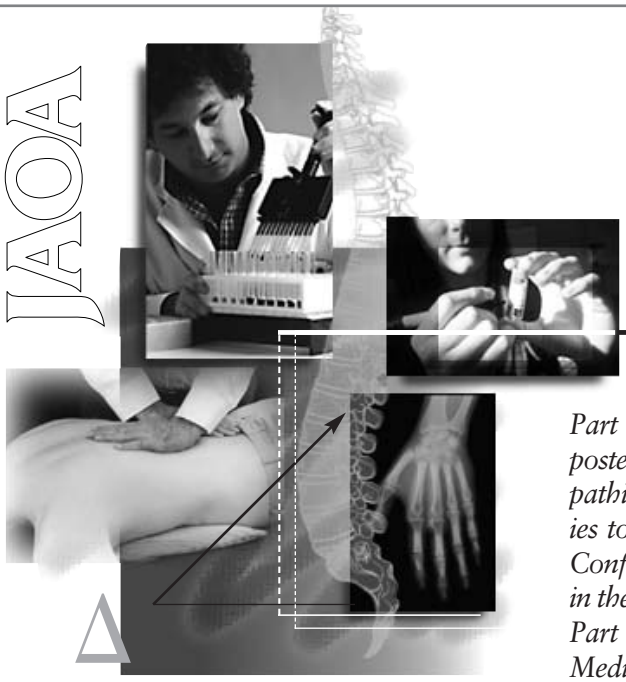

Forty-fourth Annual AOA Research Conference Abstracts, 2000: Part 1

Part 1 contains abstracts in AOA Research Fellowships, and poster presentations on osteopathic manipulative medicine/osteopathic principles and practice (OMM/OPP) and Clinical Studies to be presented at the Forty-fourth Annual AOA Research Conference. For the convenience of attendees, abstracts appear in their scheduled sequence, and are numbered for easy reference. Part 2, abstracts in the Poster Session on Basic Sciences and Medical Education, will appear in the September issue.

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AOA Research Fellowships

F01

Effects of Osteopathic Manipulative Treatment on Knee Osteoarthritis

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The **purpose** of this study is to determine the degree to which osteopathic manipulative treatment (OMT) can improve the quality of life for subjects with osteoarthritis (OA) over the age of 55. **Objectives**: 1) Decrease the use of Nonsteroidal Anti-inflammatory Drugs (NSAIDS) by 30%; 2) to decrease pain by 30% through OMT; and 3) to increase subjects' functional status by decreasing pain and increasing range of motion. **Methods**: This was a single-blind randomized control study of older adults. There were a total of 41 subjects (34 completed the study and 7 withdrew). Subjects were randomized into a control, sham, or treatment groups. The control group received structural exam only, the sham group received range of motion, and the treatment group received OMT. Subjects had a total of 11 visits in five months (visits 1-4 was weekly, visits 5-10 was every other week, and visit 11 was four weeks later). Instruments used included the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) which quantified pain, stiffness, and difficulty with daily activities, visual analog pain scale, Up and Go Test, and range of motion (ROM) measurement. **Results**: There was a decrease in the use of NSAIDs and analgesics for the treatment group ($p=0.063$). The knee range of motion increased for the sham and treatment groups ($p=0.691$). Perceived pain decreased for the sham and treatment groups but not the control group ($p=0.188$). Finally the difficulty in performing daily activities were decreased for all groups ($p=0.797$). **Conclusion**: Range of motion and OMT increased both range of motion and the ability to do daily activities.

F02

SIGNS OF LIPID PEROXIDATIVE DAMAGE AS MEASURED IN THE URINE OF PATIENTS WITH ALZHEIMER'S DISEASE. EE Tuppo, DO; LJ Forman, PhD; RE Chan-Ting, BS; TA Cavalieri, DO; A Chopra, MD; UMDNJ-School of Osteopathic Medicine, Center for Aging, Stratford, NJ 08084.
Hypothesis: Free radical oxidative damage is thought to be involved in many diseases, in aging, and in Alzheimer's disease (AD). Eight-epi-$PGF_{2\alpha}$ is a biomarker of free radical lipid peroxidation in *vivo* and can be measured in urine. Measurements of this biomarker were done in AD subjects and compared to control subjects to determine if it is elevated in the AD group. Also, measurements of di-nor-thromboxane B_2 (d-n-TXB_2), a marker of enzymatic cyclooxygenase lipid damage, were carried out to determine if a non-free radical pathway of damage also exists in the disease process. It is expected that levels of 8-epi-$PGF_{2\alpha}$ will be significantly elevated in the AD group as compared to age matched controls while the levels of d-n-TXB_2, will not be elevated. Materials and Methods: Enzyme linked immunoassays were used to measure 8-epi-$PGF_{2\alpha}$ and d-n-TXB_2 in urine samples obtained from subjects with AD and were compared to age matched controls. Results: Levels of 8-epi-$PGF_{2\alpha}$ were significantly elevated in AD subjects as compared to the control group while levels of d-n-TXB_2 were not significantly different from those of the control group. Conclusion: These findings give additional support to the hypothesis that the Alzheimer's disease brain is under significant oxidative stress from reactive oxygen species. The measurement of 8-epi-$PGF_{2\alpha}$ in urine may provide a non-invasive tool for the detection of AD. This study was supported by a grant from the AOA.

F03

REGULATION OF OSTEOCALCIN GENE EXPRESSION BY P53. MP Nerney, BA, and N Chandar, PhD. Dept. of Biochemistry, Midwestern Univ, Downers Grove, IL 60515.

In previous work we have shown p53 to have a specific transactivation role during osteoblast differentiation. It is well known that mdm-2 regulates p53 by binding to it and facilitating its degradation by the ubiquitin proteosome pathway. In view of this role for mdm-2, we wanted to test how these proteins together may affect osteoblast specific gene expression. In *in vitro* assays of osteoblast differentiation, p53 protein level was elevated during the late stages of differentiation and was followed by mdm-2 expression. The effect of exogenous p53 and mdm-2 was tested in the regulation of the osteoblast specific protein osteocalcin by using osteocalcin gene promoter constructs in CAT assays. P53 dependent activation of the osteocalcin promoter occurred in ROS 17/2.8 cells transfected with osteocalcin and p53 constructs. Greater activation of the promoter was demonstrated by stabilization of p53 by inhibition of mdm-2 activity via transfection with mdm-2 antisense oligonucleotides, inhibition of the ubiquitin proteosome pathway, and transfection with Δ273mdm-2, an mdm-2 deletion mutant capable of binding p53 but unable to degrade it. Basal levels of osteocalcin promoter activity were also higher in cells stably expressing Δ273mdm-2. Cells transfected with both p53 and mdm-2 demonstrated higher osteocalcin promoter activity than by either protein alone. It is unknown if p53 directly binds the osteocalcin promoter or if there are intermediates in this pathway. Current research in our laboratory is directed toward this question. Support for this research is provided by the AOA Research Fellowship # F99-03 to MPN and the NIH Grant CA74341 to NC

F04

The Changing Face of AIDS: HIV Among the Elderly

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Objective: To describe demographic and clinical aspects of human immunodeficiency virus (HIV) among a non-hospitalized, non-urban sample of elderly patients from a Southern New Jersey regional HIV diagnostic and treatment center who are aged 50 years and older.

Methods: A retrospective chart review was conducted to identify the characteristics of older patients over age 50 (N=51) being seen in a community-based ambulatory care center. Demographic, epidemiological, clinical, and laboratory parameters were recorded.

Results: The mean age of the patients was 54.6 years (range=50-71). 28% were women. 45% were African American; 41% Caucasian, and 14% Hispanic. The modes of transmission included heterosexual contact (43%), men having sex with men (29%), IV drug use (10%), no obvious source (10%), IV drug use and heterosexual contact (6%), and blood transfusion (2%). Regarding the reason for testing, 50% were tested at the time of an HIV related infection and 29% were tested as part of screening. In addition, 29% were hepatitis B immune, 25% were RPR positive, and 37% had a history of sexually transmitted diseases. At the time of diagnosis, 31% presented with pneumonia, 25% with pneumocystis carinii pneumonia, 13% with lymphadenopathy, and the remainder presented with other HIV related infections.

Conclusion: HIV infection in the elderly may have unique characteristics different from the general HIV population. More women are likely to contract this disease and, it is more likely to be transmitted through heterosexual sex. In addition, the elderly may be more likely to be diagnosed at the time of an HIV related infection. Further studies are needed to adequately characterize the unique characteristics of HIV in the elderly.

