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Self-Reported Aging-Related Fatigue: A Concept Description and Its Relevance to Physical Therapist Practice

Thorlene Egerton

Fatigue is one of the most common symptoms experienced by older people, both with and without chronic disease. It is unpleasant and distressing and can affect functioning and quality of life. Fatigue also may inhibit an older person from participating optimally in a physical therapy program aimed at rehabilitation or the promotion of better health. However, confusion surrounds the concept of self-reported aging-related fatigue, not only because of the complexity of the problem itself but also because of lack of clarity of definition and the use of the term "fatigue" to describe a range of different concepts. This article aims to provide clarification of the concept in the context of physical therapist clinical practice. The intention is to increase awareness of the issue among physical therapists, promoting their assessment and consideration of the problem when planning health interventions involving functioning, physical activity, and exercise for older people.

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Fatigue is one of the most common reasons given by community-dwelling older people for activity restriction[1] and is frequently reported as a cause of disability.[2] Fatigue can be an overwhelming and distressing experience that constrains capacity for physical functioning and social participation as well as worsens morbidity and mortality outcomes.[3] Prevalence studies suggest the rate of self-reported fatigue among older people is high (25% in primary care[4] to 98% in long-term care[5]), and although it is unclear whether prevalence rates are higher among older adults when they are compared with working-aged adults,[6] rates appear to be higher with increasing age within the older population.[7,8] In 2007, the high prevalence of self-reported fatigue in older people, the lack of knowledge about its etiology, and the current lack of effective management options led to the problem being highlighted by the National Institutes of Health.[9] In recognition of its importance, fatigue among older people also was taken up as a special conference theme by the American Geriatrics Society in 2010.[10]

Although the high prevalence of fatigue among elderly people may be due, in part, to the higher rates of comorbidities and use of medications that can cause fatigue,[8,9,11,12] some fatigue problems have no obvious cause.[13] In a study of primary care patients where 27% reported fatigue, 17% had no other identified comorbid illness.[14] Frailty syndrome is a progressive physiological decline in multiple body systems in older people that is known to carry an increased risk of poor outcomes.[15] Fried et al defined *frailty* as a "constellation of characteristic representations, including loss of muscle mass, weakness, weight loss, low exercise tolerance and energy, and low activity."[16] Thus, fatigue has been identified as a key component of frailty syndrome, leading to suggestions that apparent idiopathic fatigue may be related to an accelerated aging process.[11]

Physical therapists play an important role in rehabilitation following many diseases and in the promotion of increased physical activity in the population of older adults who are disabled and the broader population of adults who are healthy. Any problem that acts as a barrier to participation in physical activity programs or reduces adherence to exercise interventions will moderate the outcomes achieved by physical therapy. Although no studies have specifically identified fatigue as a cause for poorer response to physical therapy, several studies including patients with various diseases and across populations have identified feeling fatigued as a reason for reduced willingness to participate in physical activity or exercise. Older women in the United States, across the full range of ethnic backgrounds, commonly cite being "too tired" and "lacking enough energy" as reasons not to be physically active.[17] Similarly, data from a nationally representative sample of Swedish women aged over 77 years of age showed that higher perceived fatigue, among other factors, led to reduced participation in social and cultural activities, which included physical activities.[18] Among patients with colorectal cancer, fatigue was the third most common reason cited for skipping exercise sessions,[19] a finding consistent with other studies involving patients with cancer.[20,21] Moreover, a study among people with osteoarthritis (mean age=58 years) highlighted fatigue as second only to pain as a barrier to exercise.[22] Fatigue in these last 2 examples may have disease- or medication-related (rather than aging-related) causes; however, it is clear that fatigue from any cause can have an impact in many physical therapy settings.

Given the high prevalence of fatigue, as well as the potential impact of fatigue on the older person's ability and willingness to be physically active or exercise, physical therapists ought to be highly aware of this problem. Physical therapists ideally should have a good understanding of risk factors and causes of fatigue and know how to effectively measure, monitor, and manage the problem. However, assessment and management of fatigue are rarely discussed as part of exercise interventions for older people. Fatigue has been shown to be under-recognized among physicians and nurses[3,10] and is likely to be similarly under-recognized among physical therapists.

