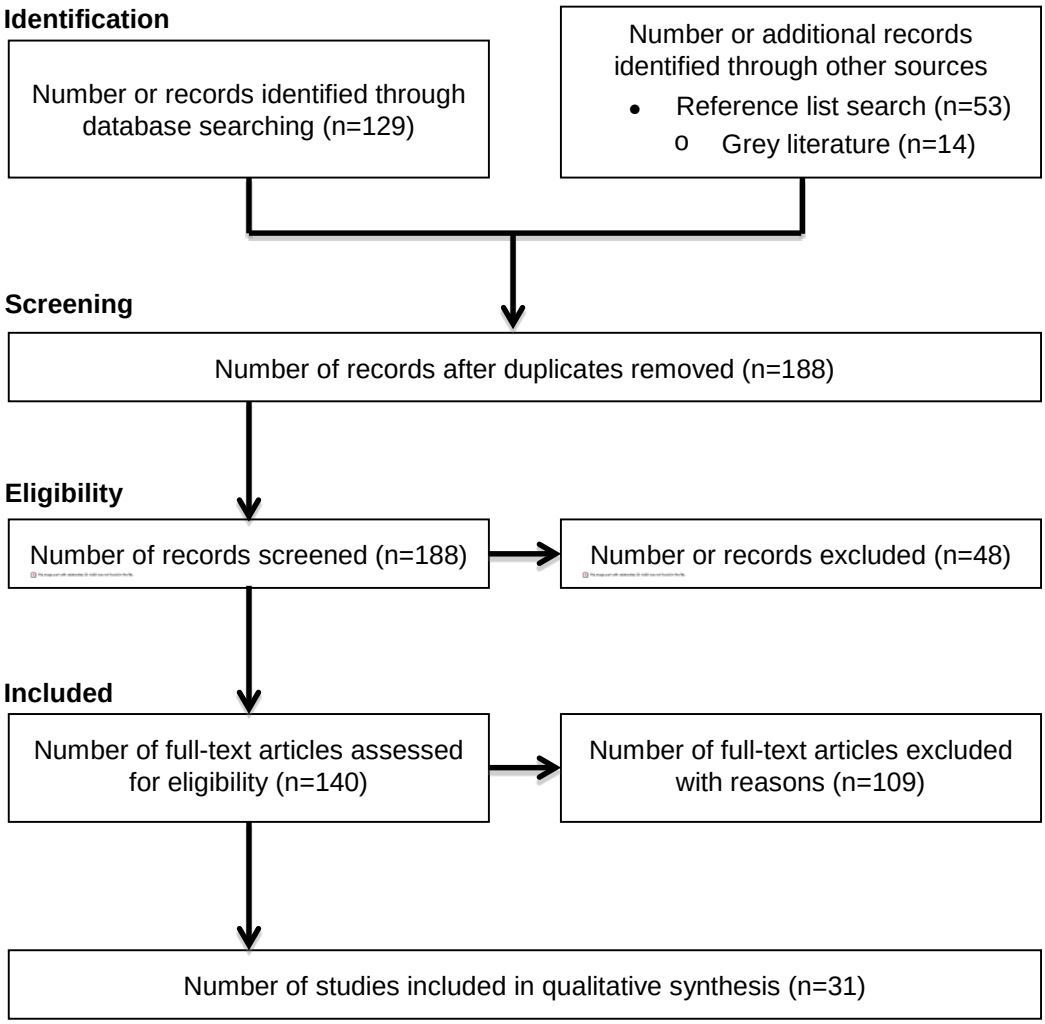
1) What does the current state-of-the-art research show with regard to the effectiveness of rehabilitation and RTW interventions?
2) What factors are important for successful long-term re-integration and sustainable RTW?
    a) What are the prerequisites for a successful system?
    b) What partnerships and cooperation across policy areas are needed for a successful strategy?
    c) What kind of support do employers need with regard to RTW, specifically for aspects related to OSH?

2 Methodology

An assessment of the academic literature and searches were carried out for relevant EU and research institute websites. Further searches were undertaken to identify other grey literature, using Scirus and OpenGray. A search protocol was developed by the research team and this is presented in Appendix A.

Searches were carried out and publications, including titles and abstracts (if available), were identified and stored in the RefWorks database. An initial screening of the titles and abstracts was carried out by two researchers, independently, using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al., 2009). The full-text publications were obtained for those that were considered by both researchers to fit the inclusion criteria. The focus of the analysis was on systematic reviews, meta-analyses, literature reviews, guidance and grey literature. The process by which studies were identified for the qualitative synthesis is depicted in Figure 4. Data were extracted from each of the included publications to summarise the evidence available and to evaluate the level of evidence provided by each — the data extraction methodology is presented in Appendix B.

Figure 4: Reporting results (Moher et al., 2009)



3 Results

The first part of the results section (section 3.1) gives an overview of the current state-of-the-art research on the effectiveness of rehabilitation or RTW interventions. The second part (section 3.2) discusses the important factors for successful long-term re-integration and sustainable RTW. It covers the following issues: (1) the prerequisites for a successful system; (2) the required partnerships and cooperation across policy areas; and (3) the specific needs of employers in terms of support with regard to RTW strategies.

Appendix C illustrates data from 30 selected literature reviews, guidelines and reports that address the effectiveness of interventions or strategies focused on RTW or rehabilitation. This appendix provides details on the author, the type of publication, the pathology or pathologies covered, the research question(s) and the main findings that are relevant to answering the current review's research questions.

3.1 Evidence from current state-of-the-art research on the effectiveness of rehabilitation and return-to-work interventions

Evidence on the effectiveness of interventions is presented separately for MSDs (number of interventions reviewed (n) = 16), mental health problems (n = 5) and cancer (n = 1). Eight additional reviews cover different or unspecified disorders. MSDs and mental health issues are identified as two of the most significant causes of sickness absence and early retirement. In addition, they are non-fatal chronic diseases which tend to receive less public health resources than other types of health condition (The Work Foundation, 2013).

This section elaborates on aspects or interventions related to (1) communication and coordination among important stakeholders in the RTW process; (2) the timing of returning to work and the onset of the intervention; and (3) the specific content or components of the intervention (if evidence is available). It is not only important to return to work, but also to stay in work after returning. Therefore, the long-term effects of the RTW intervention, or its sustainability after 1 year, are discussed (if evidence is available). The effectiveness of interventions is rated according to the strength of the evidence. Strong evidence means that there are consistent findings in a systematic review of multiple high-quality studies, while moderate evidence refers to consistent findings in the review(s) of fewer and/or methodologically weaker studies. Weak evidence is either limited evidence provided by a single high-quality study or conflicting evidence, that is, inconsistent findings provided by the review of multiple studies.

3.1.1 Musculoskeletal disorders — including low back pain

For many years, the strongest scientific evidence of effectiveness was found for strategies focusing on workers with low back pain (LBP). Yet, more recent studies show that the same principles apply to most people with common MSDs (Waddell et al., 2008).

Communication and coordination

Literature suggests that employer participation is important during the RTW process. Studies show moderate evidence that **early contact** between the worker and the workplace significantly reduces the duration of work disability (Franche et al., 2005; Tompa et al., 2008)[5].

There is moderate evidence that **communication, cooperation and common agreed goals** among the workers, occupational health professionals, supervisors, management team and primary healthcare professionals, are fundamental to improving clinical and occupational health management and outcomes (Waddell and Burton, 2001; Waddell et al., 2008). The importance of communication among all of the relevant parties during the RTW process was confirmed in a review by Dunstan and Covic (2006). Carroll et al. (2010) showed that interventions involving **stakeholders working together** appear to be more consistently effective than interventions that do not involve such collaborations. The

[5] There is insufficient evidence to support the sustainability of this effect beyond 1 year (Stanos and Houle., 2006).

study shows that active and structured consultation among workers, employers and occupational health practitioners, and agreements regarding subsequent appropriate work modifications, are more effective than interventions without this coordination component (Carroll et al., 2010).

There is strong evidence in the literature to support the following statements:

- Vocational rehabilitation is more effective if all players recognise their roles in the RTW process, take responsibility and play their parts when appropriate (Franche et al., 2005; Bongers et al., 2006).
- Improved communication between all players leads to faster RTW and less sickness absence overall, and is cost-effective (Loisel et al., 2003; Franche et al., 2005; Bongers et al., 2006; Tompa et al., 2008).
- Contact between the workplace and healthcare providers significantly reduces work disability duration in workers with MSDs (Franche et al., 2005; Tompa et al., 2008).

With regard to cost-effectiveness, there is moderate evidence that contact between the workplace and healthcare provider results in net savings and that RTW coordination leads to important cost reductions (Franche et al., 2005; Schandelmaier et al., 2012)[6].

Early return to work and timing of interventions

Empirical findings support the use of reassurance and encouragement, by healthcare providers, to resume normal activities in the acute phase of disability, that is, during the first 3 to 4 weeks of work disability (Dunstan and Covic, 2006). There is strong evidence that most workers are able to continue working or, at least, return to work after a few days or weeks of sickness absence, even if they have residual or recurrent symptoms, and are not completely pain free (EU-OSHA, 2007). Scientific evidence confirms that this general approach leads to shorter periods of work loss over the following year. Yet, it is not clear if the component '**early return to work**' is alone responsible for this effect or if it is effective in combination with other intervention components, since most of the evidence comes from intervention packages (Waddell and Burton, 2001; Waddell et al., 2008).

Hlobil et al, (2005, 2009) reviewed occupational health guidelines on the management of LBP and concluded that most of the guidelines stress the importance of returning to work as quickly as possible. Workers with LBP should return to work even if they still feel some pain. If necessary, those workers with more severe symptoms should start with modified duties, which could then be gradually increased — in terms of hours and/or tasks — until full RTW is reached. US and Dutch guidelines (Hlobil et al., 2005; Hlobil, 2009) propose returning to work within 2 weeks, with adaptation of duties if necessary. The US guidelines state that every attempt should be made to maintain the patient at the maximal level of activity, including with regard to work activities. They propose the following targets for disability duration in terms of RTW: return to work after 0-2 days with modified duties, and after 7-14 days if modified duties are not feasible. However, the Canadian guidelines advise that workers should return to work only when symptoms and functional restrictions have improved (Hlobil, 2009).

There is inconsistent evidence regarding the importance of **time-contingent management** of RTW. Time-contingent management refers to interventions or activities that follow a pre-defined time schedule. The Dutch guidelines stress the importance of time-contingent management of RTW, while Hoefsmit et al. (2012) found inconsistent evidence with regard to time-contingent interventions.

The importance of **early intervention** is emphasised in several reviews (Carroll et al., 2010; Hoefsmit et al., 2012). There is particularly strong evidence about the timing of interventions in the context of MSDs. However, it is assumed that the general principles are also applicable to other conditions (Waddell et al., 2003; Waddell and Burton, 2004). There is strong evidence that inexpensive healthcare and workplace interventions, such as good clinical and workplace management and practice, in the early stages of sickness absence can be effective at increasing RTW rates and reducing the number of people on long-term disability (Frank et al., 1996; Frank et al., 1998; Waddell and Burton, 2004). There is strong evidence that structured vocational rehabilitation interventions are effective between 1 and 6 months of sickness absence — the exact limits are unclear. However, there is limited evidence

[6] There is insufficient evidence to support sustainability of this effect (Franche et al., 2005).

for cost-effectiveness with regard to this time period (Loisel et al., 2003; Schonstein et al., 2003a; Waddell et al., 2003; Waddell and Burton, 2004). The best evidence on the upper limit for effective interventions is between 3 and 6 months of sickness absence. There is progressively less evidence for intervention effectiveness between 6-12 months, and very little for interventions after 12 months (Frank et al., 1996; Waddell et al., 2003).

In addition, the 2013 Fit for Work Europe report, on reducing temporary work absence through early intervention, emphasises that early intervention in workers with MSDs is good practice, in order to, more specifically, obtain quick diagnoses and better treatment to reduce the risk of developing co-morbid conditions and aid people's return to activities of daily living and stay economically active (The Work Foundation, 2013).

Content of the intervention

Clinical interventions

Various clinical treatments used to treat chronic LBP may produce some clinical improvement, but there is strong evidence that they are rather ineffective at aiding the return of patients to work (Waddell and Burton, 2001; Waddell et al., 2008). Williams and Westmorland (2002) stated that clinicians need to include the workplace as part of their interventions.

Workplace organisational and/or management strategies

There is a general consensus, but limited scientific evidence, that workplace organisational and/or management strategies, that is, those involving an organisational culture and high stakeholder commitment to improve safety, provide optimum case management, and encourage and support early RTW, may reduce absenteeism and duration of work loss (Waddell and Burton, 2001). A people-oriented culture and a safety climate within companies were also proven to be associated with lower numbers of disability benefit claims (Williams and Westmorland, 2002).