This project was funded as an AOA Osteopathic Research Fellowship (#99-04)

Poster presentations–OMM/OPP

P01*

Cranial Strain Patterns in Parkinson's Disease

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In the course of providing osteopathic treatment to patients with Parkinson's disease at the clinic of the New York College of Osteopathic Medicine, physicians noted that patients with this disease might exhibit particular cranial findings manifestly as a result of the disease. The purpose of this study was to compare the recorded observations of cranial strain patterns of Parkinson's patients treated by different physicians for the detection of common cranial findings. Records of cranial strain patterns from physician recorded observations of 30 patients with idiopathic Parkinson's disease and 20 age-matched normal controls were compiled. This information was used to determine if different physicians observed particular strain patterns in greater frequency between Parkinson's patients and controls. Parkinson's patients had a significantly higher frequency of bilateral occipitoatlantal (OA) compression (87% vs. 50%; $p<0.02$) and bilateral occipitomastoid (OM) compression (40% vs. 10%; $p<0.05$) compared to normal controls. Over subsequent visits and treatments, the frequency of both strain patterns were reduced significantly (OA compression $p<0.01$; OM compression $p<0.05$) back to statistically normal levels of occurrence. The data suggests that there are cranial findings that may be expected to occur at significantly greater frequency in patients with idiopathic Parkinson's disease and that recurrence can be reduced with treatment.

P02*

Motion Characteristics of a Typical Cervical Vertebral Unit: A Palpatory Diagnosis of Sidebending and Rotation of C3 on C4

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The osteopathic concept of spinal motion is predicated on the observations of Harrison H. Fryette, DO. It has been implied from his theory of spinal motion that sidebending and rotation in the cervical spine are coupled, meaning that sidebending and rotation occur to the same side. The central (null) hypothesis was that sidebending and rotation of a typical cervical vertebral unit will be to the same side on passive intervertebral motion testing accourding to Fryette's laws of spinal motion. The objective of this research is to experimentally test the validity of Dr. Fryette's hypothesis of coupled motion in a typical cervical vertebral unit with segmental motion testion of the third cervical vertebral unit; that is the third cervical vertebra in relation to the fourth cervical vertebra. The data collected was statsistically analyzed in order to determine whether sidebending and rotation in the cervical spine moves to the same or opposite direction. Additionally, variables such as the presence or absence of somatic dysfunction and sagittal plane mechanics such as flexion and/or extension were included in one or the other of the two experiments conducted. The preliminary results of our two experients which were conducted in a random fashion by board certified physician's in osteopathic manipulative medicine indicates a preponderance of uncoupled motion occuring at the C3 on C4 vertebral unit. A conclusion drawn from this research is that cervical vertebral motion is most likely uncoupled.

*Student presentation competition.

P03*

THE EFFECT OF PARAVERTEBRAL MANIPULATION ON THE SYMPATHETIC NERVOUS SYSTEM

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Introduction: Osteopathic manipulative treatment (OMT) has been reported to affect the sympathetic nervous system in patients. Paravertebral manipulation (aka "do raising") is believed to increase (excitatory technique) or decrease (inhibitory technique) sympathetic nervous activity (SNA) respectively.

Hypothesis: Paravertebral manipulation will significantly (1.) increase or (2.) decrease sympathetic nervous system activity in human subjects.

Methods: Healthy human subjects (n=8) were instrumented with various direct and indirect measures of SNA, including: heart rate, blood pressure, efferent sympathetic nerve activity (directly by microneurography of the peroneal nerve), and pectoral cutaneous pressure vasoconstriction. Each subject received three 5 minute treatments in various order: excitatory (EX), inhibitory (IN) and placebo (PL). Each treatment was followed by a 20 minute washout period which became the baseline for subsequent treatments.

Results: Heart rate data: Heart rate decreased slightly during EX treatment as compared to baseline; EX -1.7 bpm (-2.5 %, p= 0.0008). Heart rate was not significantly changed in other groups: IN -1.7 bpm (-2.5%) , PL -.4 bpm (-0.7%). Blood pressure data: Mean blood pressure was not significantly changed during any treatment as compared to baseline; EX +1.5mm (+1.2%), IN +0.8mm (+0.6%) PL -0.6mm (-1.1%) Efferent sympathetic nerve data: No treatment group values were significantly changed from baseline; EX -0.67 bursts/min (-8.9%), IN +0.1bursts/min (+0.1%), PL +0.10 (+1.6%).

Summary: Overall, paravertebral manipulation, (including excitatory, inhibitory and placebo techniques) did not significantly affect sympathetic nervous system activity in healthy human subjects. Although a slight decrease in heart rate was noted during one treatment, it is believed to be clinically insignificant. Phase II of this study will involve a patient population.

Sponsored by AOA grant # 99-11480

P04

A SHAM TREATMENT PROTOCOL TO BLIND NURSING HOME RESIDENTS TO GROUP ASSIGNMENT D.R. Noll, D.O., B.F. Degenhardt, D.O., J.C. Johnson, M.A, M. Mattson, R.N.C.-F.N.P.: Kirksville College of Osteopathic Medicine, 800 West Jefferson, Kirksville, MO 63501

Hypothesis: A sham protocol can be developed that successfully blinds participants to group assignment in a randomized clinical trial on the efficacy of OMT to boost immunity to the influenza vaccine in nursing home residents.

Methods: We recruited 21 nursing home residents age 65 and older that were to receive their annual influenza vaccination. We developed an OMT protocol designed to improve lymphatic circulation and a sham treatment protocol designed to be plausible but minimally effective for altering somatic structures. Residents were stratified by age and ambulatory status into the OMT or sham treatment group. After immunization, both groups received ten protocol treatments over a three-week period. After the last treatment, participants completed a post-treatment survey.

Results: 14 residents, 7 in each group, could answer the questions and acknowledged they remembered the protocol treatments well. Three in each group thought they received the authentic OMT, four in each group were correct which group they were in, and none thought they were in the sham treatment group. One resident in each group reported having adverse side effects from the treatment protocols: generalized muscle soreness in the OMT group and abdominal discomfort in the sham group. Six persons in each group said they enjoyed receiving the study protocol treatments, and one person in each group said they did not.

Conclusions: A sham protocol can be developed that blinds nursing home residents to group assignment in a controlled clinical trial on the efficacy of OMT. *(Supported by KCOM a strategic research fund grant)*

P05

A PILOT STUDY USING OMT TO REDUCE ANTIBIOTIC USE IN NURSING HOME RESIDENTS D.R. Noll, D.O., B.F. Degenhardt, D.O., J.C. Johnson, M.A, M. Mattson, R.N.C.-F.N.P.: Kirksville College of Osteopathic Medicine, 800 West Jefferson, Kirksville, MO 63501

Hypothesis: For nursing home residents receiving OMT to boost the immune response to the influenza vaccine, OMT will also have a positive effect on overall immunity, and therefore reduce the number of days nursing home residents receive antibiotic therapy during the study period from October to the end of March.

Methods: We recruited 21 nursing home residents age 65 and older that received their annual influenza vaccination. Residents were stratified by age and ambulatory status and randomized into the OMT or sham treatment group. The physicians prescribing antibiotic therapy and nursing home staff were not told of group assignment. After influenza immunization, both groups received ten protocol treatments over a three-weeks in October. The number of days of antibiotic use was monitored from October through March.

Results: The mean number of days the treatment group was on antibiotics during the study period was 10.7 days ±SD 16.1 and for the control group was 25.8 days ± 28.6, p = 0.03. The difference between groups were greatest for the months of December (Tx group = 1.5 days ± 2.3 vs Control group = 5.1 days ± 6.4, p=0.08) and January (Tx group = 5.9 days± 3.0 vs Control group = 5.5 days ± 4.3 p=0.05).

Conclusion: OMT may improve overall immunity in frail nursing home residents as evidenced by lower antibiotic use for a number of months after their last treatment session, however more studies are needed to confirm these findings. *(Supported by a KCOM strategic research fund grant)*

P06*

QUANTITATIVE ANALYSIS OF ELDERLY IMMUNE RESPONSE TO INFLUENZA VACCINATION WITH OSTEOPATHIC MANIPULATION. S.D. Wanless, MSII, D.R. Noll, D.O., M. Steel Ph.D., J.C. Johnson, M.A., B.F Degenhardt, D.O.: Kirksville College of Osteopathic Medicine, Dept of Geriatrics, Kirksville, MO 63501

Hypothesis: Osteopathic manipulation should enhance the transit of vaccine antigens to lymph nodes, thereby eliciting an improved humoral response in the elderly to the influenza vaccination.

Methods: We recruited 21 elderly nursing home residents to receive the 1999-2000 influenza vaccine. Following the vaccination, the treatment group (N= 11) received OMM three times a week for 3 weeks, then twice a week for two more weeks. The control group (N=11) received a sham treatment for an equal duration and frequency. Each week, blood was drawn from the participants. Using an ELISA method, IgG and IgM were quantitatively measured from the extracted plasma.

