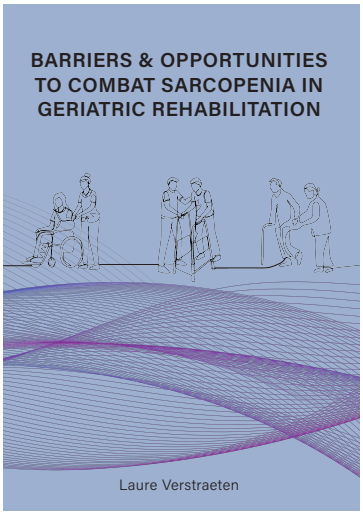

Summary

As the global population ages, the rise in multimorbidity and geriatric syndromes is putting increasing pressure on healthcare systems, including geriatric rehabilitation. Geriatric rehabilitation is a crucial step to enable older adults to restore their functional abilities and quality of life before returning home after an acute hospitalisation. While sarcopenia plays an important role during this period of recovery, it is often overlooked in clinical practice due to limited knowledge and tools to measure muscle strength and muscle mass. Implementing effective diagnostics and interventions for sarcopenia in geriatric rehabilitation could enhance recovery, but these aspects remain poorly studied in this population.

Part I of this thesis focused on describing the prevalence and co-occurrence of geriatric syndromes, such as sarcopenia and malnutrition, at admission and their impact on body composition changes and physiotherapy frequency during geriatric rehabilitation. Geriatric syndromes, including malnutrition and sarcopenia, were highly prevalent at admission and rarely occurred in isolation with a median of five co-occurring syndromes (**Chapter 3**). Also, malnutrition was associated with twofold higher odds for severe sarcopenia (**Chapter 4**), highlighting the importance of combined nutrition and exercise interventions. During admission, body weight increased in patients with underweight but decreased in patients with normal/overweight and obesity. Muscle mass increased in patients with malnutrition and sarcopenia but not in patients without (**Chapter 5**). Contrastingly, physiotherapy frequency appeared to be lower in patients with malnutrition and sarcopenia compared to patients without (**Chapter 6**).

Part II assessed sarcopenia awareness in geriatric rehabilitation inpatients and healthcare professionals and implementation of diagnosis and treatment in clinical practice and barriers thereto. Only 3% of inpatients were aware of sarcopenia and while the majority was willing to start some form of treatment if diagnosed, important barriers were raised including a dislike of oral nutritional supplements (ONS) and the difficulty of resistance exercise training (RET) (**Chapter 8**). Healthcare professionals on the other hand were well aware of sarcopenia but reported poor implementation of diagnosis and treatment in clinical practice, mostly due to a lack of time, equipment, and knowledge (**Chapter 9**).

Part III looked at the feasibility of sarcopenia diagnosis implementation. In geriatric rehabilitation, we showed it is better to measure muscle strength using handgrip strength than the chair stand test as the majority of inpatients were unable to perform the latter test (**Chapter 10**). The assessment of muscle mass using bioelectrical impedance analysis in routine clinical practice was shown to be feasible in the majority of inpatients, with a lower feasibility in patients with mobility impairment (**Chapter 11**).

Part IV assessed the feasibility and effectiveness of sarcopenia interventions in geriatric rehabilitation. The addition of RET twice a day during admission, despite its limited feasibility in inpatients without walking ability, showed it may still improve mobility and independence in activities of daily living compared to usual care (**Chapter 12**). Also, in patients with low muscle strength, RET three times a week and ONS twice per day in addition to usual care showed limited feasibility (**Chapter 13**). However, when feasible, the intervention improved muscle strength and physical performance compared to usual care.

To conclude, this thesis highlights the importance of diagnosing sarcopenia and malnutrition during geriatric rehabilitation. However, sarcopenia knowledge is poor in patients and implementation of diagnosis and treatment in clinical practice is slow despite its recognition as a muscle disease and evidence of negative consequences in older adults. While we showed good feasibility of muscle strength and muscle mass assessments in clinical practice, barriers still exist to diagnose sarcopenia including lack of equipment, time, and collaboration between healthcare professionals. Moreover, adherence to RET and ONS needs to be optimized to increase effectiveness. For this, joint effort and collaboration between healthcare professionals in different settings is warranted to educate and motivate patients and ensure implementation of diagnosis and treatment in clinical practice. To facilitate implementation, sarcopenia needs to be prioritised by health insurers and care organizations to provide tools and equipment to healthcare professionals.