

A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO MANAGEMENT UPDATE OF FUNCTIONAL DECLINE IN OLDER ADULTS 2012 –

Available as free full-text and some requiring payment

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – Defining frailty and sarcopenia

Cooper C, Dere W, Evans W, Kanis JA, Rizzoli R, Sayer AA, Sieber CC, Kaufman JM, Abellan van Kan G, Boonen S, Adachi J, Mitlak B, Tsouderos Y, Rolland Y, Reginster JY. Frailty and sarcopenia: definitions and outcome parameters. Osteoporos Int. 2012 Jan 31. [Epub ahead of print] PubMed PMID: 22290243.

URL: <http://dx.doi.org/10.1007/s00198-012-1913-1> (payment required)

MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, England, UK, cc@mrc.soton.ac.uk.

ABSTRACT

An operational definition of musculoskeletal decline in older people is needed to allow development of interventions for prevention or treatment, as was developed for the treatment of osteoporosis. Frailty and sarcopenia are linked, but distinct, correlates of musculoskeletal aging that have many causes, including age-related changes in body composition, inflammation, and hormonal imbalance. With the emergence of a number of exciting candidate therapies to retard the loss of muscle mass with aging, the derivation of a consensual definition of sarcopenia and physical frailty becomes an urgent priority. Although several consensual definitions have been proposed, these require clinical validation. An operational definition, which might provide a threshold for treatment/trial inclusion, should incorporate a loss of muscle mass as well as evidence of a decrease in muscle strength and/or physical activity. Evidence is required for a link between improvements in the measures of muscle strength and/or physical activity and clinical outcomes to allow development of interventions to improve clinical outcomes in frail older patients. PMID: 22290243 [PubMed - as supplied by publisher]

READING 2 – Physical activity in preventing frailty

Landi F, Abbatecola AM, Provinciali M, Corsonello A, Bustacchini S, Manigrasso L, Cherubini A, Bernabei R, Lattanzio F. Moving against frailty: does physical activity matter? Biogerontology. 2010 Oct;11(5):537-45. Epub 2010 Aug 10. Review. PubMed PMID: 20697813.

URL: <http://dx.doi.org/10.1007/s10522-010-9296-1> (payment required)

Department of Gerontology and Geriatrics, Catholic University of Sacred Heart, Rome, Italy.

ABSTRACT

Frailty is a common condition in older persons and has been described as a geriatric syndrome resulting from age-related cumulative declines across multiple physiologic systems, with impaired homeostatic reserve and a reduced capacity of the organism to resist stress. Therefore, frailty is considered as a state of high vulnerability for adverse

health outcomes, such as disability, falls, hospitalization, institutionalization, and mortality. Regular physical activity has been shown to protect against diverse components of the frailty syndrome in men and women of all ages and frailty is not a contra-indication to physical activity, rather it may be one of the most important reasons to prescribe physical exercise. It has been recognized that physical activity can have an impact on different components of the frailty syndrome. This review will address the role of physical activity on the most relevant components of frailty syndrome, with specific reference to: (i) sarcopenia, as a condition which frequently overlaps with frailty; (ii) functional impairment, considering the role of physical inactivity as one of the strongest predictors of physical disability in elders; (iii) cognitive performance, including evidence on how exercise and physical activity decrease the risk of early cognitive decline and poor cognition in late life; and (iv) depression by reviewing the effect of exercise on improving mood and increasing positive well-being.

PMID: 20697813 [PubMed - indexed for MEDLINE]

READING 3 – Physical exercise as preventive or disease-modifying treatment of dementia and brain aging

Ahlskog JE, Geda YE, Graff-Radford NR, Petersen RC. Physical exercise as a preventive or disease-modifying treatment of dementia and brain aging. *Mayo Clin Proc.* 2011 Sep;86(9):876-84. Review. PubMed PMID: 21878600; PubMed Central PMCID: PMC3258000.

