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978-0-521-68099-8 - Falls in Older People: Risk Factors and Strategies for Prevention, Second Edition

Stephen R. Lord, Catherine Sherrington, Hylton B. Menz and Jacqueline C. T. Close

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Falls in Older People

The first edition of this very successful book was written to synthesize and review the large body of work covering falls in older people. Since then, there has been an even greater wealth of informative and promising studies designed to increase our understanding of falls risk factors and prevention strategies.

The book is written in three parts: epidemiology and falls risk factors, strategies for prevention, and future research directions. New material covers studies of tripping, slipping and stepping that accurately reflect situations in which people fall, and recent research on visual, neuropsychological and medical risk factors. The book also reviews the numerous new randomized controlled trials that have examined the effects of exercise, visual, cardiovascular and environmental interventions in preventing falls.

The new edition will be an invaluable update for medical practitioners, physiotherapists, occupational therapists, nurses, researchers, health service managers and healthcare workers in the disciplines of public health, injury and occupational health.

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From reviews of the first edition:

‘... ‘must have’ for all geriatricians, PAMs and nurses concerned with falls prevention, both in hospitals and community settings... I liked in particular the practical section on prevention of falls in institutions, which should be distributed through all nursing facilities in the UK.’

W. Reid, Doctors.net

‘This work bridges the gap between highly specialised journal articles and the often sketchy and superficial chapters on this topic that appear in many textbooks. It is clearly written and can be highly recommended to students, medical practitioners (including geriatricians and rheumatologists), nurses, physiotherapists and occupational therapists, and research workers in the field of gerontology and geriatrics.’ *Steven Boonen, Clinical Rheumatology*

‘... provides all the information in a very handy and readable form that anyone setting up a falls clinic could wish for... this is a book written by experts who have first hand experience of the academic and practical issues involved in identifying patients at risk and the interventions needed to prevent further falls. I strongly recommend it, not just to clinicians, but to nurses, physiotherapists, occupational therapists, podiatrists, and indeed anyone with a professional interest in this problem’. *P. W. Overstall, Gerontology*

‘This is one of the most important evidence-based texts focusing on falls in older people to emerge in recent years... this book is meticulously researched and is a very welcome addition to the vast literature on falls prevention.’ *British Journal of Occupational Therapy*

‘Whom will this book benefit? All to whom the care of the elderly is entrusted on a regular and continuing basis... it is well produced and printed.’ *Roy Archibald, Ergonomics*

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Risk factors and strategies for prevention

Second Edition

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Preface

In the preface to the first edition of this book published in 2001, we remarked on the enormous amount of work on risk factors for falling in older people and falls prevention strategies published in the last two decades of the twentieth century. As shown in Figure 1.0, an even larger body of research has been published in the international literature in the subsequent five years. Much has happened in this time and there have been many substantial gains in the evidence base that has increased our understanding of falls risk factors and prevention strategies. Listed below are some highlights of progress and encouraging findings.

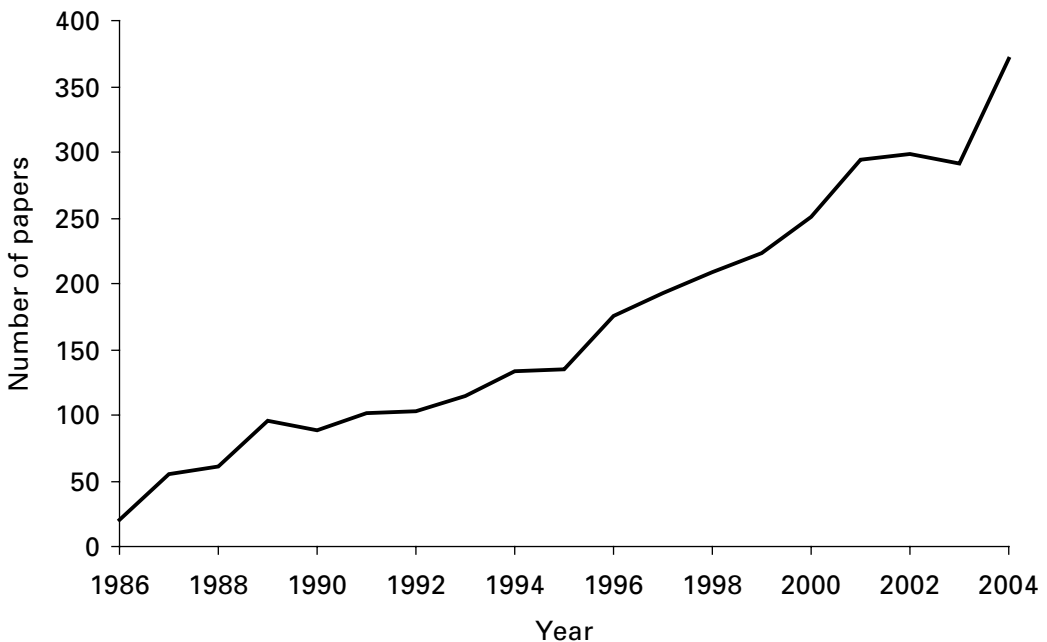


Fig. 1.0 Research publications pertaining to falls in older people between 1986 and 2004 (Source: Medline).

