



THE JOURNAL *of the* AMERICAN OSTEOPATHIC ASSOCIATION

The purpose of this quiz is to provide a convenient means for osteopathic physicians to assess their understanding of the scientific content in the June 2014 issue of *The Journal of the American Osteopathic Association (JAOA)*.

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Alternatively, osteopathic physicians can complete the quiz below and mail it to the following address by December 31, 2015:

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For each of the questions below, place a checkmark in the box provided next to your answer so that you can easily verify your answers against the correct answers, which will be published in the July 2014 issue of the JAOA.

Effect of Osteopathic Manipulative Treatment on Middle Ear Effusion Following Acute Otitis Media in Young Children: A Pilot Study

Karen M. Steele, DO; Jane E. Carreiro, DO; Judith Haug Viola, DO; Josephine A. Conte, DO; and Lance C. Ridpath, MS

1. Which of the following procedures is used to measure the ability of the tympanic membrane to reflect sound:
- (a) tympanometry
 - (b) acoustic reflectometry
 - (c) pneumatic otoscopy
 - (d) tympanocentesis
 - (e) audiologic evaluation

2. Which of the following phenomena was observed in this study?
- (a) Improved hearing was demonstrated immediately after the osteopathic manipulative treatment (OMT) protocol.
 - (b) Dependence between data from the right and left ears of the same child was noted in both the tympanogram and acoustic reflectometer readings.
 - (c) In the general US pediatric population, 70% of children still have middle ear effusion (MEE) present at 2 weeks following an acute episode of otitis media, while in this study 81.5% of patients still demonstrated MEE at 2 weeks.
 - (d) Tympanogram data showed statistically significant improvement in MEE after 3 OMT sessions in patients receiving standard care plus OMT when compared to standard care only.

Osteopathic Manipulative Treatment for Inpatients With Pulmonary Exacerbations of Cystic Fibrosis: Effects on Spirometry Findings and Patient Assessments of Breathing, Anxiety, and Pain

David A. Swender, DO; Gina Thompson, DO; Kristen Schneider, DO; Karen McCoy, MD; and Alpa Patel, MD

3. Osteopathic manipulative treatment (OMT) has been shown to worsen air trapping in patients with which of the following diseases:
- (a) asthma
 - (b) cystic fibrosis
 - (c) chronic obstructive pulmonary disease
 - (d) pulmonary embolus
4. In patients admitted for pulmonary exacerbations of cystic fibrosis, the authors found which of the following:
- (a) Patients who received OMT had a shorter hospital stay than those who received standard therapy only.
 - (b) More patients who received OMT reported improved pain scores than those who received standard therapy only.
 - (c) Patients who received OMT had better pulmonary function than those who received standard therapy only.
 - (d) More patients who received OMT reported improved breathing quality than those who received standard therapy only.

Assessing Palpation Thresholds of Osteopathic Medical Students Using Static Models of the Lumbar Spine

Eric J. Snider, DO; Kenneth Pamperin, MS; Jane C. Johnson, MA; Natalie R. Shurtz, MHA; and Brian F. Degenhardt, DO

5. When educating osteopathic medical students in manual skills, static lumbar models can...
- (a) assess the accuracy of palpation in humans.
 - (b) be used to provide immediate objective feedback.

- (c) provide feedback comparable to that of table trainers.
- (d) provide variable feedback dependent on the pressure used in palpation.

6. For uncovered and covered block transverse process models with a 1-mm magnitude of asymmetry, students were able to identify the direction of asymmetry of the transverse processes with a threshold of which of the following:

- (a) 70%
- (b) 75%
- (c) 80%
- (d) 85%
- (e) 90%

7. For the covered lumbar spine models, students correctly identified the direction of asymmetry with an 80% threshold at which of the following magnitudes of asymmetry:

- (a) 1 mm
- (b) 2 mm
- (c) 3 mm
- (d) 4 mm
- (e) 5 mm

Predictive Relationship of Osteopathic Manual Medicine Grades and COMLEX-USA Level 1 Total Scores and Osteopathic Principles and Practice Subscores

Drew D. Lewis, DO; Mary T. Johnson, PhD; and Edward P. Finnerty, PhD

8. Which course examination grade in the study by Lewis et al was found to most closely correlate with Comprehensive Osteopathic Medical Licensing Examination-USA (COMLEX-USA) Level 1 osteopathic principles and practice (OPP) subscore?

- (a) first-year total
- (b) first-year practical
- (c) first-year written
- (d) second-year practical
- (e) second-year written

9. A written examination score of what percentage correlated with a COMLEX-USA Level 1 OPP subscore of ≤ 400 ?

- (a) $\leq 85\%$
- (b) $\leq 80\%$
- (c) $\leq 75\%$
- (d) $\leq 70\%$
- (e) $\leq 65\%$

10. What was Lewis et al's rationale for the second-year written examination grades showing the strongest association with the COMLEX-USA Level 1 total score and OPP subscore?

