Osteopathic Legends: Their Legacies Live On
March 21-25
Hilton Anatole • Dallas

DAVID R. BOESLER, DO, PROGRAM CHAIR
Brian F. Degenhardt, DO

- AT Still Research Institute, Director
- Assistant VP for Osteopathic Research, ATSU
- Osteopathic Heritage Foundation, Endowed Chair
- PBRN DO-Touch.NET Director
- Louisa Burns Osteopathic Research Committee, Chair
- Center for Research in OMM, Co-chair
- Associate Professor, Department of OMM, KCOM
Acknowledgements

- Enthusiasm, optimism, passion, gratitude and reverence
- “Research is one of the cornerstones of our profession.”

- https://www.youtube.com/watch?v=ZAibRe6A7PM

» Definitions

» Osteopathic Researchers
  » Louisa Burns, DO
  » Wilbur Cole, DO
  » J. Stedman Denslow, DO
  » Irvin M. Korr, PhD
  » William Johnston, DO
  » Viola Frymann, DO

» Two examples of research

» Current and Future Opportunities
Legacy –

something transmitted by or received from an ancestor or predecessor
Telling stories is as basic to human beings as eating. More so, in fact, for while food makes us live, stories are what make our lives worth living.

On Stories,

Richard Kearney
Stories preserve our history and culture, passing it along in a form that’s easy to remember to the next generation.
a non-historical or unverifiable story of a particular people, group, or clan handed down by tradition from earlier times and popularly accepted as historical
We use stories not only to learn but also to speculate, to pose questions and find solutions.

“science, in its own definition, doesn’t give us meaning. It just provides us with facts...Our lives gain meaning only when we tell our story.”

David Steindl-Rast, OSB
Important Process

- Forbes, Feb. 12, 2018
- Lack of knowledge
- Partial facts
- Distortions
- Incorrect conclusions

Medicare Data Reveal $564 Million Wasted On Chiropractors And Osteopathic Manipulation

Here's a quick way for the U.S. government to save over half a billion dollars. Stop paying for coverage of medical procedures that have little or no evidence to support them.

The Centers for Medicare and Medicaid Services (CMS) now releases annual reports of how much it spends, broken down according to the procedures. Their latest data, for the year 2015, reveals that Medicare spent $564,163,721 on pseudoscientific medical practices.

I'm talking about chiropractic and osteopathic manipulation. These are similar but distinct belief systems, both involving bones, and both with little high-quality evidence to back them up. Most people think that chiropractors’ spinal "adjustments" can relieve pain from injured or aching backs. It turns out that it's just an elaborate placebo: a back rub at home is likely to work just as well. And that home treatment is probably safer—I'll get to that below.
Osteopathic Researchers

- Louisa Burns, DO
- Wilbur Cole, DO
- J. Stedman Denslow, DO
- Irvin M. Korr, PhD
- William Johnston, DO
- Viola Frymann, DO
Louisa Burns, DO

- Graduated from the Pacific Osteopathic College in 1903
- Joined the A.T. Still Research Institute in Chicago in 1914.
- Established and directed the “pacific branch” of the A.T. Still Research Institute in 1917 to closing (1950s)

1869 – 1957
Main Objective:

- determine if experimentally produced spinal alterations in animals effected total body homeostatic mechanisms and cause disease in distal parts of the body.

**Research Design:** create bony spinal lesions in animals and evaluate the effect on the organs innervated by the nerves leaving the spine at the site of the lesion compared to controls.
Scope of Research

- Cardiac, gastrointestinal, reproductive, pulmonary, renal blood forming organs, musculoskeletal regions and CNS/mind.
- Her observations were based on clinical evidence, clinical experimentation, laboratory studies and basic research using animals, from toads to man.
  - Histology and other available physiologic instruments.
Video on Louisa Burns

https://www.youtube.com/watch?v=VXc1G3y5WSk
Textbooks

1994 AAO Yearbook
Wilbur Cole, DO

- Graduated from KCOS 1943
- Department of Anatomy, Kirksville College of Osteopathy and Surgery (1940s)
- Histologist/pathologist
- 1949-51– Louisa Burns Research Laboratory
- Completed residency in Neurology
- Masters Degree – The Development of Osteopathic Research and Education – 1957
Wilbur Cole, DO