Workplace interventions

There is moderate evidence that the temporary provision of **lighter or modified duties** (Waddell and Burton, 2001; Weir and Nielson, 2001; Tompa et al., 2008; Waddell et al., 2008); **accommodations of the workplace** (Carroll et al., 2010; EU-OSHA, 2007; Williams and Westmorland, 2002; Palmer et al., 2012); and **work adjustments, including an improvement of work organisation** (Bongers et al., 2006), reduce the duration of sickness absence and facilitate RTW. These interventions are often low cost and, thus, can be cost-effective (Waddell and Burton, 2001; Weir and Nielson, 2001; Tompa et al., 2008; Waddell et al., 2008)[7]. A review by van Oostrom et al. (2009) compared workplace interventions with clinical interventions and usual care, that is, general practitioner (GP) care or advice. Moderate evidence was found regarding the effectiveness of workplace interventions at preventing long-term work disability compared with usual care; there was a lack of studies that would have allowed a comparison of workplace interventions with clinical interventions. Gabbay et al. (2011) demonstrated that studies with a workplace component were more likely to report successful outcomes in terms of reducing short-term and long-term sickness absence and enhancing RTW.

Ergonomic worksite visits

There is moderate evidence that ergonomic worksite visits significantly reduce work disability duration and that these visits result in cost reductions (Franche et al., 2005; Tompa et al., 2008)[8]. According to Williams and Westmorland (2002), on-site ergonomic interventions, involving analyses of injured

[7] There is insufficient evidence to support the sustainability of this effect. There is only moderate evidence that work interventions reduce costs associated with work disability and limited evidence to support the sustainability of this effect (Franche et al., 2005).

[8] There is limited evidence of sustainability (Franche et al., 2005; Tompa et al., 2008).

workers' jobs to determine the need for job modifications, facilitate RTW. According to Hoefsmit et al. (2012), interventions that include the implementation of work-related adaptations, such as ergonomic interventions or the improveme1nt of furniture, facilitate RTW.

Back school, physiotherapy, rehabilitation programmes or physical conditioning

Elders et al. (2000) stated that, with regard to RTW, a back school programme was the preferred intervention. More specifically, a programme that combines exercise and functional conditioning, and training in working methods and lifting techniques, improved the RTW rate significantly. An intervention after 60 days of sickness absence, that is during the sub-acute phase, showed the most promising results. There is moderate evidence that changing the focus from purely symptomatic treatment to a **back school**[9] type of rehabilitation programme can lead to a faster RTW, less chronic disability and shorter sickness absence for workers who have difficulty returning to normal activities after 4-12 weeks (Waddell and Burton, 2001; EU-OSHA, 2007).

In their review, Tompa et al. (2008) confirmed that there is moderate evidence for interventions that include a **physiotherapy** component. However, several reviews concluded that exercise and physiotherapy interventions might be ineffective unless behavioural elements, such as goal-setting to improve self-efficacy, are also integrated into the programme (Shaw et al., 2006; EU-OSHA, 2007). In contrast, Zampolini et al. (2007) failed to find any strong indications regarding the efficacy of RTW interventions, most of which were related to 'restoring the capacity of work', 'exercises and back schools', 'occupational and vocational therapy', 'assessing functional ability to work' and 'forecasting the return to work'. There is, however, evidence to support the cost-effectiveness of exercise-based interventions (Gabbay et al., 2011).

Physical conditioning programmes, that is, work- or function-related physical rehabilitation programmes specifically designed to restore an individual's systemic, neurological, musculoskeletal or cardiopulmonary function, were proven to be effective at reducing the number of sick days compared with usual care, that is, GP care or advice. However, there is evidence that interventions that combine intensive physical training — including aerobic exercise; muscle strength, endurance and coordination exercises; and a cognitive behavioural component aimed, for example, at promoting self-instruction, relaxation or biofeedback, coping strategies, assertiveness, the minimisation of negative or self-defeating thoughts, and changes in maladaptive beliefs about pain and goal setting — produce clinically worthwhile reductions in the number of sick days taken at 12 months compared with usual care. There was only limited evidence regarding the effects of specific exercise programmes that did not include a cognitive behavioural component on time lost from work; this suggests that such a component is essential (Schonstein et al., 2003a; Bongers et al., 2006).

Multidisciplinary treatment

In a review by Bongers et al. (2006), a small positive effect of **multidisciplinary treatment**, compared with usual care, in terms of effects on the duration of sick leave, was shown. There is strong evidence that multidisciplinary interventions that address health, personal and workplace factors, that is, the biopsychosocial approach, linked to the workplace, can be effective and cost-effective with regard to improving occupational outcomes (Schonstein et al., 2003b; EU-OSHA, 2007; Zampolini et al., 2007; Gabbay et al., 2011). In addition, Hoefsmit et al. (2012) stated that multidisciplinary interventions facilitate RTW, and are effective at reducing physical complaints and the majority of psychological complaints.

Hlobil (2009) assessed different guidelines for the management of LBP. The most frequently recommended treatment options provided in the guidelines were medication for pain relief, progressive exercise programmes and multidisciplinary rehabilitation. The US guidelines recommend referral within 2 weeks to an exercise programme involving aerobic exercises, conditioning exercises for trunk muscles and an exercise quota. According to the Dutch guidelines, if there is no progress within 2

[9] Educational and skills acquisition programme, including exercises. Lessons can be given to groups of individuals and are often supervised by a paramedical therapist or medical specialist (Heymans et al., 2004).

weeks of work absence, workers should follow a graded activity programme[10] (Lindstrom et al., 1992a; Lindstrom et al., 1995). If there is no progress within 4 weeks of sickness absence, workers should be referred to a multidisciplinary rehabilitation programme. The United Kingdom guidelines recommend that workers who have difficulty returning to normal occupational duties within 4 weeks should be referred to active rehabilitation programmes that include exercises, reassurance and advice; progressive active exercise and fitness programmes; and pain management according to behavioural principles (Hlobil, 2009). Dunstan and Covic (2006) stated that multidisciplinary interventions are especially effective during the sub-acute phase (i.e. within 4-12 weeks of the onset of absence). In the chronic phase (more than 12 weeks after sickness absence), biopsychosocial rehabilitation is recommended for individuals who experience difficulty returning to work, although more studies are needed to confirm this hypothesis. There is moderate evidence that the use of case management approaches, including RTW coordinators, is effective and cost-effective with regard to occupational outcomes (Waddell et al., 2008).

According to the review of Hlobil (2009), the optimal content of RTW interventions should be a mixture of education (e.g. about back problems), exercise, behavioural treatments (e.g. graded activity) and ergonomic measures. Yet, it is not clear which component or combination of components is most effective.

3.1.2 Mental health problems

The literature on stress-related disorders and mental health issues focus more, in general, on **clinical outcomes**, and social outcomes are given little consideration. However, rehabilitation processes do not seem to frame RTW as a major objective (Clarkin and Wynne, 2003; Waddell et al., 2008).

There is evidence that some medical and **psychological treatments** for anxiety and depression can improve symptoms and quality of life (QOL), but there is limited evidence that they improve work-related outcomes (Waddell et al., 2008). Corbière and Shen (2006) reviewed the literature on psychological RTW interventions for mental health problems. These interventions are, for example, psychosocial interventions, focusing on, for instance, communication skills, or psychological interventions, focusing on, for instance, coping strategies, problem-solving strategies and adjustments in beliefs and attitudes. This review revealed that 75 % of the controlled trials related to mental health problems reported positive effects of psychological interventions. There is moderate evidence for the cost-effectiveness of psychologically based interventions for minor mental health problems (Gabbay et al., 2011).

Diverse interventions were identified in the review on depression by Furlan et al. (2012): **psychological interventions**, such as cognitive behavioural therapy and psychotherapy; **enhanced primary care** (i.e. education of physicians and nurses working in primary care centres or managed care centres); **enhanced psychiatric care** (i.e. out-patient psychiatric treatment enhanced by occupational therapy); **enhanced occupational physician roles** (i.e. a more active role of the occupational physician in the management of work disability and prevention of work disability recurrences); **integrated care management** (i.e. interventions at organisational or healthcare system level); **exercise** (i.e. strength, aerobic and relaxation training); and **worksite interventions** (i.e. worksite stress reduction programmes). However, none of the interventions can be recommended as effective for the outcomes 'prevention and management of work disability/sickness absence', 'work functioning' and 'recurrences'.

There is limited evidence that **worksite interventions** to prevent or treat mental health problems are cost-effective. RTW interventions aimed at workers with depression do not seem to be cost beneficial. Yet, before analysing the economic impact, there should first be ample evidence for the effectiveness of worksite mental health interventions (Hamberg-van Reenen et al., 2012).

[10] A sub-maximal, gradually increasing exercise programme, with an operant conditioning behavioural approach, based on the results of functional capacity tests, the demands from the patient's work and the patient's expectations on time to RTW (Williams and Westmorland, 2002; Palmer et al., 2012).

3.1.3 Cancer

Only one review addressed RTW or rehabilitation for employees with cancer. The most frequently reported work-directed components were encouragement, education or advice about work or work-related subjects (68 %), vocational or occupational training (21 %), and work accommodations (11 %). There is wide variation in work-directed interventions related to cancer care and, in most cases, this was only a small part of the intervention. Enhancing RTW or work retention was clearly not an important objective. In more than half of the interventions, the workplace, employers and occupational physicians were not part of the intervention. No major conclusions can, therefore, be drawn regarding the effect of interventions on RTW for workers with cancer, because of the poor methodological quality of the studies and the lack of randomised controlled trials (RCTs) (Tamminga et al., 2010).

3.2 What factors are important for successful long-term re-integration and sustainable return to work?

The section below discusses the factors required for a successful re-integration or RTW. Based on the evidence of this literature review and on other published reports, recommendations are given with regard to the prerequisites for a successful system, the partnerships or cooperation across different policy areas, and the support that is needed for employers, specifically in terms of delivering OSH services.

3.2.1 Prerequisites for a successful system

Based on evidence and recommendations of several organisations, RTW strategies should take into account the factors described below, at national, intervention and organisational levels.

At the national level

From incapacity to capacity

There is a need for a conceptual shift from incapacity to capacity. Evidence shows that work has beneficial effects on health and well-being, even if a person is faced with temporary or permanent reductions in work capacity because of illness, injury or disability; an appreciation of these beneficial effects leads to a much more complete understanding of the importance of work (ISSA, 2013). Drawing attention to and focusing on a worker's skills and abilities that are not lost as a result of chronic disease or disability may determine whether or not workers can gain enough strength and motivation to continue to work or return to the labour market. Depending on the perspective, sometimes chronic diseases or disabilities even appear to be socially constructed problems. The reduction of environmental barriers and the creation of supportive environments can reduce social and labour market exclusion (ENWHP, 2013).

National governments should avoid the deficit-oriented approach (ENWHP, 2013) and should consider adopting a version of the United Kingdom 'fit note', encourage clinicians and employers to focus on workers' capacities rather than their incapacities, and improve the flow of information between clinicians and employers (The Work Foundation, 2013). According to the WHO, disability assessment systems should be adjusted so that they assess the positive aspects of functioning — as opposed to disability — and the capacity to work (WHO, 2011). The European Network for Workplace Health Promotion (ENWHP) suggests that the implementation and utilisation of the ICF should be promoted so that its use is widespread (ENWHP, 2013).

Work must reward: clear incentives for the worker, the employer and the state

After analysing the United Kingdom sickness absence system, Black and Frost (2011) demonstrated that the way in which individuals, employers and the state manage ill health and work is problematic, primarily because of unclear or diffused incentives in the current system; for example, the state gains from employers who invest in sickness absence management, while the design of the United Kingdom tax and benefits systems does not take this into account. According to the authors, the United Kingdom

Government should financially support employers who invest in maintaining or returning employees that are absent as a result of sickness to work through, for instance, tax relief. The compensation given by the United Kingdom Government to smaller companies confronted with very high rates of sickness absence should be abolished. This compensation potentially reduces employers' motivation to manage sickness absence. The administrative burden to employers should also be reduced. A job-brokering system should help workers who are on long-term sick leave to find new work before they start to rely on the benefits system. Such a system should be offered free of charge by the state in cases of very long-term absence, yet should be made available at an earlier stage to individuals and employers who are willing to pay for it. The inappropriate direction of large numbers of people towards Employment and Support Allowance (ESA) should be prevented. A work capability assessment should be performed to determine if an individual qualifies for ESA (Black and Frost, 2011).

The ENWHP (2013) suggests that appropriate incentive schemes should be created to provide good incentives and support to those who can work, but also provide adequate and secure income for people who cannot work. Control systems and support services should be reformed in such a way that they are incentives to remain in or begin work (ENWHP, 2013). In parallel, the ILO code (2002) recommends that 'competent authorities' should provide guidance, services and incentives to employers to retain people and to encourage employees to resume work as quickly as possible (ILO, 2002).

Flexibility in granting welfare benefits

Flexibility in granting welfare benefits allows workers and employees with partial work disability to earn income and claim benefits (The Work Foundation, 2013).

Dissemination of good practices

Based on a vision of dynamic social security, the International Social Security Association (ISSA) and its global membership focus on proactive and preventive social security measures, especially those that promote employability and health, such as RTW. To further promote good practice in the design and delivery of RTW programmes, ISSA is working in close collaboration with member organisations and partners, such as Rehabilitation International (RI) and the International Disability Management Standards Council (IDMSC), and is in the process of developing RTW guidelines for social security organisations (ISSA, 2013). Fit for Work Europe, a multi-stakeholder coalition, also emphasises the importance of disseminating good workplace preventive practices, which should be given priority and support by the European Commission and national governments (The Work Foundation, 2013). Additionally, the ENWHP (2013) states that innovative approaches and models of good practice should be supported, promoted and advertised (ENWHP, 2013).