Results: For the mean IgM levels, baseline, week 1,2,3, and 4 values for the treatment vs control groups were, 30.3U/ml vs 31.9U/ml, 30.1U/ml vs 39.4U/ml, 63.2U/ml vs 58.1U/ml, 69.7U/ml vs 61.5U/ml, and 73.7U/ml vs 60.5U/ml. However, none of the differences between groups reached significance (all p values > 0.25). For the mean IgG levels, baseline, wk 1,2,3, and 4 values for treatment vs control were, 74.7U/ml vs 83.8U/ml, 85.2U/ml vs 73.5U/ml, 89.5U/ml vs 100.5U/ml, 94.4U/ml vs 108.8U/ml, 98.7U/ml vs 108.3U/ml. However, none of the differences between groups reached significance (all p values >0.5).

Conclusion: We found no statistically significant difference between groups for mean IgM and IgG antibody levels in nursing home residents who received a series of 10 standardized OMT vs sham treatments over a four week period after influenza vaccination. *(Supported by the F. Herbert Fleidt Grant)*

*Student presentation competition.

P07

Osteopathic Manual Medicine and Acute Injuries

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Osteopathic Manual Medicine (OMM) has long been used in the treatment of acute injuries. However, to date there has not been a study that has captured the effectiveness of OMM versus placebo or traditional RICE therapy. In order to provide evidence that OMM is a useful treatment in the acute setting, a population which has acute injuries and incorporates significant amounts of OMM must be identified. A retrospective study was undertaken to quantify the use of OMM in a Division I Football program during the 1999 season.

The hypothesis was that because 12 of the 15 physicians providing care for the university athletes were Osteopathic Physicians that 25% (1 out of 4 athletes) of patient encounters would have resulted in OMM being used.

Methods/Materials With IRB approval each NCAA Division I Intercollegiate form for each football player visit over the 1999 season was analyzed. The findings were then stratified according to the specific diagnosis. Each visit was classified as either orthopedic or primary care. The orthopedic visits were further delineated into osteopathic or orthopedic depending on whether the athlete's visit was deemed surgical or nonsurgical. The osteopathic evaluations were further analyzed to highlight certain injury patterns by looking at each specific football position and prevalence of somatic dysfunctions within those positions. The specific OMM treatment techniques were also quantitated.

Results 867 patient encounters were recorded from July1,1999 to the Citrus Bowl (December 31,1999). Of the nonsurgical orthopedic visits approximately 65% of visits resulted in OMM. Over 65% of the treatment techniques were muscle energy techniques. The defensive linemen were the most treated and had the highest incidence of 1st rib dysfunctions.

Conclusion The applicability of OMM in the 1999 football program was clearly shown and resulted in a higher use than hypothesized. This retrospective pilot study provides a foundation to test the hypothesis that OMM is statistically significant in treating acute injuries when comparing placebo or traditional RICE therapy.

P08

OPINIONS TOWARD THE USE OF OMT BY OKLAHOMA D.O.S RESPONDING TO SURVEYS IN 1984 AND 1999.

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Hypothesis: The vast majority of D.O.s practicing in Oklahoma who responded to the surveys in 1984 and 1999 regularly use OMT regardless of specialty, school of graduation, years in practice, and type of practice.

Methods: A single-page questionnaire was mailed to D.O.s practicing in Oklahoma. The survey requested physician and practice demographics, whether OMT is used, percent of patients that receive OMT, types of OMT used, and attitude of appropriateness of OMT use for 25 common diagnoses. Analysis of relationships of OMT use and percent of patients that receive OMT with specialty, school of graduation, years in practice, type of practice (1999 only) was performed using Fisher's exact test, Kruskal-Wallis test and Spearman correlations.

Results: Percent using OMT was 91% in 1984 and 79% in 1999. Percent using OMT by specialty was significantly different ($p<0.01$). Percent using OMT by type of practice ($p=0.95$), years in practice ($p\geq0.38$), and school ($p\geq0.23$) were not significantly different. Percent of patients that receive OMT was significantly related to specialty ($p=0.0001$), but not to school ($p>0.23$), type of practice ($p=0.30$), or years in practice ($p\geq0.16$)

Conclusion: The percent of D.O.s using OMT has decreased, however nearly four out of five Oklahoma D.O.s continue to use OMT. OMT specialists use OMT most, followed in order by family practice, pediatricians, internists, surgeons, rehabilitation specialists, and others. Years in practice, practice setting, and school of graduation were not statistically significant factors in OMT usage.

This research was funded by a strategic research fund grant from KCOM.

P09

A SUMMARY OF STUDIES COMPARING PHYSICAL AND PHARMACOLOGICAL TREATMENT PARAMETERS USING AN ANIMAL MODEL OF ARTHRITIS. B. H. Hallas, Ph.D. J. Chabla, M.D., W. D. Maxwell, Ph.D., P. Jacovina, B.S. and M. Wells, Ph.D. New York College of Osteopathic Medicine, Departments of Neuroscience and Biomechanics and Bioengineering, Old Westbury, New York 11568.

Arthritis is known to respond well to treatment by osteopathic manipulative therapy and moderate exercise of the affected joints in addition to pharmacological treatment with anti-inflammatory agents. Animal models of arthritis have been shown to a useful initial tool for the investigation of mechanisms for the pharmacological management of arthritis. Hypothesis: We have hypothesized that such models can be utilized to investigate physical treatment methods as well. Methods: A standard model of unilateral antigen induced arthritis was utilized in several separate experiments. Arthritis was induced in the knee and ankle joints of over 120 female Sprague -Dawley rats. The progression of the arthritis was measured by joint diameter, computerized motion analysis, voluntary extension force of the leg and length of ankle extension. At the peak of the arthritic response (approximately 10 days after induction), animals were divided into groups on the basis of approximately equal deficits by the parameters measured. Groups consisted of untreated controls, and animals receiving either treadmill exercise, osteopathic manipulation, anti-inflammatory medication (DayPro) or combinations of treatment. Functional parameters were evaluated at 4 and 8 weeks after arthritis induction. Results: The results indicated that osteopathic manipulation, exercise, and drug treatment all produced significant functional benefits when used alone. However, as expected, the combination of the treatments of osteopathic manipulation, exercise and anti-inflammatory agents produced the greatest functional benefit. Conclusion: The animal model utilized produces treatment responses similar to that expected in clinical practice, while offering the possibility for direct physiological analysis of the underlying mechanisms.

Supported by AOA Grant # 93-07-376.

P10

(Abstract withdrawn)

P11

MYOELECTRIC PATTERNS IN THE MID-THORAX DURING CLINICAL ROTATION TESTS

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Objective: To develop a model for the character and distribution of myoelectric activity in mid-thoracic vertebral musculature during clinical tests of shoulder/trunk rotations.

Hypothesis: Myoelectric evidence of motor behavior during opposing directions of thoracic rotation will be distributed uniformly throughout thoracic vertebral levels. Further, electrical activity occurring within each vertebral level will not be symmetric in response to diagnostic tests.

Materials and Methods: Eight male volunteers were asymptomatic and experiencing no pain during physical examination. Surface electrodes sampled paravertebral muscle activity from T4 to T9 for two, seated test motions: right and left thoracic rotation. Data gathered during active and passive motion phases constituted quantitative measures of relative total electrical activity for each electrode site. Two-way ANOVA and Wilcoxon tests analyzed variations in the data.

Results: Significant differences in the distribution of myoelectric activity existed between vertebral levels describing a 'bell shaped' distribution, with most of the activity occurring at the T6/T7 levels. The within level analyses of myoelectric activity for opposing directions of motion indicated symmetry during the active phase. Similar analysis for passive motion was reduced in magnitude, yet identical in character.

Summary: Myoelectric activity occurring during opposing directions of thoracic rotation was not distributed uniformly across vertebral levels. Also, the muscular activity sampled at individual thoracic vertebral levels was symmetric during both active and passive test motions.

Conclusions: Muscle response patterns were identified in the mid-thoracic region. These instrumental measures establish a standard for evaluating clinical findings during active and passive test motions.

