



JAMDA

journal homepage: www.jamda.com

Editorial

Geriatric Rehabilitation—State of the Art and Future Priorities



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The worldwide ageing revolution has put rehabilitation for older patients high on the agenda of both health care policy and research. Two major policies in many developing countries, ageing in place and reducing hospital stay, which particularly impact frail older persons, have stimulated the search for appropriate and cost-effective use of rehabilitation resources. This will require identifying patients who are most likely to benefit from geriatric rehabilitation, and selecting the most appropriate rehabilitation or post-acute setting for each patient. The overall aims are to provide the right type of therapy, at the right time, in the right setting for the individual patient.

In this article, we will discuss the definition, patient characteristics, content, and outcomes of geriatric rehabilitation with an international perspective. In addition, we will briefly mention future developments, with a special focus on research.

Geriatric rehabilitation is not new. As early as 1947, Cosin, in a special *Lancet* article, mentioned geriatric rehabilitation as a way of diminishing nursing care and restoring the maximum degree of painless movement. He noted that this should be done “in a happy and cheerful environment,” discouraged “tacit acceptance of poor prognosis,” and emphasized that “the rehabilitation should start in the acute hospital.”¹ Interestingly, in the same year, Asher warned against the dangers of bed rest for older persons.²

Probably the most frequently used and cited definition of geriatric rehabilitation is the one by the Boston Working Group from 1997 that defined it as “diagnostic and therapeutic interventions whose purpose is to restore functional ability or enhance residual functional capability in older people with disabling impairments.”³

What seems to be clear is that in principle geriatric rehabilitation does not differ from rehabilitation for specific diseases (eg, chronic obstructive pulmonary disease, heart failure, and stroke) with regard to its approach and its aims. However, patients in geriatric rehabilitation show specific characteristics and have specific needs that are both associated with the ageing process. For example, they have complex health issues including in many cases disabilities due to pre-

existing comorbidities and geriatric syndromes, such as frailty, cognitive impairment, and sensory loss. For this population, the inclusion of family members and other caregivers in the rehabilitative concept is of utmost importance, especially with regard to the latter's sustained effectiveness. Because of the general vulnerability of its patient population, geriatric rehabilitation very often operates closely at the cross-road with acute geriatric care.⁴

In 2002, Ian Cameron and Susan Kurrle defined the goal of geriatric rehabilitation as “to assist [older people] to manage personal activities of daily living without the assistance of another person. If this is not possible, the goal is to minimize the need for external assistance through the use of adaptive techniques and equipment.” Thereby the authors put special emphasis on the successful management of dependency in activities of daily living.⁵

However, the restoration of the original level of functioning before an acutely triggered impairment may in many cases not represent an appropriate goal for geriatric rehabilitation. Instead, the appropriate goal may be to achieve a new balance, which implies a higher degree of dependency while preserving autonomy and self-management as much as possible.

In the Boston Working Group definition, there is no mention of prerequisites someone has to fulfil before admission to geriatric rehabilitation. The majority of patients in geriatric rehabilitation show a triggering acute incident and have been hospitalized before they are admitted to geriatric rehabilitation. At this point, one may wonder if geriatric rehabilitation and post-acute care do in fact focus on the same patient population, using a different approach in overlapping populations. One definition stated, “Post-acute care (PAC) includes rehabilitation or palliative services that beneficiaries receive after, or in some cases instead of, a stay in an acute care hospital. Depending on the intensity of care the patient requires, treatment may include a stay in a facility, ongoing outpatient therapy, or care provided at home.”⁶ Therefore, one can assume that there might be quite some overlap between these 2 concepts, although they are far from being interchangeable. Admission for simple recovery or palliative care is not geriatric rehabilitation. Also, a wide range of patients may be considered for geriatric rehabilitation or post-acute care. At one end of the spectrum there is a relatively healthy 81-year-old woman who fell over her grandson's toy and who needs only physiotherapy to recover from a hip fracture. On the other, there is an 85-year-old man with

The authors declare no conflict of interests.

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<https://doi.org/10.1016/j.jamda.2019.02.014>

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pre-existing Parkinson's disease and heart failure who has suffered a pelvic fracture and who requires a far more complex therapeutic approach to regain his functional independence.