The term "fatigue" is used by patients, clinicians, and the general public to describe several different complex and multifactorial concepts, which can lead to confusion and inconsistency in how, or whether, it is identified and investigated. The lack of identification of the problem of aging-related fatigue by health clinicians working with older people and the lack of evidence-based and effective management options for physical therapists, to a large extent, can be explained by confusion of aging-related fatigue with other causes of fatigue experiences and other problems that frequently occur with fatigue. It seems logical that having a good understanding of the underlying theoretical concept of aging-related fatigue is an important first step in being able to help older people experiencing such fatigue.

This concept description, focusing on fatigue experienced by older people with no specific disease cause, first discusses terminology and the complexity of the concept. The

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problem as experienced by older people is described, and the significant role of fatigue in the frailty syndrome is briefly considered. The clinical importance of having a clear understanding of the concept is discussed throughout the article. It is not the intent of this perspective article to provide assessment and management guidelines, but rather to (1) encourage clinicians to pay greater attention to the fatigue experienced by their patients and (2) stimulate further discussion among clinicians and researchers.

Terminology

"Fatigue" does not appear as a category in the World Health Organization *International Classification of Functioning, Disability and Health*.[23] The closest approximation is the body function of "having energy" ("b1300: energy level"), which is notably within the category of "mental function." Fatigue could be considered an impairment of having energy. However, clearly this is not an adequate definition and does not differentiate between the different etiologies, presentations, and experiences of fatigue. There are 2 Medical Subject Headings (MeSH) definitions related to the term "fatigue": (1) fatigue—the state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli, and (2) asthenia— clinical sign or symptom manifested as debility or lack or loss of strength and energy. Thus, MeSH uses the word "fatigue" to describe a normal response to a bout of activity, while the description of asthenia seems to better reflect the abnormal and disabling nature of fatigue. In the health and medical literature, this unpleasant and debilitating sensation has previously been called "chronic fatigue," "abnormal fatigue," "sustained fatigue," "pathological fatigue," "medically relevant pathological fatigue," "anergia," "lassitude," "exhaustion," and more.[8,11,24] It has been distinguished from "normal fatigue," "acute fatigue," and "physiological fatigue." Cross-cultural research and clinical practice are further challenged by translation difficulties. For example, in Norwegian and Danish languages, there is no exact translation for the word "fatigue." Other words that translate to tiredness or exhaustion are used; however, these words have slightly different lay meanings than the English word "fatigue."[11]

Achieving consensus on terminology is clearly a major problem that will be challenging to overcome. In this article, the term "self-reported aging-related fatigue" is used. This term reflects the subjectivity of the problem that occurs among some of the aging population, for which there is no other obvious explanation besides possibly being related to the aging process.

Complexity

Self-reported aging-related fatigue is associated with a wide range of experiences, impacts, and possible etiologies and appears to be closely related to a number of other subjective feelings.[25–27] Qualitative research has highlighted that, from the perspective of the patient, assignment of a simple intensity rating, such as a mark on a visual analog scale, does not adequately represent the complexity of his or her individual experience.[28,29] Results from focus group interviews indicate that patients view fatigue as having many facets that have complex associations or relationships with their other health/disability conditions.[30] It follows that physical therapists should explore further during their assessment of fatigue than simply asking about the presence and level of intensity of fatigue. In order to facilitate better understanding of the problem, patients should be asked to describe what they feel in their own words and how their fatigue affects their daily activities and social functioning. Just as with pain assessment, factors that aggravate and ease the fatigue symptoms may provide clues to how to help the patient manage the problem.

Complexity does not only exist from the patient's perspective. From a clinician's perspective, it is important to tease out whether a cause for the patient's reported fatigue can be identified, as some other types of fatigue may respond to simple management approaches (Figure). A process of elimination approach might be helpful. Therefore, let us now consider what aging-related fatigue is not.

