Chiropractic Care for the Older Adult

Paul E. Dougherty, DC, DABCO

Staff Chiropractor, Canandaigua Veteran's Affairs Medical Center
Professor, Departments of Clinics and Research, New York Chiropractic College
Adjunct Assistant Professor of Orthopedics, University of Rochester School of Medicine and Dentistry

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Overview

- Background:
  - Older Adult Demographics
  - Personal Experience
- Unique Challenges of Evaluating the Older Adult
- Unique Challenges of Manual Therapy in the Older Adult
- Biopsychosocial Management of the Older Adult
  - Evidence based approach
  - Novel Model

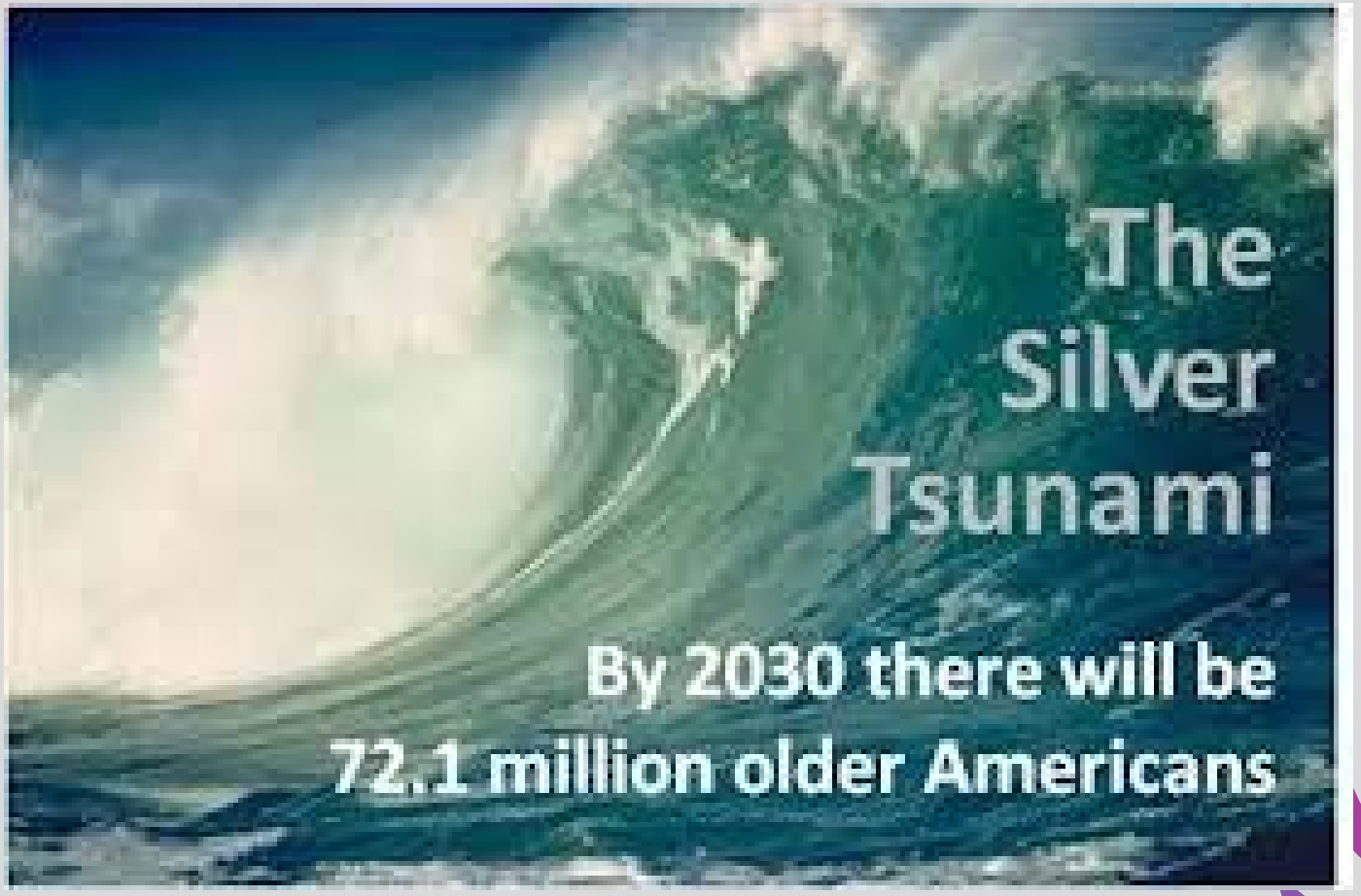
Demographics

- The Denmark population enjoys a relatively healthy life expectancy rate and it rates 45th in the world in this respect.

- The overall average is 78.3 years and this can be split between males at 75.6 years and females at 80.78 years.

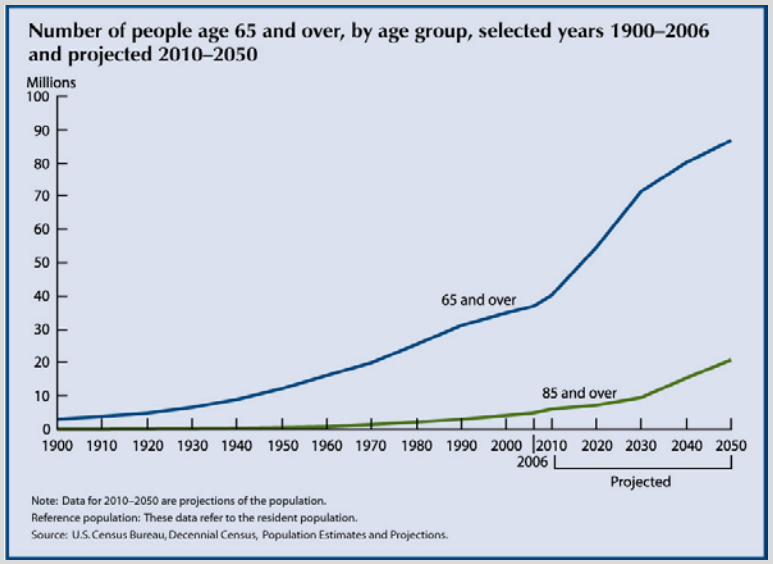
- age breakdown: 0-14 years: 17% //; - 15-59 years: 63% //; - 60+ years: 20%

