



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 March 2016 issue of *The Journal of the American Osteopathic Association (JAOA)*.

To apply for 2 Category 1-B continuing medical education (CME) credits, AOA members may take this quiz online at <https://www.osteopathic.org/docmeonline>, where this and other JAOA quizzes can be accessed. Quizzes that are completed online will be graded and credited to members' CME activity reports.

Alternatively, osteopathic physicians can complete the quiz below and mail it to the following address by September 31, 2017:

American Osteopathic Association
Division of CME Policy & Accreditation
142 E Ontario St
Chicago, IL 60611-2864
Fax: (312) 202-8202

AOA No. _____

Full name _____

If you mail or fax this form to the Division of CME Policy & Accreditation, the AOA will record the fact that you have submitted this form for Category 1-B CME credit. Osteopathic physicians who are not members of the AOA and who forward hard copies of completed JAOA quizzes to the Division of CME Policy & Accreditation will be charged a fee of \$25 per quiz for staff time to grade the quiz, record the credits, and provide a letter to the osteopathic physician as documentation.

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 April 2016 issue of the JAOA.

Osteopathic Manipulative Treatment for Older Patients: A National Survey of Osteopathic Physicians

Millicent King Channell, DO, MA;

Yvette Wang, DO;

Matthew H. McLaughlin, BS;

Janice Ciesielski, MS; and

Sherry C. Pomerantz, PhD

1. Most survey respondents indicated that they did not use osteopathic manipulative treatment (OMT) to manage which of the following musculoskeletal conditions:

- (a) low back pain
 (b) carpal tunnel syndrome
 (c) osteoporosis
 (d) gait abnormalities

2. Which OMT technique is used significantly less in patients aged 65 years or older?

- (a) high-velocity, low-amplitude
 (b) counterstrain
 (c) balanced ligamentous tension
 (d) rib raising

Recovery From Chronic Low Back Pain After Osteopathic Manipulative Treatment: A Randomized Controlled Trial

John C. Licciardone, DO, MS, MBA;

Robert J. Gatchel, PhD, ABPP;

and Subhash Aryal, PhD

3. Which of the following baseline variables was the only significant predictor of recovery from chronic low back pain other than receiving OMT in the primary analysis from the OSTEOPATHic Health outcomes In Chronic low back pain (OSTEOPATHIC) Trial:

- (a) visual analog scale score for low back pain intensity
 (b) Roland-Morris Disability Questionnaire score for back-specific functioning
 (c) Medical Outcomes Study Short Form-36 Health Survey score for general health
 (d) comorbid depression status

Targeting Patient Subgroups With Chronic Low Back Pain for Osteopathic Manipulative Treatment: Responder Analyses From a Randomized Controlled Trial

John C. Licciardone, DO, MS, MBA;

Robert J. Gatchel, PhD, ABPP;

and Subhash Aryal, PhD

4. Which of the following subgroups of patients with chronic low back pain were generally most likely to experience substantial improvement with OMT in the OSTEOPATHIC Trial:
- (a) patients with low levels of pain or low levels of back-specific dysfunction at baseline
 (b) patients with low levels of pain or high levels of back-specific dysfunction at baseline
 (c) patients with high levels of pain or low levels of back-specific dysfunction at baseline
 (d) patients with high levels of pain or high levels of back-specific dysfunction at baseline

The Glymphatic-Lymphatic Continuum: Opportunities for Osteopathic Manipulative Medicine

Kyle Hitscherich, OMS II;
 Kyle Smith, OMS II; Joshua A. Cuoco, MS,
 OMS II; Kathryn E. Ruvolo, OMS III;
 Jayme D. Mancini, DO, PhD; Joerg R.
 Leheste, PhD; and German Torres, PhD

5. Which of the following physiologic variables is thought to be a major regulator of cerebrospinal fluid flow in humans:
- (a) increased respiration
 - (b) deep-wave sleep
 - (c) regular contraction of muscles in the neck containing cervical lymph tissue
 - (d) supine position
6. The Virchow-Robin space is anatomically described as the space that surrounds...
- (a) lymphatic channels draining the choroid plexus into the confluence of sinuses.
 - (b) lymphatic channels draining into arachnoid granulations.
 - (c) penetrating arteries, venules, and capillaries from the subarachnoid space into the brain parenchyma.
 - (d) penetrating arteries, venules, and capillaries from the dura into arachnoid granulations.
7. Which of the following soluble proteins is best associated with Alzheimer disease pathology?
- (a) huntingtin
 - (b) apolipoprotein 4
 - (c) amyloid- β
 - (d) Cowdry bodies
8. Which of the following OMT techniques is most commonly used to improve lymphatic drainage:
- (a) pedal pump
 - (b) thoracic outlet release
 - (c) thoracic pump
 - (d) abdominal diaphragm release

Concussions and Osteopathic Manipulative Treatment: An Adolescent Case Presentation

