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Faculty Development in Primary Care Grant
#D55HP23200

New York Institute of Technology
“Training Physicians to Effectively Treat the Geriatric Population”

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College of Osteopathic Medicine
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#D55HP23200
“Teaching The Mathematics of Living and Aging (and dying too!)”
“On a large enough timeline, the survival rate for everyone will drop to zero.”

Chuck Palahniuk, Fight Club
“Life is pleasant. Death is peaceful.
It is the transition that’s troublesome.”

Isaac Asimov
Age Related Life Expectancy

Males – Age 90

75\textsuperscript{th} Percentile – 5.8 Years
50\textsuperscript{th} Percentile – 3.2 Years
25\textsuperscript{th} Percentile – 1.5 Years
“Old – old”

AGE 85
“Health nuts are going to stupid someday, lying in hospitals, dying of nothing.”
Leading Causes of Death in the US

Cardiovascular
Cancer
Chronic Lung disease
Trauma
Alzheimer’s
Infectious Diseases
Yet…..

If we totally eliminated either cardiovascular diseases or cancer, life expectancy would only increase by about FIVE years.

We Must DO THE MATH!
“If dogs knew they were going to die, they would be able to drive.”
“All our knowledge merely helps us to die a more painful death than animals who know nothing.”
Do we really *do the math?*

Cancer
Enteric feeding
Glycemic feeding
Glycemic control (???!!!)
Restrictive diets (UGH)
“What Happened???”

says......Every unprepared family member ever....
“We Did Everything We Could.”
says….every TV show doctor….ever
I’m Sorry……Name……Heart stopped……
Peaceful……Quiet……Sleep…………
WHAT ARE THEY THINKING?

Anger......Loss......Grief......Numb......Relief
Money......Now What???????
“I intend to live forever.
So far, so good.”
OMT Considerations in Geriatrics
Goals

• Reawaken awareness of Osteopathic Philosophy

• Discuss age related changes

• Review OMT Studies in Geriatrics

• Describe OMT Techniques that can be applied
The body’s ability to heal itself is a primary tenet of the osteopathic philosophy, along with the interrelationship of structure and function. As we age, our primal healing forces continue to manifest to the best of their ability and despite the change in structure over time, function goes on.

The osteopathic practitioner should be capable of adapting techniques to meet the needs of the patient’s altered anatomy and physiology.

A second goal of this lecture is to review studies that support the application of OMT to the geriatric population which can improve function, and thus safely enhance the overall health of the geriatric population.
Pitfalls

• NSAIDS: GI and Renal toxicity
• Osteoporosis: Avoid HVLA

iatrogenesis

• polypharmacy
  – altered pharmacokinetics
• immobility
  – decubitus ulcers, pneumonia, PE
• unnecessary hospitalization
  – nosocomial infection
Bio-mechanical Model of Aging

- No specific bio-mechanical changes associated with dementia

- There is an increased incidence of protein cross linking in the soft tissues and a loss of elastin
  - a generalized stiffening and slowness of reaction

- Loss of subcutaneous fat and subcutaneous tissues leading to vulnerability to trauma
there is significant individual variation

- chronologic vs physiologic age

changes with age are linear, but cumulative

- usually begin in the third decade
Body Composition Changes

- decrease in height, lean body mass, and body water
- increase in body fat
- these lead to an alteration in the volume of distribution of medications altering pharmacokinetics
Musculoskeletal Changes

- loss of muscle mass
- decrease in bone density
Typical Changes

- loss of height with preservation of arm span
  - disc dehydration and osteoporosis
- Cranial sutures calcify?
- Flexion posture
1899 W.G. Sutherland:

“beveled like the gills of a fish indicating articular mobility for a respiratory mechanism”
Flexion Posture

- Loss of hip and knee extension thus limiting lumbar flexion
- Flattened lumbar lordosis
- Increased thoracic kyphoisis and cervical lordosis

T-A-R-T

- Tissue texture abnormality
- Asymmetrical motion
- Restricted motion
- (+/-) Tenderness

**TART changes**

- should be interpreted in context of aging
- elastin loss with changes in muscle tone and turgor
- Tenderness can be a guide to onset of new dysfunction
Goals of Treatment

• Maximize the patient’s residual functional capacity to meet patient-centered goals for care for an optimal quality of life

• Despite advanced age, we are continually expressing 100% of the health available in our bodies in every moment
A Pilot Study...

Preventative Osteopathic Manipulative Treatment and the Elderly Nursing Home Resident

- Karen T. Snider, MS, DO; Eric J. Snider, DO; Jane C. Johnson, MA; Celia Hagan, RN, BSN, CCRC; Conrad Schoenwald, DO

- JAOA August 1, 2012
Inclusion / Exclusion Criteria

• Men and women aged 65 to 100 years who were residents of 1 of 2 area nursing homes in Kirksville, Missouri

• Exclusion criteria were life expectancy of less than 6 months, terminal cancer, active tuberculosis, inability to cooperate with the treating physicians, inability to tolerate OMT, and known metabolic bone disease that would put the resident at risk for a pathological fracture, such as Paget disease or hypoparathyroidism.
• Participants in the OMT and LT groups received a focused musculoskeletal physical examination twice a month for 5 months (10 visits). This physical examination included evaluation of the cervical, thoracic, and lumbar spine; sacrum; pelvis; and ribs.