The Silver Tsunami



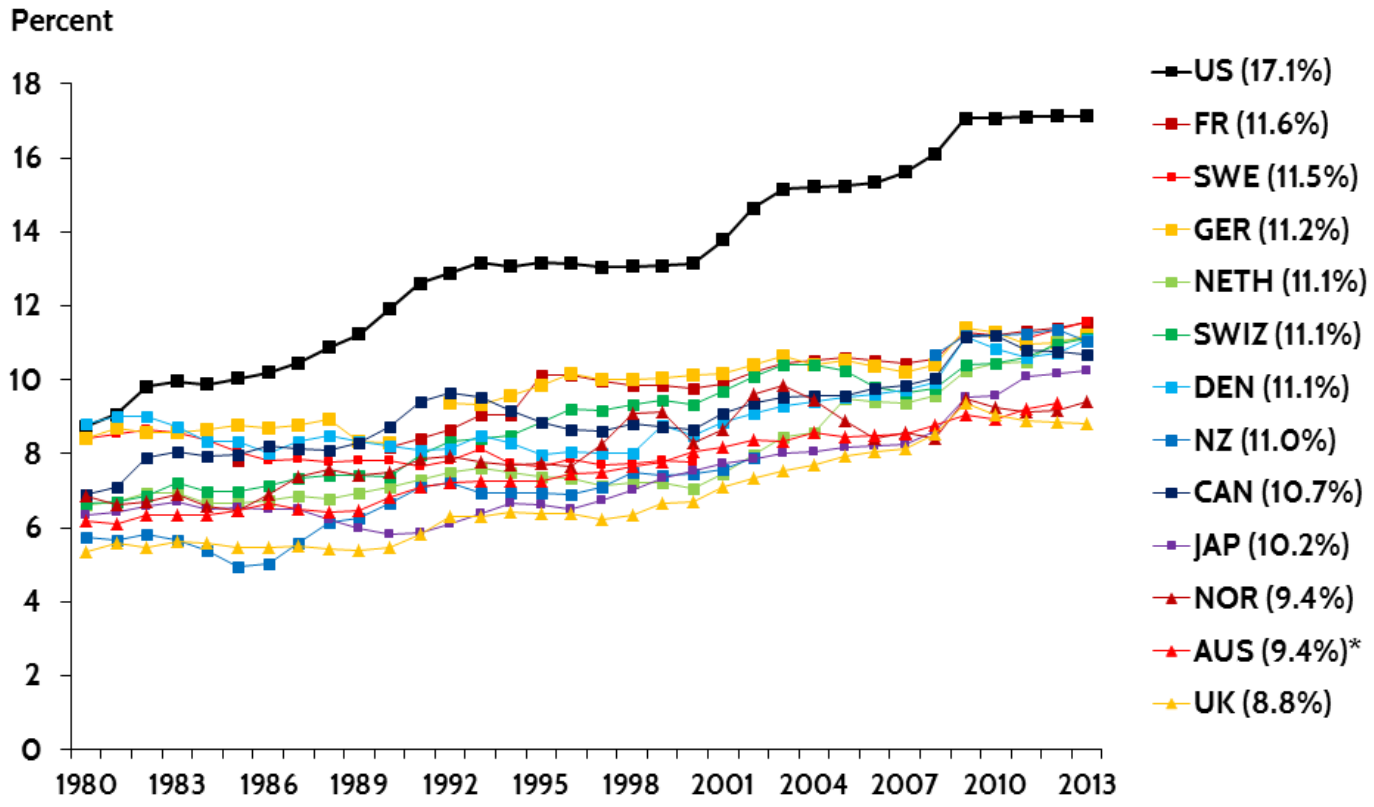
The Need

- It is projected that between 2010 and 2030, the over 65 year old population will increase over 70% representing approximately 20% of the United States population.



The Need

Exhibit 1. Health Care Spending as a Percentage of GDP, 1980–2013

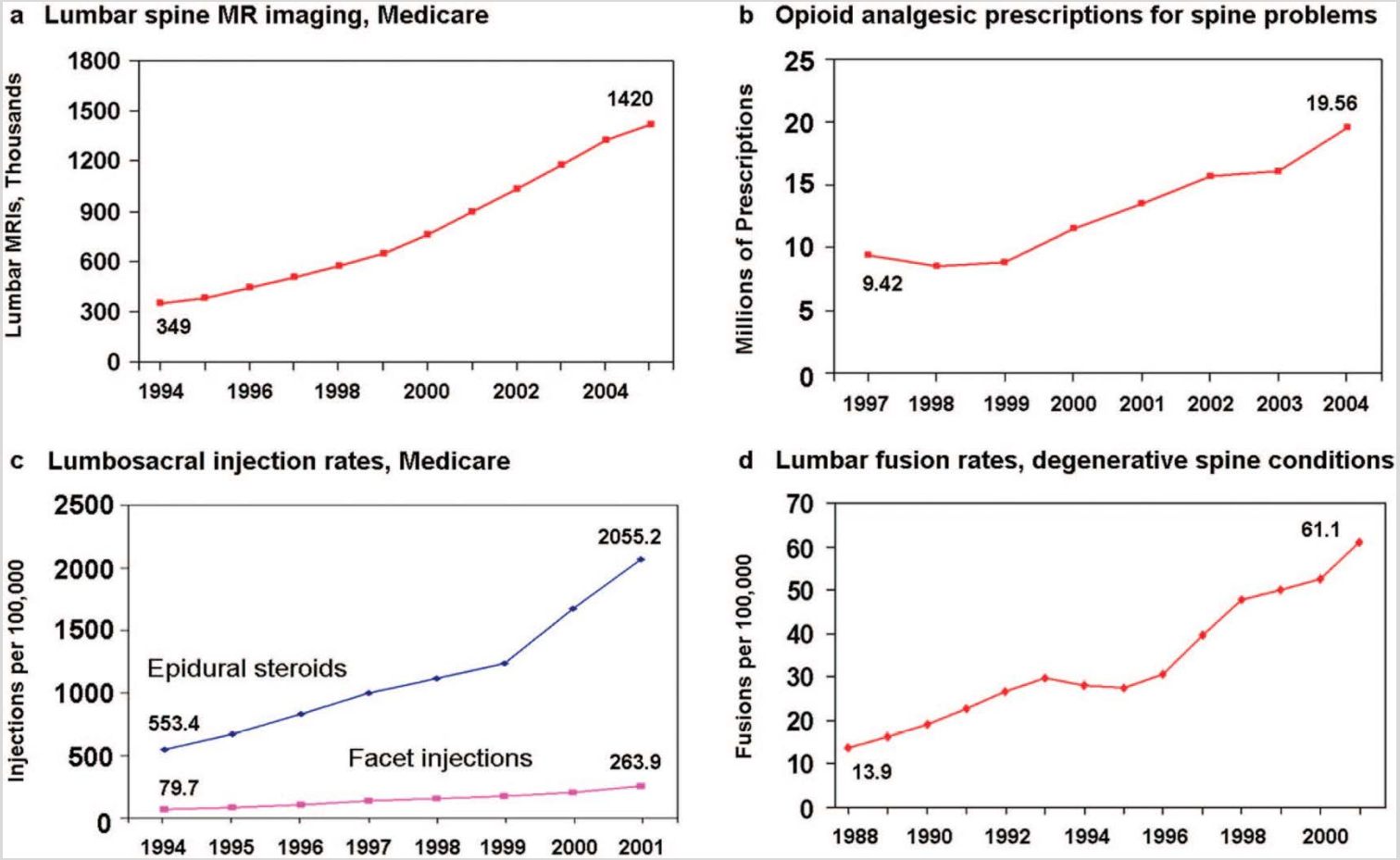


* 2012.

Notes: GDP refers to gross domestic product. Dutch and Swiss data are for current spending only, and exclude spending on capital formation of health care providers.

Source: OECD Health Data 2015.

Costs for back pain



Chronic Pain in the Older Adult

- “Pain is one of the most common complaints reported by older patients during office visits; these patients also are likely to have multiple medical problems and multiple sources of pain. Some of the most common complaints are musculoskeletal disorders manifesting as joint, leg and back discomfort.”
- *Geriatrics 2002 57(5):36-41*

Prevalence of Back Pain in Older Adults

- Survey of physician visits among patients 75 and older revealed back pain is the 3rd most frequently reported symptom in general and the most common musculoskeletal problem.
- Epidemiological report ranked back pain as the third leading cause of health problems in the >65 population.
- *Spine 1999 24(17):1813-19*

Personal Journey

- Private Practice
  - 12 years
- Procedures in Hospital
  - Manipulation Post Injection
- Monroe Community Hospital
  - Nursing Home
- Veterans Affairs Clinics
  - Integrated Environment

Long-Term Care Setting

- In 2002 New York Chiropractic College established the first ever chiropractic clinic in a University affiliated Long-term care Hospital in Rochester, NY.