- 1952 - Kansas City College of Osteopathy and Surgery
- Director of Research
- Associate Dean for Research
- Dean of Students
- Dean of the Kansas City College of Osteopathy
- Retired 1979
Evaluated dysfunctions at OA, C7, T7-11

Time controlled studies: 96 hr, 6wk, 6 month studies

He demonstrated effects of somatic strains on neural endplate function controlling visceral organs including the heart, liver, pancreas, kidney, adrenal glands, uterus, and brain.

He well delineate the pathways for the effects of somatic influences on visceral function.
Bibliography

- “The Osteopathic Lesion Complex: The Effects of the Atlas Lesion After Six Months” JAOA Vol 47, NO 8, Apr 1948, pg 399-406
- “The Osteopathic Lesion Complex: II. The Effects of the Atlas Lesion After Ninety-Six Hours and After Six Weeks” JAOA Vol 48, No 1, Sep 1948 pg 7-9
- “The Osteopathic Lesion Complex: V. The Effects of the Seventh Cervical Vertebral Lesion After Ninety-Six Hours, Six Weeks, and Six Months” JAOA Vol 48, No 6, Feb 1949, 281-288
- “The Osteopathic Lesion Complex: IV. The Effects of the Osteopathic Lesion on the Central Nervous System” JAOA Vol 48 No 8, Apr 1949, pg 394-398
- “The Osteopathic Lesion Complex: VII. The Effects of the Experimental Osteopathic Lesion, Chemical Irritants in the Muscle at the Level of the Sixth Thoracic Segment, and Chemical Irritants in the Liver” JAOA Vol 49, No 3, Nov 1949 pg 135-141
- “The Osteopathic Lesion Syndrome: X. The Effects of an Experimental Vertebral Articular Strain on the Sensory Unit” JAOA Vol 51, No 8, Apr 1952, pg 381-387
Bibliography

- “Studies in the Neuromuscular Apparatus” JAOA Vol 58, May 1959 pg 397-398
- “Muscle and the Myoneural Junction: A Review” JAOA Vol 61, Feb 1962, pg 435-444
- “A Reflex Basis for Osteopathic Medicine” J AOA Vol 63, Nov 1963, pg 246-252
- “A Reflex Basis for Osteopathic Medicine Part 2” JAOA Vol 63, Dec 1963, pg 343-350

AAO Yearbook
Summary of Contributions

- Important scientific process
- Independently repeated experiments with improved methodologies and had similar outcomes which demonstrated aspects of the somatic system’s influence on visceral functioning
- Burns, Cole, Deason
John Stedman Denslow, D.O.

- Graduate of KCOS in 1929
- Internship at Massachusetts Osteopathic Hospital
- 1930-38: Director of Clinics, Chicago College of Osteopathy
- 1938-1963: Professor and Chair of Department of Osteopathic Theory and Methods, KCOS
- 1965-1977: Vice President of KCOM

1906-1982
Pressure meter
## Facilitation

<table>
<thead>
<tr>
<th>Level</th>
<th>Pressure (Kg/cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>2</td>
</tr>
<tr>
<td>T6</td>
<td>2/3</td>
</tr>
<tr>
<td>T8</td>
<td>N</td>
</tr>
<tr>
<td>T10</td>
<td>N</td>
</tr>
<tr>
<td>Level</td>
<td>Pressure (Kg/cm²)</td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td>T4</td>
<td>2</td>
</tr>
<tr>
<td>T6</td>
<td>2</td>
</tr>
<tr>
<td>T8</td>
<td>4</td>
</tr>
<tr>
<td>T10</td>
<td>N</td>
</tr>
<tr>
<td>Level</td>
<td>Pressure (Kg/cm²)</td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td>T4</td>
<td>2</td>
</tr>
<tr>
<td>T6</td>
<td>6</td>
</tr>
<tr>
<td>T8</td>
<td>7</td>
</tr>
<tr>
<td>T10</td>
<td>N</td>
</tr>
</tbody>
</table>
Facilitation

- “Constant differences in reflex thresholds from individual to individual, from segment to segment, and from side to side

- Low threshold segments showed reflex hyperexcitability to pressure on the corresponding and distant, high threshold segments

- Low threshold segments are segments where a large portion of the motoneurons are maintained in a state of facilitation due to chronic bombardment by impulses from unknown sources.”