At present, very different services are provided for these patients across the world. In many instances, the current local concepts may be considered to be inadequate to meet the needs of these patient groups. Depending on national reimbursement policies and local availability, geriatric rehabilitation is offered in widely different settings. It can be community based or hospital based; it may be provided in skilled nursing facilities or other institutions such as intermediate care facilities in the United Kingdom. It can be done on an outpatient basis using home visits or intensive day care programs.

According to the Boston Working Group, patients for geriatric rehabilitation are "older people with disabling impairments."³ However, there are large cross-national differences in the patient selection for geriatric rehabilitation programs. It may therefore be difficult to distinguish geriatric rehabilitation from specialist rehabilitation for specific diseases or even physiotherapy-only approaches.

In the current literature, specific patient groups can be distinguished for which disease-focused rehabilitation may be appropriate, such as patients after stroke, those with fractures (especially fragility fractures such as hip fractures), patients after elective orthopedic surgery, cancer patients, and patients with chronic obstructive pulmonary disease.

According to available overviews, the mean age of geriatric rehabilitation patients is above 70 years, especially in hip fracture studies. In a European Union consensus that is currently under way, there has been a lot of discussion on this topic. Some experts would prefer 75 years as the entry criterion, while some debated that it should be the patient's biological age that is most relevant as an admission criterion, and that, for instance, a diagnosis of frailty may also apply in younger patients.

Cameron and Kurrle stated in 2002: "Older people who may benefit from rehabilitation typically have a major disability of recent onset. They have had a stroke, hip fracture or other fracture, a fall-related injury, or a major illness (such as severe cardiac failure); or they have ongoing severe osteoarthritis or Parkinson's disease. The disability will have compromised their ability to live independently, or semi-independently."⁶ The authors did not mention an age limit, but instead said that "chronological age per se should not be a factor in determining participation in a rehabilitation program. The major consideration is the ability to benefit from rehabilitation. The prime determinants of this are the severity of the presenting disability and the extent of pre-existing disability."⁵ Indeed, having either an upper or a lower age limit ultimately can be considered as ageism, rather than acknowledging individual needs.

Multimorbidity has been regarded as a major characteristic of patients for whom geriatric rehabilitation is indicated. Indeed, a major concept differentiating geriatric rehabilitation from more traditional organ-specific rehabilitation is the need to acknowledge multimorbidity. However, there has been little research on this aspect. A systematic literature review showed that an association between comorbidity burden and functional outcome exists, albeit this association was regarded as modest.⁷ Many patients can be categorized as 'frail' and have relevant comorbidities, as well as suffer from functional impairment and geriatric syndromes such as sarcopenia and malnutrition. Many authors acknowledged the relevance of geriatric conditions such as frailty, sarcopenia, malnutrition, and osteoporosis in the context of geriatric rehabilitation. After hospitalization, this patient group is at highest risk of complications such as delirium, pressure ulcers, and infections. As a result, as populations age the field of rehabilitation will have to increasingly focus on primary and secondary prevention of the aforementioned conditions.⁸

Unfortunately, cognitive impairment is considered a contraindication for geriatric rehabilitation in many Western countries. We do

not agree with the assumption, although several studies document that the prognosis for functional recovery is worsened by the presence of significant cognitive impairment. However, rehabilitation goals related to basic personal independence can often be achieved in patients with early-stage dementia, albeit over a somewhat longer time.⁹ Several other patient groups are also excluded from geriatric rehabilitation services with little justification or evidence, such as older people residing in long-term care facilities. Unfortunately, these groups are often also excluded from research.

Individual goal setting as a key concept for the treatment plan has been emphasized since very early in the conceptualization of geriatric rehabilitation.¹⁰ In this context, mobility and self-care received the most attention, while nowadays outcomes like meaningful participation are more acknowledged. Processes that include team coordination and care planning must be instituted, and these generally include formal case discussion meetings, involving the older person and his or her family members in goal setting and program design. There is strong evidence that this approach is effective, and there is consensus that it should be performed by a team of professionals working in an interdisciplinary manner.^{11–14} The team should include geriatricians, nurses, physiotherapists, occupational therapists, speech therapists and social workers. In addition to identifying morbidities and comorbidities, the team's assessment should also identify sources of resilience in patients and their informal caregivers, and the assessment should focus on factors that can be influenced by rehabilitation interventions. This "frailty balance" is a relatively new concept that may better acknowledge the individual strengths of a frail patient, and help the patient in realistic goal setting.¹⁵ To address the variety of issues in frail older persons, a geriatric rehabilitation program often contains a wide variety of interventions, such as the prevention or treatment of pressure ulcers, continence training through timed voiding, nutritional interventions, medication optimization, physical exercise, service planning, and potentially other components.