Long-Term Care Setting: Goals of project

1. Establish a long-term research collaboration to investigate the efficacy of chiropractic care in the hospitalized geriatric population
2. Establish a teaching collaboration – teaching rounds for DC students
3. Education of medical staff with respect to chiropractic care

Long-Term Care Setting: Goals of project

4. Establish research agenda to *initially* evaluate ***safety*** of chiropractic treatment in this population
5. Evaluate relative strengths/weaknesses of chiropractic implementation in this setting
6. Identify possible weaknesses in current chiropractic training/education as it relates to this clinical setting

Publications from this project:

- Chiropractic care of musculoskeletal pain in multiple sclerosis patients. Clinical Chiropractic 2005;8:57-65.
- Complementary and alternative care in a long-term setting. Annals of Long Term Care: Clinical Care and Aging 2005;13:48-54.
- Role of chiropractic in a long-term care setting. Long-Term Care Interface 2005;6:33-8.

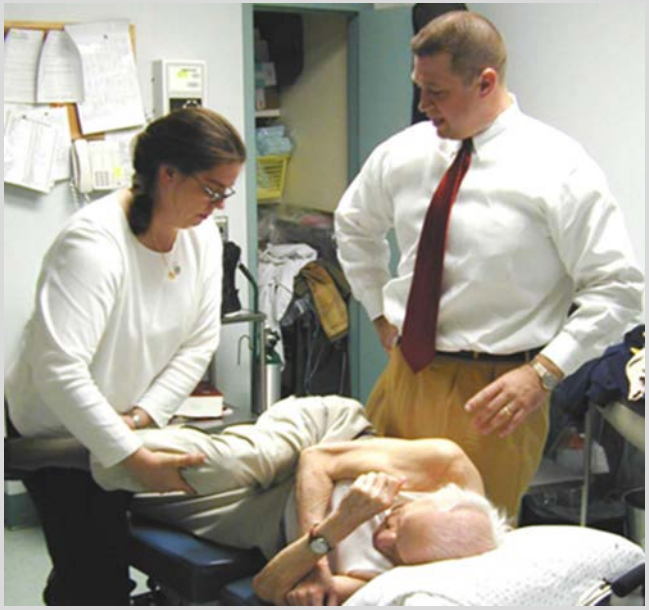
Publications from this project:

- Geriatricians' attitudes about chiropractic: A qualitative study with recommendations for medical and chiropractic education. *Best Practices in Complementary Care*.

- Spinal manipulative therapy for elderly patients with chronic obstructive pulmonary disease: a case series J Manipulative Physiol Ther. 2011 Jul-Aug;34(6):413-7. .

Monroe Community Hospital

- Lessons Learned:
  - Patient management in chronic illness
  - Novel approaches to the use of manual therapy in a unique setting
  - Safety of Manual Therapy



Unique Challenges in Evaluation of the Older Adult

Overview

- Patient history
- Physical Examination

Patient History

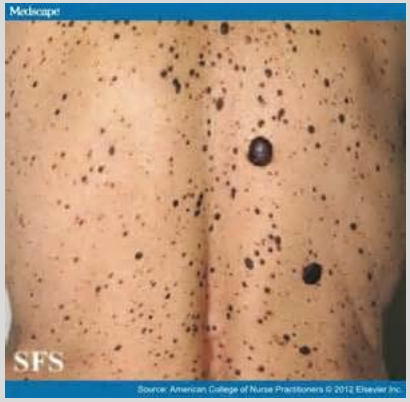
- Why do we take a patient history?
  - To ascertain:
    - History of present complaint
    - What diagnostic tests have been performed
    - What treatments have been performed
    - What the patients goals are
    - To establish a relationship with the patient

Patient History

- Special considerations for the older adult:
  - Keeping the patient on task
  - Listening for specific keys
    - Stenosis
    - Myelopathy
    - Early Parkinson's
  - Remembering that there may be cognitive deficits

Co-morbidities in older adults

- Systems Approach:
  - Cardiovascular
    - Ischemic Heart Disease – Chest pain
  - Pulmonary
    - COPD- Walking distance
  - Integument
    - Skin Lesions – benign versus malignant



Co-morbidities in older adults

- GI
  - Diverticulosis presenting as back pain
- GU
  - Incontinence – serious versus other
- Neurological
  - Myelopathy
  - Neurodegenerative
- Endocrine
  - DM
  - Thyroid

Patient History

- What treatments have been previously performed?
  - Were they effective?
  - Did they make the patient worse?
  - Were they ineffective?

Assessing Cognitive Function

- Mini Mental Status Examination
  - THE MMSE provides a brief method for recording and following the changes in cognitive state of older adults.
  - THE MMSE is a valid and reliable measure
  - J. Psychiatric Res. 1975

Mini-Mental Examination

	Score	Points
Orientation		
What is the		
Year?	____	1
Season?	____	1
Date?	____	1
Day?	____	1
Month?	____	1
Where are we		
County/Neighborhood?	____	1
State?	____	1
Town/city?	____	1
Name/address of building?	____	1
Floor?	____	1
Registration		
Name three objects, with 1-sec and pause between each. Give 1 point for each object the patient can name. Repeat the objects until the patient learns all three. Score for first trial	____	3
Attention and Calculation		
Ask the patient to substract 7 from 100 and continue to subtract 7 from the remainder (ie, serial 7's). Give 1 point for each correct answer. Stop after 5 answers.	____	5
Recall		
Ask the patient to name the three objects learned during registration. Give 1 point for each object the patient can name.	____	3
Naming		
Point to a pencil and a watch. Give 1 point for each object the patient can name.	____	2

	Score	Points
Repetition		
Have the patient repeat "No ifs, ands, or buts."	____	1
Comprehension		
Have the patient follow a three-stage command: "Take the paper in your right hand. Fold the paper in half. Put the paper on the floor." Give 1 point for each stage the patient can perform.	____	3
Reading		
Have the patient read and obey the following written command: "Close your eyes."	____	1
Writing		
Have the patient write a sentence of his or her choice. Give 1 point if the sentence contains a subject and an object and makes sense. Ignore spelling errors.	____	1
Drawing		
Enlarge the design printed below to 1 to 5 cm per side and have the patient copy it. Give 1 point if all of the sides and angles are preserved and if the intersecting sides form a quadrangle.	____	1
		
Total score	____	30

FIGURE 38–1. The Annotated Mini-Mental State Examination form. NOTE: A score of < 26 may indicate a need for further evaluation. However, cognitive performance as measured by this test varies according to the patient's age and educational level, as described in Crum RM, et al: "Population-based norms for the Mini-Mental State Examination by age and educational level." *Journal of the American Medical Association* 269:2386–2391, 1993. (Adapted from the Mini-Mental State Examination, copyright 1975 and 1998 Mini Mental LLC.)

Functional Assessment by Observation

- Did patient fill out paperwork?
- Can the patient hear and see?
- How would you judge patient's affect?
- Does s/he look put-together?
- Observe patient walk and get on exam table
- What kind of detail does patient give you in the history?