- (a) Students performing well in their second academic year have a demonstrated track record of success.
- (b) Students with higher medical school grade point averages tend to struggle with the more comprehensive nature of standardized tests.
- (c) There is a temporal relationship with preparation for the second-year written examination and COMLEX-USA Level 1.
- (d) There was low colinearity between the scores.
- (e) Year 2 curriculum is more basic science-focused, which correlated highly with the OPP items.

Effectiveness of Osteopathic Manipulative Therapy for Managing Symptoms of Irritable Bowel Syndrome: A Systematic Review

Axel Müller, DO (Germany), MSc; Helge Franke, DO (Germany), MSc; Karl-Ludwig Resch, MD, PhD; and Gary Fryer, PhD, BSc

11. Which of the following statements is true about irritable bowel syndrome (IBS)?

- (a) It is a chronic, recurring, and often lifelong persistent gastrointestinal illness.
- (b) It can be variable in its symptoms and characteristics.
- (c) It is a functional disorder that has no known organic cause.

- (d) It has no known cure and treatment is directed at relieving symptoms.
- (e) all of the above

12. Müller et al used methods recommended by the Cochrane Collaboration and thus searched for randomized controlled trials that...

- (a) were indexed by Medline only.
- (b) were indexed by Embase and The Cumulative Index to Nursing and Allied Health only.
- (c) included unpublished studies from the "gray" literature.
- (d) were English language only.
- (e) evaluated osteopathic manipulative therapy that was administered only by a medically qualified osteopathic physician.

13. Müller et al found which of the following results:

- (a) All included studies reported improvement of IBS symptoms following osteopathic manipulative treatment.
- (b) Most studies had relatively small sample sizes.
- (c) The osteopathic manipulative therapy techniques varied between the studies.
- (d) There was marked heterogeneity between the studies for the primary outcome parameters, preventing a meta-analysis.
- (e) all of the above

Answers to May 2014 JAOA CME Quiz

Discussion answers to JAOA continuing medical education quizzes appear only when authors have included discussions with the quiz questions and answers they must provide to meet the requirement for submission to and publication in the JAOA.

Somatic Dysfunction and Use of Osteopathic Manual Treatment Techniques During Ambulatory Medical Care Visits: A CONCORD-PBRN Study

John C. Licciardone, DO, MS, MBA;
Cathleen M. Kearns, BA; Hollis H. King, DO, PhD; Michael A. Seffinger, DO;
W. Thomas Crow, DO; Peter Zajac, DO;
William H. Devine, DO; Reem Y. Abu-Sbaih, DO;
Stephen J. Miller, DO, MPH; Murray R. Berkowitz, DO, MA, MS, MPH; Robin Dyer, DO; Deborah M. Heath, DO; Kevin D. Treffer, DO; Natalie A. Nevins, DO, MSHPE; and Subhash Aryal, PhD

- (a) As presented in Table 3, the adjusted odds ratio for use of osteopathic manual treatment (OMT) in the head region of pediatric patients relative to adult patients was 9.53 (95% confidence interval, 1.28-71.14). Osteopathic manual treatment was less likely to be used in each of the other anatomical regions of pediatric patients as compared with adult patients.
- (d) As presented in Table 3, the adjusted odds ratio for use of OMT in the lower extremity of geriatric patients relative to adult patients was 1.62 (95% confidence interval, 1.02-2.59). There was no significant association between use of OMT and patient age group (geriatric vs adult) in any of the other anatomical regions.
- (b) As presented in Table 4, the adjusted odds ratio for use of OMT in the sacrum region of female patients relative to male patients was 2.11 (95% confidence interval, 1.26-3.52).

There was no significant association between use of OMT and patient sex in any of the other anatomical regions.

Association of Low Back Pain, Somatic Dysfunction, and Lumbar Bone Mineral Density: Reproducibility of Findings

Karen T. Snider, DO; Jane C. Johnson, MA; Brian F. Degenhardt, DO; Eric J. Snider, DO; and Douglas C. Burton, MD

- (c) The presence of tenderness was more common in participants with chronic low back pain than in participants with no low back pain.
- (b) The presence of moderate/severe rotational asymmetry occurred with equivalent frequency in both non-low back pain and chronic low back pain participants.
- (b) In both non-low back pain and chronic low back pain participants, lumbar vertebrae with rotational asymmetry demonstrated higher bone mineral density T scores compared with those of vertebrae that demonstrated mild or no somatic dysfunction.