Iris Castillo, DO; Kimberly Wolf, DO;
 and Alexander Rakowsky, MD

9. A 16-year-old boy presents to the emergency department after a head injury while playing football for his high school team. He had a head-to-head collision with another player, and they were both wearing helmets. The patient lost consciousness for approximately 5 minutes. When he recovered, he could not remember what had happened to him or where he was, but he could recall his name and his parents' names. In the emergency department about 1 hour after the collision, he was back to baseline. He was alert and oriented without any focal neurologic signs. What is the most appropriate next step in medical management?
- (a) Obtain a computed tomographic scan with and without intravenous contrast immediately.
 - (b) Order magnetic resonance imaging of the head and neck.
 - (c) Consult the neurology department for seizure prophylaxis.
 - (d) Discharge the patient home with concussion precautions and close follow-up with his pediatrician.
10. A 12-year-old patient who received a diagnosis of a concussion from a head injury she sustained from a soccer collision presents to a primary care clinic with her mother. They wonder when she will be able to return to her usual activities because she has an important tournament in 1 month. Her injury occurred about 2 weeks ago when she head butted the soccer ball incorrectly. She has been undergoing a stepwise return to play and school. She continues to have headaches and photophobia while she is in gym class. Headaches usually begin when she starts jogging and resolve after she rests. She is still unable to tolerate a full day of school.

What is the most appropriate next step?

- (a) Allow full return to play.
 - (b) Allow her to return to full soccer activity if she agrees to wear a helmet.
 - (c) Do not allow her to return to play as long as she continues to have symptoms with play.
 - (d) Advise her parents that to avoid second impact syndrome, she will never be able to return to play.
11. A patient presents to an osteopathic manipulative medicine clinic for craniosacral management of his concussion. Which cranial technique will specifically help increase the movement of fluid, including cerebrospinal fluid and blood, within the cranium?
- (a) sphenobasilar synchondrosis decompression
 - (b) compression of the fourth ventricle
 - (c) Still technique to C5
 - (d) rib raising

Resolution of New Daily Persistent Headache After Osteopathic Manipulative Treatment

Joshua Alexander, DO, MPH

12. New daily persistent headache is characterized by which of the following:
- (a) unilateral throbbing headache associated with photophobia and nausea lasting 4 to 72 hours; there is no visual aura
 - (b) severe orbital stabbing pain that occurs a 3 times per day and lasts for 30 minutes; it is associated with ipsilateral conjunctival injection and lacrimation
 - (c) bilateral pressure headache occurring 20 days per month for more than 3 months, not aggravated by physical activity, and with mild photophobia but not phonophobia or nausea
 - (d) unilateral pressure headache that waxes and wanes and is associated with photophobia and phonophobia; it does not remit, and the patient can recall the exact date of onset

Answers to the February 2016 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.

Effectiveness of the Complete Health Improvement Program in Reducing Risk Factors for Cardiovascular Disease in an Appalachian Population

Christopher Leibold, OMS III;
Jay H. Shubrook, DO;
Masato Nakazawa, PhD;
and David Drozek, DO

1. (c) Approximately 50% of US adults have at least 1 chronic disease.
2. (e) The Complete Health Improvement Program is a plant-based whole food diet.
3. (d) The Complete Health Improvement Program improved glucose in participants with prediabetes and in participants with established type 2 diabetes mellitus.

How to Monitor and Advise Vegans to Ensure Adequate Nutrient Intake

Heather Fields, MD; Barbara Ruddy, MD;
Mark R. Wallace, MD; Amit Shah, MD;
Denise Millstine, MD; and Lisa Marks, MLS

4. (a) Vitamin B₁₂, calcium, and iron are commonly deficient in vegans.
5. (d) Iron deficiency is more prevalent among young vegan women compared with those on other diets, particularly older vegan women and men and women following omnivore diets.
6. (d) Vitamin B₁₂ supplements can improve cardiovascular parameters in vegans.

Burnout Among Osteopathic Residents: A Cross-sectional Analysis

Amanda Michele Chan, MS, DO; Shawn T. Cuevas, DO; and James Jenkins II, PhD

7. (b) Although a possible result of burnout, apathy is not an element of the Maslach Burnout Inventory. The Maslach Burnout Inventory consists of 3 key elements, including emotional exhaustion, depersonalization, and personal achievement.
8. (d) According to this study, male sex, surgical-based program, and marriage did not decrease burnout in residents.

Establishing a Professionalism Score in an Osteopathic Manipulative Medicine Curriculum

Karen T. Snider, DO

9. (a) Academic performance is positively correlated with a professionalism score assessing first- and second-year osteopathic medical students' timeliness and appropriate attire in an osteopathic manipulative medicine curriculum.

Abdominal Trigger Points and Psychological Function

Roy R. Reeves, DO, PhD,
and Mark E. Ladner, MD

10. (e) Trigger points may represent impaired or altered function of the myofascial system and its related neural, lymphatic, and circulatory elements.
11. (d) Trigger points are painful on compression and can give rise to characteristic localized pain, referred pain, and autonomic phenomena.

Earn CME Credits Online

Hundreds of credits of accredited online continuing medical education (CME) courses, including quizzes from *The Journal of the American Osteopathic Association* and its supplements, are available for physician-members of the American Osteopathic Association at <https://www.osteopathic.org/docmeonline>. Physician-members can also view their current CME activity reports through this website.