Physical Examination in the older adult

- Assess balance status
- Gait (wide based/ataxic/shuffling)
- Observation of spine
- Range of motion
  - Spinal
  - Extremity

Neurologic Examination

- Special considerations:
  - Reflexes
    - Dynamic Testing
  - Myotomes
    - Importance of “patient initiated contraction”
  - Sensory evaluation
    - Pinprick
    - Vibration
    - Proprioception

PHYSICAL EXAMINATION: Spondylotic myelopathy

- CERVICAL:
  - ROM
  - Reflexes (may see mixed presentation in the UE's with Myeloradiculopathy)
  - Retest the reflexes of the upper and lower extremity in "Dynamic Positions"

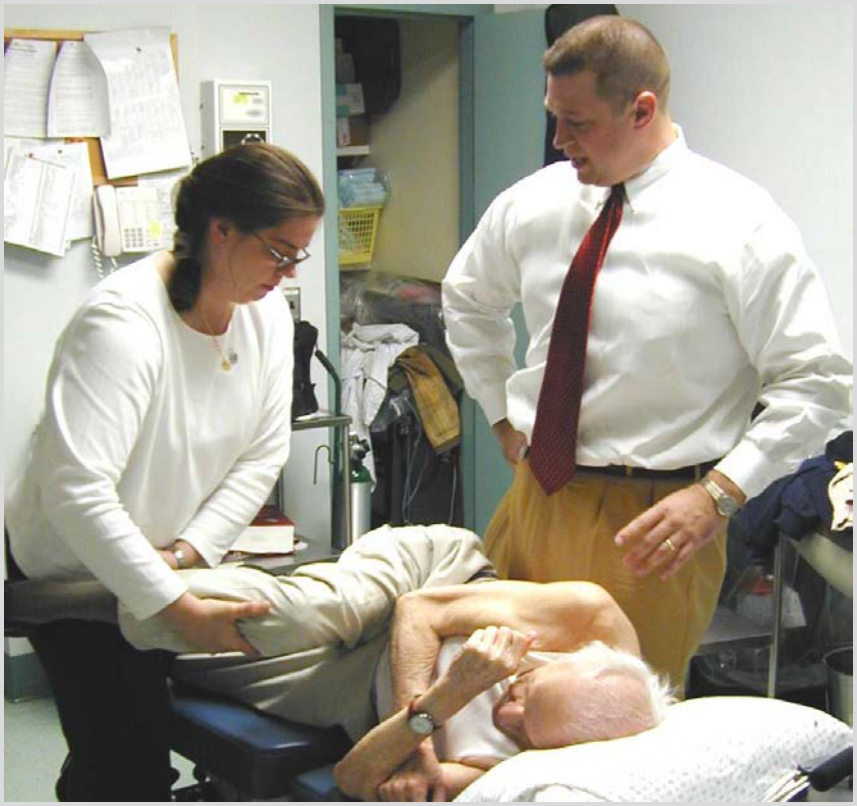
REMEMBER

- The history drives the differential
- The differential drives the treatment plan
- The treatment plan responsiveness drives the differential
- The differential drives the changes that need to be made

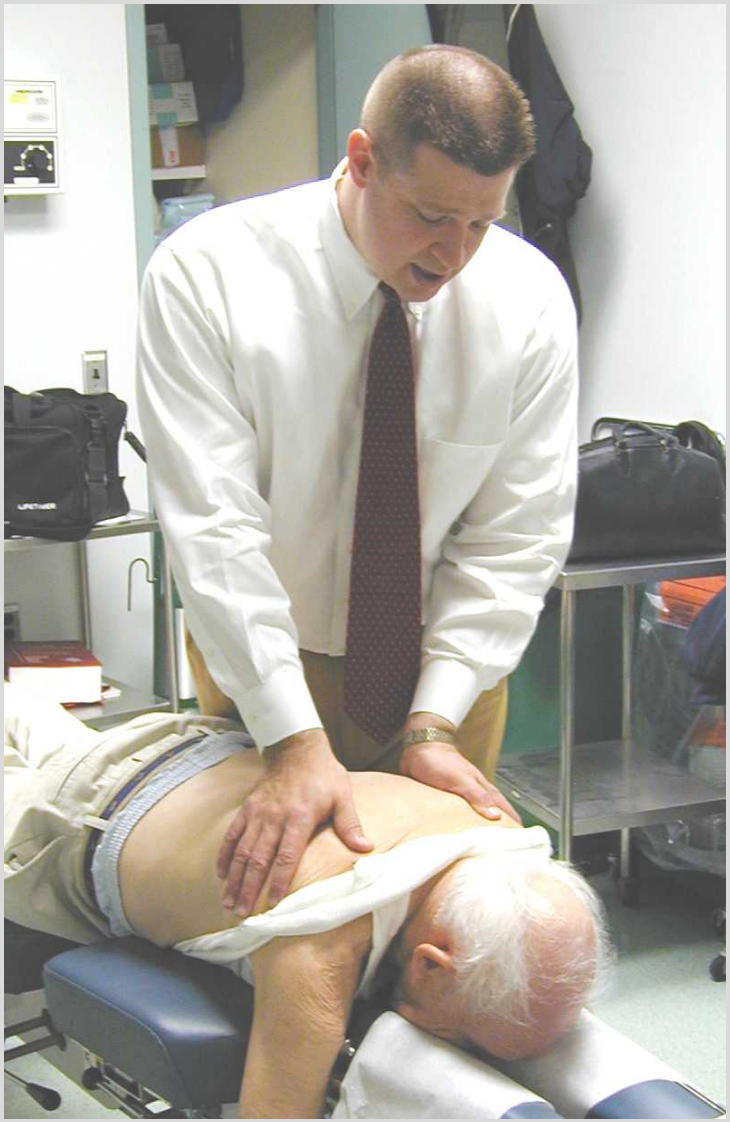
COMMON TREATMENT METHODS OF CHIROPRACTORS

- Spinal Manipulation
  - High Velocity, low amplitude
  - Flexion distraction
  - Soft Tissue Manipulation
  - Instrument Assisted SMT
- Exercise
- Nutritional advice