Aging-Related Fatigue—What It Is Not

The many uses of the term "fatigue" encompass a range of different concepts. Some have commonalties, whereas others are distinctly separate. For example, in the sports literature, fatigue research often is focused on acute fatigue as a risk factor for injury or reduced performance among athletes. A great deal of research also has been carried out on the fatigue resulting from overwork in younger people undertaking strenuous, physical job-related activities and the fatigue resulting from prolonged driving. In these examples, fatigue is a very different construct than aging-related fatigue despite sharing the same label. Other types of fatigue have less clear distinctions.

Fatigue is known to be a frequently reported symptom associated with many chronic diseases. In neurological conditions such as stroke, multiple sclerosis, post-polio syndrome, and Parkinson disease, there is growing evidence that neurological damage is a direct cause of the fatigue symptoms.[31–33] Fatigue resulting

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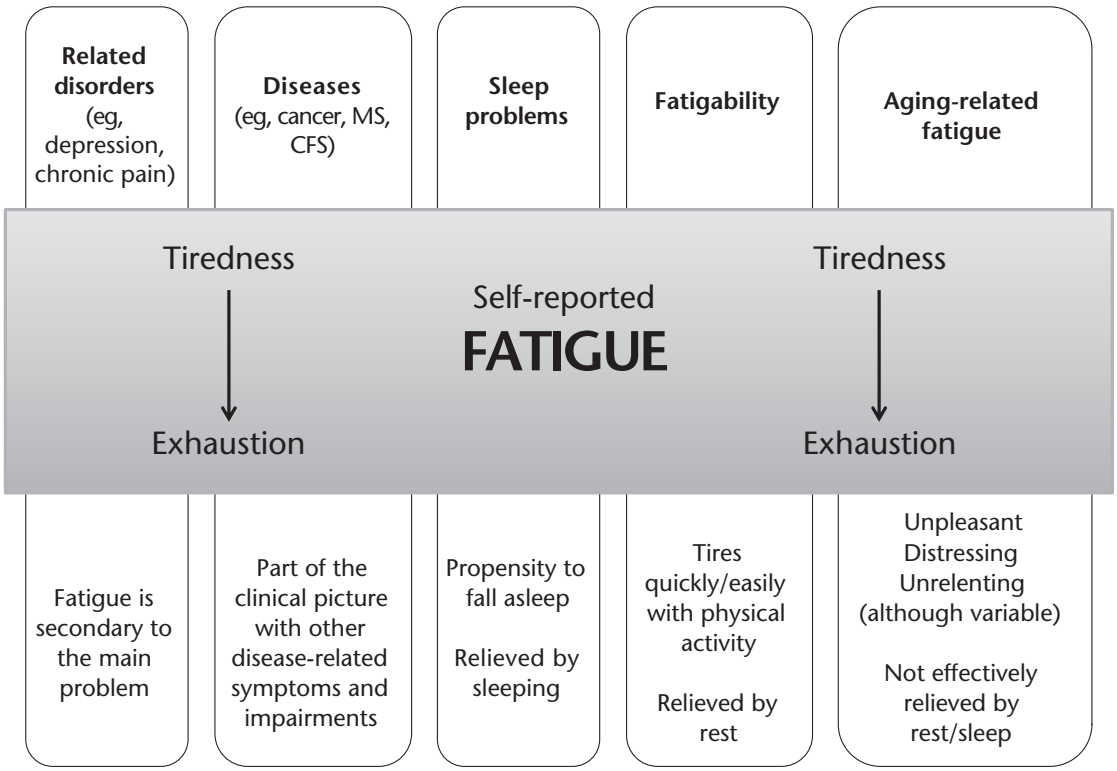

Figure.
Proposed main subtypes of fatigue among clinical populations. All subtypes can coexist. MS=multiple sclerosis, CFS=chronic fatigue syndrome.

from cancer and cancer treatments also is a much-described and much-researched phenomenon,[34–36] as is the fatigue associated with postviral or inflammatory illnesses (eg, chronic fatigue syndrome, fibromyalgia, Ross River virus, rheumatoid arthritis[37–39]). Many older people have comorbidities that may directly cause fatigue; however, many older people experience fatigue in the absence of a known disease-related cause. Such idiopathic fatigue is still poorly understood, and improved knowledge of aging-related fatigue etiology will certainly lead to better methods of differential diagnosis in the future.