At the intervention level

Primary care management and general practitioners play a key role

Healthcare professionals are the entry point for receiving sick pay and often mark the start of the process towards sickness benefits. The care delivered by primary care professionals and their thinking with regard to disability at work and RTW is important to the RTW process. People suffering from mild conditions often need only simple clinical management before fully returning to work. Primary care professionals should keep in mind that their opinions and actions can influence the health beliefs of workers, their families and employers, and, consequently, sickness absence and RTW. RTW is seldom considered a key clinical outcome measure, as primary care more often focuses on symptom relief and cure. However, many GPs report a lack of training and expertise with regard to work-related issues, and insufficient time, resources and support to address these issues adequately (Waddell et al., 2008).

Black and Frost (2011) stated that doctors (usually GPs) and employers would benefit from independent authoritative advice regarding the most effective means for an individual to return to work, especially with regard to workers with long-term absences and difficult cases. In particular, access to such services should be secured for medium-sized and relatively small companies, which often have fewer financial resources. Black and Frost (2011) suggested that governments should invest in independent assessment services to evaluate individual physical and mental functions, and to provide advice to employers and doctors on how individuals should be supported to return to work. This service should be accessed if an individual's absence has lasted for at least 4 weeks, that is, for workers who are at relatively high risk of long-term sickness absence, and should be provided by healthcare

professionals with appropriate skills. The effectiveness of the sickness certification system based on the 'fit note' — rather than a sick note — provided by healthcare professionals should be improved. First, 'fit note' guidance should be given to ensure that judgements about fitness to work are not simply job-specific assessments; this means that work should be considered in a general sense, not merely in the context of an individual's specific job. Second, the knowledge and awareness of healthcare professionals with regard to the assessment of work capability, the general benefits system and the importance of work for health should be improved (Black and Frost, 2011). Fit for work Europe stated that national governments should ensure that primary care physicians are supported with these important decisions related to work disability (The Work Foundation, 2013).

Interventions should include a workplace component

Evidence shows that interventions are more effective at reducing the duration of sickness absence and increasing RTW rates if they contain a workplace component, or if modified duties or work accommodations are provided. The ILO code of practice recommends adjustments related to work organisation; the environment or work content; redeployment; training or retraining; the use of devices or appliances; and the right to access other support (ILO, 2002). The Fit for Work Europe coalition recommends that legislation regarding workplace accommodations should be promoted and reinforced (The Work Foundation, 2013). EU directives relevant to MSDs should recognise pre-existing MSDs, not caused by work, which can also affect productivity and the quality of a person's working life. They should also recognise that workplace interventions can support job retention, RTW and vocational rehabilitation. The directives should also recognise the link between MSDs and mental health (The Work Foundation, 2013).

Return-to-work interventions should be multidisciplinary

Multidisciplinary interventions that address health, personal and workplace factors, that is, the biopsychosocial approach, linked to the workplace, are effective (Waddell et al., 2008). This recommendation is supported by the ILO code (2002), which states that suitable measures include individual counselling, individual rehabilitation plans, job retention programmes, the assessment of the ability and relevant experience of workers who have a reduced job-related capacity, and measures to encourage workers to remain economically active through vocational retraining and re-integration programmes (ILO, 2002). However, more complex interventions involving several disciplines should be reserved for individuals who are experiencing difficulty returning to work (Waddell et al., 2008). Fit for Work Europe underscores that national governments should prioritise access to physical and psychological therapies for workers with MSDs. Timely interventions from physiotherapists and clinical psychologists can make a significant impact on RTW, given the possible link between MSDs and mental health (The Work Foundation, 2013).

Tailored interventions should start as soon as possible

The WHO emphasises that rehabilitation services should be tailored to individual and community needs, rather than services of a 'one-size-fits-all' nature (WHO, 2011). Sickness and disability are dynamic processes, and therefore clinical and workplace management and RTW interventions must be tailored to suit workers and the stages of their diseases (Franche and Krause, 2002; Waddell and Burton, 2004; Young et al., 2005). The longer the duration of sickness absence, the more RTW barriers workers are likely to experience and, thus, the lower the chances are of returning to work. Depending on the context, workers who are absent from work for 4-12 weeks have a 10-40 % risk of still being absent after 1 year (Waddell et al., 2003; Waddell and Burton, 2004). This means that, as time passes, workers' needs, with regard to facilitating RTW, increase. The 'stepped-care approach'[11] takes into account the individual needs of workers and is, therefore, an optimal framework (Frank et al., 1996, 1998; von Korff and Moore, 2001; Loisel et al., 2003; Waddell and Burton, 2004). The sooner the

[11] A 'stepped-care approach' proposes three levels of care in ascending order of intervention level, with the aim of delivering the least care necessary to benefit the patient. It starts with simple, low-intensity, low-cost interventions, which will be adequate for most sick or injured workers, and provides progressively more intensive and structured interventions for those who need additional help to RTW. Step 1, which is relevant to most patients, addresses the common fears of patients and encourages patients to resume normal activities. Step 2, which targets the substantial minority of patients who require more than simple advice to resume activities, provides brief, structured interventions that support physical exercise and the return to normal activities. Step 3 targets patients who require more intensive interventions, including treatment of psychological illness if present, before they can return to normal activities related to work and family life. This stepped-care approach provides a framework for sequencing progressively more intensive interventions and coordinating the efforts of primary care physicians, allied health professionals, behavioural health clinicians and patients to improve functional outcomes in patients with back pain (Lindstrom et al., 1992a).

intervention takes place, the more effective it is likely to be. Ideally, a structured multidisciplinary intervention should start as soon as possible, that is, after approximately 6 weeks. Workers on sickness absence for more than 6 months are often confronted with more personal and social barriers to returning to work. Therefore, such workers need interventions that address these issues (Frank et al., 1996; Waddell et al., 2003). While the importance of early intervention is evident, there are still many barriers to overcome with regard to attitudes amongst employers, the medical profession and social security institutions. According to ISSA, new collaborative structures have to be established among the different actors, and medical and vocational rehabilitation capacities have to be built — based on systematic case or disability management methodologies. The important role of building public awareness and shaping new, positive attitudes in society have to be coupled with incentives and support, particularly for employers (ISSA, 2013).

Communication and coordination among stakeholders is crucial

Many stakeholders are involved in work and health: workers, employers, trade unions, insurers, health professionals, policy-makers and governments. Their roles vary according to the duration of a worker's sickness. For most short-term sickness absences, the number of key players is limited to the worker/patient, GP and employer. For longer-term sickness absences, the RTW process may involve a more extensive list of key players, which can be any combination of workers/patients; GPs and primary care teams; employers; occupational health teams; rehabilitation teams; insurers; and case managers. Stakeholders often have different and/or concurrent perspectives, purposes and budgets. However, in order to reach successful RTW, it is important for players to work together. Communication among all players, central coordination, and recognition of individual roles and responsibilities in the RTW process are crucial for successful RTW (ISSA, 2013). The ENWHP (2013) suggests that the roles of various stakeholders should be established at the early stages of strategies and initiatives, and these roles should be clearly defined. The social partner should play a greater role and pay specific attention to the social gradients in health — especially in terms of chronic diseases. The rules and mechanisms of cooperation among the various agencies must be developed and implemented. In particular, cooperation between the labour and health sectors should be endowed, that is, measures for workplace health promotion should be linked with prevention measures for occupational safety (ENWHP, 2013). The Fit for Work Europe coalition suggests that national care plans should be implemented for people with MSDs, and should include measures to promote coordination and cooperation between health and social security institutions, and employers. They should also include steps to intervene early and prioritise early RTW (The Work Foundation, 2013). The ILO code (2002) also states that social security systems should help workers to retain their jobs and RTW through high-quality well-coordinated and promptly available services (ILO, 2002).

At the organisational level

The availability and accessibility of disability management programmes

The WHO underscores the importance of setting up disability management programmes to support the RTW of employees who become disabled. Mainstream vocational guidance and training programmes should be made accessible to people with disabilities.

Integration into company policy

It is important that the RTW policy is integrated into company policies for occupational health, sickness absence management and disability management (Waddell et al., 2008).

Applicability to mental health problems

The literature on mental health problems focuses mainly on clinical management and outcomes, with little evidence on vocational rehabilitation and work outcomes. There is general consensus that organisational level interventions, disability management and improved communication, early contact with absent workers, agreed rehabilitation plans, flexibility in work organisations and RTW arrangements, are applicable to mental health problems and, so far, there is only limited evidence that they improve work-related outcomes. There is no high quality evidence for the cost-effectiveness of

interventions that improve work-related outcomes for common mental health problems (Waddell et al., 2008).

3.2.2 Partnerships and cooperation across policy areas for a successful strategy

Evidence shows that vocational rehabilitation should be integrated into the health, work and well-being strategies, and broader government policies on health, employment and occupational health. Common health problems, mild or moderate musculoskeletal problems, mental health problems and other conditions that cause short-term and long-term disability should be high priorities for both work and health policies, and for healthcare delivery.

Additionally, RTW should be one of the key performance indicators of health care. Currently, health care often fails to address work outcomes and may be insufficient, by itself, to improve work-related outcomes. However, if clinical management is linked to the workplace, work outcomes should improve. Health policies, clinical guidelines, research and audits should also routinely include work-related outcomes. More specifically, this means that health care should focus on work, for example early interventions, communication and 'worker-tailored' interventions (i.e. 'stepped care'). Workplaces should proactively accommodate RTW with, for example, temporary job modifications.

According to Fit for Work Europe (The Work Foundation, 2013), only 3 % of health spending is devoted to prevention across the EU, with over 70 % of spending being currently devoted to chronic illness. Early intervention for people of working age with chronic conditions, such as MSDs, can be a form of prevention that ensures that people pay, rather than consume, tax. By 2030, it is estimated that up to 45 % of the EU workforce will have long-term or chronic health conditions that affect their productivity. Early healthcare interventions that help people to remain in work will reduce welfare payments, avoid lost tax revenues and avoid social exclusion. To date, governments still focus on health as a cost. Joined-up, coordinated, cross-government action and budgeting with a preventive focus, and an 'investment' mindset, is needed to tackle this (The Work Foundation, 2013).

3.2.3 Support for employers and health professionals with regard to return to work, specifically for aspects related to OSH

Employers need specific support for the aspects of RTW outlined below.

Beliefs and role clarifications

GPs need to be convinced that work is a vitally important health outcome and that they have a key role to play in the RTW process. The government needs to emphasise their critical role in the facilitation of work outcomes, and they should learn how to apply and implement 'evidence-based' RTW interventions and practices.

Proactive approach

Employers have a key role in vocational rehabilitation and should take a proactive approach, together with the temporary provision of modified work duties and accommodations to facilitate RTW and accommodate their workers. Therefore, policy should be directed at persuading and supporting primary healthcare and occupational healthcare professionals and employers to implement the basic principles of good healthcare and workplace management.

Education

Within healthcare departments, governments should enhance education and training on work and health issues, and on vocational rehabilitation. This should be extended to non-health professionals and stakeholders in and around the workplace. In addition, health professionals within primary health care should be supported and educated on vocational rehabilitation.

Small and medium-sized enterprises

All companies, especially small and medium-sized enterprises (SMEs) which often lack information and resources, need support and education from governments with regard to developing and delivering effective RTW strategies and programmes, including how to effectively manage workers with injuries or other work disabilities (Williams and Westmorland, 2002).

Communication and coordination

Systems for effective communication and coordination should be developed among all stakeholders and, more specifically, between healthcare services and the workplace.

Collaboration with stakeholders

It is important to keep key stakeholders, including unions, employers, insurers and health professionals, involved in the RTW process. In order to create wider support, governments could, for example, work with employers' organisations to develop and promote the business case for vocational rehabilitation.

Vocational rehabilitation

There is a need to develop systems to deliver effective vocational rehabilitation interventions to workers who fail to return to work and need additional help. These systems should use a proactive approach and should include a balance between both healthcare and workplace elements. People at risk should be identified, for instance those who have been absent for more than 6 weeks, and referred to appropriate professionals who can then deliver effective interventions. Pilot studies will be required to improve the evidence-base on the effectiveness and cost-effectiveness of service delivery models in each national context. Given that each country has different social security, insurance and compensation systems, pilot studies are required to test the effectiveness and perform cost–benefit analysis of RTW interventions on the national scale. It cannot be assumed that an effective intervention in one country or social system would also be effective in another country with a different social system. This will involve financial investment, but the potential benefits far outweigh the likely expenditure and the significant costs of doing nothing.

Principles of 'stepped care'

Workers can be differentiated according to the duration of absence and their different needs. According to the 'stepped-care' approach, the longer the duration of absence, the more complex and structured the intervention should be. People with common health problems can be helped with a few basic principles of healthcare and workplace management — which often have low costs. People who have difficulties returning to work need more structured vocational rehabilitation. Healthcare professionals and employers should be educated in applying these principles.

Mental health

There is an urgent need to improve vocational rehabilitation for workers with mental health problems. Promising approaches include health care that incorporates a focus on RTW, workplaces that are accommodating and non-discriminating, and early interventions that support workers to stay in work and thereby prevent long-term incapacity.

4 Conclusions and research gaps

4.1 Conclusions

This literature review reveals that studies on the effectiveness of RTW interventions among people on sick leave have often focused on specific diagnostic groups — primarily those with MSDs (van Oostrom et al., 2009). The review focuses on both MSDs and mental health problems because these are the two most common causes of sickness absence and early retirement. They are also non-fatal chronic diseases, which tend to receive less public health resources than other types of disorder (The Work Foundation, 2013).