P12*

MAGNETIC RESONANCE IMAGING (MRI) CORRELATION OF SOMATIC DYSFUNCTION IN THE CERVICAL SPINE. M. A. Lombardo, B.A., K. Nelson, D.O., T. Glonek, Ph. D., L. Lenhart, D.O. Midwestern University, Chicago College of Osteopathic Medicine, Department of Osteopathic Manipulative Medicine, Downers Grove, IL 60515

Purpose: To correlate Osteopathic palpatory findings of somatic dysfunction of the cervical region and quantifiable findings of tissue change on MRI.
Methods: Patients (n=21) scheduled for cervical MRI were asked to participate in the study prior to obtaining the MRI. They verbally consented to an examination consisting of cervical and thoracic spine palpation and placement of a vitamin E capsule over the area of most prominent somatic dysfunction (based on tissue texture change, asymmetry and tenderness). During examination, participants were asked questions concerning reasons for having a MRI and about the found area of somatic dysfunction (including rating on a pain scale and any association to traumatic origin). The axial section of the MRI images containing the vitamin E capsule were analyzed by comparing pixel intensity in three rectangular areas of muscle on the side of somatic dysfunction to the corresponding areas on the opposite side (thus acting as an internal control). The areas were chosen to correspond to splenius capitus, semispinalis capitus and multifidus muscles and were selected visually using the "Region of Interest" function of the MRI computer. Similarly, areas both above and below the level of somatic dysfunction were analyzed. Statistical correlations, analysis of variance and other intergroup comparisons were performed using the SPSS statistical package.
Results: There is a statistically significant pixel intensity increase on the side opposite the palpated somatic dysfunction, at the level of somatic dysfunction, and no statistically significant difference above or below. Additionally, the most superficial muscle group, splenius capitus, demonstrates the most significant change in intensity. The average, relative pixel intensity values of paired unselected areas (n = 21 pairs) were compared by the t-statistic and found to be statistically different. (control: mean 40.4, S.D. 8.6; somatic dysfunction side: mean 43.6, S.D. 11.2; difference: mean -3.7, S.D. 7.1; significance, p = 0.02)
Conclusions: Osteopathic palpatory findings of somatic dysfunction (namely, tissue texture change, asymmetry, and tenderness) of the cervical spine correlate to pixel intensity differences measured on MRI.

*Student presentation competition.

Clinical studies

C01

Restoration of Diabetic Control After Immediate and Delayed Hemoglobin A_{1c} Results. MD Sparks, DO, JA Brown, DO, W Wieczorek, DO, LM Abele, DO, GP Baumgardner, DO, D Benfield. Ohio University College of Osteopathic Medicine, Department of Family Medicine, Athens, Ohio 45701.

Within the past few years, a Clinical Laboratory Improvement Act waived, bench-top analyzer has been available for testing hemoglobin A_{1c} (HbA_{1c}). The Bayer DCA 2000 has been found to be a convenient, consistent way of determining HbA_{1c} levels. The purpose of this study was to determine if immediate results of HbA_{1c} levels would lead to improved diabetic control as opposed to results received by the physician 3-5 days after a blood specimen is drawn.

Eligible type 2 diabetic patients (n=28) were randomized into immediate and delayed result groups. A finger stick of blood was collected from each patient on the initial enrollment day and at 2 subsequent scheduled appointments over a six-month period. All samples were tested on the DCA 2000. Results were given to the physician before the office visit concluded for the immediate results group, and withheld for 3-5 days for the delayed results group.

No significant difference (p=0.65) in HbA_{1c} control was found between the immediate results group and the delayed results group at 26.7 weeks mean follow up. The immediate results group had a mean HbA_{1c} of 8.0%, SD=1.7. The delayed results group had a mean HbA_{1c} of 8.2%, SD=1.8

The DCA 2000 is a convenient, consistent way to obtain results of the HbA_{1c}, but it does not improve short-term glycemic control of patients with diabetes mellitus type 2.

C02

CELECOXIB IS AS EFFECTIVE AS DICLOFENAC FOR THE TREATMENT OF ACUTE PAIN OF OA FLARE

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Hypothesis: This study compares the efficacy of celecoxib 200 mg/day compared with diclofenac 150 mg/day in treating acute flare pain in patients with osteoarthritis (OA) of the knee.

Materials and Methods: The study was a randomized, double-blind, placebo-controlled, 6-week trial of patients with OA of the knee who exhibited a flare of disease activity following withdrawal of NSAID or analgesic therapy. Patients completed the APS Pain Measure Questionnaire, which evaluates pain intensity and quality of life, at baseline and daily for the first 7 days of therapy.

Results: A total of 600 patients entered the trial (201 celecoxib, 199 diclofenac, and 200 placebo). Within the first 24 hours, celecoxib significantly reduced the amount of acute pain experienced compared to placebo, and this effect was maintained for the study duration.

APS Pain Measures: Mean Change from Baseline Score on Day 1*

	Current pain	Worst pain	Average pain	Pain interfered
Placebo	-0.[illegible]	-0.7	-0.[illegible]	-[illegible]
Celecoxib	-0.[illegible]*	-1.35*	-1.[illegible]*	-[illegible]*
Diclofenac	-0.[illegible]*	-1.0[illegible]*	-0.[illegible]*	-[illegible]*

*Negative value indicates improvement in pain relief
*P<0.01 vs placebo

Conclusions: This study demonstrates that celecoxib 200 mg/day is highly effective for treating acute pain of OA flare. Patients treated with celecoxib experienced acute pain relief from OA flare within the first 24 hours of therapy that was comparable to the full therapeutic dose of diclofenac 150 mg/day.

Sponsored by GD Searle & Co.

C03

CARDIOVASCULAR SAFETY OF THE CYCLOOXYGENASE-2 (COX-2) SPECIFIC INHIBITOR, CELECOXIB: CLINICAL TRIAL EXPERIENCE

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Hypothesis: Anti-inflammatory processes may be important in atheroma progression and plaque rupture, but it is unclear whether specific inhibition of vascular COX-2 has any beneficial effect. There is speculation that unopposed COX-2 inhibition could lead to increased prothrombotic risk. This study assessed the cardiovascular (CV) safety of celecoxib (CEL) by: CV death, myocardial infarction, angina, and coronary artery disorders (CADs).

Materials and Methods: A total of 11,008 arthritis patients were enrolled in randomized controlled trials and received placebo (n=1864), CEL 50-800 mg/day (n=6376), or NSAID treatment (n=2768) (naproxen 1000 mg/day, diclofenac 100-150 mg/day, or ibuprofen 1600 mg/day) for 2-24 weeks. In addition, 5155 patients participated in a 2-year open label trial of celecoxib 200-800 mg/day. Multivariate analyses for risk assessment by age and history of CV disease were also performed.

Results: A total of 29 patients in the randomized controlled trials had a CV event. Adjusted relative risks (ARR) (95% CIs) are shown in the table.

		N	CV Events	ARR (95% CI)
No Hx of CAD	Placebo	1703	3	1.00
	CEL	5828	13	0.40 (0.14-1.18)
	NSAID	2525	2	0.33 (0.08-1.24)
Hx of CAD	Placebo	161	4	1.00
	CEL	548	5	0.25 (0.06-0.95)
	NSAID	243	2	0.20 (0.04-1.13)

Conclusion: There was a lower relative risk of CV events in CEL and NSAID treatment groups when compared to placebo and no evidence that CEL is associated with increased CV events in higher risk subgroups.

Sponsored by GD Searle & Co.

C04*

DEVELOPMENT AND APPLICATION OF A BURST PRESSURE DEVISE TO MEASURE INTEGRITY OF SIS VASCULAR GRAFTS

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Grafts prepared from small intestinal submucosa (SIS) promote the generation of native tissue that is histologically similar to the host tissue into which they are placed. When SIS is used as a replacement graft in large diameter blood vessels, it is important that it withstands the transmural force of the blood (i.e. blood pressure). A burst pressure (BP) device was developed to test porcine SIS grafts at two different infusion rates (IR). The results are based on the testing of 30 SIS grafts prepared by the PCOM Student Experimental Surgery Team A linear relationship was found between the two IR so that BP could be estimated without destroying the grafts. As a result the integrity of SIS grafts can be reliably determined pre-operatively and the grafts can then be implanted after evaluation. Other observations: 1) the BP of the SIS grafts was independent of graft diameter and experience of surgeon constructing as long as they were competent in the micro-surgical techniques involved; 2) the quality of the graft construction did not significantly improve over the time period of this study. The results of this study showed that it was possible to design and employ a devise for the non-destructive burst testing of vascular grafts before they were surgically implanted. Funding for this study was provided by the Philadelphia College of Osteopathic Medicine.

C05*

The Effect of Spirituality on Successful Recovery from Spinal Surgery

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Hypothesis: Previous studies revealed many patients have religious and spiritual beliefs. Benefits of spirituality on other illnesses and surgical procedures have been reported. It was our hypothesis that patients with strong spiritual beliefs would have a greater propensity for recovery from spinal surgery.

Methods: One hundred eighty-eight patients undergoing spinal surgery during 1988 participated. Patients completed the visual analog pain scale (VAS) and the Oswestry functional capacity questionnaire (OSW) pre- and post-operatively to assess outcomes. Spirituality was assessed using the INSPIRIT survey. Post-operative changes in outcome measures were analyzed using paired t-test. Data were analyzed to determine if a correlation existed between outcomes and spirituality. Patients were then divided into a high, moderate, or low level of spirituality based on INSPIRIT and the outcome measures were analyzed using ANOVA.

Results: Significant improvements in VAS and OSW were revealed ($p<0.001$). Linear regression analysis revealed no correlation between change in VAS ($r=0.006$) or OSW ($r=0.017$). There were no significant differences in outcome measurements using ANOVA among the three levels of spirituality ($p>0.05$).