A major source of confusion among both patients and clinical staff alike is that the term "fatigue" also is used to describe problems due to low quantity or poor quality of sleep. Many patients and clinicians use the terms "tired," "sleepy," and "fatigued" interchangeably, making it necessary to tease apart these terms in order to determine whether the primary issue is sleepiness or fatigue. *Sleepiness* has been defined as "a tendency to fall asleep" or "an increased propensity to doze off or fall asleep."[40(p81)] It has distinctly different implications for clinical diagnosis and treatment, and it is important that the 2 constructs are separated as much as possible when discussing the patient's symptoms.[26] Some patients may know themselves if their problem is sleepiness and relates to poor sleep, whereas for others, articulating their symptoms and identifying the cause is much more difficult. Specific questions about how well they are sleeping at night may be helpful.

Several studies have shown compelling evidence of associations between fatigue and depression.[27,41] Indeed, fatigue often is considered an integral component of depression, and depression scales often contain items that relate specifically to fatigue.[42,43] However, the fact that many patients with depression are not fatigued, nor do they necessarily become fatigued, suggests that the 2 feelings, although frequently coexisting, are not the same thing.[14] Despite the high rate of co-occurrence with psychological disorders (including depression), longitudinal studies have shown that although fatigue does overlap with many psychological phenomena, it is independent and, therefore, needs to be considered separately in clinical practice.[14] Differential diagnosis may be difficult and require collaboration with a member of the multidisciplinary team who is expert at assessing mood disorders.

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Some degree of fatigue is to be expected following physical or other types of activity. Trendall[44] and other authors[45–47] described normal fatigue as being related to exertion; rapid in onset; short in duration; and relieved by rest, sleep, or nourishment. This type of fatigue is thought to have a protective function, in that further stress to the body is limited, and the rest that is forced by the fatigue sensation enables recovery.[10] The level of fatigue experienced after activity relative to the amount of activity performed has been termed "fatigability"[48,49] or "exertion fatigue."[50] High or prolonged fatigability, which is an exaggerated fatigue response relative to the amount of activity performed, also may be considered abnormal and disabling, but is likely to be a different problem with different etiologies than a pervasive and distressing sensation of fatigue that persists to some degree regardless of the level of activity or amount of rest. One way of understanding the difference between fatigability and fatigue, in the context of this article, is to consider whether there is a predisposing explanation for the fatigue. For example, if older people explain they feel fatigued on days they look after their grandchildren or after walking home from the shops, they are describing their fatigability or exertion fatigue. Such experiences of fatigue demonstrate the person's vulnerability to activity and often may be associated with deconditioning. However, if the older person is unable to associate the feeling with a precipitating event, then the problem could be the type of fatigue referred to in this article as aging-related fatigue.

Fatigability, or exertion fatigue, also is highly relevant to physical therapist practice and is likely to be even more prevalent than aging-related fatigue. It, therefore, also warrants greater attention, and distinguishing between aging-related and exertion fatigue is currently a major challenge for clinicians and researchers alike. In clinical practice, a good starting point for assessing or measuring fatigability, or the level of tiredness resulting from activity, is to use a scale that queries fatigue in relation to specific activities (eg, the Mobility-Tiredness Scale used by Avlund et al[51]). The 2 constructs of aging-related and exertion fatigue are clearly interrelated and are most likely both part of a cycle of decline.[52,53] However, as with the strong association with depression, the strong interrelatedness between fatigue and fatigability does not prove they are the same construct.