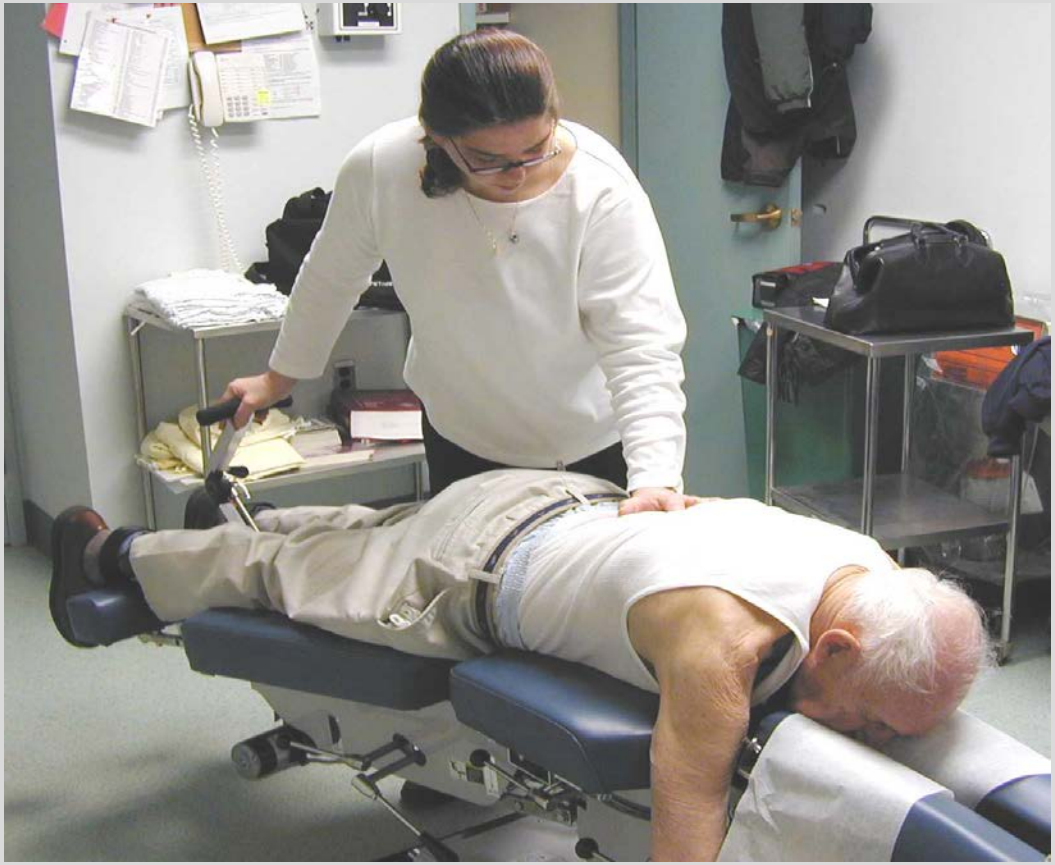
High Velocity Low Amplitude



High Velocity Low Amplitude

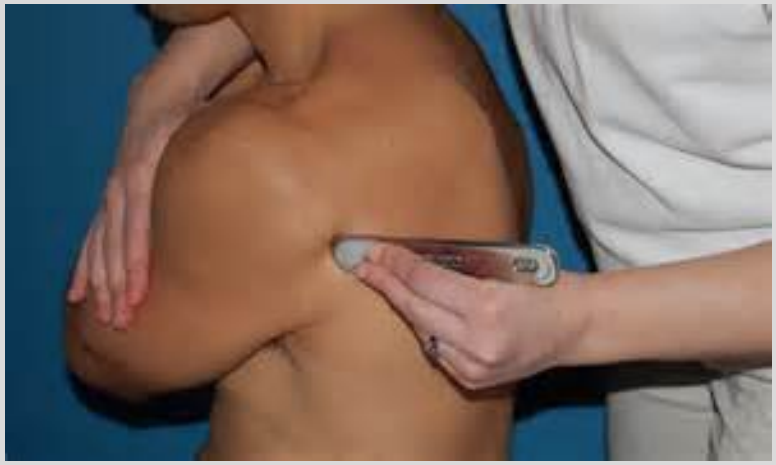


Flexion Distraction



Instrument Assisted Spinal Manipulative Therapy

Soft Tissue Techniques



SOME OF THE CONDITIONS TREATED BY CHIROPRACTORS

- Lower back pain
- Neck pain
- Thoracic spine pain
- Headaches
- Radicular pain syndromes
- Spinal Stenosis

The Problem

- Many treatment interventions exist for lower back pain (LBP), yet no one intervention has been shown to be superior to another.

- It is hypothesized that one of the reasons for this fact is the fundamental lack of understanding of back pain itself.

What are the needs?

- Evidence based treatment

- Evidence based prevention

Chiropractic Care for the older adult

- In 1998, the American Geriatric Society published guidelines on the management of chronic pain in older persons. These guidelines listed Chiropractic among the non-pharmacologic strategies for pain management that have been helpful in the elderly.
- *J. Am. Geriatr. Soc. 1998 46:635-51*

Treatment of Older Adults

- What are evidence based treatments for older adults?
  - Limited evidence for spinal manipulative therapy.

  - *Bronfort G, Haas M, Evans R, Leiniger B, Triano J. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat. Feb 25 2010;18(1):3.*

Recent Studies

- Pilot study of the effect of a limited and extended course of chiropractic care on balance, chronic pain, and dizziness in older adults. J Manipulative Physiol Ther. 2009 Jul-Aug;32(6):438-47.
- A randomized controlled trial comparing 2 types of spinal manipulation and minimal conservative medical care for adults 55 years and older with subacute or chronic low back pain. J Manipulative Physiol Ther. 2009 Jun;32(5):330-43.
- Comparison of bioenergetic synchronization technique and customary chiropractic care for older adults with chronic musculoskeletal pain. J Manipulative Physiol Ther. 2006 Sep;29(7):540-9.
- Chiropractic care for patients aged 55 years and older: report from a practice-based research program. J Am Geriatr Soc. 2000 May;48(5):534-45.

Mobility and Disability

- In older adults reduced mobility is common and is an independent risk factor for morbidity, hospitalization, disability, and mortality.

From: **Effect of Structured Physical Activity on Prevention of Major Mobility Disability in Older Adults: The LIFE Study Randomized Clinical Trial**

JAMA. 2014;311(23):2387-2396. doi:10.1001/jama.2014.5616

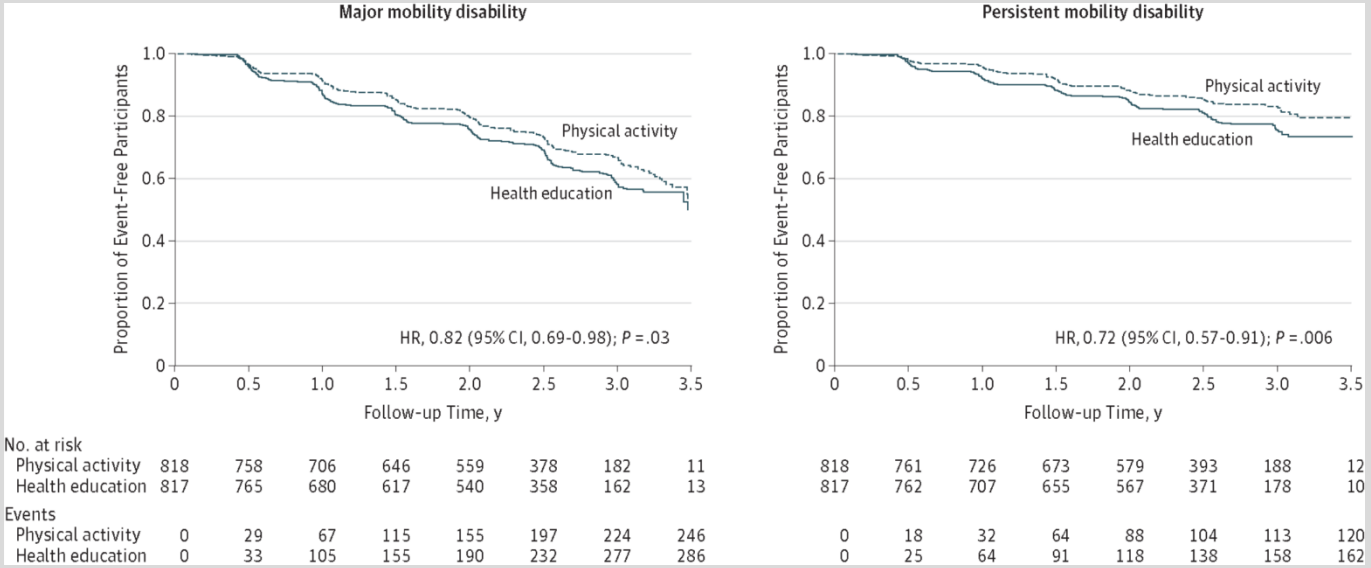


Figure Legend:

Effect of a Moderate Physical Activity Intervention on the Onset of Major Mobility Disability and Persistent Mobility DisabilityHR indicates hazard ratio. The graph for major mobility disability was truncated at 3.5 years and the health education group had 4 additional failures between 3.5 and 3.6 years of follow-up. Number of events represents cumulative events and adjusted HRs and P values are from proportional hazards regression models defined in the Methods section.

Take home point

- A structured, moderate-intensity physical activity program compared with a health education program reduced major mobility disability over 2.6 years among older adults at risk for disability. These findings suggest mobility benefit from such a program in vulnerable older adults.
  - JAMA. 2014;311(23):2387-2396.