Conclusions: While spirituality has a significant effect on recovery from other medical conditions, we found no correlation with recovery from spinal surgery. Patients in previous studies have typically undergone treatment for conditions with greater morbidity and mortality than in spinal surgery. These results suggest that our hypothesis was incorrect, and spinal surgery may be more dependent on proper patient selection and surgical technique than on the patient's spiritual beliefs.

C06

IMPACT OF AN HOLISTIC WELLNESS PROGRAM ON THE SEVERITY OF STRESS PERCEIVED BY OSTEOPATHIC MEDICAL STUDENTS.

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We hypothesize that students exposed to a holistic wellness program will experience reduced perceived stress compared to those without a program. Students at two rural osteopathic colleges with similar curricula (discipline-based versus systems based) were surveyed using the 101 question Medical Education Hassles Scale-R by T. Wolf to determine both their areas of irritation, frustration and distress as well as the perceived degree of these "hassles". One college (W) has a wellness program while the other (N) does not. The questionnaire was given ten times during their first year at high, moderate and low stress periods. Questions regarding the Physical Environment, Home/Community, Routine Responsibilities, Physical, Health and Safety, and Relationships indicated few significant hassles throughout the year. Significant stressors were identified in areas of time pressures and academics. These included, "heavy work load", "not enough time to do what you need to do", "making mistakes", studying and performing on exams (4 questions) and "not getting enough sleep, rest and relaxation". N had statistically significant more self-reported distress at high stress times in area of failing exams ($p=0.03$) and at low stress times in the areas of financial concerns ($p=0.001$), wasting time ($p=0.026$), lack of energy ($p=0.03$), too many responsibilities ($p=0.002$), too many classes ($p=0.0002$), time for entertainment ($p=0.044$), and meeting high standards ($p=0.005$). Our results indicate that N was never significantly less hassled than W. This study suggests that a wellness program helps osteopathic medical students manage stress. Supported by: AOA Grant #98-04-461.

*Student presentation competition.

C07

THE EFFECT OF CURRICULAR MODEL, PROBLEM BASED VS LECTURE BASED, ON TRENDS TOWARD ANXIETY AND DEPRESSION IN FIRST YEAR OSTEOPATHIC MEDICAL STUDENTS. B.C. Eland, D.O., R.F. Degenhardt, D.O., J.C. Johnson, M.A., D.F. Peterson, Ph.D., OUCOM, Dep. of Fam. Med., Dept. of OMM, Athens, OH 45701 & KCOM, Depts. of OMM & Physio., Kirksville, MO 63501.

We hypothesize that the curricular model employed will have an influence on moderates toward anxiety and depression among first year medical students. Responses to the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) were recorded for 68 freshmen medical students at Ohio University College of Osteopathic Medicine during the first week of school and then repeated six months later in the winter quarter. Responses of the 16 participants in the problem based learning (PBL) curriculum were compared with the 52 participants in the traditional lecture based (TLB) curriculum at the college. There were no significant differences between the two groups' academic qualifications as determined by GPA & MCAT scores. Group means for the BDI and BAI always remained well below that considered to be clinically significant. When comparing changes within each group over time, the only increase observed was in the mean scores on the BDI for the TLB students ($p<0.05$). However, when comparing changes between groups, TLB and PBL students were significantly different with regard to their change in score only on the BAI ($p=.03$). The TLB students' mean difference in scores increased by 1.8 points, whereas the PBL students' scores decreased by 1.1 points.

Our results indicate a significant increase in Beck Depression Inventory scores for traditional track Osteopathic medical students six months into the first year of training. The results also support a significant difference in the change in Beck Anxiety Inventory scores between the two groups, TLB increasing and PBL decreasing. We conclude that PBL students exhibit lower stress after 6 months of medical school, within the limits of these measures. Supported by: AOA Grant #98-04-461.

C08

IMPACT OF A WELLNESS PROGRAM ON PHYSICAL FITNESS DURING THE FIRST YEAR OF MEDICAL SCHOOL. D.F. Peterson, Ph.D., R.F. Degenhardt, D.O., & D.C. Eland, D.O. KCOM, Depts. of Physiology & OMM, Kirksville, MO 63501 & OUCOM, Dep. of Family Medicine, Section of OMM, Athens, OH 45701.

Lifestyle habits were recorded weekly during their first year by 188 freshman medical students on two similar campuses. All students also underwent physical fitness testing at the beginning of, and 6 months into, the school year. All participants on one campus (W) were enrolled in a student wellness program made up largely of optional activities but with active encouragement. There was no similar program on the second campus (N) although similar exercise facilities were equally available. While genders, at the beginning of school, participants were similar in age, height, weight, resting heart rate, % body fat, and in performance on bench press, grip strength, vertical jump, agility, flexibility, and estimated VO_2max. Males on campus W did have significantly higher waist/hip measurements. Exercise frequency (EF), exercise intensity (EI), and time spent (ED) during each exercise session declined on both campuses after classes began. Students slept less. During the year, EF and ED, and, to a lesser degree, EI all began to recover on campus W but not on campus N. At 6 months, areas which indicated significantly greater fitness at W relative to N were, in both genders, resting heart rate, waist/hip ratio, vertical jump, flexibility, and estimated VO_2max. Areas in which no differences were observed included, body weight, % body fat, agility, and, in males only, bench press.

Our results indicate that those students on the campus with an active wellness program have maintained a significantly higher level of physical fitness after 6 months. We conclude that the existence of an aggressive wellness program led to measurable fitness benefits for students on that campus. Supported by: AOA Grant #98-04-461.

C09*

VALIDITY OF A TOOL FOR ASSESSING LEVELS OF PATIENT CARE IN A CONTINUING CARE RETIREMENT COMMUNITY P. Kapadia, BA, J. Lein, DO; BA; C. Fox, RN, C, ALA; S. Pasternak, PhD; University of Medicine and Dentistry of New Jersey-School of Osteopathic Medicine, Center For Aging, Stratford, NJ 08084

Presently, there is no tool for objectively assessing a patient's appropriate assignment to designated levels of care (LOC) in continuing care retirement communities (CCRC). The purpose of this study was to validate a newly devised tool used to determine LOC (independent, three levels of assisted living and nursing home) for the elderly and to identify items that were most important in determining assignment within a CCRC.

The tool was administered to 49 patients (72-102 years old, 82% female, 73% widowed) residing in a CCRC. The tool, which assessed function, cognition, and medical needs, was reviewed following the initial administration; 15 items were selected to be used to identify LOC. LOC determined by the subjects' scores on the tool was compared to actual LOC assignment, which was based on an interdisciplinary team's recommendation. There was agreement between the tool-based LOC and actual LOC for 94% of subjects. However, the range of scores for each LOC was wide, suggesting the need to further refine this instrument.

This study represents a first step toward creating an instrument assessing function, cognition, and medical needs to identify LOC in a CCRC and differentiating care levels within the category of assisted living.

This study was sponsored by The University of Medicine and Dentistry of New Jersey-School of Osteopathic Medicine's Summer Student Research Fellow Program.

C10

THE IMPACT OF TV VIEWING ON BODY WEIGHT AND BLOOD PRESSURE AMONG ELEMENTARY SCHOOL CHILDREN

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The purpose of this study was to assess the impact of TV viewing time on body weight and blood pressure among elementary school children.

Cross-sectional assessments of blood pressure and body weight, along with a brief survey on TV viewing time, were randomly conducted among 1919 children aged 5-12 years in six elementary schools in midtown Kansas City, Missouri, during 1999-2000 school year. Comparisons of mean blood pressure, body weight and amount of TV viewing time were performed in terms of age and gender. Multiple linear regression analyses were used to predict the statistical significance on the association of TV viewing time with blood pressure and body weight while controlling for age, gender, and exercise.

Overall, more than 90% of the students spent at least a half hour per day watching TV, playing computer or video games the day before the survey and about 70% of the students reported they watched TV, played computer or video games more than 4 times a week. There was a linearly positive association between body weight and TV viewing time. The more time students spent on watching TV, the greater their body weight. This model accounted for about 48% of explained variation. On the other hand, no correlation was found between blood pressure and TV viewing time.

Based on this cross-sectional study, watching TV is highly prevalent among elementary school children and TV viewing time is a risk factor for higher body weight. The results add another tough challenge in formulating strategies to maintain a healthy weight among school children.

*Student presentation competition.

C11*

Who is using the Internet to obtain health information?

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The purpose of this study was to identify predictors of using the Internet to obtain health information.

The Osteopathic Survey of Health Care in America was used to obtain a random household sample of United States residents over 18 years of age in September/October 1998. A total of 1,106 respondents were surveyed. Multiple logistic regression was used to compute odds ratios and 95% confidence intervals for using and preferring the Internet as a source of health information.

The most significant predictor of using and preferring the Internet was comfort in accessing and navigating through the Internet (OR= 7.90, 95%CI= 5.57-11.20, P<.001; OR= 3.99, 95% CI= 2.04-7.78, P<.001, respectively). Other significant predictors for using the Internet were 16 or more years of education and higher levels of annual household income. Non-Whites were significantly less likely than Whites to prefer using the Internet.