Self-Reported Aging-Related Fatigue—What It Is

After considering what aging-related fatigue is not, what, if anything, is left for it to be? Some features, almost universally agreed upon, are that there is a type of fatigue experienced by older people that it is idiopathic, unpleasant, dynamic in nature, serves no useful purpose, affects functioning and quality of life, and is difficult (even for those experiencing it) to describe.[3,10,44,47] There is continuing debate regarding whether such self-reported fatigue among older people is a physical or psychological problem.[54] For instance, some may perceive it as a physical feeling of lacking energy or vitality or of feeling too weak to move, whereas others may experience fatigue more as a problem of effort and motivation. A useful description of fatigue was given by Ream and Richardson,[55] who described it as "a subjective unpleasant symptom which incorporates total body feelings ranging from tiredness to exhaustion, creating an unrelenting overall condition which interferes with individuals' ability to function to their normal capacity."[55(p527)] Despite the fact that the etiology remains unclear, some authors have suggested that although fatigue is not an inevitable accompaniment to growing older, it is related to the aging process and may even be a sign of accelerated aging with dire consequences.[11,56,57] Aging is a biological and physiological process, and fatigue associated with aging may be a result of cumulative declines across multiple systems. In addition, the accumulation of social stresses during the course of life may play a role in the development of aging-related fatigue.[11,58] Other lifestyle factors, such as frequent use of alcohol or smoking and physical inactivity, also may contribute to the development of aging-related fatigue.[11]

Frailty

As previously mentioned, fatigue is an essential feature of the condition of frailty.[59] Frailty has been operationalized in a definition requiring the presence of 3 or more of 5 criteria: weight loss, muscle weakness, sense of exhaustion or fatigue, slow walking speed, and low level of physical activity.[59] These criteria were theorized to be related in a cycle of decline. In the original article by Fried et al,[59] the presence of exhaustion was determined using the Center for Epidemiological Studies Depression Scale (CES-D).[43] The participants were asked: (1) how often in the last week they felt that everything they did was an effort and (2) how often in the last week they could not get going. Despite these 2 questions being drawn from a depression scale, they fit well with the concept of aging-related fatigue described in the previous section.

Virtually all commentaries on frailty since 2001 cite fatigue as being a cardinal feature. Unfortunately, fatigue is not clearly defined in many of the descriptions of the frailty phenotype and has been variously measured as part of frailty measurement instruments. In the frailty literature,

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the terms "fatigue," "poor endurance," "lack of energy," and "exhaustion" are used interchangeably.[15,59–61] Despite this difference in terms, studies have shown that among the array of signs of frailty, fatigue seems to be the most important indicator of future rapid decline. Furthermore, fatigue appears to be directly related to many of the other signs of frailty, including reduced physical activity, slow walking speed, and reduced hand grip strength.[11,62] Fatigue may be the first sign of frailty to emerge and may be present before the onset of consequent disability.[8,25,58] This finding means that if physical therapists can identify apparent idiopathic fatigue, they may be ideally positioned to intervene to slow or reverse the decline to frailty.

Clinical Importance

Having a better understanding of the concept of self-reported aging-related fatigue can aid researchers and clinicians in a number of ways. Physical therapists with knowledge of the problem of fatigue are able to assess the nature, severity, and impact of fatigue symptoms experienced by their patients in order to gain better outcomes from rehabilitation interventions and to more effectively promote increased physical activity.

In the older population, fatigue will not often occur in isolation, and so understanding and, therefore, managing the individual's fatigue experience is complicated by the patient's association of his or her fatigue symptoms with other symptoms such as pain or aspects of other disabilities. Social and emotional factors, such as loneliness, fear of falling, and many others, may become entangled with an individual's feelings of fatigue, so that all of these factors exacerbate and complicate each other. In assessing fatigue, clinicians need to be able to find a way through the complexity so that an accurate picture of the fatigue experience is gained. This concept description can provide insight into the type and scope of questions clinicians may need to ask in order to determine whether aging-related fatigue is a problem for their patients, how it is related to comorbidities and disabilities, and how it affects daily functioning and the ability to participate in a physical therapy program.