URL: [http://linkinghub.elsevier.com/retrieve/pii/S0025-6196\(11\)65219-1](http://linkinghub.elsevier.com/retrieve/pii/S0025-6196(11)65219-1) (payment required)

Department of Neurology, Mayo Clinic, Rochester, MN 55905, USA. eahlskog@mayo.edu

ABSTRACT

A rapidly growing literature strongly suggests that exercise, specifically aerobic exercise, may attenuate cognitive impairment and reduce dementia risk. We used PubMed (keywords exercise and cognition) and manuscript bibliographies to examine the published evidence of a cognitive neuroprotective effect of exercise. Meta-analyses of prospective studies documented a significantly reduced risk of dementia associated with midlife exercise; similarly, midlife exercise significantly reduced later risks of mild cognitive impairment in several studies. Among patients with dementia or mild cognitive impairment, randomized controlled trials (RCTs) documented better cognitive scores after 6 to 12 months of exercise compared with sedentary controls. Meta-analyses of RCTs of aerobic exercise in healthy adults were also associated with significantly improved cognitive scores. One year of aerobic exercise in a large RCT of seniors was associated with significantly larger hippocampal volumes and better spatial memory; other RCTs in seniors documented attenuation of age-related gray matter volume loss with aerobic exercise. Cross-sectional studies similarly reported significantly larger hippocampal or gray matter volumes among physically fit seniors compared with unfit seniors. Brain cognitive networks studied with functional magnetic resonance imaging display improved connectivity after 6 to 12 months of exercise. Animal studies indicate that exercise facilitates neuroplasticity via a variety of biomechanisms, with improved learning outcomes. Induction of brain neurotrophic factors by exercise has been confirmed in multiple animal studies, with indirect evidence for this process in humans. Besides a brain neuroprotective effect, physical exercise may also attenuate cognitive decline via mitigation of cerebrovascular risk, including the contribution of small vessel disease to dementia. Exercise should not be overlooked as an important therapeutic strategy.

PMCID: PMC3258000 [Available on 2012/3/1] PMID: 21878600 [PubMed - indexed for MEDLINE]

READING 4 – Geriatric assessment tools

Rosen SL, Reuben DB. Geriatric assessment tools. Mt Sinai J Med. 2011 Jul-Aug;78(4):489-97. doi: 10.1002/msj.20277. Review. PubMed PMID: 21748738. 4. Mt Sinai J Med. 2011 Jul-Aug;78(4):489-97. doi: 10.1002/msj.20277.

URL: <http://dx.doi.org/10.1002/msj.20277> (payment required)

David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. srosen@mednet.ucla.edu

ABSTRACT

In addition to medical diseases, psychological, social, cognitive, and functional issues influence the health of older persons. Therefore, the traditional medical assessment alone is often not enough to evaluate the older population with multiple comorbidities. Out of this recognized need, the geriatric assessment has been developed, which emphasizes a broader approach to evaluating contributors to health in older persons. Geriatric assessment uses specific tools to help determine patient's status across several different dimensions, including assessment of medical, cognitive, affective, social, economic, environmental, spiritual, and functional status. This article reviews specific tools that practitioners can use in their screening for the following geriatric syndromes: hearing impairment, vision impairment, functional decline, falls, urinary incontinence, cognitive impairment, depression, and malnutrition. This article also reviews spiritual, economic, and social assessment. By identifying conditions that are common in the elderly, geriatric assessment can provide substantial insight into the comprehensive care of older persons, from those who are healthy and high-functioning to those with significant impairments and multiple comorbidities. PMID: 21748738 [PubMed - indexed for MEDLINE]

READING 5 – Collaborative effects of diet and exercise on cognitive enhancement

Gomez-Pinilla F. Collaborative effects of diet and exercise on cognitive enhancement. Nutr Health. 2011;20(3-4):165-9. Review. PubMed PMID: 22141190; PubMed Central PMCID: PMC3258096.

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3258096/?tool=pubmed> (free full text)

Department of Integrative Biology and Physiology, University of California Los Angeles, Los Angeles, CA 90095, USA. fgomezpi@ucla.edu

ABSTRACT

Certain dietary factors, such as omega-3 fatty acids and curcumin, are reviewed in their context of stimulating molecular systems that serve synaptic function, while diets rich in saturated fats do the opposite. In turn, exercise, using similar mechanisms as healthy diets, displays healing effects on the brain such as counteracting the mental decline associated with age and facilitating functional recovery resulting from brain injury and disease. Diet and exercise are two noninvasive approaches that used together may enhance neural repair. Omega 3 fatty acids and curcumin elevate levels of molecules important for synaptic plasticity such as brain-derived neurotrophic factor (BDNF), thus benefiting normal brain function and recovery events following brain insults. PMCID: PMC3258096 PMID: 22141190 [PubMed - indexed for MEDLINE]

READING 6 – Home blood pressure monitoring reduces long-term risk

Sheikh S, Sinha AD, Agarwal R. Home blood pressure monitoring: how good a predictor of long-term risk? *Curr Hypertens Rep.* 2011 Jun;13(3):192-9. Review. PubMed PMID: 21327567; PubMed Central PMCID: PMC3124655.