Our findings suggest that health information on the Internet will be increasingly accessed as persons become comfortable with this medium, regardless of age, gender, and race/ethnicity. However, it is unclear why non-Whites were significantly less likely to prefer using the Internet to obtain health information, indicating the need for further research in this area.

This study was partially supported by the Carl Everett Charitable Lead Trust Fund.

C12*

An Interdisciplinary Caregivers Team in a Special Care Unit: A Best Practice Model

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Alzheimer's patients may commonly exhibit agitated and psychotic behaviors, and thus often require specialized care separate from that offered by traditional long-term care facilities. This study describes an interdisciplinary team treatment model for Alzheimer's patients with severe behavior problems at a nursing home special care unit (SCU). It is expected that the interdisciplinary caregivers' team and the multifaceted pharmacological and non-pharmacological interventions used by the staff play an important role in patient progress and outcomes.

Using the Minimum Data Set (MDS) – Version 2.0 (a basic assessment tracking form for nursing home residents) as a data source, the patient population at the SCU (N=39) was described. Five consecutive care conferences or team meetings were observed and described. Behavior problems and recommendations for care, outlined by team members, were recorded for each patient (n=24). Following team meetings, records were reviewed and staff interviewed to determine whether all of the recommendations for care were followed through.

The average age of patients was 74.9 years. There were 48.7% females and 51.3% males and most were 'white, non-Hispanic'. The majority of patients (66.7%) were considered 'severely impaired'. In all, there were 71 recommendations made by team members during the five weeks of the study, related to medical care, diet, non-pharmacological and pharmacological interventions, and patients' 'concrete needs'. It was determined that 54 of the 71 recommendations (76.1%) were followed through within the first week after the team meeting. All team members felt that they had ample opportunity to voice their concerns, all felt that others were receptive to their comments and contributions, and all felt that the amount of time discussing each patient was adequate.

In sum, the SCU emphasizes an interdisciplinary approach to patient care. Team members reported satisfaction with the process of sharing information and participating in patient treatment strategies. The team meeting facilitated patient follow-up on the recommendations made by the interdisciplinary team.

*Student presentation competition.

C13

Utilization of Services by Frail Elderly: A Follow-Up Study.

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The purpose of this study was to assess the relationship between frailty and utilization of services of 76 patients who were identified in an earlier study at the Center for Aging at UMDNJ-SOM. In the original study, frailty or risk for frailty, as identified by PraPlus and Carle Clinic questionnaires, was compared to designation of frailty as determined by two geriatricians. The intent of the present study was to examine utilization of hospital, office visits and changes in functional status over the past year for patients characterized as frail or non-frail.

All patients were contacted over the phone and asked to answer questions regarding their health status over the past year. Fifty-seven patients responded. Forty-two (73.7%) patients were able to answer questions on their own. Members of the family answered questions for fifteen (26.3%) patients.

During the follow-up study, there were no statistical differences between frail and non-frail patients in any of the health care utilization items. There was no relationship between the self-rating of health and identification of frailty as assigned by geriatricians, the Carle Clinic or the PraPlus questionnaires. There was no statistically significant difference between the number of visits to the primary care doctor made by frail and non-frail patients. Patients from each group were in the hospital the same numbers of time.

Although frailty has been examined as a predictor of utilization of services, in this study frailty, as identified one year earlier, was not related to frequency of hospitalizations or visits to primary care doctor.

C14

Pharmacologic therapy of intermittent claudication is effective in a private vascular medicine practice.

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Introduction: Cilostazol has demonstrated significant improvement in absolute claudication distance (ACD) in double-blind, randomized, placebo-controlled trials (including trials versus pentoxifylline) in patients with stable intermittent claudication (IC). However, there are no data on the magnitude of improvement in a private vascular medicine practice setting.

Methods: Fifty-five patients with mild, moderate, or severe IC were studied (42 males, 13 females; mean age 66 years, range 51-87). Of these, 50 were present or former smokers, 13 had diabetes, 19 had a history of prior MI, 40 had hyperlipidemia, and 49 had received prior pentoxifylline treatment. Patients were treated with cilostazol for 12 weeks—44 (80%) received 100 mg po BID; 11 (20%) received 50 mg po BID. ACD was measured by constant speed, variable grade exercise treadmill distance. Patients with mild IC (Group A, n = 30) had pretreatment ACD >100 m, while those with moderate-to-severe IC (Group B, n = 25) had pretreatment ACD <100 m. In addition, subjective change was determined by questioning each patient.

Results: Both groups demonstrated 33% improvement in ACD. Group A improved from mean pretreatment ACD of 210 m to 280 m following 12 weeks of cilostazol therapy. Mean ACD for Group B improved from 80 m to 106 m. Patients in both groups demonstrated mean subjective symptom improvement of 81% posttreatment.

Conclusions: Cilostazol therapy is effective in patients with mild, moderate, or severe intermittent claudication in a non-academic, private vascular medicine practice setting.

C15

Value of Exercise Treadmill Testing for Assessment of Functional Capacity Following Percutaneous Revascularization

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Study hypothesis: Noninvasive vascular tests, eg, the ankle-brachial index (ABI), accurately diagnose peripheral arterial disease (PAD), but do not correlate well with degree of physiologic impairment in patients with intermittent claudication (IC) secondary to PAD. This study evaluated the use of treadmill exercise testing to assess functional outcome after percutaneous revascularization (PR).

Materials/Methods: Patients with severe IC (40 men, 29 women; mean age, (62 yr) received percutaneous transluminal angioplasty (PTA)/stent in the iliac artery (n=46) and PTA in the superficial femoral artery (n=23). An increase in ABI to ≥0.1 was the criterion for technical success. Clinical success (or functional improvement), defined by improved absolute claudication distance (ACD), was determined by comparing graded-treadmill exercise tests pre- and post-revascularization.

Results: Clinical success after PR was achieved in all 69 (100%) patients, with an average increase of 181 m (range, 41-610 m). In 55 patients (80%), an ABI increase of >0.10 (0.11-0.39) was documented post-PTA. Ten patients (15%) had <0.1 ABI increase following successful iliac stenting.

Conclusions: Patients with IC who undergo PR, but fail to achieve an ABI increase ≥0.1, may not necessarily be considered clinical failures. Such patients may achieve a satisfactory increase in functional status, as indicated by sufficient improvement in ACD. Therefore, graded treadmill exercise testing, rather than ABI, may more accurately assess the success of PR.

C16

Evaluating Antidepressant Response and Resistance of Venlafaxine and Fluoxetine in Geriatric Outpatients

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Hypothesis: Evaluate efficacy and tolerability of venlafaxine (ven) and fluoxetine (flu) in geriatric outpatients with major depression.

Materials and Methods: 309 patients (pts) enrolled in 8-wk, double-blind, placebo (pbo)-controlled study; efficacy data on 289 pts. Ven dose 75–350 mg QD; flu dose 20–60 mg QD. Response outcome measured by ≥50% ↓ from baseline HAM-D or MADRS scores or 1 or 2 on CGI-I scale; remission measured by HAM-D total score ≤8.

Results: Statistically significant differences not seen at endpoint; noted for response on MADRS total and CGI-I scores but not HAM-D. By wk 4, ven significantly (P<0.05) superior to flu, pbo in reducing HAM-D depressed mood item and trend toward ven superiority in reducing HAM-D psychic anxiety item (P=0.052). By wk 8, MADRS response frequency was 68% (ven), 56% (flu), 39% (pbo) [P<0.01 ven vs pbo; P<0.05 ven vs flu]. By wk 3, CGI-I response frequency was 50% (ven), 41% (flu), 24% (pbo) [P<0.05 ven vs pbo; P<0.05 ven vs flu]. MADRS data analysis suggests superior efficacy of ven over flu or pbo increases in direct proportion to baseline score. Ven produced higher remission rate than flu and pbo (42%, 29%, 20%, respectively), a nonsignificant trend. Both ven and flu well tolerated.

Conclusions: Although no significant differences in overall efficacy at wk 8, ven showed increased response on CGI-I by wk 3, depressed mood and psychic anxiety by wk 4, and MADRS at wk 6. This suggests ven had more rapid onset of action, demonstrating a significantly greater response than flu as early as wk 3. No significant safety concerns observed with either study drug.

Acknowledgments: Research supported by Wyeth-Ayerst Laboratories

C17

Venlafaxine Demonstrates Superior Sustained Remission Compared With Selective Serotonin Reuptake Inhibitors (SSRIs) or Placebo

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Hypothesis: While remission is the primary goal of antidepressant therapy, maintaining remission is the ultimate measure of success.