In addition to assessing fatigue, physical therapists also may be interested in measuring this condition. Because it is a symptom, fatigue can only be measured using a questionnaire. There are many available questionnaires that have been developed for a range of purposes and reflect the developer's perspective of the problem at the time of their research study. In fact, there are more than 100 published questionnaires, all measuring a variation on the fatigue construct with varying ability to offer valid interpretations of the problem.[63,64] *Content validity* of a measurement scale is "the extent to which a scale represents the most relevant and important aspects of a concept in the context of a given measurement application."[65(p743)] Many of the published and widely used fatigue questionnaires do not have acceptable content validity for measurement of aging-related fatigue.[66] With the evolution of our understanding of the concept, clinicians should carefully consider the items contained in a fatigue questionnaire to ensure they are meaningful to their purpose and measure the breadth of the concept, without excessive overlap with other problems. In practice, this approach means that the items in a questionnaire should be checked against a list of the main features of the problem (comprehensiveness) and screened for items related to other problems (relevance) (eg, using a checklist such as the one shown in the Appendix).

Some types of fatigue may be readily managed. For example, strategies to improve quality and quantity of sleep are appropriate for sleepiness (sleep-related fatigue). Acute fatigue from a bout of intense activity should respond to a short period of rest, and exercise training may help improve fatigability. It may be possible to adjust medications that are causing fatigue as a side effect. A feeling of fatigue also may be an expression of depressed mood, or a "red flag" to a subclinical serious disease. These examples illustrate the importance in attempting to distinguish different subtypes of fatigue through a detailed assessment.

There currently are no simple evidence-based recommendations regarding the management of aging-related fatigue. This shortcoming is partly because much previous research has not approached the concept of aging-related fatigue as a distinct entity and separated it from sleepiness, depression, and exertion fatigue. In addition, the difficulties in measuring fatigue have delayed our understanding of causal factors as well as the demonstration of effectiveness of treatment options.[63] Many studies have used only single-item measures of fatigue or multidimensional questions that confound fatigue with other psychological or physical functioning constructs.[63] These problems also have led to limitations in interpretation of the research that has been carried out. That said, clinicians may look to a broad range of research literature for indirect evidence suggesting possible management options.

Exercise

The relationship between physical activity, including exercise, and fatigue is particularly challenging to investigate because fatigue may both

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influence and be influenced by habitual physical activity. Physical therapists already understand the potential of exercise for managing problems with physical functioning as well as for optimizing general health for older patients or clients, but there also may be a role for exercise in the treatment of both fatigability and aging-related fatigue.

Population-based studies have repeatedly shown that physical inactivity is associated with higher levels of fatigue. Participation in regular physical activity is associated with around 40% lower risk of experiencing feelings of low energy or fatigue.[63] Prospective epidemiological studies that overcome some of the limitations of cross-sectional epidemiological methods have demonstrated a slightly lower effect size at 32% lower risk.[63] However, even with prospective design, it is difficult to ascertain whether fatigue is the cause of reduced activity or the result.

Studies specifically investigating the effect of exercise programs on the fatigue experienced by older people are currently lacking. However, several exercise intervention studies have shown that sedentary patients with disease-related fatigue feel less fatigued and more energetic as a result of exercise.[36,67,68] Studies on fatigue levels following exercise interventions among adults who were healthy have been less convincing,[69] but interpretation of such studies should take into consideration the multiple mechanisms that can be involved in the fatigue feelings among people who are healthy and that the measurement instruments used in these earlier studies also may be measuring several different constructs. A meta-analysis of the effect of exercise programs on fatigue and energy levels on a broad range of nonclinical populations and clinical populations (with physical and psychological illnesses) found exercise to be effective at reducing fatigue.[70] In this meta-analysis, strength training programs appeared to be more effective than aerobic exercise. These conclusions on the benefits of exercise for lowering fatigue should be considered with much caution because of the heterogeneity of participants, outcome measures, interventions, and comparators in the included studies.

The above-mentioned meta-analysis for exercise interventions showed that fatigue levels also were often reduced in the placebo groups as well as the exercise groups.[70] The studies where placebo groups also improved tended to include older participants and tended to have a placebo intervention such as stretching in a group setting or health education focusing on self-management. It is possible that these placebo treatments affected perceived fatigue through psychosocial mechanisms or through the small amount of increased physical activity that resulted from attendance in these placebo sessions. Low-intensity physical activity (eg, stretching or self-paced daily activity) may even be the optimal management for fatigue among older people. Along these lines of thought, researchers studying patients with colorectal cancer experiencing fatigue have made the following recommendations for facilitating higher levels of participation in exercise programs[19]:

- Prescribe only low- to moderate-intensity exercise (50%–60% of maximal capacity).
- Encourage shorter duration bouts (eg, 10 minutes).
- Perform interval exercise rather than continuous (alternating exercise and rest bouts).
- Exercise when fatigue is at its lowest (eg, early in the morning).