Factors that influence mobility

- Maintaining stance during limb movements
- Performing transfers
- Stepping up and down

Most common risk factors

- Older age
- Low physical activity
- Obesity
- Strength or balance impairment
- Chronic diseases
  - Diabetes
  - Arthritis

Musculoskeletal Pain

- Musculoskeletal pain may be an important contributing factor in limiting mobility in the older adult. A recent study found that those older adults with chronic musculoskeletal pain had a much higher incidence of reduced mobility and lower health related quality of life.
  - *Mobility Limitations and Fall-Related Factors Contribute to the Reduced Health-Related Quality of Life in Older Adults With Chronic Musculoskeletal Pain. Pain Pract. 2014 Dec 3*

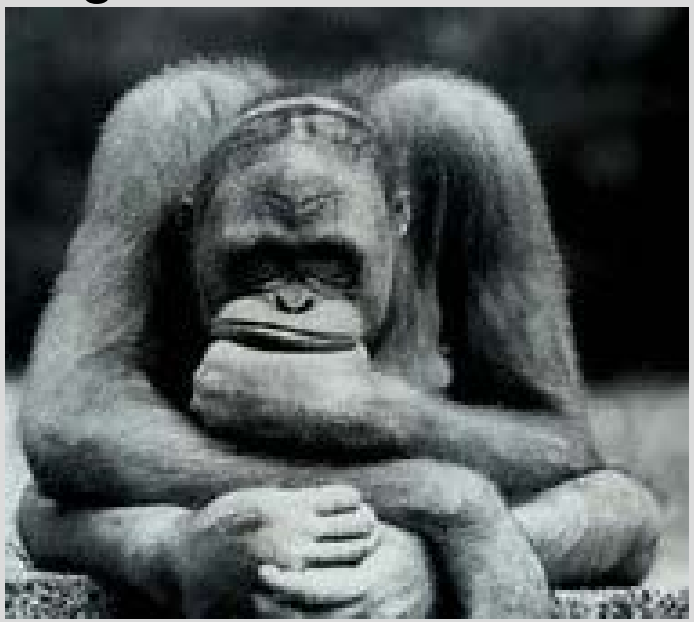
What does this have to do with chiropractors?

- The most common reason for seeking care with a chiropractor is musculoskeletal pain.

  – *Patients using chiropractors in North America: who are they, and why are they in chiropractic care? Spine. 2002;27:291–296.*

Assessing Mobility

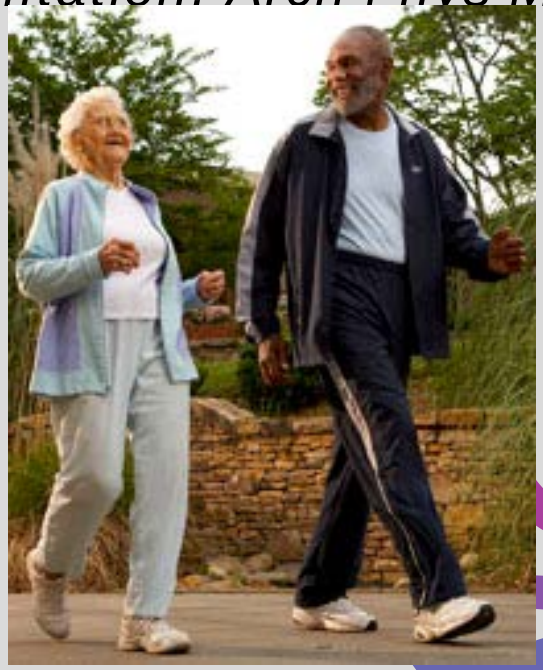
- To date no RCT's have established the optimal method for evaluating patients with mobility limitations, nor is there clear evidence for or against screening.



Assessing Mobility

- Self-reported difficulty with mobility may be helpful.

  - *Construct and predictive validity of a self-reported measure of preclinical mobility limitation. Arch Phys Med Rehabil. 2007;88(9):1108-1113.*



Assessing Mobility

- Among older adults without overt mobility limitations:
  - Asking if they have **changed the manner or frequency of doing a mobility task because of a health or physical condition** can identify patients with preclinical mobility limitations and may predict those who are at higher risk for impairment in the future.
    - Knee pain
    - helplessness
    - inability to rise from a chair five times

These factors predicted incident severe mobility difficulty within 12 months, independent of age.

- *Rivera JA, Fried LP, Weiss CO, Simonsick EM. At the tipping point: predicting severe mobility difficulty in vulnerable older women. J Am Geriatr Soc. 2008;56(8):1417-1423.*

Assessing Mobility

- Single Leg Stance
- Timed up and go
  - *These measures offer interval or ratio measurements and therefore provide a relative measure for improvement within each patient. However, the tasks included in these measures may have limited value in high-functioning individuals or be too difficult for impaired older adults.*

Assessing Mobility

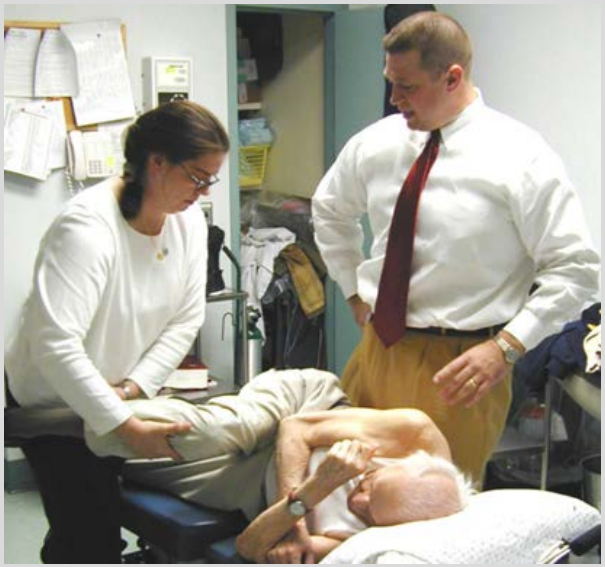
- Using progressively complex tasks including: standing balance, maximal leaning, reaching and pulling, sit-to-stand, gait, turns, stair descent and sideways step-in-tub offers the potential to avoid ceiling and floor effects.
  - *A life-space approach to functional assessment of mobility in the elderly. J Gerontol Soc Work. 2002;35:35-55.*

Managing Mobility issues

- What is the role of the chiropractor in addressing mobility issues in older adults?

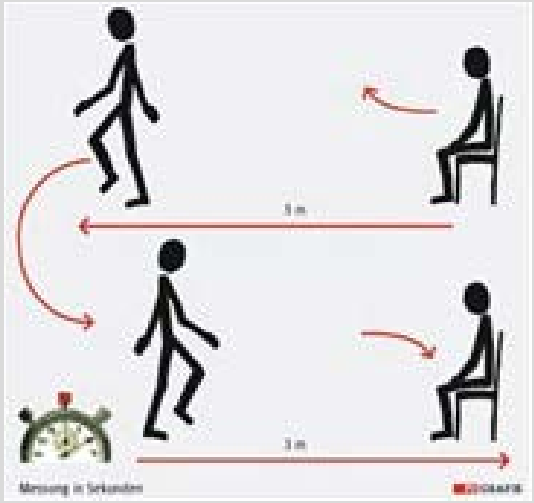
Spinal Manipulation

- Work of Pickar, Haavik and Murphy:
  - J Can Chiropr Assoc. 2014 Jun;58(2):149-59J
  - Electromyogr Kinesiol. 2012 Oct;22(5):768-76.