Materials and Methods: To investigate sustained remission with venlafaxine and selective serotonin reuptake inhibitors (SSRIs), eight comparative clinical studies with or without placebo were pooled. Data on 661 venlafaxine (75–375 mg/day)-treated patients, 749 SSRI-treated patients, and 449 placebo-treated patients were pooled. Active controls in the SSRI group were fluoxetine (20–60 mg/day), paroxetine (20–60 mg/day), and fluvoxamine (100–300 mg/day). Remission was defined by total Hamilton Rating Scale for Depression scores of <8 at week 4; sustained remission was measured by maintenance of remission through week 8 of treatment.

Results: Of 213 patients on venlafaxine who attained remission at week 4, 184 (86.4%) sustained their remission through week 8. Of 148 patients on SSRIs who attained remission at week 4, sustained remission was observed in 103 (71%) patients at week 8 of treatment. A total of 42 of 60 (70%) patients attaining remission while on placebo had a sustained remission. Significant differences were observed between venlafaxine and SSRIs [P=0.001] and between venlafaxine and placebo [P<0.001].

Conclusions: These data indicate that treatment with venlafaxine was associated with a significantly higher rate of sustained remission of depression as compared with SSRIs or placebo. The ability of venlafaxine to maintain remission longer than SSRIs is perhaps attributed to its dual serotonin and norepinephrine reuptake inhibition versus the selective serotonin reuptake inhibitory mechanism of the SSRIs.

Acknowledgments: Research supported by Wyeth-Ayerst Laboratories.

C18*

EUTHANASIA & PHYSICIAN-ASSISTED SUICIDE: THE HOME CARE NURSES' PERSPECTIVE

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Euthanasia and physician-assisted suicide (PAS) are widespread topics. The home care nurse's specialized contact with debilitated patients may create a unique perspective on voluntary active euthanasia (VAE) and PAS. Home care nurses were surveyed to determine what their attitudes are toward VAE/PAS. This study utilized a 69 item survey completed by 60 home care nurses in southern New Jersey. The survey consisted of four parts including: 1) demographic information, 2) four hypothetical cases reflecting views on withdrawal of life support and VAE/PAS, 3) fixed statements in favor of, against, and neutral with respect to VAE/PAS, and 4) opinion questions.

When presented with a hypothetical case involving ventilator support, 71% thought withholding or withdrawing life support was appropriate. When presented with three hypothetical cases involving ALS, AIDS, and metastatic breast cancer, an average 89% thought VAE/PAS was appropriate, however, 67% do not want to participate in the act of VAE/PAS. Only 28% of nurses wanted to be involved in making the decision. If VAE/PAS were legalized, the most frequently identified concern is the potential for abuse (88%). Forty-five percent agreed that VAE/PAS is a better option than an extremely low quality of life.

Overall, nurses in this sample did not want to participate in VAE/PAS or be involved in making the decision. However, in the hypothetical cases up to 89% support VAE/PAS if legalized. Further study is indicated.

We would like to acknowledge the University of Medicine and Dentistry of New Jersey for fully supporting this research.

*Student presentation competition.

C19

Public Perceptions of Osteopathic Physicians: Results from the First Osteopathic Survey of Health Care in America.
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Hypothesis: Little is known about public perceptions of osteopathic physicians.
Methods: Public perceptions of osteopathic physicians were ascertained in 1998 during the First Osteopathic Survey of Health Care in America (OSTEOSURV- I). Of 1,106 respondents, 550 were aware of osteopathic physicians. Among the latter, 47 were current patients of osteopathic physicians (C), 196 were former patients (F), and 307 were never patients (N). Responses to perception items were generally weighted as follows: strongly agree, 1; agree, 0.5; neither agree nor disagree, 0; disagree, -0.5; strongly disagree, -1. Analysis of variance was used to assess differences in perceptions according to patient status.
Results: Weighted responses to perception items are summarized below.

Perception Item	*C*	*F*	*N*	*P*
Health care provided by DOs is similar to MDs	.38	.24	.09	<.001
Health care provided by DOs is similar to DCs	-.23	-.08	-.02	.04
The quality of care provided by DOs is excellent	.54	.36	.23	.001
OMT is beneficial for musculoskeletal disorders	.50	.45	.33	<.001
The cost of OMT should be covered by insurance	.64	.51	.39	<.001

Recency of osteopathic physician visits was strongly associated with the perception of a convergence between osteopathic and allopathic physicians and with favorable perceptions of osteopathic physician services.
Conclusion: These findings have important implications in the current discourse on the identity of osteopathic physicians.
Supported in part by the Carl Everett Charitable Lead Trust Fund.

C20

Characteristics of Ambulatory Patients Visiting Osteopathic Physicians: Results from the First Osteopathic Survey of Health Care in America. J.C. Licciardone, D.O., M.S., University of North Texas Health Science Center, School of Public Health, Fort Worth, TX 76107.

Hypothesis: Little is known about the characteristics of patients who visit osteopathic physicians.
Methods: The characteristics of osteopathic patients were ascertained in 1998 during the First Osteopathic Survey of Health Care in America (OSTEOSURV- I). A total of 550 (50%) of the 1,106 respondents were aware of osteopathic physicians and 243 (22%) had ever visited osteopathic physicians. The latter were compared with 863 (78%) respondents who had never visited osteopathic physicians using multivariate relative risks (RRs) and 95% confidence intervals (CIs). Results were simultaneously adjusted for age, gender, race/ethnicity, education, income, residence, health insurance coverage, and general health perceptions.
Results: Ever-patients were more likely to be older than never-patients (RR= 2.0, 95% CI, 1.4-2.7 for those 36-60 years of age; RR=2.8, 95% CI, 2.0-4.1 for those 61 years or older). Ever-patients were also more likely to be female (RR=1.6, 95% CI, 1.2-2.1) and less likely to be Black (RR=0.5, 95% CI, 0.2-0.8). No other characteristic, including rural residential status, was significantly associated with being an ever-patient.
Conclusions: These findings have important implications for osteopathic physicians. Because only one-half of respondents were aware of osteopathic physicians, greater promotional efforts are needed to increase public awareness of osteopathic physicians. Such efforts should be targeted to reach persons at an early age and to attract Blacks and other underrepresented minorities.
Supported in part by the Carl Everett Charitable Lead Trust Fund.

C21

The First Osteopathic Survey of Health Care in America.
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Hypothesis: A longitudinal survey is needed to monitor public perceptions and utilization of osteopathic physicians.
Methods: The First Osteopathic Survey of Health Care in America (OSTEOSURV- I) was developed and conducted in 1998. Random digit dialing was used to generate a national sample of 1,106 respondents (36% weighted response rate). OSTEOSURV-I included 139 items to be completed in 20-25 minutes. It queried respondents about their main health care provider, health services received, quality of care, patient satisfaction, ancillary services, health information sources, biomedical research, perceptions of osteopathic physicians, sociodemographic characteristics, and general health perceptions. Future OSTEOSURV administrations are intended to provide core longitudinal data relevant to osteopathic physicians.
Results: Respondents were 45 ± 6 years of age, 62% female, and 86% White. They were geographically diverse, including 17% from the Northeast; 28%, Midwest; 33%, South; and 22%, West. They had 14 ± 2 years of education and $43,000 ± 24,000 annual household income. A total of 89% had health care insurance. They reported 72 ± 20 on the Medical Outcomes Study Short Form – 36 (SF-36) general health scale.
Conclusions: Respondents were representative of the general population with the exception of gender. Because females are often overrepresented in telephone surveys, even when special techniques are used to minimize this problem, weighting and other methods of adjustment may be needed in certain analyses. OSTEOSURV-II was conducted in 2000 and validation studies of the OSTEOSURV instrument are currently in progress.
Supported in part by the Carl Everett Charitable Lead Trust Fund.

C22

A Randomized Controlled Trial of Osteopathic Manipulation Following Knee or Hip Arthroplasty.
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Hypothesis: Previous studies suggest that osteopathic manipulation may be useful in patients undergoing knee or hip arthroplasty.
Methods: We performed a randomized controlled trial to assess the efficacy of osteopathic manipulation in acute inpatient rehabilitation patients having chronic knee or hip osteoarthritis or a hip fracture. Patients received either osteopathic or sham manipulation in addition to standard rehabilitation unit care. Outcomes included changes in Functional Independence Measure (FIM) and in daily analgesic use during the rehabilitation unit stay, length-of-stay, rehabilitation efficiency, and changes in the Medical Outcomes Study Short Form – 36 (SF-36) scores from rehabilitation unit admission to four weeks following discharge.
Results: The two patient groups were comparable at baseline. Results failed to demonstrate the efficacy of osteopathic manipulation. Osteopathic manipulation was associated with greater length-of-stay (15.0 vs. 8.3 days, P=.004) and reduced rehabilitation efficiency (2.1 vs. 3.4 FIM total score points per day, P<.001) in patients with knee osteoarthritis.
Conclusions: The osteopathic manipulation protocol used does not appear to be efficacious in this hospital rehabilitation population. More research is needed to identify those clinical entities that respond best to the variety of osteopathic manipulation procedures available.
Supported in part by the American Osteopathic Association (Grant no. 98-11-464), the Osteopathic Health Foundation, and the Carl Everett Charitable Lead Trust Fund.