Several exercise interventions have been successfully carried out on frail older adults, resulting in recommendations to promote exercise for elderly people at all levels of frailty. However, the positive benefits of exercise among frail elderly people are usually related to muscle strength and well-being outcomes rather than to reductions in fatigue.[61]

Although it appears that fatigued older people may benefit from exercise interventions, 2 cautionary points should be highlighted:

1. Researchers have rarely attempted to distinguish fatigue from fatigability among their cohorts. It may be that the positive results reflect improvements in fatigability rather than fatigue, as improvements in general fitness and muscle strength are likely to result in lower fatigability scores. Aging-related fatigue may respond negatively to some exercise interventions, and strategies to manage fatigue may be the best way to achieve overall increases in physical activity and to optimize quality of life among such patients.

2. As previously discussed, fatigue is a barrier to participation in and adherence to exercise programs. Therefore, more attention may need to be placed on changing physical activity attitudes and behaviors rather than simply providing an exercise program for fatigued patients. Again, there may be parallels with management of chronic pain, where the pain can be a barrier to exercise. However, exercising can help to reduce the pain in the longer term. For this reason, psychosocial approaches also should be considered.

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Psychosocial Approaches

Fatigue may be a problem of altered perception, as in some chronic pain conditions, or partly a result of altered mood and affect. At least 1 study has provided support for a psychosocial pathway to explain the mechanism through which physical activity can lead to reduced fatigue in chronic diseases (eg, cancer, multiple sclerosis).[71] Whether this pathway exists for aging-related fatigue is not yet known. The social interaction resulting from attendance at exercise groups may be an important contributor to the benefits gained. Reduced fatigue has been found in patients with cancer[72] and multiple sclerosis[73] after yoga class attendance and in patients with chronic diseases[74] who participate in health education groups.

Cognitive-behavioral therapy targets beliefs and behaviors that may perpetuate symptoms. It is increasingly used in chronic pain management and, in time, may prove helpful in alleviating fatigue symptoms among older people. It requires special skills, but can be delivered by trained physical therapists.[75]

Finally, self-efficacy for fatigue also has been shown to provide partial mediation for the association between fatigue reduction and physical functional status improvement for people suffering fatigue due to chronic illnesses.[76] It is clear that there remain many possibilities to explore regarding the management of fatigue, and, as with other complex disorders, complex and individualized treatments will probably work the best.

Multifaceted Approaches

Complex interventions that involve individualized combinations of strategies are difficult to evaluate with traditional research methods, but are likely to be the optimal approach to management of fatigue as with many other chronic conditions. An example of a combined approach was used in a randomized controlled trial designed to improve exercise adherence among nursing home residents.[77] The program included some strategies for managing fatigue:

- Investigate medically treatable causes of fatigue.
- Establish an appropriate rest-activity schedule.
- Stress the importance of exercise to combat fatigue.

The complex, multifaceted intervention was found to increase participant participation in exercise as well as self-efficacy for exercising.

Energy conservation strategies have been used successfully for managing fatigue in populations with multiple sclerosis and cancer, and similar strategies may be worth considering for older people with fatigue.[78,79] Finally, a psychiatrist's manual for treating fatigue included advice to educate patients to avoid "erratic variation between over-activity on good days and subsequent collapse" and that stabilizing activity is a prerequisite to graded increases.[13]

The lack of research evidence regarding the effectiveness of physical therapy treatment options for older people with fatigue does not mean that physical therapists can do nothing. Everyday clinical practice is importantly guided by the experience and expertise of the practitioner. Broadly speaking, clinicians who undertake self-reflection and continual reassessment of their own practice are known to achieve better outcomes.[80] Thus, including assessment and reassessment of fatigue may assist clinicians in developing strategies themselves that help improve outcomes with their patients in their particular setting. Studies have shown that important characteristics of the "expert" clinician's practice include individualization of evaluation, use of collaborative problem solving with patients, greater level of responsiveness to patient presentation, and variety in management plans.[81,82] All of these attributes lend themselves to better management of the heterogeneous and complex nature of aging-related fatigue.