This review shows that there is sufficient evidence to support the positive effects of several aspects of RTW and rehabilitation interventions for workers with MSDs. Unfortunately, for people with mental health problems, systematic reviews identified a lack of intervention studies with work-related outcomes (van Oostrom et al., 2009). Furthermore, conclusions cannot be drawn on studies involving workers with cancer, as such studies often have poor methodological quality. However, it is assumed that the following general principles for workers with MSDs are also applicable to other diseases:

- **Disability definitions and assessment systems** should be standardised across countries to make international comparisons possible. Assessment tools should focus on the positive aspects of functioning and the capacity to work (WHO, 2011). The ENWHP suggests that the implementation and utilisation of the ICF should be promoted and widespread (ENWHP, 2013).
- MSDs and common mental health conditions should be high **priorities**, in both employment and health policies, and in healthcare delivery.
- Vocational rehabilitation should be integrated into **health, employment and OSH government strategies and policies**.
- Early healthcare interventions that assist people to remain in employment will reduce welfare payments and avoid lost tax revenues and social exclusion. **Joined-up, coordinated, cross-government action and budgeting**, with a preventive focus, are needed (The Work Foundation, 2013).
- National governments should avoid the deficit-oriented approach (ENWHP, 2013) and consider adopting a version of the United Kingdom '**fit note**'. Governments should encourage clinicians and employers to focus on the capacities of workers rather than their incapacities, and improve the flow of information between clinicians and employers (The Work Foundation, 2013). The provision of **independent authoritative advice** on specific and difficult long-term absence cases would be beneficial for employers, especially those working in SMEs (Black and Frost, 2011). Authorities could also dispense guidance on the use of 'fit note'-type certificates; for example, absence certificates should not be based only on a worker's specific job, but, rather, the capacity of a worker should also be evaluated in the broader context of the labour market (Black and Frost, 2011).
- Currently, the **incentives** for all RTW stakeholders are diffuse and unclear. Governments should provide guidance, services and incentives for all stakeholders involved in RTW processes. A financial incentive or reward should motivate all parties to achieve a common goal, that is, to maintain or return sick employees to work (ILO, 2002; Black and Frost, 2011; ENWHP, 2013).
- Evidence shows that work is beneficial for health and reduces sickness absence. **Reassurance and encouragement** during the acute phase of work disability is crucial for an **early return** to normal activities (Dunstan and Covic, 2006; EU-OSHA, 2007; Hlobil, 2009). If necessary, work-related modifications, such as modified hours or tasks, could be proposed and changed gradually until full RTW is reached (Hlobil, 2009). The Fit for Work Europe coalition suggests the implementation of national care plans that include steps to intervene early and to prioritise an early RTW (The Work Foundation, 2013). A RTW intervention should start as early as possible (Waddell et al., 2003; Waddell and Burton, 2004; Carroll et al., 2010; Hoefsmit et al., 2012) after quick diagnosis and subsequent treatment (The Work Foundation,

2013). Sickness and disability are dynamic processes and, therefore, management and RTW interventions must be tailored to suit workers and the stages of their disease (Franche and Krause, 2002; Waddell and Burton, 2004; Young et al., 2005; WHO, 2011). The more advanced the stage of sickness absence, the more barriers and needs workers will experience, and, therefore, the more complex the interventions must be; these are the principles of the 'stepped-care approach' (Loisel et al., 2003; Schonstein et al., 2003a; Waddell et al., 2003; Waddell and Burton, 2004).

- **Multidisciplinary rehabilitation**, which applies the biopsychosocial approach and addresses health, individual and workplace factors, seems to reduce the number of days of sickness absence (Schonstein et al., 2003b; Bongers et al., 2006; EU-OSHA, 2007; Zampolini et al., 2007; Kuoppala and Lamminpaa, 2008; Gabbay et al., 2011; Hoefsmit et al., 2012). Hlobil (2009) stated that optimal RTW interventions should comprise a mixture of education, exercise, behavioural treatments (e.g. graded activity) and ergonomic measures. The ILO code (2002) proposes a combination of individual counselling, individual rehabilitation plans, job retention programmes, assessments of the abilities and relevant experience of workers who have a reduced job-related capacity, and measures to encourage workers to remain economically active through vocational retraining and re-integration programmes (ILO, 2002). More complex interventions involving several disciplines should be reserved for individuals who are experiencing difficulty in returning to work (Waddell et al., 2008).
- During the RTW process, all relevant stakeholders should **communicate, cooperate and set common goals** (Waddell and Burton, 2001; Dunstan and Covic, 2006; Waddell et al., 2008; Carroll et al., 2010). The roles of all players should be clearly defined and responsibility should be taken when appropriate (Franche et al., 2005; Bongers et al., 2006; ENWHP, 2013; ISSA, 2013). As mentioned above, the Fit for Work Europe coalition suggests that national care plans should be implemented, particularly for people with MSDs, and should include measures to promote coordination and cooperation between health and social security institutions and employers (The Work Foundation, 2013). Within healthcare departments, governments should enhance education and training on work issues, health issues and vocational rehabilitation for all stakeholders. According to ISSA, new collaborative structures must be established among the different actors, namely employers, the medical profession and social security institutions, and medical and vocational rehabilitation capacities should be built and based on systematic case or disability management methodologies (ISSA, 2013).
- **Health policies, clinical guidelines, research and audits should routinely include work-related outcomes**. More specifically, this means that health care should focus on work, for example early intervention, communication and 'worker-tailored' interventions (i.e. 'stepped care'), and workplaces should proactively accommodate RTW by, for example, allowing temporary job modifications.
- **GPs** play a key role in the RTW process. To date, occupational outcomes, such as RTW, are seldom considered clinical outcome measures in primary health care. GPs should be more informed and better educated on how work can improve health, and they should gain more expertise in work-related issues and work disability decisions (Waddell et al., 2008; The Work Foundation, 2013).
- Clinical interventions alone are ineffective at enabling workers to return to work easily (Waddell and Burton, 2001; Waddell et al., 2008). However, interventions that include low-cost **workplace components**, such as lighter or modified duties (Waddell and Burton, 2001; Weir and Nielson, 2001; Tompa et al., 2008; Waddell et al., 2008), accommodations in the workplace (Williams and Westmorland, 2002; EU-OSHA, 2007; Carroll et al., 2010; Palmer et al., 2012), and work adjustments, including improvements of work organisation (Bongers et al., 2006), are more likely to result in success (Tompa et al., 2008; van Oostrom et al., 2009; Carroll et al., 2010; Gabbay et al., 2011). The Cochrane review by van Oostrom et al. (2009), regarding MSDs and mental health, demonstrated the moderate effects of workplace interventions on work disability in comparison with clinical interventions and usual care, that is, GP care or

advice. Adjustments to work organisation, the environment and work content, redeployment, training or retraining, and the use of devices or appliances are recommended for job retention, RTW and vocational rehabilitation (ILO, 2002). This implies that legislation regarding workplace accommodations should be further promoted and reinforced (The Work Foundation, 2013).

- Employers play a significant role in the RTW process, given that **early contact** between workers and employers seems to reduce the duration of work disabilities (Franche et al., 2005; Tompa et al., 2008). Employers should take a proactive approach to facilitate RTW. Employers need education on the basic principles of good healthcare and workplace management.
- Companies should set up disability management programmes to support the RTW of disabled employees. These programmes should be **integrated into company policies** for safety and health, occupational health, sickness absence management and disability management (Waddell et al., 2008).
- Companies, especially SMEs, would benefit from the sharing of successful RTW models and approaches. The **dissemination of good workplace preventive practices** should, therefore, be supported, promoted and advertised (ENWHP, 2013; The Work Foundation, 2013).

4.2 Research gaps

This review revealed several gaps in the research, as outlined below.

There is an urgent need for good-quality studies that evaluate the **feasibility, effectiveness, costs and benefits** of interventions in the workplace, in occupational health service settings, and at policy level (LaMontagne et al., 2003; Viikari-Juntura and Burdof, 2011). Workplace intervention research is challenging because of the many different workplace settings that exist, the wide range of stakeholders that are involved, the complexity of interventions, and because workplaces are dynamic and constantly changing. Specific difficulties arise because timeframes are often too short for follow-up, there are few control groups and participants often drop out of control groups. Evidence on OSH interventions is also needed to justify and improve safety and health investments (EU-OSHA, 2013).

The process of **delivering rehabilitation services** also needs specific attention. In fact, evidence shows that the provision of resources has to match the actual needs of specific workers, that is, the stepped-care approach should be used. However, research is still needed to investigate the exact timeframe needed for each step, how to discourage the delivery of serial ineffective therapies, how to trigger referral and progression from one step to the next, and how to coordinate rehabilitation services between the workplace and healthcare providers. Methods for improving **communication among key players**, namely workers, GPs and employers, should be further investigated.

Continued research is also required to optimise pathways for disability benefit claimants with **mental health problems and for long-term benefit recipients**. Mental health problems should be a major priority area for research on rehabilitation across a spectrum of areas, including employers and the workplace, and the delivery of healthcare services, such as disability and case management. A shift away from the idea that mental health problems make participation in the labour market impossible is also needed. More research is needed to define reasonable workplace accommodations for people with mental health problems. There is no evidence of sufficient quality available on effective and cost-effective RTW interventions for people who have been on benefits for a long time, that is, for more than 1 year (Waddell et al., 2008). Overall, programmes focus on the ‘off-work’ and pre-return phases of the RTW process, with limited focus on the post-return phase and no focus at all on sustainability at work (Black and Frost, 2011; Gensby et al., 2012).

Specific groups of the working population, such as **older workers and women**, need special attention in research. Older workers are known to be more likely to be incapacitated in the long term. Yet, there is little known about the impact of age on rehabilitation, and older workers might differ in their socio-economic situations, health, work ability and response to rehabilitation. The results of this review also show that most studies do not present disaggregated data by age group. In addition, researchers should further investigate if women of working age have specific needs and responses with regard to rehabilitation. More specifically, researchers should also investigate whether or not there are any differences between men and women with specific types of health problems, at various stages of these problems, and/or between different workplaces or types of work.

Large numbers of people work in **SMEs**. However, there is a lack of evidence on the effectiveness and applicability of occupational health services and RTW models in SMEs. There is, therefore, an urgent need to develop effective services and strategies to support them (Waddell et al., 2008). How to provide access to appropriate occupational services for workers in SMEs, and what specific types of support and encouragement may be required to enhance work outcomes, should be investigated. It is, therefore, recommended that all key stakeholders, such as governments, occupational insurance organisations, employers and unions, encourage and support research in accordance with these priorities.

The work environment is seldom considered in **public health research**. People spend most of their lives at work, and the work environment (physical and organisational hazards) may contribute to ill health. It is essential to address the impact of work on health in order to protect public health and reduce preventable human suffering and healthcare costs (EU-OSHA, 2013). Joint studies involving both OSH and public health actors should be carried out. OSH research should also be **translated** into practical workplace solutions and policy action and transferred to potential users. To date, the impact and integration of research results with regard to policy-making and professional practices is often unsatisfactory (EU-OSHA, 2013).

Based on the results of this literature review, it can be concluded that OSH should be further integrated into **primary health care** and that RTW should be considered an important outcome of clinical interventions. A study conducted in the United Kingdom (Jackson, 2004) and funded by the Health and Safety Executive (HSE) investigated the potential benefits of tailor-made individual occupational health advice given in the primary healthcare setting. It demonstrated a significant reduction in a range of specific hazards in the workplace, namely physical, organisational, psychosocial and environmental hazards, for at least 4-6 months, as well as a reduction in the number of work-related symptoms, including back pain, headaches, fatigue and sleeping problems, reported by participants. These results support the strategic direction for providing occupational health support in primary care (Jackson, 2004). However, additional research should be conducted to determine how this can be best achieved and to identify which interventions are most effective in the primary healthcare setting.

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Appendix A — Search protocol

This appendix describes the search protocol that was used for this ‘Rearch review on rehabilitation and return to work’.

