Summary

The aging of the work force makes it increasingly challenging for workers to reach the statutory pension age with their health and motivation intact. Sustainable employability means that, throughout their working lives, workers can achieve tangible opportunities in the form of a set of capabilities. They also enjoy the necessary conditions that allow them to make a valuable contribution through their work, now and in the future, while safeguarding their health and welfare. This requires, on the one hand, a work context that facilitates this for them and on the other, the attitude and motivation to exploit these opportunities. Due to a number of risk factors, employees of the construction industry have a high risk of poor sustainable employability". The construction industry has an ageing workforce, exposure to physical workload is high, and the majority of the work force has a low educational level.

Implementation of measures to promote sustainable employability in the construction industry is therefore warranted. While there are numerous sustainable employability measures available in the construction industry, implementation by employers and use by employees is believed to be low. In order to improve the implementation of these measures, insight is needed into actual implementation and use of these measures, and into which factors influence implementation and use. Healthy lifestyle is a modifiable determinant of sustainable employability, and an effective intervention for the construction industry is available. To make sure that the intervention is implemented according to protocol, the implementation process needs to be evaluated. The objectives of this thesis, as described in Chapter 1, were:

i. To investigate how the implementation of measures to promote sustainable employability in the construction industry can be improved, and

ii. To evaluate the implementation of a lifestyle intervention in the construction industry.

Implementation of measures to promote sustainable employability in the construction industry

Both obesity and exposure to high physical workload are associated with poor work ability, but the relation among these two factors was yet unknown. The goal of the study described in Chapter 2 was to investigate whether physical workload has a moderating effect on the relation between obesity and work ability. The study was based on longitudinal data of 36,435 Dutch construction workers who had attended at least two periodic medical examinations
during the years 2008-2015. Using logistic regression analyses, we tested whether the effect of obesity on work ability differed for employees exposed to high versus low levels of manual material handling or strenuous work postures. The results showed that both obesity and high physical workload had a negative effect on work ability. Exposure to strenuous work postures had a greater negative effect than exposure to manual material handling. Using a RERI analysis, it was also demonstrated that obesity and high physical workload had a synergistic effect on work ability, meaning that the combined effect of obesity and high physical workload on work ability was greater than the sum of the individual effects.

Implementation of measures that increase the sustainable employability of employees in the construction industry depends on the availability and use of such measures. Chapters 3 and 4 investigate the implementation of the employer's and employee's perspective. **Chapter 3** investigates to what extent employers implement measures that promote sustainable employability of their employees, and which factors influence implementation by employers. During individual interviews, employers expressed a need for alternative jobs for workers who can no longer perform physically demanding tasks, as well as means to stimulate proactive employee behavior. The questionnaire data showed that employers most frequently implemented measures targeting the work environment (95%) and employee health (79%), and less frequently measures targeting personal development (63%) and organization (65%). Implementation was influenced by economic factors, rules and regulations, client demands, employee demands, company vision, company culture, time, manpower, and expertise.

**Chapter 4** investigates to what extent measures that are offered by the employer are being used by the employees, and which factors influence use of sustainable employability measures. Survey data showed that use of employer measures was highest for measures that promote personal development. During focus groups, blue collar construction workers explained that they sought to reduce the negative effects of high physical workload by using equipment, making suggestions on how to improve their working conditions, and seeking promotion to a less physically demanding job. White collar workers aimed to decrease the negative effects of stress by engaging in leisure time physical activity and seeking an adequate work-life balance. Implementation of these strategies was influenced by employee awareness and self-efficacy, the accessibility and costs and benefits of the strategy, management support, and company culture.
Evaluation of the implementation of a lifestyle intervention in the construction industry

A healthy lifestyle is a modifiable determinant of sustainable employability, and an unhealthy lifestyle is more prevalent among employees in the construction industry than in the general population. Therefore, the implementation of an effective lifestyle intervention, such as the intervention Health Under Construction, may contribute to sustainable employability in the construction industry. However, implementation research showed that implementation of interventions is often hampered by barriers and facilitators. It is therefore recommended to investigate implementation barriers and facilitators prior to implementation, and then develop implementation strategies that target specific barriers and facilitators. Chapter 5 describes the results of focus groups and interviews with the various stakeholders involved in the nationwide implementation of the lifestyle intervention Health Under Construction. Interviews with the employees indicated that willingness to sign up for the intervention would be facilitated by a high perceived health risk, a high perceived added value of the intervention, and social support. Willingness to participate was hampered by a preference for independence and by perceived interference with work. All professionals named a lack of time as an anticipated barrier to implementation. Lifestyle counselors addressed proficiency in the counseling technique. Occupational physicians named the fit of the intervention with their task and as little as possible interference with their collaboration with other stakeholders. The manager addressed financial incentives and a good intervention fit with the current approach of the occupational health services.

In order to monitor the implementation process, and to draw firm conclusions about whether the implementation was successful, a process evaluation needs to be performed. Chapter 6 evaluates the nationwide implementation of the lifestyle intervention Health Under Construction in the Dutch construction industry. The process evaluation was based on quantitative data that was gathered through questionnaires and registration data. The data indicated that the intervention had very low reach: 2.4% of the target group signed up for the intervention. Of the participants, 38% received the recommended amount of five to seven consultations. During the consultations with the lifestyle counselors, 41% of the participants discussed all six intervention components. Based on the analysis of audio recordings of consultations, it appeared that none of the counselors had attained motivational interviewing
proficiency. Nevertheless, participants perceived the counselors as competent and were satisfied with the intervention.

The general discussion in Chapter 7 presents the main findings and reflects on them in the context of two overarching topics: health promotion among blue collar workers, and implementation research. Blue collar workers can be considered a low socio-economic group, which has been demonstrated to have a comparatively poor health. The health differences between socio-economic groups may in part be due to exposure to environmental factors, such as physical workload and autonomy, and behavioral factors, such as use of health facilities and lifestyle. A program that demonstrated an equally great effect on blue and white collar workers is the Total Worker Health Approach. This approach addresses several factors that came forward in the preceding chapters of this thesis, such as aligning programs with target group priorities, promoting employee voice, and management support. The Total Worker Health combines interventions targeting the work environment and the individual worker, which are believed to be essential in the effectiveness. It is thus recommended to develop programs that require investments by both employers and employees, thereby effectively removing the psychological dilemma of shared responsibility. Furthermore, the role of health literacy and cognitive capacity for health promotion among blue collar workers is discussed.

The following section of Chapter 7 discusses two aspects of implementation research that were relevant to this thesis, namely the study design and the framework. Like most studies in implementation science, this thesis focused on implementation determinants, while new insights into the effectiveness of implementation strategies was limited. There is a need for studies that increase our knowledge on implementation strategies, preferably those that use a pre-post design and quantitative data that investigate the relation of process indicators with implementation outcomes. This thesis used a general model that could be applied to the various study populations, namely employees, as well as the various professionals. The advantages of using a generic versus a complex models are discussed, and the advantages of homogeneous use of terminology and detailed descriptions of the operationalization of constructs for model validation is addressed.
Summary

The last sections address various methodological issues that were encountered during the various studies. The chapter concludes with the formulation of recommendations for the construction industry and for scientific research.