Recommendations for Future Research

Over a decade ago, the literature on nonspecific low back pain identified the likelihood of subcategories within the broad diagnosis of nonspecific low back pain as a potential cause of the failure of research studies to show benefit of treatment techniques.[83,84] Similarly, people experiencing fatigue are a heterogeneous group. It is likely to be necessary to distinguish clinically relevant subgroups in research studies in order to accelerate the search for causal mechanisms and effective management options. Separating subtypes of fatigue is only beginning to occur in the field of fatigue research. This problem of heterogeneity, combined with the limitations of the assessment tools used in previous research, has contributed to the lack of evidence to guide practice. The challenges for the future are in separating aging-related fatigue from other fatigue experiences. A priority is to provide evidence that fatigue and fatigability are distinct and separable constructs. Fundamental problems with the measurement tools also need to be resolved in order to accurately monitor changes in fatigue experiences. Whether fatigue is truly an idiopathic condition, a sign of accelerated aging, or a symptomatic presentation of subclinical disease[15] also is an essential topic for further research.

Conclusion

In summary, this article discusses the theoretical construct underpinning

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aging-related fatigue. It was beyond the scope of this commentary to describe in detail the current knowledge regarding etiologies, risk factors, and mediators for fatigue. In addition, it currently is not possible to make specific recommendations regarding measurement and management options. However, a better understanding of this complex, multifactorial, and fluctuating problem is an essential first step to improving the ability of physical therapists to: (1) separate the problem from other problems, including overlap syndromes (pain/fatigue [eg, fibromyalgia or osteoarthritis] and affective/fatigue [eg, depression]), other direct causes of fatigue (eg, sleep disorders, disease), and fatigability[85]; and, (2) effectively manage the problem and optimize rehabilitation outcomes and physical activity goals for older patients experiencing fatigue. Ultimately, patients are likely to benefit if their physical therapist is aware of when and how they are experiencing fatigue.

It is hoped that this perspective article will be thought-provoking and increase awareness among physical therapists of the problem of aging-related fatigue, a problem likely to be experienced by a significant proportion of their patients and affect outcomes of their interventions. Fatigue is still an evolving concept. With clearer definitions and greater consensus among researchers and clinicians, understanding of causes, and methods of prevention, management, and treatment also will advance. In the absence of research evidence, however, physical therapists attentive to what their patients experience and how their patients' fatigue symptoms respond to treatments will be likely to provide more effective management.

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Appendix.

Suggested Checklist for Assessment of Content Validity of Self-Reported Fatigue Questionnaires for the Purpose of Measuring Aging-Related Fatigue

Comprehensiveness (questionnaire should cover the full breadth of the construct)
A subjective feeling of generalized tiredness, weariness, or exhaustion
Unpleasant, pervasive, or overwhelming
Enduring or persistent
Abnormal; no apparent cause or nonfunctional (serves no purpose)
Affects physical, mental, emotional, or social functioning
Creates a desire to rest or sleep or leads to rest-seeking behavior
It is not, or only partially, relieved by rest, sleep, or distraction
Relevance (questionnaire should not include items that could be a different construct)
Do any of the items ask specifically about actual cognitive ability, mood level, or level of motivation?
Do any of the items relate to feelings following physical activity (exertion fatigue) or intense mental activity?
Do any of the items relate to sleepiness?
Do any of the items ask about a problem not necessarily related to fatigue?
Item-level validity (questionnaire should be appropriate for the intended population)
Are all the items in the questionnaire appropriate for older people, of either sex, in any setting?
Are there more than 5 response options?
Does the questionnaire require recall over a long period of time?

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