Denslow, Korr, Krems. 1947
Second Half of his Career

- Maintained is research focus on the musculoskeletal system
- Studied posture
- Developed x-ray methodology for evaluating posture
- Established a dog model for somatic dysfunction

1993 AAO Yearbook
Irvin M. (Kim) Korr, PhD.

- 1930/1: BA, MA, University of Pennsylvania
- 1935: PhD, Princeton University
- 1936: Department of Physiology New York University College of Medicine
- 1942-45: Research under War Department at Columbia University
- 1945-75: Kirksville College of Osteopathic Medicine
- 1975-78: Michigan State University, COM
- 1979-1990s: TCOM (University of North Texas)

1910-2007
Irvin Morris ("Kim") Korr, PhD

- Areas of pain (hyperalgesia) were related to areas of increased sweat gland activity (electrical skin resistance)
  - Facilitation
  - Maintenance of pools of neurons (premotor interneurons, motor neurons, or preganglionic sympathetic neurons) in a state of sub-threshold excitation
Function of Nerves
Neurotrophism

Definition:

Publications

- 1967 – Science, JAOA
- 1969 - JAOA
- 1970 - JAOA
- 1975 - Experimental Neurology
- 1977 - Experimental Neurology

I.M. Korr Collection, AAO Yearbook – Vol. 1 and 2
Summary of Contributions

- First studies using objective instrumentation on humans
- Studies that engaged the general biomedical community
- First studies published in peer reviewed, non osteopathic scientific journals
Viola Frymann, DO, FAAO, FCA

- Born in England
- Graduate of the University of London and Royal Colleges
- Graduate -School of Homeopathy
- Early 1950s – College of Osteopathic Physicians and Surgeons
- Established the Osteopathic Center for Children in San Diego

1922-2016
Published Research

- on cranial strain patterns on newborn babies
- Cranial rhythmic impulse
- Learning disabilities of children
Mentorship

- Demonstrated precision in her palpation and her description of what she was feeling/doing
- Always vigilant for the right research question and methodology to assess the osteopathic model
- AAO Yearbook © 1994
William Johnston, DO

- Toronto University
- 1943 – Chicago College of Osteopathic Medicine
- Internship Massachusetts Osteopathic Hospital
- 1944-1973 – Private practice in general medicine
- 1973-1999 – Michigan State University – clinician researcher

1921-2003
Basic clinician’s questions?

- What am I feeling?
- What does it mean?
- How do we communicate about what we feel?
- Consistency?
- Impact?
Scientific Contributions

- Palpation testing procedures
- Patterns of segmental dysfunction elicited by palpation
- Somatovisceral reflex relationships
- Studies of interrater reliability
- Standardization of the hospital record for musculoskeletal/somatic dysfunction findings
- Development and application of the functional technique

1998 AAO Yearbook
Summary of Contributions

» Based on clinical experience and skill, they developed important research questions and performed clinical research, often performed within the clinic setting.

» Utilized modern instrumentation

» Demonstrating reliability was elusive
Impact?

- 50 years of animal based research by three independent investigators who demonstrated physiologic and anatomical/histological changes associated with induced somatic dysfunction.
- Three decades of human and animal research demonstrating neurophysiologic factors associated with somatic dysfunction.
- Thirty years of clinical research attempting to characterize palpation and its clinical usefulness.
All of this research was driven through the clinical observations of osteopathic clinicians.

Have we continued to assess scientifically the interrelationship of somatic dysfunction and visceral systems?

How much are we connecting visceral conditions with our physical exam findings?

How much effort do we take to learn what the body is trying to tell us when we are palpating it?

Have we overcome the issues of reliability?
Impact? Transforming Past Science into Opportunities
Claude Bernard, Physiologist: (1813-1878)

Art is ‘I’;
Science is ‘We’