URL: <http://dx.doi.org/10.1007/s11906-011-0193-z> (payment required)

Roudebush VA Medical Center, Indiana University School of Medicine, Indianapolis, IN, USA.

ABSTRACT

Most management decisions for the diagnosis and treatment of hypertension are made using blood pressure (BP) measurements made in the clinic. However, home BP recordings may be of superior prognostic value. In this review, we show that home BP recordings are generally superior to clinic BP measurements in predicting long-term prognosis. Home BP has been shown to significantly predict important end points including all-cause mortality, progression of chronic kidney disease, and functional decline in the elderly. In addition, home BP recordings significantly and strongly predict cardiovascular events. These findings are robust, as they concur despite having been studied in disparate populations, using heterogeneous methods of clinic and home BP measurement, and with varied methods of statistical analysis. The advantages of home BP recordings are not due solely to a larger number of measurements, and they extend to the elderly, patients with chronic kidney disease, and those on hemodialysis. Because home BP recordings combine improved accuracy with the advantages of low cost and easy implementation, most patients with known or suspected hypertension should have their BP assessed and managed by means of home BP recordings.

PMCID: PMC3124655 [Available on 2012/6/1] PMID: 21327567 [PubMed - indexed for MEDLINE]

READING 7 – Home care supporting clinics for frail elderly persons living alone in Japan

Akiyama A, Hanabusa H, Mikami H. Characteristics of home care supporting clinics providing home care for frail elderly persons living alone in Japan. *Arch Gerontol Geriatr.* 2011 Mar-Apr;52(2):e85-8. Epub 2010 Aug 21. PubMed PMID: 20732720.

URL: [http://linkinghub.elsevier.com/retrieve/pii/S0167-4943\(10\)00208-6](http://linkinghub.elsevier.com/retrieve/pii/S0167-4943(10)00208-6) (payment required)

Division of Health Sciences, Osaka University, Graduate School of Medicine, 1-7 Yamadaoka, Suita, Osaka 565-0871, Japan.

ABSTRACT

To explore the characteristics of home care supporting clinics providing home care for frail elderly persons living alone (EPLA), a self-administered questionnaire was mailed to 998 home care supporting clinics in the 23 wards of Tokyo, Japan between July and August 2009. Clinics providing home care for the frail EPLA significantly collaborated with 4 or more home visit nursing stations (42.5%) and 4 or more care managers (58.7%) and had sufficient medical care equipment, such as an oxygen inhaler, ventilator, and intravenous hyperalimentation. Sixty-one percent of the clinics which provided care for the 18 patients who died at home collaborated with 4 or more care managers. Our findings suggest that the factors enabling home care for frail EPLA are as follows: (1) collaboration with care managers, (2) collaboration with home visit nursing stations, (3) sufficient medical care equipment.

PMID: 20732720 [PubMed - indexed for MEDLINE]

READING 8 – Nursing home care – Clinical Aspects

Unwin BK, Porvaznik M, Spoelhof GD. Nursing home care: part II. Clinical aspects. Am Fam Physician. 2010 May 15;81(10):1229-37. Review. PubMed PMID: 20507047.

URL: <http://www.aafp.org/afp/2010/0515/p1229.html> (free full text)

Uniformed Services University of the Health Sciences, Bethesda, MD, USA. unwin@usuhs.mil

ABSTRACT

Comment in Am Fam Physician. 2010 May 15;81(10):1200.

Understanding the distinctions between the management of clinical problems in nursing homes compared with the community setting helps improve the overall care of nursing home residents. Liberalizing diets helps avoid unintentional weight loss in nursing home residents, although the use of feeding tubes usually does not improve nutrition or decrease aspiration risk. Medical assessment, treatment of comorbidities, and appropriate use of rehabilitation therapies minimize the frequency of falls. Toileting programs may be used to treat incontinence and retention in cooperative patients. Adverse effects and drug interactions should be considered when initiating pharmacologic treatment of overactive bladder. Urinary tract infection and pneumonia are the most common bacterial infections in nursing home residents. Signs and symptoms of infection include fever or hypothermia, and functional decline. Virus identification is recommended for influenza-like illnesses. Nonpharmacologic behavioral management strategies are the preferred treatment for dementia-related problem behaviors. The Beers criteria, which outline potentially inappropriate medication use in older persons, provide guidance for medication use in the nursing home. PMID: 20507047 [PubMed - indexed for MEDLINE]

READING 9 – Care of elderly patients with diabetes mellitus: a focus on frailty

Chen LK, Chen YM, Lin MH, Peng LN, Hwang SJ. Care of elderly patients with diabetes mellitus: a focus on frailty. Ageing Res Rev. 2010 Nov;9 Suppl 1:S18-22. Epub 2010 Sep 19. Review. PubMed PMID: 20849981.