Spinal manipulation and Timed up and go

- SMT resulted in the same improvements in TUG as those undergoing sham therapy.
  - *Spinal Manipulative Therapy for Chronic Lower Back Pain in Older Veterans: A Prospective, Randomized, Placebo-Controlled Trial Geriatric Orthopaedic Surgery & Rehabilitation published online 6 August 2014*



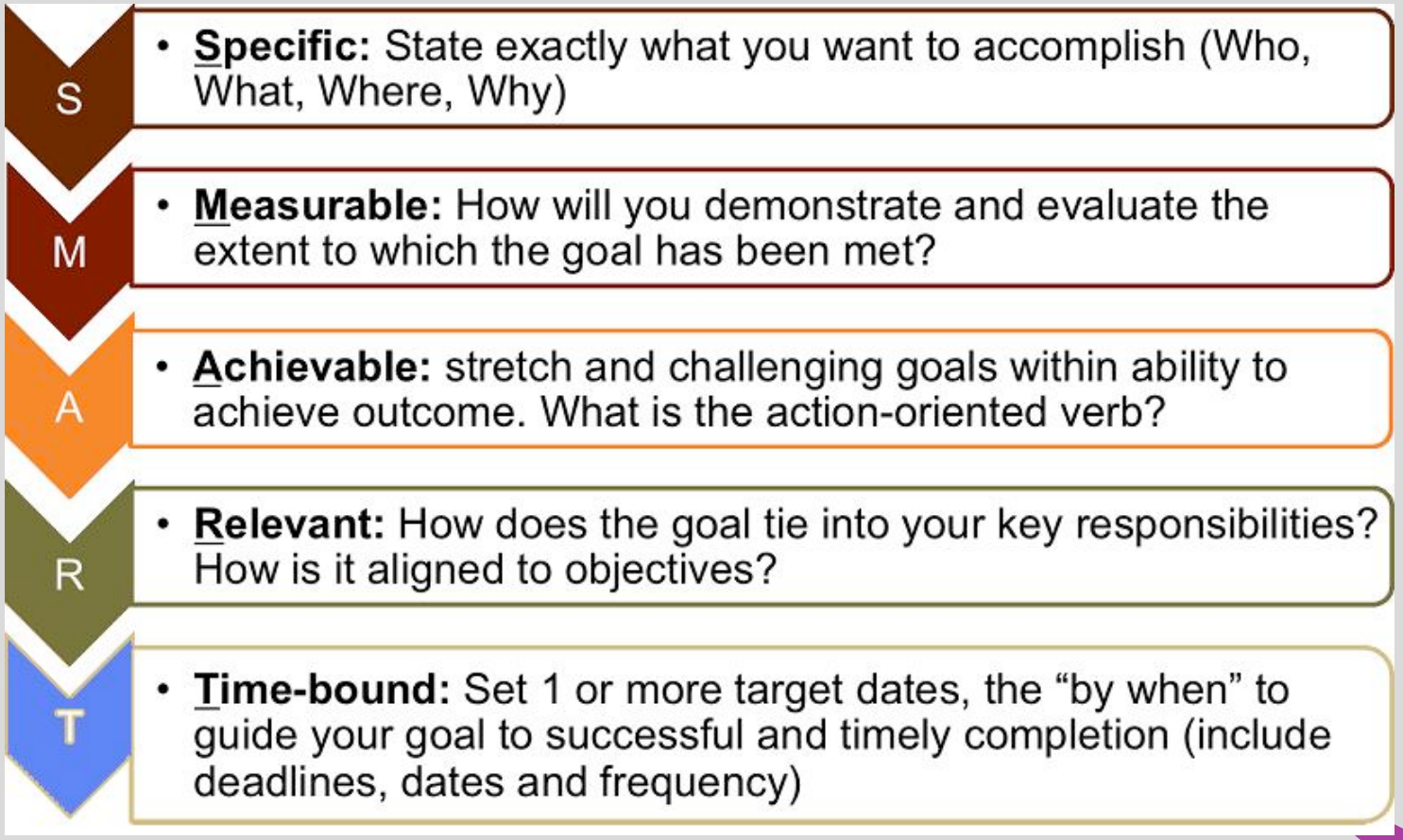
Other management tools

- There are significant data demonstrating that resistance and balance exercises can improve strength and balance, which are often implicated as a cause of mobility impairment.
  - An important component of any management program is the **provision of a home exercise program that complements the functional tasks provided by the clinician**.

Home exercise principles

- Goal oriented
  - SMART Goals
- Functional task
  - Make it practical
- Provide materials in an understandable format
  - 5th Grade reading level

SMART GOALS


S
• Specific: State exactly what you want to accomplish (Who, What, Where, Why)
M
• Measurable: How will you demonstrate and evaluate the extent to which the goal has been met?
A
• Achievable: stretch and challenging goals within ability to achieve outcome. What is the action-oriented verb?
R
• Relevant: How does the goal tie into your key responsibilities? How is it aligned to objectives?
T
• Time-bound: Set 1 or more target dates, the "by when" to guide your goal to successful and timely completion (include deadlines, dates and frequency)

Functional Tasks

- The program utilizes the SMART goal to achieve a specific task.

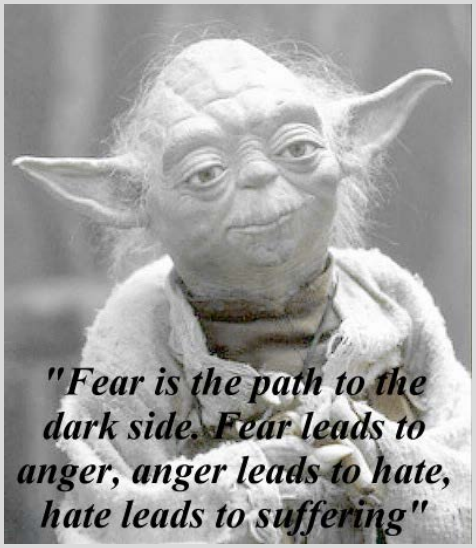
Educational materials

- Older adults represent the largest group of patients with compromised general and health literacy skills.

- Because of this potential complicating factor, it is helpful to provide written instructions with pictures. Ideally, patient education materials should be written at a 5th-grade reading level to ensure patient comprehension.

Psychosocial factors and mobility

- Fear Avoidance
  - "It's really not safe for a person with my back problem to be physically active"
- Catastrophizing (Poor coping)
  - "I feel that my back pain is terrible and it's never going to get better"



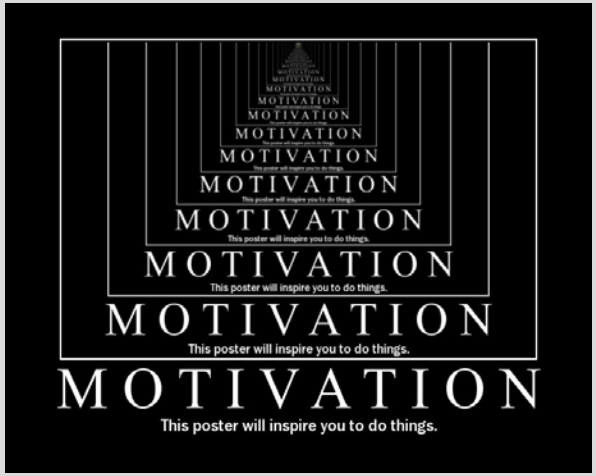
Cognitive Behavioral Therapy

- Recent literature suggests that tools such as cognitive behavioral therapy may be utilized by non-behavioral healthcare providers and may be useful in improving patient outcomes.
  - *Effects of a multicomponent cognitive behavioral group intervention on fear of falling and activity avoidance in community-dwelling older adults: results of a randomized controlled trial. J Am Geriatr Soc. 2009 Nov;57(11):2020-8*

Motivational Interviewing

- Motivational interviewing and physical exercise programme is effective in improving pain, physical mobility, psychological well-being and self-efficacy for community-dwelling older persons with chronic pain.

  – J Clin Nurs. 2013 Jul;22(13-14):1843-56.