Wikipedia vs Peer-Reviewed Medical Literature for Information About the 10 Most Costly Medical Conditions

Robert T. Hasty, DO; Ryan C. Garbalosa, DO; Vincenzo A. Barbato, DO; Pedro J. Valdes Jr, DO; David W. Powers, DO; Emmanuel Hernandez, DO; Jones S. John, DO; Gabriel Suci, PhD, MSPH; Farheen Qureshi, DO; Matei Popa-Radu, DO; Sergio San Jose, DO; Nathaniel Drexler, DO; Rohan Patankar, DO; Jose R. Paz, DO; Christopher W. King, DO; Hilary N. Gerber, DO; Michael G. Valladares DO, MS; and Alyaz A. Somji, DO

- (c) The following statement is the most accurate regarding Wikipedia as a medical reference for the 10 most costly conditions in the United States: "Wikipedia is not as accurate as peer-reviewed publications."

Effect of Osteopathic Manipulative Therapy in the Attentive Performance of Children With Attention-Deficit/Hyperactivity Disorder

Alessandro Accorsi, DO (Italy); Chiara Lucci, DO (Italy); Lorenzo Di Mattia, DO (Italy); Cristina Granchelli, DO (Italy); Gina Barlafante, MD, DO (Italy); Federica Fini, MA; Gianfranco Pizzolorusso, DO (Italy); Francesco Cerritelli, DO (Italy); and Maurizio Pincherle, MD

- (c) The Biancardi-Stroppa Modified Bell Cancellation Test was used to assess the attentive performance in children with attention-deficit/hyperactivity disorder.
- (b) At the end of the study period, there was a statistically significant difference between the intervention group and the control group on Biancardi-Stroppa Test scores for rapidity, but not for accuracy.

Management of Ionizing Radiation Injuries and Illnesses, Part 2: Nontherapeutic Radiologic/Nuclear Incidents

Doran M. Christensen, DO; Steven J. Parillo, DO; Erik S. Glassman, EMT-P, MS; and Stephen L. Sugarman, MS

- (a) A substantial concern about the covert placement of a radiologic exposure device is that the dose-dependent effects are delayed by several days. There is no detonation with ensuing blast effects.

Answers to the May 2014 Supplement to the JAOA CME Quiz

1. (c) The statement "Early control of T2DM (type 2 diabetes mellitus) may lead to a legacy effect, wherein there may be sustained benefits with regard to microvascular complications" is *not* true about recent-onset T2DM and its management.
2. (c) When the goal is to avoid hypoglycemia, the American Diabetes Association and the European Association for the Study of Diabetes recommend that sulfonylurea *not* be used as add-on therapy to metformin for dual therapy.
3. (a) When the goal is to avoid weight gain, the American Diabetes Association and the European Association for the Study of Diabetes recommend a dipeptidyl peptidase-4 (DPP-4) inhibitor or a glucagon-like peptide-1 (GLP-1) receptor agonist as add-on therapy to metformin for dual therapy.
4. (c) The peak postprandial glucose goal, as recommended in the American Diabetes Association's 2014 standards of medical care, is less than 180 mg/dL.
5. (b) The currently recommended blood pressure goal for patients with T2DM as indicated in the American Diabetes Association's 2014 standards of medical care is less than 140/80 mm Hg.
6. (b) The statement "Approximately 25% of patients with T2DM are obese" is *not* true about obesity or weight and T2DM and its management.
7. (a) The statement "Both GLP-1 receptor agonists and DPP-4 inhibitors have good gastrointestinal tolerability and may result in weight loss" is *not* true.
8. (a) Regarding clinical trials comparing insulin to incretin-based therapies, the statement "DPP-4 inhibitors are as effective as insulin and are associated with less weight gain and less hypoglycemia" is *not* true.
9. (b) Exenatide twice per day is a GLP-1 receptor agonist that has the greatest effect on postprandial glucose levels.
10. (d) Both coronary artery disease and hypoglycemia were the most common nonfatal comorbidities in persons with long-standing T2DM, as reported in the Diabetes and Aging study.
11. (b) In the United Kingdom Prospective Diabetes Study, after 9 years of T2DM, only 25% of patients remained on monotherapy, and many patients required insulin therapy at this juncture.
12. (c) Sulfonylureas were associated with the greatest loss of glycemic control with greater duration diabetes (as evidenced in the United Kingdom Prospective Diabetes Study and A Diabetes Outcome Progression Trial).
13. (c) Postprandial glucose homeostasis is largely regulated by incretin hormones.
14. (b) Exenatide once weekly is *not* approved for use in combination with basal insulin.
15. (e) Improved glycated hemoglobin A_{1c} level, low incidence of hypoglycemia, beneficial effects on weight, and potential to reduce insulin dose are all benefits of adding a GLP-1 receptor agonist to basal insulin therapy.
16. (d) Both linagliptin and liraglutide are *not* substantially metabolized by the kidney.

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