Search Strategy

Population
Adults
Employed
Employee
Worker
Ageing worker
Older worker
At work
Economically active
Younger worker
Greying workforce
Active ageing models
Life course
Gender

Intervention
A broad definition of the term intervention was used and included large-scale intervention studies to smaller scale workplace design changes, management training courses, or safety and health considerations.
Measurement of impact of occupational safety initiative
Measurement of impact of occupational health initiative
Measurement of impact of health promotion initiative
Ergonomics
Health promotion
Occupational safety
Occupational safety and health

Occupational health
Occupational medicine
Occupational hygiene
Worker protection
Risk control
Risk reduction
Training for employees
Training for managers
Age management
Rehabilitation
Return-to-work
Return to work
Work disability
Education

Outcomes
Reduction/increase in ill health
Reduction/increase in sickness absence reporting
Reduction/increase in accidents
Reduction/increase in capability
Extended working life
Improvement/decline in retention of workers
Improvement/decline in morale
Improvement/decline in work ability
Improvement/decline in management style
Improvement/decline in mental well-being
Improvement/decline in employability
Reduction in premature departure from work

Publication types
Meta-analysis
Systematic reviews
Reviews
Guidance
Guidelines
Reports

Inclusion criteria
Employed
Employed but not working
Voluntary work
Published after 2000
Meta-analysis, systematic reviews, reviews, guidance, guidelines or reports reporting scientific evidence on the effectiveness of RTW interventions

Exclusion criteria
Economically inactive
Published before 2000
Primary research article
Meta-analysis, systematic reviews, reviews, guidance, guidelines or reports reporting scientific evidence on risk-factors, correlates or predictors of RTW
Meta-analysis, systematic reviews, reviews, guidance, guidelines or reports reporting scientific evidence on qualitative research

Search Databases
For academic research the following databases were used to identify published reviews:
Embase
Medline

PsychINFO
Scisearch
Sociological Abstracts
Social Science Citation Index
Social Policy and Practice
Social Scisearch

Grey literature searches were also carried out using databases such as SCIRUS and Open Grey. Other websites that were also searched include:

EU-OSHA
ENWHP
DG EMPL (Directorate-General for Employment, Social Affairs and Inclusion of the European Commission)
DG SANCO (Directorate-General for Health and Food Safety of the European Commission)
ETUC/ETUI (European Trade Union Confederation/ European Trade Union Institute)
BUSINESSEUROPE
UEAPME (European Association of Craft, Small and Medium-Sized Enterprises)
CEEP (European Centre of Employers and Enterprises providing Public Services)
ILO
WHO
NIOSH (National Institute for Occupational Safety and Health)
Mental Health Europe
European Social Network
EuroHealthNet
The Age and Employment Network

Each study was assessed on external validity and its applicability to the target population and settings defined in the scope. The following phrases were used to evaluate the evidence in relation to each research question:

- likely to be applicable across a broad range of populations and settings;
- likely to be applicable across a broad range of populations and settings, assuming it is appropriately adapted;

- applicable only to populations or settings included in the studies — the success of broader application is uncertain; and
- applicable only to settings or populations included in the studies.

Identification of EU Member State OSH websites and searches for relevant material

This included a request to be sent to the EU-OSHA focal points for relevant reports and tools available within each EU Member State. National experts involved in the project were also asked to supply relevant reports, documents and tools for this component of the work.

Screening of titles, abstracts and full texts

Initial screening of title and abstracts (without looking to full text)
By two independent reviewers
Score all abstracts
Score 1 = potentially eligible study
Score 0 = irrelevant for research question(s)
Score 2 = interesting paper for introduction or discussion but not answering research question (s)
Reason for excluding paper should not be documented
No consensus needed between reviewers
Screening of full text articles
Order all papers that received score 1
Development of scoring sheet with inclusion and exclusion criteria and add ‘YES’/‘NO’ score
All full texts had to be scored by two independent researchers
Consensus needed between reviewers

Appendix B — Data extraction

Notes on the use of methodology checklist: systematic reviews and meta-analyses, reviews, guidance and reports.

Section 1 (yellow) identifies the study and asks a series of questions aimed at establishing the internal validity of the study under review — that is, making sure that it has been carried out carefully, and that the outcomes are likely to be attributable to the intervention being investigated. Each question covers an aspect of methodology that research has shown makes a significant difference to the conclusions of a study.

For each question in this section you should use one of the following to indicate how well it has been addressed in the review:

- well covered;
- adequately addressed;
- poorly addressed;
- not addressed (i.e. not mentioned, or indicates that this aspect of study design was ignored);
- not reported (i.e. mentioned, but insufficient detail to allow assessment to be made); and
- not applicable.

A score and description of the study type is required, based on the table below.

Table 1, Type and quality of evidence

Score	Description
1^{++}	High-quality meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a very low risk of bias
1^{+}	Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a low risk of bias
1^{-}	Meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a high risk of bias
2^{++}	High-quality systematic reviews of these types of studies, or individual, non-RCTs, case-control studies, cohort studies, cost–benefit analysis studies, and correlation studies with a very low risk of confounding, bias or chance, and a high probability that the relationship is causal
3	Non-analytical studies (e.g. case reports, case series)
4	Expert opinion, formal consensus

- **The study addresses an appropriate and clearly focused question**

Unless a clear and well-defined question is specified in the report of a review, it is difficult to assess how well it has met its objectives or how relevant it is to the question you are trying to answer on the basis of the conclusions.

A description of the methodology used is included

One of the key distinctions between a systematic review and a general review is the systematic methodology used. A systematic review should include a detailed description of the methods used to identify and evaluate individual studies. If this description is not present, it is not possible to make a thorough evaluation of the quality of the review, and **it should be rejected as a source of level-1 evidence** (although it may be useable as level-4 evidence, if no better evidence can be found).

The literature search is sufficiently rigorous to identify all the relevant studies

A systematic review based on a limited literature search — for example, one limited to Medline only — is likely to be heavily biased. A well-conducted review should, as a minimum, search Embase and Medline and, from the late 1990s onward, the Cochrane Library. Any indication that hand searching of key journals, or follow up of reference lists of included studies were carried out in addition to electronic database searches can normally be taken as evidence of a well-conducted review.

Study quality is assessed and taken into account

A well-conducted systematic review should have used clear criteria to assess whether or not individual studies had been well conducted before deciding whether or not to include or exclude them. If there is no indication of such an assessment, **the review should be rejected as a source of level-1 evidence**. If details of the assessment are poor, or the methods are considered to be inadequate, the quality of the review should be downgraded. In either case, it may be worthwhile obtaining and evaluating the individual studies as part of the review you are conducting for this guideline.

There are enough similarities between the studies selected to make combining them reasonable

Studies covered by a systematic review should be selected using clear inclusion criteria. These criteria should include, either implicitly or explicitly, the question of whether or not the selected studies can legitimately be compared. It should be clearly ascertained, for example, that the populations covered by the studies are comparable, that the methods used in the investigations are the same, that the outcome measures are comparable and that the variability in effect sizes between studies is not greater than would be expected by chance alone.

Section 2 asks you to summarise key findings about the study that will be used when you come to formulate recommendations at a later stage of the process.

Section 3 relates to the overall assessment of the paper. It starts by rating the methodological quality of the study, based on your responses in Section 1 and using the coding system described in the table below.

Table 2, Rating of the methodological quality of the study

Score	Description
++	All or most of the criteria have been fulfilled If they have not been fulfilled, the conclusions of the study or review are thought **very unlikely** to be altered.
+	Some of the criteria have been fulfilled Those criteria that have not been fulfilled or not adequately described are thought **unlikely** to alter the conclusions.

Score	Description
–	Few or no criteria fulfilled The conclusions of the study are thought **likely or very likely** to be altered.

The code allocated here, coupled with the study type, will decide the **level of evidence** that this study provides.

Appendix C — Summaries of selected literature

Table 3, Summary table of selected literature

Author	Type of Publication	Pathology	Research aim(s)	Main findings
MUSCULOSKELETAL DISORDERS				
Aas et al. (2011)	Cochrane review	Neck pain	To determine the effectiveness of workplace interventions compared with no treatment, usual care or other workplace interventions for adult workers with neck pain	Only RCTs included Few interventions aimed at RTW, because only a few workers were sick-listed Low-quality evidence showing no significant differences between workplace interventions and no interventions for pain prevalence or pain severity. None of the significant results for pain, in favour of workplace interventions, were sustained across different follow-up times. Only one study, with a low risk of bias, had data available on sickness absence, and provided moderate-quality evidence that a four-component workplace intervention was significantly more effective at reducing sick leave in the intermediate term, but not in the short or long term. The negative results on sickness absence might be because only a small proportion of the workers included in the study were sick-listed
Bongers et al. (2006)	Review (only part II)	Work-related neck and upper-limb problems	To give an overview of interventions aimed at reducing sick leave and enhancing RTW	Secondary/tertiary interventions aimed at work organisation Acute back pain: • work adjustments including improvement of the work organisation • employer attitudes towards work disability • a lack of co-worker support for modified work re-entry programmes perceived as a major obstacle to RTW • a lack of availability of modified work and lack of autonomy in the workplace are predictors for prolonged work disability

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				Carpal tunnel: • Workplace interventions that address organisational culture are useful in reducing sick leave • A job with high demands and low control predict not returning to work • Secondary/tertiary interventions aimed at the individual: • High level of pain catastrophising, pain-related fear, poor problem-solving abilities, low expectations about the probability of RTW, attitudes towards work re-entry, motivation and lack of confidence in the ability to perform work-related activities associated with prolonged work absence (LBP) • Cognitive behavioural interventions (e.g. self-instruction, relaxation or biofeedback, developing coping strategies, increasing assertiveness, minimising negative or self-defeating thoughts, changing maladaptive beliefs about pain and goal setting) often combined with other interventions in a multidisciplinary programme. These programmes often include both physical reconditioning and a behaviour-oriented approach with emphasis on, for example, coping, fear of movement and personality factors • Behavioural treatment comprised three forms of treatment: cognitive training, relaxation training or a combination of the two (studies were of poor quality) • Multidisciplinary biopsychosocial rehabilitation: no effect on pain and delayed RTW due to neck and shoulder symptoms • Cognitive therapy provided by a clinical psychologist is not more effective than a clinical psychologist acting as only a coach for the other practitioners • Borderline positive effect of a multidisciplinary treatment compared with usual care in terms of effects on sick leave due to neck and upper

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Caroll et al. (2010)	Systematic review	Back pain	To determine whether or not interventions involving the workplace are more effective and cost-effective at helping employees on sick leave to return to work than those that do not involve the workplace at all	<u>This review included only RCTs</u> Workplace interventions do appear to be effective at supporting RTW among adults with back pain on sick leave: • Workplace-related exercise was effective, but only if compared with usual care, not if compared with a control intervention involving some form of exercise, but away from the workplace • Interventions involving stakeholders working together, without any exercise component, appear more consistently effective than an intervention involving exercise Not all interventions involving the workplace are alike, yet some are more effective: • Active, structured consultations among employees, employers and occupational health practitioners, and agreements regarding subsequent appropriate work modifications, are more effective than interventions not possessing these components • Stakeholders working together (without any exercise or therapy) had a positive effect on RTW **Essential components for workplace-based interventions to reduce sickness absence are:** • use of the workplace as a therapeutic medium • work accommodations • contact among the various stakeholders • interventions to foster concerted action **Other factors:** • centralised coordination of RTW, especially formal individual psychological and occupational interventions (less apparent) • early intervention is more successful • workplace-linked interventions are also effective for shorter sickness absence periods

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				• implementation fidelity is important (description of intervention and its components in detail required)
Dunstan and Covic (2006)	Review	MSD	A review and discussion of empirically supported critical factors in the development, maintenance and management of work disability. An outline of the essential components of multidisciplinary biopsychosocial rehabilitation	Two key models: • **Biomedical model**: A work-related injury leads to a physical pathology, which causes pain and produces disability. Work disability will be resolved by either pain relief or curing the physical pathology. This model is insufficient to explain conditions that lack clear physical pathology, such as chronic non-specific back pain • **Biopsychosocial model**: Assumes that illness, pain and disability are the products of an interaction between psychological and physical variables, which together are set against a background of social and environmental influences. Set by the WHO for classifying determinants of health, functioning and disability (ICF). When applied to work-related injuries, this model accommodates for the clinical observation that injured workers diagnosed with similar physical pathologies, can and do report differences in pain intensity and level of work disability; this implies that any variability in disability, if physical injury factors are equal, is due to the effects of psychological and/or social-environmental factors Biopsychosocially based evidence-linked clinical guidelines: • Low application • For the majority of cases, injury management remains in accordance with the biomedical model • The more a person is off work, the more somatically focused treatments and investigations they receive, and despite evidence of psychosocial disturbance, this is rarely addressed Pain: • Acute (3 to 4 weeks), sub-acute (4 to 12 weeks), chronic (more than 12 weeks)

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• **Biomedical model**: Pain is a physical sensation arising solely from, and in proportion to, tissue damage • **Biopsychosocial model**: Pain is a complex physical and emotional experience resulting from the dynamic processing of pathophysiological, psychological and social-environmental inputs at multiple sites within the central nervous system Chronic pain: • is not ongoing acute pain • has an initial physical cause, yet the connection with the injury is progressively lost • develops as an interaction between physiological and psychosocial factors • can fluctuate, being exacerbated by stimuli such as negative emotional states, including anger and depression; fear-provoking thoughts and beliefs; poor coping responses; solicitous spousal behaviours; and social stressors • is maintained by the influences of multiple reinforcers: attention and empathy; participation in passive physical treatments and investigations; the avoidance of feared behaviours or activities; release from usual responsibilities; and the payment of wage-commensurate sickness benefits Work disability: • A specific aspect of pain-related disability evidenced by limitations in the capacity to meet occupational demands • The risk of long-term disability rises exponentially post injury • There are three phases of risk: (1) acute: the main causes are physical or clinical factors, the RTW rate is 80%, and the risk of long-term disability is 1 to 10%; (2) sub-acute: associated with physical and emerging psychological factors, the RTW rate is 11%, and the risk of long-term disability is 10 to 20%; and (3) chronic:

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				the main causes are psychological and social-occupational factors, the RTW rate is negligible, and the risk of long-term disability is 50 % and rises to 98 % by 2 years post injury Determinants of work disability: **Strongest predictors:** • Psychological factors: emotional distress, depression, fear-avoidance beliefs, catastrophic thinking/poor coping, pain behaviours, negative expectations of RTW and perceived poor general health • Demographic factors: older age (>55 years), occupation (unskilled), work history, employment status (unemployed) and length of time off • Social-environmental factors: pre-injury job dissatisfaction, local unemployment rate and financial incentives • Biological factors: previous history of similar injury, general functional disability and pain intensity Managing work disability: **Acute phase:** • Empirical findings support the use of reassurance, encouragement to resume normal activities, communication among relevant parties and the avoidance of over-investigation and passive treatment in the management of acute strain or sprain **Sub-acute phase:** • Multidisciplinary interventions are effective **Chronic phase:** • Biopsychosocial rehabilitation to facilitate RTW (more studies needed)

Author	Type of Publication	Pathology	Research aim(s)	Main findings
EU-OSHA (2007)	Report: literature review	MSDs	Evaluation of work-related interventions that are aimed at the rehabilitation, re-integration and retention of workers with MSDs	**Back pain:** • Clear evidence that it is important for patients to stay active and return to ordinary activities as early as possible • A combination of optimal clinical management, a rehabilitation programme and workplace interventions is more effective than single elements alone • Taking a multidisciplinary approach offers the most promising results, but the cost-effectiveness of these treatments needs to be examined • Temporarily modified work is an effective RTW intervention, if it is embedded in good occupational management • Some evidence supports the effectiveness of exercise therapy, back schools and behavioural treatment • Lumbar supports, such as back belts and corsets, appear to be ineffective in secondary prevention **Upper-limb pain** • A multidisciplinary approach involving cognitive behavioural components might be the most effective type of intervention • There is limited evidence on the effectiveness of some technical or mechanical interventions and exercise therapy • Sufficient evidence is not available for the effectiveness of psychosocial interventions **Lower-limb pain** • No information on work-related intervention strategies has been found • The results of studies on lower-limb treatment in general indicate that exercise programmes might be effective for hip and knee problems

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Elders et al. (2000)	Systematic review	Back disorders	To review the literature on the effectiveness of intervention programmes for the prevention of aggravation of back disorders or prolonged duration of sickness absence	<u>The effect of ergonomic interventions:</u> • Eight studies stated that a back school programme was the preferred intervention, combining exercise and functional conditioning, and training in working methods and lifting techniques • In seven of these studies, RTW was significantly better in the intervention group • An intervention after 60 days, in the sub-acute phase of back pain, showed the most promising results. The findings suggest that the intervention should not start too soon after the onset of LBP and that a considerable follow-up is required to demonstrate any effects of the intervention • In these studies, the preventable fraction varied between –11 % and +80 %, largely depending on the stage and phase of the back disorder and the time of follow-up. The success of the intervention also depended on the profile of the referents when left unhampered (i.e. unchanged, not damaged) • The absolute reduction of sickness absence and time lost from work ranged from 22-42 % • The preventable sickness absence among referents varied from 50 to 70 % • Compliance during the studies was fairly good, but there was a lack of information on sustainability of the intervention during follow-up and on recurrence of back complaints and consequent sickness absence • Compliance, compliance sustainability and effect sustainability should be measured
Franche et al. (2005)	Systematic review	Musculoskeletal conditions, pain-related conditions, chronic pain or a workers'	To synthesise evidence on the effectiveness of workplace-based RTW interventions and strategies that assist workers with musculoskeletal	**Early contact with the worker by the workplace** • Moderate evidence that this significantly reduces work disability duration, with insufficient evidence to support the sustainability of this effect beyond 1 year

Author	Type of Publication	Pathology	Research aim(s)	Main findings
		compensation claimant population	and other pain-related conditions to return to work	• Moderate evidence that this results in net savings and limited evidence to support its sustainability beyond 1 year • Mixed evidence regarding the impact on QOL outcomes **Offer of work accommodations** • Strong evidence that this reduces disability duration, but insufficient evidence to support the sustainability of this effect • Moderate evidence that it reduces costs associated with work disability and limited evidence to support sustainability of this effect • Mixed evidence regarding the impact on QOL outcomes **Contact between healthcare provider and the workplace** • Strong evidence that this significantly reduces work disability duration, but insufficient evidence regarding its sustainability • Moderate evidence that this results in net savings and limited evidence to support its sustainability • Mixed evidence regarding the effect on QOL outcomes **Ergonomic worksite visits** • Moderate evidence that this significantly reduces work disability duration, but insufficient evidence to support sustainability of this effect • Moderate evidence that this results in cost reductions and limited evidence of its sustainability • Mixed level of evidence regarding the effect on QOL outcomes **Supernumerary replacement** • Insufficient evidence to support effectiveness in terms of its impact on work disability duration and QOL outcomes, or its impact on costs

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				RTW coordination • Moderate evidence for its effect on disability duration • Moderate evidence that it leads to important cost reductions and insufficient evidence to support the sustainability of this effect • Insufficient evidence that it leads to an improved QOL
Hlobil (2009)	Dissertation: 1) Literature review 2) Occupational health guidelines for the management of LPB 3) RCT graded activity (3- and 6-month follow-up) 4) RCT graded activity (12-month follow-up) 5) Sick leave cost savings due to graded activity	LBP	To search for evidence of the effectiveness of RTW interventions on absence from work because of sub-acute LBP with a minimal duration of 4 weeks, compared with usual care	**Literature review:** <u>Effects on work absenteeism expressed in terms of RTW rate</u>: • Strong evidence for a beneficial effect of RTW interventions at 6-month follow-up on the RTW rate, compared with usual care • Conflicting evidence for the effectiveness of RTW interventions on the RTW rate at 12-month follow-up • Conflicting evidence for the effect of RTW interventions on RTW rate for long-term follow-up of between 2 and 5 years <u>Effects on work absenteeism expressed in terms of days of sick leave:</u> • Conflicting evidence for the short-term effect of RTW interventions on a reduction in sick leave days • Strong evidence for the effectiveness of RTW interventions on the reduction of the number of sick leave days at 12-month follow-up • Strong evidence for the effectiveness of these RTW interventions on work absenteeism at a follow-up of between 2 and 6.4 years <u>RTW interventions and functional status:</u>

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• Conflicting evidence for the effectiveness of a RTW intervention on the improvement of functional status at 6-month follow-up • Conflicting evidence of the effectiveness of RTW interventions on the improvement of functional status at 12-month follow-up <u>RTW interventions and pain:</u> • Conflicting evidence for the effectiveness of RTW interventions on pain at 6-month follow-up • Conflicting evidence on the effectiveness of RTW interventions on pain at 12-month follow-up <u>Optimal content of RTW interventions:</u> • A mixture of education, exercise, behavioural treatment and ergonomic measures. But it is not clear which component or combination of components is most effective **Occupational health guidelines for the management of LBP** All guidelines stress the importance of returning to work as rapidly as possible, even if there is still some LBP, and if necessary starting with modified duties in more severe cases. Work duties could then be increased gradually (in terms of hours and/or tasks) until full RTW has been reached. US and Dutch guidelines propose RTW within 2 weeks with adaptation of duties if necessary. The Dutch guidelines also stress the importance of the time-contingent management of RTW. The US guidelines propose that every attempt is made to maintain the worker at maximal level of activity, including work activities, and targets for disability duration in terms of RTW are given as 0-2 days with modified duties, and 7-14 days if modified duties are not used/available.

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				Canadian guidelines advise RTW only when symptoms and functional restrictions have improved The most frequently recommended treatment options in the guidelines are medication for pain relief, gradually progressive exercise programmes and multidisciplinary rehabilitation. The US guidelines recommend referral within 2 weeks to an exercise programme consisting of aerobic exercises, conditioning exercises for trunk muscles and exercise quota. The Dutch guidelines recommend that if there is no progress within 2 weeks of work absence, workers should be referred to a graded activity programme, and if no progress has been made after 4 weeks, then workers should be referred to a multidisciplinary rehabilitation programme. The UK guidelines recommend that workers, who have difficulty returning to normal occupational duties by 4-12 weeks, should be referred to an active rehabilitation programme, including exercise, reassurance and advice, a progressive active exercise and fitness programme, and pain management in accordance with behavioural principles **RCT graded activity (3- and 6-month follow-up)** Graded activity had a beneficial effect on absence from work, but no significant effect on functional status and pain if compared with usual care. Graded activity did not affect RTW until more than 50 days after randomisation. Functional status tended to show improvements after graded activity, but not significant improvements. The intervention did not affect pain severity. Graded activity primarily focuses on improvement in functioning and RTW, and not pain relief **RCT graded activity (12-month follow-up)** Similar results as at 3- and 6-month follow-up

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				Sick leave cost savings due to graded activity The general direction of the cost–benefit analysis findings in this study was robust and consistently in favour of the intervention group for all follow-up times, and the graded activity group returned to work after significantly less time; the mean cost differences were not statistically significant (this study was underpowered)
Kemp et al. (2011)	Systematic review	Rotator cuff (RC) injuries	To consolidate the existing literature on full-thickness RC tears among workers' compensation patients	Only two studies proposed non-operative interventions, more specifically the role of a clinical versus workplace work-hardening programmes and physical therapy. Both studies demonstrated short-term results of treatment. Those in workplace-based work hardening had better shoulder function and RTW rates upon programme completion. Additionally, physical therapy, by way of patient education and manual therapy, was shown to be beneficial, regardless of compensation status. More and larger studies are needed
Palmer et al. (2012)	Systematic review	MSDs	To assess the effectiveness of interventions in community and workplace settings to reduce sickness absence and job loss in workers with MSDs	<u>This review only included RCTs and cohort studies</u> Four types of interventions were identified: (1) exercise therapy; (2) behavioural-change techniques; (3) workplace adaptations; and (4) the provision of additional services. Most studies were beneficial, yet the effect was smaller in larger and better-quality studies. No intervention was clearly superior, although effort-intensive interventions were less effective than simple ones
Schonstein et al. (2003a)	Systematic review (Cochrane) Meta-analysis	Back and neck pain	To determine the effect on time lost from work of physical conditioning programmes for workers with back and neck pain	<u>This review only included RCTs</u> Physical conditioning programmes are interventions that are work- or function-related physical rehabilitation programmes specifically designed to restore an individual's systemic, neurological, musculoskeletal or cardiopulmonary functions Physical conditioning programmes for chronic back pain can be effective at reducing the number of sick days lost as a result of back pain when compared with usual care (i.e. GP care or advice for workers with chronic back pain)

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				All significant behavioural components (such as teaching patients that it is safe to move) combined with intensive physical training which included training of aerobic capacity, muscle strength and endurance, and coordination. Positive results were for work-related interventions. This might suggest that interventions that include a cognitive behavioural approach and are work related are more effective. There is evidence that for workers with either acute or chronic back pain, specific exercises are less effective at reducing days of work lost than physical conditioning programmes There is evidence that physical conditioning programmes that included a cognitive behavioural approach could produce a clinically worthwhile reduction in the number of sick days taken at 12 months, when compared with GP care or advice for workers with chronic back pain. There was little evidence of an effect on time lost from work if specific exercise programmes did not include a cognitive behavioural component There were no trials selected involving workers with neck pain
Shaw et al. (2006)	Review	LBP	To assess the extent to which effective strategies	This review included only RCTs This review identified several RTW interventions of which the content and concepts were discussed and compared. The contents were also classified according to predefined components such as physical exercise, education, behavioural treatments and ergonomic measures The interventions varied with respect to the professionals involved (i.e. physiotherapist, physician, psychologist, representative of the company or multidisciplinary), the target population and the number and duration of sessions (ranging from one session of 2-3 hours to sessions of 6.5 hours a day for a maximum of 35 days). Physical exercises were a component of most of the selected interventions, followed by education, behavioural treatments and ergonomic measures.