C23

HEALTH STATUS OF RURAL POPULATIONS: PROFILING GROUPS TO IDENTIFY THE UNDERSERVED. AM Finley, PhD, C Simpson, DO, J Blazyk, PhD, PJ Finley, BSN, DW Harley, MHI. Ohio University College of Osteopathic Medicine, Center for Appalachian and Rural Health Research, Athens, Ohio 45701

Little data is available on the distribution of the rural, medically underserved and community resources that may enhance programmatic delivery of health care. This study hypothesized that respondents recruited from various locations would provide valuable information that would be used to more efficiently target health services programs.

Survey teams visited 40 sites within Appalachia Ohio which were categorized as grocery stores/malls (GENERAL), fairs/festivals (FAIRS), or underserved support programs (SUPPORT). The survey covered health status, demographics, health care utilization and access, and food security.

A total of 2,040 surveys were collected across the three study categories (GENERAL=789, FAIRS=663, SUPPORT=608). No differences were observed between these categories for age, gender, race, or marital status. SUPPORT respondents reported lower median family income than GENERAL or FAIR (P<0.0001) categories. SUPPORT respondents were less likely to have health care insurance than FAIR (P=0.01) but not GENERAL respondents (P=0.51).

For functional health status, measured by the SF- 36, the SUPPORT sample consistently reported poorer functioning across each scale (magnitude 12-15% lower) than the other two site categories (all P<0.01), with the exception of the Vitality Scale (P=0.20) and Mental Health (SUPPORT vs GENERAL, P=0.05).

Results suggest that working with existing non-medical programs designed to help the most impoverished residents of a region may be one method for increasing positive outcomes per dollar spent.

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C24

ACCESS TO CARE AND UTILIZATION OF MEDICAL SERVICES: LESSONS FROM APPALACHIA OHIO. AM Finley, PhD, J Blazyk, PhD, C Simpson, DO, PJ Finley, BSN, DW Harley, MHI. Ohio University College of Osteopathic Medicine, Center for Appalachian and Rural Health Research, Athens, Ohio 45701

Data from a large health status survey were examined to investigate the relationship of access to care indicators and medical care utilization. The analysis alternative hypothesis was that individuals with Medicaid or no health insurance would demonstrate lower levels of utilization.

A convenience sample of 2,608 adults in Appalachian Ohio completed a survey containing health status, demographics, access, utilization, and food security variables. In this sample, 385 respondents (15%) were uninsured, 574 (14.3%) on Medicaid, and 1,528 (51.7%) had fee-for-service (FFS) and/or managed care (HMO) coverage. Medicare respondents (N=484, 18.5%) were excluded from the analysis. Analyses showed the following results (all differences significant at P<0.001; reference period is last 12 months unless noted):

Variable	Uninsured	Medicaid	FFS/HMO
Age, Mean (sd)	37 (14)	43 (18)	49 (14)
Married, N (%)	195 (51)	345 (39)	843 (64)
White, N (%)	323 (87)	315 (88)	1,212 (93)
Regular Provider, N (%)	205 (60)	294 (89)	1,016 (94)
No care when needed, N (%)	173 (45)	81 (22)	184 (18)
Office visits, Mean (sd)	4 (10)	8 (10)	4 (6)
≥1 Inpatient admission, N (%)	55 (14)	98 (17)	142 (11)
≥1 ER visit, N (%)	160 (42)	209 (39)	422 (32)
No dentist visit in 5 years, N (%)	120 (33)	102 (28)	152 (11)

Respondents demonstrated patterns of utilization that differed by type of insurance, with use by the uninsured and Medicaid suggestive of higher cost care.

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C25

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Spontaneous regression of warts is associated with a delayed-type hypersensitivity response. Candida albicans is a dimorphous yeast capable of eliciting a delayed type hypersensitivity response in the sensitized host. The majority of people have already been sensitized to C.albicans. In 1979, S. Banik published the successful treatment of warts with Candida immunotherapy in the Japanese literature. In 1981, Ruth Halton performed a double blind placebo controlled study demonstrating the efficacy of this new treatment in the treatment of recalcitrant warts. Later, Halton and Rigby performed a second double blind placebo controlled study also demonstrating efficacy in the treatment of warts.

We present the preliminary results of an open prospective surveillance-cohort study of Candida immunotherapy in the treatment of verruca vulgaris and plantar warts. Thus far, 66% of Candida immunotherapy patients have achieved complete clearing of all originally present warts. 45% of traditional treatment patients have achieved complete clearing. Both groups were given up to 3 office visits. It was not uncommon in the Candida immunotherapy group for uninjected warts to also regress. Candida immunotherapy of verruca vulgaris and plantar warts appears to be a safe, effective, and noncurative approach to the treatment of patients with numerous or recalcitrant warts. The cost to the physician, including Candida extract, syringe, and alcohol prep pad for the first treatment is only 30 cents (United States). This cost effective treatment could be useful in areas of the world which cannot afford expensive medical care. This research was not sponsored by any outside corporations or organizations.

C26

OSTEOPATHIC MANIPULATION IN THE MANAGEMENT OF PARKINSON'S DISEASE: PRELIMINARY FINDINGS. M. R. Wells, Ph.D. C. L. McClarty, D.O., G.J. Stanley II, D.O., T.A. Gravelin, D.O., F. Dilorio, D.O. and E. A. Fazzini, D.O., Ph.D. New York College of Osteopathic Medicine of the New York Institute of Technology, Departments of Manipulative Medicine, Family Practice and Biomechanics and Biomechanics, Old Westbury, New York 11568.

Osteopathic manipulation has been shown to acutely improve the gait function of patients with Parkinson disease. It is not clear if the acute effects of treatment will be improved or maintained with continued treatment. Hypothesis: Treatment with osteopathic manipulation will produce functional improvements in the gait patterns with Parkinson's disease if applied over a period of two months. The improvements resulting treatment will slowly extinguish if treatment is discontinued. Methods: Patients with a prior diagnosis of idiopathic Parkinson's disease (n=16) and capable of unassisted ambulation (Modified Hoehn and Yahr stage II-III) and normal controls received an 8 week course of a defined osteopathic manipulative treatment regimen or a sham treatment. Quantitative gait parameters were recorded using a Peak Performance Technologies 3-dimensional gait analysis system at time periods before the start of treatment, at the end of treatment and 8 weeks after treatment was discontinued. Results: Preliminary results indicate that gait parameters including velocity, range of motion of joints and angular velocity improved in treated Parkinson's patients and to some extent in treated normal controls, but not in sham treated Parkinson's patients. The beneficial effects of treatment had diminished, but were still detectable at two months after treatment. Conclusions: Preliminary results support a clear functional benefit of osteopathic manipulation in Parkinson's patients treated over an 8 week period. Some beneficial effects of treatment appear to persist even after treatment is discontinued. Supported by AOA Grant #-98-97-486.

C27

OSTEOPATHIC MANIPULATION IN THE MANAGEMENT OF PARKINSON'S DISEASE: PRELIMINARY FINDINGS. M. R. Wells, Ph.D. C. L. McCarty, D.O., C.J. Smutny III, D.O., T.A. Scandalis, D.O., F. Dittrich, D.O. and E. A. Fazzini, D.O., Ph.D. New York College of Osteopathic Medicine of the New York Institute of Technology, Departments of Manipulative Medicine, Family Practice and Biomechanics and Bioengineering, Old Westbury, New York 11568.

Osteopathic manipulation has been shown to acutely improve the gait function of patients with Parkinson disease. It is not clear if the acute effects of treatment will be improved or maintained with continued treatment. Hypothesis: Treatment with osteopathic manipulation will produce functional improvements in the gait patients with Parkinson's disease if applied over a period of two months. The improvements resulting treatment will slowly extinguish if treatment is discontinued. Methods: Patients with a prior diagnosis of idiopathic Parkinson's disease (n=15) and capable of ambulating unassisted off medication (Modified Hoehn and Yahr stage II-III) and normal controls received an 8 week course of a defined osteopathic manipulation treatment regimen or a sham treatment. Quantitative gait parameters were monitored using a Peak Performance Technologies 3-dimensional gait analysis system at time periods before the start of treatment, at the end of treatment and 8 weeks after treatment was discontinued. Results: Preliminary results indicate that gait parameters including velocity, range of motion of joints and angular velocity improved in treated Parkinson's patients and to some extent in treated normal controls, but not in sham treated Parkinson's patients. The beneficial effects of treatment had diminished, but were still detectable at two months after treatment. Conclusion: Preliminary results suggest a clear functional benefit of osteopathic manipulation in Parkinson's patients treated over an 8 week period. Some beneficial effects of treatment appear to persist even after treatment is discontinued.

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