Conclusion

- As the world population ages, it is imperative that the chiropractor be aware of both the physical and psychosocial factors that affect mobility in the older adult.

Conclusion

- Chiropractors are well positioned to be an important member of the healthcare team to assist in evaluating and treating mobility impairment through the use of SMT, exercise and education.

NUTRITIONAL THERAPY IN OLDER ADULTS

- Physicians are frequently unaware of their patients' nonprescription medication and/or supplement use because they do not ask patients; patients do not report such use, or both. The economic and health consequences of these potential interactions are considerable.
- It is therefore imperative to for both the consumer and the DC to understand the benefits and risks for utilization of dietary supplements, identify potential interactions with other medications, and avoid large combinations to decreased overconsumption.
  - Dougherty et al: Chiropr Man Therap. 2012; 20: 3.

Therapeutic Horticulture: A novel model of management

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The Journey to this project

- Chiropractic introduced to VA in 2004
- First Randomized Controlled Trial: 2006
  - Health Resource Service Administration (HRSA)
- Second Randomized Controlled Trial: 2007
  - VA Merit
- Third Randomized Controlled Trial: 2012
  - Industry Sponsored Trial
- Pilot study with Cognitive Behavioral Therapy

RESULTS

- Everything works SOME of the time
- Nothing works ALL of the time
- We don’t know what to do when and how

What is the best way forward?

- What is better, to create an environment where we provide all the care for the patient or a method where we engage and empower the patient to care from themselves?
  - Depends on who you are:
    - Providers – Feel better about ourselves when we have patients who NEED us
    - System: Feels better when can provide fewer services
    - Patient: Depends on the patient

My personal Journey – Wingnut Acres

Active Independence

- In the treatment of Veterans with chronic illnesses, whether physical or mental there is a need to develop programs that allow for the transition from passive dependence to active independence.

Veterans giving back

- Many Veterans have an interest in working with their hands and providing a service that they feel is valuable and gives back to the community and the country that they served.

Veterans as Farmers!

- The Unites States Department of Agriculture (USDA) is developing programs to assist Veterans in transitioning back into their communities through agriculture.
- Other organizations:
  - Farmer Veteran Coalition
  - Cornell Small Farmer

What is Therapeutic Horticulture?

- Therapeutic horticulture is a method of improving the well-being of an individual through the use of plants and plant-related activities.
- Although it is a comparatively low-cost, low-skill form of therapy, it is not widely utilized due to the lack of rigorous scientific research supporting it.

Current Project

- 10 week didactic and experiential program to improve quality of life and self efficacy.
- Delivered at the EquiCenter in Mendon, NY
  - http://www.equicenterny.org/equicenter-farm

EQUICENTER
AT THE WILLIAM & MILDRED LEVINE RANCH

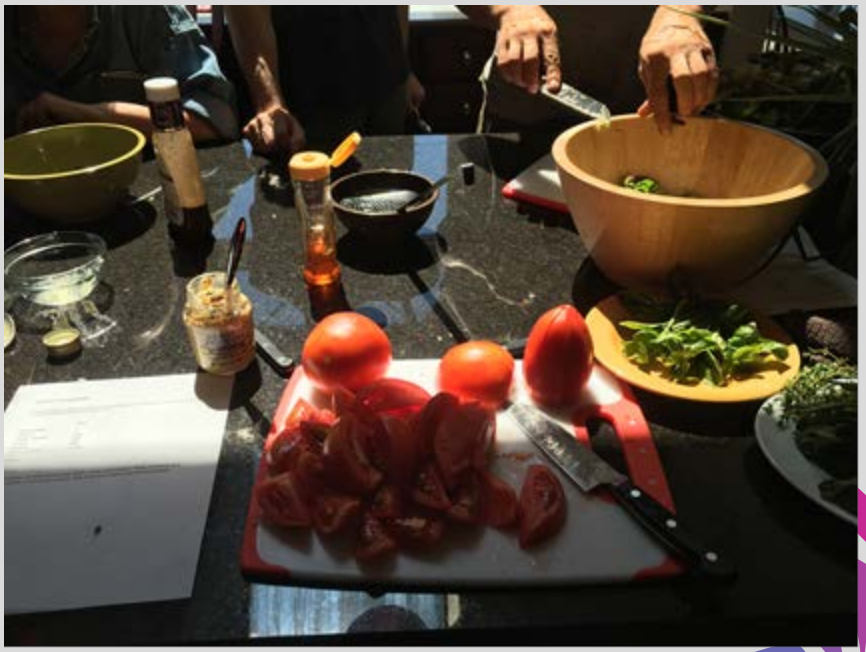
Didactic Program

- How to grow food 101 – Erin Bullock
  - Session 1 - THE REAL DIRT
  - Session 2 – TRANSPLANTING
  - Session 3 - DIRECT SEEDING
  - Session 4 - WEEDS, WEEDS, WEEDS
  - Session 5 – IRRIGATION
  - Session 6 - GARDEN PESTS
  - Session 7 - HARVESTING & POST-HARVEST HANDLING
  - Session 8 - MAKING COMPOST
  - Session 9 - COVER CROPS and CROP ROTATION
  - Session 10 - GROWING CUT FLOWERS AND BOUQUET ARRANGING

Experiential Program

Life Skills

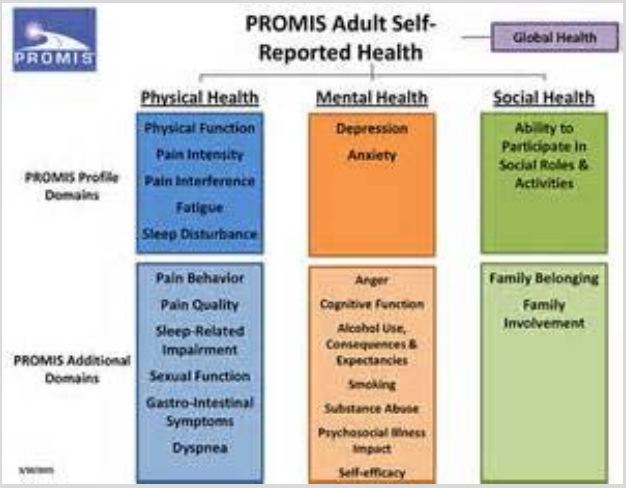
- Cooking class: Harvesting fresh vegetables and learning to make healthy food

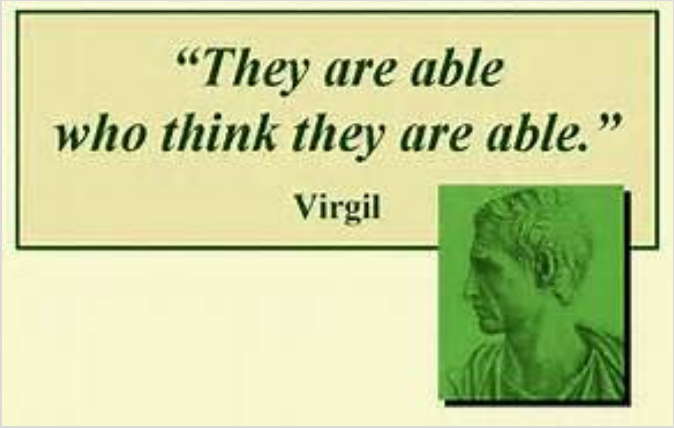


Harvesting food to take home

Quality Improvement data

- Currently collecting:
  - Quality of life – PROMIS Global Health
  - Self Efficacy
  - Pain (PEG)





FUTURE

- Research program
- Using horses to farm
- Healing environment:
  - Yoga
  - Equine Therapy
  - Possibly other healing modalities