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				The most prevalent combination of components was the combination of physical exercise, behavioural treatments and education. However, the content of these components varied widely The described concepts for the physical exercise were an increase of muscle strength, coordination, range of motion of the spine and cardiovascular fitness, and a decrease of muscle tension. Education, as a part of RTW interventions, is believed to increase individuals' understanding of their disorder and treatment. Behavioural treatments were mainly based on the gate control theory of pain and/or the operant conditioning hypothesis. No concepts were described for ergonomic measures
Waddell and Burton, (2001)	Guidelines: evidence review	LBP	To review all evidence on the occupational aspects of LBP	The guidelines, regarding the occupational management of the worker presenting back pain, state that: • There is **moderate evidence** that communication, cooperation and common agreed goals between the worker with LBP, the occupational health team, supervisors, management and primary healthcare professionals is fundamental for improvement in clinical and occupational health management and outcomes • There is **strong evidence** that most workers with LBP are able to continue working or to return to work within a few days or weeks, even if they still have some residual or recurrent symptoms, and that they do not need to wait until they are completely pain free • Advice to continue ordinary activities as normally possible, in principle, applies equally to work. The **scientific evidence confirms** that this general approach leads to shorter periods of work loss over the subsequent year, although most of the evidence comes from intervention packages, and the clinical evidence focusing solely on advice about work is limited

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• There is **general consensus but limited scientific evidence** that workplace organisational and/or management strategies (i.e. involving the organisational culture and a high stakeholder commitment to improve safety, provide optimum case management, and encourage and support early RTW) may reduce absenteeism and duration of work loss • There is **strong evidence** that the longer a worker is off with LBP, the lower their chances of ever returning to work. Once a worker is off work for 4-12 weeks they have a 10-40 % risk of still being off work after 1 year; after 1-2 years absence, it is unlikely that they will return to any form of work in the foreseeable future, irrespective of further treatment • Various treatments for chronic LBP may produce some clinical improvement, but there is **strong evidence** that most clinical interventions are quite ineffective at returning people to work once they have been off work for a protracted period with LBP • There is **moderate evidence** that for an individual who is having difficulty returning to normal activities after 4-12 weeks, changing the focus form purely symptomatic treatment to a back school-type rehabilitation programme can produce a faster RTW, less chronic disability and less sickness absence • There is **no clear evidence** on the optimum content or intensity of such packages, but there is generally consistent evidence on certain basic elements. There is **moderate evidence** that such interventions are more effective in an occupational setting than in a healthcare setting

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• From an organisational perspective, there is **moderate evidence** that the temporary provision of lighter or modified duties facilitates RTW and reduces time off work • There is **some suggestion** that clinical advice to return only to restricted duties may act as a barrier to returning to normal work, particularly if no lighter or modified duties are available • There is **moderate evidence** that a combination of optimum clinical management, a rehabilitation programme and organisational interventions designed to assist the worker with LBP is more effective than single elements alone
Weir and Nielson (2001)	Review	Chronic pain	To determine how effective modified work programmes, work hardening, and work conditioning are in the management if chronic pain disability	<u>Modified work programmes</u> Modified work programmes are interventions that involve all forms of modified work in addition to those combined with other interventions. These programmes are worksite interventions over which the employer has full discretion that take place in a competitive environment. Five main types were described: (1) light duties: (2) graded work exposure (also called work hardening); (3) work trial; (4) supported employment; and (5) sheltered employment. Evidence supports the effectiveness of modified work programmes in facilitating RTW for temporarily and permanently disabled workers. However, it is unclear which components of modified work programmes are most effective and it was found that an ergonomic intervention was the only component of an interdisciplinary programme that was effective on its own • There is moderate evidence that modified work programmes improve RTW rate of workers with work-related injuries in the intermediate to long term • There is inadequate evidence to determine what particular aspects of the programme are helpful

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				Work hardening and work conditioning Work conditioning programmes emphasise physical conditioning and functional activities related to work and are provided in a single-discipline model. Work-hardening programmes are multidisciplinary approaches that address physical and functional needs and use graded work simulations and psychosocial interventions. There is no evidence that work-conditioning or work-hardening programmes influence an earlier RTW in the long term for workers with work-related injuries. Work-hardening programmes tended to be directed towards patients who had been out of work for at least 3 months, whereas three of the five conditioning programmes were directed at patients who were off work for less than 2 months ➔ There is contradictory evidence that clinic-based work conditioning and work-hardening programmes improve the RTW of more chronically disabled patients
Williams and Westmorland (2002)	Review	Musculoskeletal injuries	(1) To describe the essential components of workplace disability management programmes (WPDMs); (2) to review the literature on disability management practices based on research evidence by focusing on workplace-based interventions and the role of the workplace; and (3) to provide recommendations for disability management with regard to the prevention and reduction of disability, and the rehabilitation of injured workers with work-related musculoskeletal injuries	Components of disability management: 1. management commitment and supportive policies 2. education and involvement employees 3. a coordinated team approach for effective claims management and job replacement 4. use of prevention strategies to avoid disability occurrence 5. early intervention and ongoing monitoring for health risks and disability cases 6. systematic procedures for effective use of healthcare and rehabilitation services 7. an organised RTW programme with supportive policies and modified work options 8. use of incentives in benefit design, cost accounting and performance evaluation to encourage participation of employees, supervisors and managers 9. an integrated management system to monitor incidence, benefit use, services, costs and outcomes

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				Workplace-based interventions and the role of the workplace The following factors are important: • Clinicians need to include a tie-in to the workplace as part of their intervention • Offers of modified work facilitate RTW • On-site ergonomic interventions involving the injured workers' job to determine the need for job modifications facilitates RTW • Employer participation is important in the RTW process • A people-oriented culture and safety climate are associated with lower claims • A greater understanding of workers' perceptions of legitimacy and vulnerability is needed • Small workplaces do not have the necessary information and resources to effectively manage injured workers Recommendations and future directions: • development and implementation of RTW policies (e.g. job accommodation, transitional employment and salary replacement) • open and positive communication among workers, union representatives, supervisors and healthcare providers • creation of a supportive workplace climate involving the early and ongoing involvement of the employer in the RTW process; a demonstration by management of its concern for workers is essential and workers should be involved in general decision making • offers of modified work (e.g. modifications or adjustments of the original job to reduce physical demands or hours worked) or the transfer of a recovering worker to a less demanding job • cooperation between labour and management; this is critical to avoid the development of adversarial relationships between workers and employers • evaluate the disability management programme; this is critical to ensure that it is operating effectively

Author	Type of Publication	Pathology	Research aim(s)	Main findings
Zampolini et al. (2007)	Review	Back conditions	To analyse the components involved in RTW	A number of relevant studies were found, yet the evidence is moderate and the meta-analysis failed to show strong indications of efficacy. The listed interventions are related to 'restoring the capacity of work', 'exercises and back schools', 'occupational and vocational therapy', 'assessing functional ability to work' and 'forecasting the return-to-work' The review concluded that interventions to facilitate RTW should be multidisciplinary and not necessarily intensive, but they should take into account a biopsychosocial approach. The predictor of RTW does not concern only the impairment (e.g. pain, rigidity), and the self-estimation of ability is also important for forecasting RTW

Author	Type of Publication	Pathology	Research aim(s)	Main findings
MENTAL HEALTH				
Clarkin and Wynne (2003)	Review	Stress-related disorders	To identify literature related to workplace responses to absenteeism due to stress-related disorders	ehabilitation: • primarily focuses on psychotic disorders and ex-psychiatric in-patients • primarily focuses on the treatment of the disorder and on remedying various psychological deficits associated with the disorder • mainly focuses on people who have lost contact with the workplace and labour market Stress-related disorders: • Most rehabilitation processes deal with people who have experienced problems of such a degree that they require major input to enable them to achieve some level of mental well-being

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• The focus is on clinical outcomes. Social outcomes are given consideration, but rehabilitation processes do not seem to frame RTW as a major objective • Little consideration is given to the RTW of workers on sickness absence because of stress-related illnesses • The basic principles of RTW strategies apply equally to people with stress-related illnesses, yet disability managers and RTW coordinators need to learn about and incorporate issues specific to stress-related and mental health-related illnesses • Re-integration into the workplace after treatment is crucial to the health and productivity of the individual **Recommendations of mental health associations:** 1) Organisational-level strategies — the important role of employers and managers: • reviewing corporate medical programmes and employee health benefits • training of employee assistance programme staff to recognise depressive disorders, make appropriate referrals and provide other assistance consistent with policies and practices • increase management and supervisor awareness • educate employees about symptoms and treatments • work with national or community organisations to obtain, display and distribute information about mental health issues in the workplace and provide employees with referrals to treatment 2) Individual-level strategies: • informing the physician of the exact duties of the job to help the physician make a final decision on RTW • encouraging an early RTW • considering a gradual RTW • incorporating other possible stress-reducing accommodations for returning employees

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• (e.g. lowering noise level, providing extra encouragement, praising job performance when warranted, etc.) **Set of actions proposed by Watson Wyatt Worldwide (2002):** • examine short- and long-term disability claims within the organisation • review RTW policies, as mental health problems do not fit the typical model of disability • prepare education programmes with regard to causes, symptoms and treatments • examine the internal culture and workplace issues such as harassment, adversarial relationships between management and employees, etc. • implement/revise employee assistance programmes **Transitional employment strategies for people with stress-related absences**: • The employee's physical/emotional response to stress needs to be considered when developing a transitional employment plan • The effect of medication on RTW process for an employee with stress should be considered • All of the elements of management style (e.g. employee feels 'out of the loop', lack of clarity about job responsibilities, and lack of supervisory skills and knowledge about work-related stress and communication) should be considered
Corbière and Shen (2006)	Systematic review	Mental health problems and/or physical injuries	To describe psychological RTW interventions for people with mental health problems and/or physical injuries, and to summarise the impact of these RTW interventions on work and health outcomes	This review yielded 14 studies, two of which were classified as focusing on only work-related mental health problems and 12 were classified as focusing on work-related physical injuries, mostly musculoskeletal Nearly two-thirds of the studies presented cognitive behavioural therapy as the main intervention, while nearly one-third included other types of psychosocial interventions (e.g. communication skills).

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				The most popular psychological interventions focused on coping strategies, problem-solving strategies and belief/attitude adjustments Three out of the six psychological RTW interventions had significantly positive effects on work outcomes compared with their control groups. Of the controlled trials that included mental health problems, 75 % reported positive effects. The same percentage was observed for trials without control groups in terms of positive effects on mental health outcomes; two-thirds of the participants in these trials returned to work after the intervention
Furlan et al. (2012)	Systematic review	Depression	To determine which intervention approaches to manage depression in the workplace have been successful and yielded value for employers in developed economies	This review included 10 randomised studies and two non-randomised studies Diverse interventions were identified in this review, such as psychological interventions (e.g. cognitive behavioural therapy, psychotherapy), enhanced primary care (i.e. education of physicians and nurses working in primary care centres or managed care centres), enhanced psychiatric care (i.e. out-patient psychiatric treatment enhanced by occupational therapy), enhanced occupational physician roles (i.e. a more active role of the occupational physician in the management of work disability and prevention of work disability recurrences), integrated care management (i.e. interventions at organisational or healthcare-system level), exercise (i.e. strength, aerobic and relaxation training), and a worksite intervention (i.e. a worksite stress-reduction programme). None of the interventions can be recommended as effective for the following four outcomes: (1) prevention and (2) management of work disability/sickness absence, (3) work functioning and (4) recurrence of work disability/sickness absence.

Author	Type of Publication	Pathology	Research aim(s)	Main findings
Hamberg-Van Reenen et al. (2012)	Systematic review	Mental health	To give an overview of the evidence on the cost-effectiveness and financial return of worksite mental health interventions	Worksite interventions to prevent or treat mental health problems might be cost-effective, while RTW interventions aimed at employees with depression do not seem to be cost beneficial on the basis of those studies that included a full economic evaluation. Tentative conclusions have to be made. More high-quality economic evaluations of effective worksite mental health interventions are needed in order to gain more insight into the financial benefits of worksite mental health interventions. Before analysing the economic impact, there should first be ample evidence for the effectiveness of worksite mental health interventions
Pomaki et al. (2010)	Report	Mental health conditions	1) Are workplace-based interventions effective at improving RTW or stay-at-work outcomes for workers with mental health conditions? 2) What are the key elements of effective interventions?	Workplace based interventions for workers with mental health conditions can be effective at reducing work absence duration, improving quality of work for workers and workers' overall QOL, and in reducing costs associated with mental health problems in the workplace Based on stakeholder feedback, organisational-level changes may be needed to support the effectiveness of the interventions described in the best practices. Several **organisational-level interventions** are recommended, which focus on clear and well-communicated workplace mental health policies that encourage the supportive management of workers with mental health conditions: • the promotion of a people-oriented organisational structure • the recognition that workers have mental health needs and the identification of factors that impact worker mental health and well-being in the workplace • training supervisors on workplace mental health, which can improve awareness of the occupational implications of mental health conditions, while presenting supervisors with opportunities to identify and facilitate early intervention for mental health conditions

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				The elements of effective **disability management-level interventions** are communication, coordination and strengthening relationships among RTW stakeholders, including: • collaborative and effective RTW coordination • keeping the workers activated and informed, and fostering the worker–supervisor relationship • having regular check-ins with the worker during the RTW and stay-at-work process • well-designed and planned work accommodations The majority of individual-level interventions that aim to help workers manage their symptoms or address work-related problems are based on cognitive behavioural therapy principles. Workplace-based and work-focused interventions are effective at reducing work absence duration. Workplace-based and symptom-focused interventions reduce symptoms and increase work productivity. Elements of **individual-level interventions** include: • a workplace-based and work-focused activating intervention based on the principles of cognitive behavioural therapy and provided by trained occupational therapists • care management and over-the-phone cognitive behavioural therapy provided by insurer-based, trained and supported mental health professionals • access to treatment and extended health benefit plans to cover evidence-based individual clinical treatment
CANCER				
Tamminga et al. (2010)	Systematic review	Cancer	To review the literature on the content of interventions on RTW, employment status or work retention The assessment of the effect of the interventions on RTW	The content of the interventions was assessed based on two criteria: (1) whether or not the setting fits the shared care model of cancer survivor care; and (2) whether or not the intervention targets work ability and physical workload

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				The most frequently reported work-directed components were encouragement, education or advice about work or work-related subjects (68%); vocational or occupational training (21%); and work accommodations (11%). One of the interventions fits the shared care model of cancer survivor care and five interventions enhanced work ability or decreased physical workload. The rate of RTW ranged from 37 % to 89 %. In one of the four controlled studies, the intervention increased RTW significantly, yet not in the other studies There is a wide variation in work-directed interventions with regard to cancer care, indicating that a clear concept is lacking. It was, in most cases, only a small part of the intervention and not a structured part, indicating that enhancing RTW, employment status or work retention was not an important objective. In more than half of the interventions, the workplace, the employer or the occupational physician were not part of the intervention. Major conclusions cannot be drawn with regard to the effect of the intervention on RTW, because of the poor methodological quality of the studies and a lack of RCTs