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- Studies aimed at understanding balance have evolved more to using paradigms such as tripping, slipping and stepping that more accurately reflect situations in which people fall.
- Several studies have found that contrast sensitivity and depth perception are the most important visual risk factors for falls. It has also been shown that multifocal glasses may add to this risk because near-vision lenses impair distance contrast sensitivity and depth perception in the lower visual field.
- A large body of neuropsychological research has shown that balance activities that were generally considered to be reflex or automatic require attention, and that older people who have difficulties undertaking dual tasks are at increased risk of falls.
- There is increased evidence of the role that syncope plays in unexplained falls.
- The rationale for vitamin D supplementation as a falls prevention strategy for older people has been strengthened by cohort and intervention studies.
- A well designed randomized controlled trial has found that maximizing vision through cataract surgery is an effective falls prevention strategy.
- The role of environmental assessment/modification and safety education undertaken by trained professionals has been strengthened.
- Two randomized controlled trials have shown that falls can be prevented in hospital patients.
- Finally, and most strikingly, a raft of randomized controlled trials has examined the effects of a range of contrasting exercise interventions in preventing falls. From this large body of evidence it is now possible to conclude that effective exercise programmes comprise challenging and progressive, weight-bearing balance exercises.

Two areas of investigation have been less encouraging and will require further research and consideration.

- Intervention studies aimed at the prevention of falls in older people with dementia have not been successful, despite well planned and executed studies.
- Despite initial encouraging findings, well conducted randomized controlled trials have found that hip protectors are not an effective strategy for preventing fractures, with much of the lack of efficacy due to poor compliance.

The aim of this second edition is to review and incorporate the new material that has been published in journal articles, to provide healthcare workers with a means for gaining access to current thinking and best clinical practice. As suggested in the title, the book has two major themes: falls risk factors and falls prevention strategies.

Part I includes an initial chapter on the epidemiology of falls and fall-related injuries in older people. Chapters 2 to 8 present critical appraisals of the many posited falls risk factors, addressed under the headings of postural stability, gait,

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sensory and neuromuscular, psychological, medical, medication and environmental risk factors. In Chapter 9, the importance of the risk factors in each of the above domains is weighted as weak, moderate or strong, using evidence from published studies.

Part II addresses falls prevention strategies. An initial overview provides an outline of falls prevention strategies which address the multitude of falls risk factors. The first two chapters (Chapters 10 and 11) summarize the very large body of published findings on the role exercise can play in preventing falls and improving physical function in older people. Chapter 12 presents guidance for a systematic approach to the medical management of older persons at risk of falling, including management of medication use. Chapters 13 and 14 examine the role of specific intervention strategies such as the use of safe footwear, aids and appliances, and environmental modifications for preventing falls and fall injury. In Chapter 15, suggested strategies for preventing falls in institutions are summarized and discussed. Chapter 16 describes a novel profile system for quantifying an individual's risk of falling and targeting intervention strategies. The final chapter (Chapter 17) synthesizes the evidence on successful falls prevention strategies and collates the information in a format that can be used to facilitate the translation of research findings into routine clinical practice.

Part III contains a single chapter which reviews the research issues that still need to be addressed in this field.

In each chapter we have attempted to be analytical in nature. Thus, we have not simply presented lists of the many and varied factors that have been suggested as possible (but unproven) risk factors for falls and the suggested (but untested) falls prevention strategies. Instead, we have attempted to evaluate the evidence for each factor implicated with falls to determine whether they constitute important areas for consideration and intervention. For example, we present arguments that challenge some traditional approaches to the management of older persons at risk of falls. We question the utility of falls risk assessment based solely on diagnoses of disease processes and the value of standard clinical tests of vision, sensation, strength and balance. We also discuss the role of particular medications in predisposing older people to falls and why factors such as alcohol use, vestibular disorders and postural hypotension (which are considered important risk factors in clinical practice) have not been demonstrated to be significant risk factors for falls in well planned epidemiological studies. With regard to interventions, we examine the effectiveness of suggested strategies for preventing falls and question the value of certain exercise interventions and prevention strategies that do not take participant compliance issues into account.

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As neurophysiological factors have been found to be key factors in the prediction and prevention of falls, this book places a major emphasis on these. Findings from our own studies have highlighted tests that have great utility in that they are reliable and highly predictive of falls. As outlined in Chapter 16, these tests can be used in a 'profile' based approach to falls risk which is aimed at identifying specific impairments in the major sensorimotor systems that contribute to balance, i.e. vision, peripheral sensation, strength and reaction time as well as measures of sway and stability. This enables intervention strategies to be tailored to address an individual's specific deficits.

The length of the chapters in this book varies considerably. The longer chapters are in areas in which there is a greater amount of available evidence on which to base falls risk factor assessment and the development of prevention strategies.

We hope this book will be of interest to medical and allied health care undergraduate and postgraduate students, medical practitioners, nurses, physiotherapists, occupational therapists, podiatrists, research workers in the fields of gerontology and geriatrics, health service managers, and scientists and health care workers in the disciplines of public health, injury and occupational health. We feel that this book is of relevance to those working in community, hospital and residential aged care settings.

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