Therapeutic intensity has to be tailored to the needs of the patient and often needs to accommodate to the reduced capacities of these frail persons. Rehabilitation programs for older people should also include a major psychosocial component. Pain, depression, anxiety, loneliness, issues regarding family, meaning of life, and fear of physical or mental decline all must be considered, and to address them adequately requires an experienced team. It is known that, for instance, fear of falling is a strong predictor of poor functional outcome in hip fracture patients. A Cochrane review in 2010 found that some functional outcomes may be amenable to psychosocial treatments. However, until now there is insufficient evidence to recommend practice changes.¹⁶

Daily feedback to patients and therapists may include the use of an accelerometer, which has been demonstrated to result in increased walking times during rehabilitation.¹⁷ The monitoring of activity levels provides clinicians with information on clinically important, mobility-related activities and it thereby assists in goal setting. However, other studies found more conventional methods superior to technological novelties such as exergaming.¹⁸ More research in this field is definitely needed. Geriatric rehabilitation programs are working on increasing overall physical activity during the rehabilitation; however, what is achieved is often much less than desirable, and it should be in itself a target for improved practice.¹⁷

There is relevant evidence on the overall efficacy of geriatric rehabilitation. It improves outcomes like functional parameters, and it reduces nursing home admissions and mortality.⁴ However, until now, the respective evidence has been based on only 2 types of geriatric rehabilitation programs: general and orthopedic geriatric rehabilitation.⁴ This indicates the need for the development, implementation, and evaluation (both efficacy and cost-effectiveness) of other types of

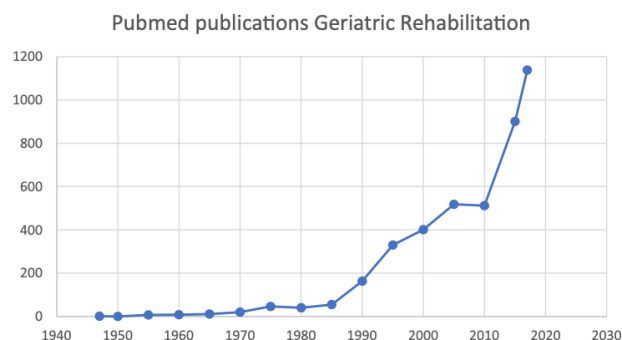


Fig. 1. Number of PubMed publications with the search terms Geriatric AND Rehabilitation, as of November 2018.

geriatric rehabilitation programs, because they may have the potential to change clinical practice in the future.⁴

A patient stay in a clinical (or inpatient) geriatric rehabilitation setting is typically an intermediate stop between an acute setting and long-term care or home-based primary care. Therefore, organizing these services in care pathways throughout the total care chain may be beneficial, and indeed some studies have already demonstrated efficacy and cost effectiveness.^{19,20} Further improvement, with more consistent coordination of these care pathways should be pursued through closer cooperation between different care settings.

Being a relatively new specialization, it is encouraging that the number of publications about geriatric rehabilitation has grown enormously since 1947 and is having its second acceleration in the past 8 years (see Figure 1).

However, it is important that the international scientific community update the research agenda²¹ and start making decisions on important issues such as which outcomes are important, and how can we measure them in a way that we can compare different approaches, different therapies, and different organizational systems in different countries? Rehabilitation programs for older people with stroke are clearly effective,¹¹ and rehabilitation programs after hip fracture are also effective.⁴ By contrast, inpatient rehabilitation programs for older people after elective knee arthroplasty are not superior to home-based rehabilitation programs.²² Certainly research should focus on the effectiveness of other rehabilitation programs, on how the older person herself can be the director of the rehabilitation process, and how technology can improve outcomes.

Finally, we should take care not to misuse geriatric rehabilitation as an easy way out of hospital at the end of life when better alternatives are not available because of flaws in policy.²³

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