DIFFERENT PATHOLOGIES OR UNSPECIFIED

Gabbay et al. (2011)	Guidance	Not specified	Giving recommendations on which interventions, strategies and programmes are effective in terms of reducing short-term and long-term sickness absence as well as enhancing RTW (UK)	<u>Global findings:</u> • mainly examining musculoskeletal conditions • heterogeneous studies (i.e. population, intervention, outcome) • descriptive synthesis <u>1) Reducing long-term sickness absence and transitions from short-term to long-term absence:</u> • **Early interventions** generate positive results in populations with a similar, specified length of absence than in those with later interventions or more mixed populations

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				• Studies of **multidisciplinary** approaches were more likely to report positive results in terms of effectiveness and cost-effectiveness than studies of single-modality interventions • Studies with a **workplace component** were also more likely to report successful outcomes One study revealed that efficacy is enhanced if interventions are designed to take into account individual differences in RTW prognosis <u>Cost-effectiveness:</u> • mainly for musculoskeletal conditions • multidisciplinary approach • exercise-based interventions for LBP and musculoskeletal pain • psychological-based interventions for minor mental health conditions <u>2) Reducing the number of employees who take long-term sickness absence on a recurrent basis:</u> • early interventions • involvement of workplace input, either through design or assessment, or workplace adaptation and delivery <u>3) Helping people in receipt of disability benefit to return to full-time or part-time employment:</u> • Little evidence • An intervention involving a work-focused interview coupled with access to tailored support to meet health or employability needs was effective and cost-effective at increasing RTW rate among recipients of incapacity benefit

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				➔ Macro-context influences how interventions operate (sickness absence and social security systems, work environments, cultural expectations) ➔ It cannot be assumed that RTW interventions that work for one condition will also work for another
Gensby et al. (2012)	Review	Not specified	To assess the effectiveness of WPDM programmes promoting RTW: 1) To compare WPDM programmes with no treatment, treatment as usual or alternative intervention 2) If possible, to examine components of WPDM programmes, which appear more highly related to positive outcomes. Since there is no uniform WPDM, the resulting analysis will also assess the effectiveness of constituent components of WPDM, which may also have value 3) To look at the existing literature and get an understanding of the research area and its development, research potentials and needed research areas	<u>All designs were included in the review</u> It was not possible to make any conclusive judgments either in favour or against the effectiveness of employer provided WPDM programmes Overall programmes were tailored to manage various musculoskeletal conditions, with only two programmes tailored to manage mental health conditions. Overall, programmes focus on the off-work and pre-return phases of the RTW process with limited focus on the post-return phase and no focus on sustainability at work Employer provided WPDM programmes are multi-component, offering a suite of policies and practices for injured/ill employees. Based on the distribution and prevalence of components, we were able to extract 15 constituent components in WPDM-programmes: (1) organisational RTW policy; (2) offer of suitable work accommodation; (3) onsite physical rehabilitation services; (4) tailored job modifications; (5) workplace assessment with job analysis; (6) corporate-located RTW coordinators or disability case managers; (7) internal disability claim information systems; (8) early contact and intervention; (9) joint labour and management commitment; (10) active employee participation; (11) transitional work opportunities; (12) education of workplace staff or case managers; (13) access to alternative placements; (14) preventive strategies to avoid disability occurrence; and (15) revision of workplace roles

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				Employer provided WPDM programmes typically involved an inter-disciplinary team of competences from several corporate-located key parties such as occupational physicians and physiotherapists, occupational therapists/ergonomists, case-managers/RTW coordinators, union representatives, supervisors and managerial human resources (HR) staff. Programmes were provided in internal medical, benefits, safety and health or HR departments, and supported senior management and the joint labour–management committee Programme outcome measures were primarily related to cost saving, time lost from work and duration until RTW, with limited or no focus on work-role functioning, job satisfaction, well-being or follow-up measures on sustained job retention
Hoefsmit et al. (2012)	Systematic review	Different pathologies	To detect and identify characteristics of RTW interventions that generally facilitate RTW	No standards exist to classify RTW interventions RTW interventions can be characterised by one or more of following characteristics: (1) timing of intervention; (2) care professionals involved; (3) planning of activities to support RTW; (4) target population; (5) character of activities to support RTW; (6) intensity; and (7) employee and employer roles The characteristics of interventions that facilitate RTW: • **Early** interventions (studies are scarce) • **Multidisciplinary** interventions; these interventions could include care providers and professionals from multiple disciplines, such as GPs and physiotherapists, employers, case managers, occupational therapists/ergonomists, occupational physicians, occupational physiotherapists, chiropractors, psychologists and social workers, occupational physicians and psychiatrists. Effective for physical complaints and the majority of psychological complaints. Effective in multiple target groups

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				• **Time contingent** interventions: activities take place according to a pre-defined time schedule, such as a treatment protocol prescribing the total number of sessions and the topics to be addressed in the session. However, evidence is inconsistent. Effective for all physical complaints studied • **Generic or specific**: inconsistent evidence about the effectiveness of interventions targeted at employees with a specific diagnosis • Interventions including explicit **actions to stimulate the employee to return to work**. Examples are decision-making on RTW, gradual exposure to the workplace, implementation or work-related adaptations (ergonomic, improvement of furniture). The only evidence of effectiveness is for employees with physical complaints • **High, moderate or low** intensity of interventions: inconsistent evidence • **Decision authority employee**: inconsistent evidence
Kuoppala and Lamminpaa (2008)	Meta-analysis	Not specified	To evaluate the effects of rehabilitation on sickness absenteeism, RTW and disability pension for people of working age	Rehabilitation methods such as education, exercise, counselling, medical therapy and ergonomics might improve an employee's work ability at an early stage of a disease even though, at any later stage, they became ineffective if applied as the only mode of rehabilitation **Effects of early rehabilitation:** • Evidence of the effect of early rehabilitation is scarce and weak • Exercise seems to decrease sickness absence (only one study) • Multimodal medical rehabilitation with vocational rehabilitation seems to increase job-related and physical well-being and decrease sick leave

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• Vocational rehabilitation may decrease the risk of an individual claiming disability pension • There is no evidence that education or ergonomics alone would be beneficial **Effects of rehabilitation:** • Mainly weak evidence on rehabilitation, yet moderate evidence that multimodal rehabilitation decreases the risk of disability pension and that RTW programmes decrease sick leave lasting longer than 6 months, but that counselling, exercise, multimodal medical rehabilitation and RTW programmes do not have an effect on RTW at 1 year • Vocational rehabilitation and multimodal medical rehabilitation, combined with vocational rehabilitation, seem to increase RTW • Education, exercise or psychological rehabilitation alone does not seem to have any effect on sick leave • All the rehabilitation modalities for which there was any evidence, namely administration, psychological, and multimodal with or without vocational rehabilitation, and RTW programmes, seemed to decrease disability pension claims

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Schandelmaier et al. (2012)	Meta-analysis	Not specified	To determine the long-term effectiveness of RTW coordination compared with usual practice in workers at risk of long-term disability	There is moderate-quality evidence that RTW coordination interventions result in small relative increases in RTW rates. Assuming a typical risk of 43 in 100 individuals not returning to work, this small relative effect implies an absolute effect of 5 more people in 100 returning to work There is also moderate-quality evidence that the intervention results in small improvements in function and pain. There is no evidence that one type of RTW coordination programme was superior to another These results could be important if maintained in the long term. Two studies confirmed that RTW coordination was cost-effective from a societal perspective, by considering the cost of intervention, healthcare utilisation and loss of productivity Determining the long-term benefits and cost-effectiveness will require trials with low risk of bias, measuring long-term outcomes of workforce retention and long-term disability
Tompa et al. (2008)	Systematic review	Not specified	To synthesise the existing evidence on the costs and consequences of disability management interventions that included some workplace-based component	<u>Findings based on industry:</u> • strong evidence for interventions in multi-sector initiatives • insufficient evidence in other industries (Multi-sector interventions were primarily system-level initiatives, hence the reason why they served multiple industries. Most of economic analyses took a system, insurer or public-sector perspective.) <u>Findings based on intervention components:</u> • There is moderate evidence for interventions with an educational component • There is moderate evidence for interventions including a physiotherapy component

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• There is moderate evidence for interventions with a work/vocational rehabilitation component • There is limited evidence for interventions with a behavioural component <u>Findings based on intervention features:</u> • There is moderate evidence for interventions with the following features: early contact with worker by the workplace; work accommodation offer; contact between the healthcare provider and the workplace; ergonomic worksite visits; and RTW coordination
van Oostrom et al. (2009)	Cochrane review	MSDs, mental health problems and other health conditions	To determine the effectiveness of workplace interventions at preventing long-term work disability among sick-listed workers, when compared with usual care or clinical interventions To determine whether or not there are differences between the effectiveness of workplace interventions for MSDs, mental health problems and other health conditions	<u>Included only RCTs</u> Five studies considered MSDs and one considered mental health problems **Workplace intervention compared with usual care** With regard to the outcome sickness absence, **time until lasting RTW** significantly favoured the workplace intervention with a hazard ratio of 1.70 based on one study With regard to the outcome **time until first RTW**, workplace interventions were more effective than usual care (pooled hazard ratio of 1.55). For MSDs, subgroup analysis showed a reduction of the pooled hazard ratio to 1.44. The difference in median duration of time until first RTW between the workplace intervention group and usual care group ranged from 14 days to 198 days With regard to the outcome **cumulative duration of sickness absence**, pooled analyses showed a significant advantage of the workplace interventions over usual care with a mean difference of 39.06 days

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				The **recurrence of sick leave** rate was 25 % in the usual care group and 51 % in the workplace intervention group, with a hazard ratio of 0.42 ➔ Moderate-quality evidence **Workplace interventions compared with clinical interventions** **Time until first RTW**: Only one study showed favourable results for the workplace intervention (hazard ratio of 2.65). This was very-low-quality evidence ➔ Lack of studies
Waddell et al. (2003)	Review	Musculoskeletal, mental health and cardiorespiratory conditions	To assess the evidence on the effectiveness and cost-effectiveness of vocational rehabilitation interventions To develop practical suggestions on which vocational rehabilitation interventions are likely to work, for whom and when	**Generic findings:** There is a strong evidence base for many aspects of vocational rehabilitation. There is more evidence on cost-effectiveness than for many health and social policy areas: • Common health problems should get high priority • Vocational rehabilitation principles and interventions are fundamentally the same for work-related and other comparable health conditions • RTW should be one of the key outcome measures • Health care has a key role • Treatment by itself has little impact on work outcomes • Employers also have a key role • Proactive company approaches to sickness, together with temporary provision of modified work and accommodations, are effective and cost-effective • Less evidence on vocational interventions in SMEs • Effective vocational rehabilitation depends on work-focused health care and accommodating workplaces (both necessary, inter-dependent, must be coordinated) • Early intervention is central to vocational rehabilitation

Author	Type of Publication	Pathology	Research aim(s)	Main findings
				• Simpler, more effective and cost-effective to prevent people with common health problems going on to long-term sickness absence • Stepped-care approach • Communication and coordination among key players (i.e. individuals, healthcare services and the workplace) **Condition-specific findings:** • Strong evidence for effective vocational rehabilitation interventions for MSDs • For many years, the strongest evidence was for LBP, but more recent evidence shows that the same principles apply to most common MSDs • Various medical and psychological treatments for anxiety and depression can improve symptoms and QOL, but there is limited evidence that they improve work-related outcomes • Lack of scientific clarity on stress and little evidence on effective interventions for work-related outcomes • Urgent need to improve vocational rehabilitation interventions for mental health problems • Promising approaches include health care that incorporates a focus on RTW, workplaces that are accommodating and non-discriminating, and early interventions to support workers to stay in work and so prevent long-term sickness • Cardiac rehabilitation focuses almost exclusively on clinical and disease outcomes. A change of focus to work-related outcomes is required **Practical suggestions:** • Start from the needs of people with health problems, build on the evidence about effective interventions and, finally, consider potential resources and practicalities with regard to how these interventions might be delivered

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				From a policy perspective: • Three types of clients can be differentiated by out-of-work duration and have different needs: o First 6 weeks: RTW according to some basic principles of healthcare and workplace management with minimal additional resources, low cost or neutral costs. Policy should persuade and support health professionals and employers to embrace and implement these principles o After 6 weeks: additional help to return to work. These systems should include healthcare and workplace elements that take a proactive approach focused on RTW. This requires a universal gateway that (1) identifies people after about 6 weeks' sickness absence; (2) directs them to appropriate help; and (3) ensures the content and standards of the intervention provided. Pilot studies will be required to improve the evidence base on the effectiveness and cost-effectiveness of these strategies on a national level o More than 6 months: pathways to work are the most effective examples. There is evidence that they increase the RTW rate of new claimants with a positive cost to benefit ratio. Continued research and development is required to optimise pathways for claimants with mental health problems and for recipients of long-term benefits • Vocational rehabilitation needs to be underpinned by education to inform the public, health professionals and employers about the value of work for health and recovery, and their part in the RTW process

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The European Agency for Safety and Health at Work (EU-OSHA) contributes to making Europe a safer, healthier and more productive place to work. The Agency researches, develops, and distributes reliable, balanced, and impartial safety and health information and organises pan-European awareness raising campaigns. Set up by the European Union in 1994 and based in Bilbao, Spain, the Agency brings together representatives from the European Commission, Member State governments, employers' and workers' organisations, as well as leading experts in each of the EU Member States and beyond.

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