URL: [http://linkinghub.elsevier.com/retrieve/pii/S1568-1637\(10\)00065-6](http://linkinghub.elsevier.com/retrieve/pii/S1568-1637(10)00065-6) (payment required)

Centre for Geriatrics and Gerontology, Department of Family Medicine, Taipei Veterans General Hospital, No 201, Shih-Pai Road Section 2, Taipei 112, Taiwan, ROC.

ABSTRACT

The prevalence and incidence of type 2 diabetes mellitus (DM) increase with age, and its diagnosis and treatment in older people present a challenge. Applying evidence to elderly patients can be problematic, because older persons with frailty, multiple comorbidities, and functional disabilities are generally excluded from diabetes clinical trials. Frailty is characterized by multisystem decline and vulnerability to adverse health outcomes. Insulin resistance predicts frailty, and DM accelerates muscle strength loss. Geriatric diabetes care guidelines have refocused from risk factor control to geriatric syndromes. The European Diabetes Working Party guidelines for elderly type 2 DM patients consider frailty, recommending a conservative target (hemoglobin A1c <8%). Diabetic care-home residents with physical disabilities, cognitive impairment, tube feeding, and the inability to communicate pose particular challenges. Tight glycemic control for such patients increases the risk of hypoglycemia and significant functional decline; a mean hemoglobin A1c <7% did not protect them from care-home-acquired pneumonia. In conclusion, caring for elderly diabetic patients poses unique challenges. Little is known about diabetes care of elderly people with frailty, disabilities, or multiple comorbidities. The interrelationship between frailty and DM deserves further investigation. Practice guidelines for care-home residents with DM are needed to ensure quality of care.

PMID: 20849981 [PubMed - indexed for MEDLINE]

READING 10 – Study protocol for Home-Based Older People's Exercise (HOPE) randomized control trial

Clegg A, Barber S, Young J, Forster A, Iliffe S. The Home-Based Older People's Exercise (HOPE) trial: study protocol for a randomised controlled trial. *Trials*. 2011 Jun 8;12:143. PubMed PMID: 21651805; PubMed Central PMCID: PMC3121609.

URL: <http://www.ncbi.nlm.nih.gov/pubmed/21651805> (free full text)

Academic Unit of Elderly Care & Rehabilitation, University of Leeds, Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Duckworth Lane, Bradford BD9 6RJ, UK. andrewpaulclegg@yahoo.co.uk

ABSTRACT

BACKGROUND: Frailty is common in older age, and is associated with important adverse health outcomes including increased risk of disability and admission to hospital or long-term care. Exercise interventions for frail older people have the potential to reduce the risk of these adverse outcomes by increasing muscle strength and improving mobility.

METHODS/DESIGN: The Home-Based Older People's Exercise (HOPE) trial is a two arm, assessor blind pilot randomised controlled trial (RCT) to assess the effectiveness of a 12 week exercise intervention (the HOPE programme) designed to improve the mobility and functional abilities of frail older people living at home, compared with usual care. The primary outcome is the timed-up-and-go test (TUGT), measured at baseline and 14 weeks post-randomisation. Secondary outcomes include the Barthel Index of activities of daily living (ADL), EuroQol Group 5-Dimension Self-Report Questionnaire (EQ-5D) quality of life measure and the geriatric depression scale (GDS), measured at baseline and 14 weeks post-randomisation. We will record baseline frailty using the Edmonton Frail Scale (EFS), record falls and document muscle/joint pain. We will test the feasibility of collection of data to identify therapy resources required for delivery of the intervention.

DISCUSSION: The HOPE trial will explore and evaluate a home-based exercise intervention for frail older people. Although previous RCTs have used operationalised, non-validated methods of measuring frailty, the HOPE trial is, to our knowledge, the first RCT of an exercise intervention for frail older people that includes a validated method of frailty assessment at baseline.

TRIAL REGISTRATION: ISRCTN: ISRCTN57066881. PMCID: PMC3121609 PMID: 21651805 [PubMed - indexed for MEDLINE]