• The OMT group received an OMT protocol at each visit that addressed optimization of homeostatic mechanisms and targeted somatic dysfunction found during that visit's physical examination.

• OMT performed on the basis of a standardized protocol meant to optimize autonomic nervous system functioning and lymphatic drainage.

  • Within the confines of the OMT protocol, the treating physicians could perform direct, indirect, or combined techniques to the thoracic inlet and abdominal diaphragm regions.

  • Physicians were also expected to treat all clinically significant somatic dysfunctions found during that visit's physical examination.
• Any OMT provided outside the standardized protocol was applied on the basis of the physical examination findings, and techniques were at the discretion of the treating physician.

• The following OMT techniques could be used: articulatory/springing; balanced ligamentous tension; cranial; facilitated positional release; high-velocity, low-amplitude; muscle energy; myofascial release; soft tissue; Still; strain-counterstrain; and visceral manipulation.

• Because most of the nursing home residents were sedentary and likely to have osteoporosis, the treating physicians adjusted the OMT to stay within the tolerance of the participants. Participants were informed that some soreness could be expected because tight muscles would be stretched and joints would be mobilized as part of improving musculoskeletal function.
Osteopathic manipulative treatment protocol administered to nursing home residents

1. Focused osteopathic musculoskeletal examination
2. Paraspinal muscle inhibition and/or soft tissue kneading or stretching (1-2 minutes)
3. Rib raising and/or rib mobilization (45-60 seconds)
4. Abdominal diaphragm release technique (20-60 seconds)
5. Abdominal mesenteric/colon release technique (20-60 seconds)
6. Thoracic inlet release technique (20-60 seconds)
7. Hip flexion/extension passive range of motion technique (20-60 seconds)
8. Shoulder range of motion with pectoral traction (20-60 seconds)
9. Cervical paraspinal muscle inhibition and/or soft tissue kneading or stretching (30-60 seconds)
10. Suboccipital release technique (15-30 seconds)
11. Variable techniques to treat clinically significant somatic dysfunction of each participant
Results

• 22 participants enrolled in the study, 21 participants completed the study—8 in the OMT group, 6 in the LT group, and 7 in the TAU group.

• Data on hospitalizations, emergency room visits, outpatient procedures, and mortality

• There was a significant difference between the groups on the number of hospitalizations during the study period (P = .04), with the OMT and LT groups having fewer hospitalizations (0 in both groups) than the TAU group (3 participants had 1 or more hospitalizations).

• There was no significant difference between the groups for the number of emergency room visits (P = .38) or outpatient procedures (P = .62). No participants died during the study period.
• Twice monthly OMT and LT protocols reduced the number of hospitalizations and decreased medication usage in elderly nursing home residents
Venous Sinus Technique

- Venus Sinus Drainage

![Diagram of venous sinuses](image-url)
Parietal Lift

http://www.rhythmandtouch.com/excerpt_parietal.html
Frontal Lift

Hruby and Hoffman Osteopathic Medicine and Primary Care 2007
O-A Release / Decompression

- Hands cupping occiput
- Fingers in O-A sulcus
- Gently traction laterally and allow the occiput to flex on atlas
- Wait for tissue release
Suboccipital Triangle

http://www.studyblue.com/notes/note/n/suboccipital-triangle/deck/2741968
• Practitioner hands under the rib heads

• Gently elevate and apply lateral traction

• Wait for tissue release and normalization of motion
Sympathetic Ganglia

https://www.youtube.com/watch?v=fANkXK43xqk
Spencer Technique

- JAOA January 1916 Chas. A. Spencer, DO

- Studied Baseball players and those with “neuritis and rheumatism”. All of which had one feature in common: “Pain”

- Cause of dysfunction: Sub-deltoid bursitis, tenosynovitis, laceration of capsular ligament, sprain of A-C joint, and inflammation at muscle insertions
According to Spencer...

- Treatment will cause moderate pain, none should feel extreme pain
- Progress will be slow because stretching, not tearing is the aim
His initial protocol...

- Extension / Flexion
- Abduction
- Extend the arm at 90deg in front of patient

Secondary Protocol...

After pain and swelling subside add:

- Circumduction and traction
- Adduction, ext. rotation, flexion
- Abduction, ext. rotation, traction
Additional Reading

• The evolution of osteopathic manipulative technique: The Spencer technique
  • David A. Patriquin, D.O.
    • JAOA Vol. 92, No. 9. Sept. 1992
In Summary...

• Palpatory skill increases over time

• Standard techniques can be modified for the geriatric population

• OMT can be safely applied to the geriatric patient with benefit
Who Loves Ya, Baby?
References

• Foundations of Osteopathic Medicine 2nd Ed. p.230-231, 327-337

• Foundations of Osteopathic Medicine 3rd Ed. p.873-882

• JAOA online
  • [www.do-online.org](http://www.do-online.org)