



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 November 2013 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 <http://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 May 31, 2015:

American Osteopathic Association
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142 E Ontario St
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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 December 2013 issue of the JAOA.

In Vitro Biomechanical Strain Regulation of Fibroblast Wound Healing

Thanh V. Cao, BS; Michael R. Hicks, BS; and Paul R. Standley, PhD

1. Nitric oxide plays a significant role during fibroblast wound healing.

Low concentrations of nitric oxide are known to induce which of following fibroblast responses:

- (a) apoptosis
 (b) proliferation
 (c) necrosis
 (d) both a and b
 (e) none of the above

2. Which of the following is a likely mechanism by which mechanical strain enhances fibroblast sensitivity to nitric oxide:

- (a) prolonging protein kinase C activity by inhibiting dephosphorylation of its catalytic domain
 (b) increasing activation of extracellular signal-regulated kinase by cyclic guanosine monophosphate–dependent protein kinase
 (c) phosphorylating the inhibitory subunit on phosphoinositide 3-kinase
 (d) both a and c
 (e) all of the above

Aortic Stenosis: New Thoughts on a Cardiac Disease of Older People

Felix J. Rogers, DO

3. For a patient with isolated aortic stenosis, the guidelines presently recommend aortic valve replacement surgery in only symptomatic patients.

Which of the following is not 1 of the 3 cardinal symptoms of this disease:

- (a) chest pain consistent with angina pectoris
 (b) shortness of breath or another symptom of heart failure
 (c) palpitations suggestive of a paroxysmal arrhythmia
 (d) syncope, especially with exertion

4. For decades, aortic stenosis was considered just in terms of the valve gradient or the amount of valve narrowing determined by cardiac catheterization. Now, this condition is also considered in terms of:

- (a) the response of the left ventricle to the disease process
 (b) the degree of ascending aortic root dilatation (poststenotic dilatation)
 (c) the involvement of the renal system, as manifest by the estimated glomerular filtration rate
 (d) the role of the musculoskeletal system

5. The discovery of “paradoxical” severe aortic stenosis, in which the gradient across the valve is low because of decreased left ventricular (LV) function in spite of a normal ejection fraction, is analogous to heart failure with a preserved LV ejection fraction. The insight here is which of the following:

- (a) The normal LV ejection fraction means normal systolic function, and the problem is all diastolic.
 (b) The LV wall thickening is the clue to the LV function.
 (c) The LV systolic function is abnormal in spite of a normal ejection fraction because of decreased shortening of the LV on its longitudinal axis due to subendocardial fibrosis.
 (d) The circumferential twisting action of the heart explains why the LV contraction and relaxation are abnormal in aortic stenosis.

(continued)

Role of Osteopathic Structural Diagnosis and Osteopathic Manipulative Treatment for Diabetes Mellitus and Its Complications

Amy W. Johnson, DO, and

Jay H. Shubrook Jr, DO

6. Which of the following spinal sympathetic cord levels are associated with the pancreas:
- (a) C1-C4
 - (b) T1-T3
 - (c) T5-T11
 - (d) L2-L4
7. Which of the following unique osteopathic manipulative treatment modalities has been shown to increase shoulder range of motion and improve mobility in the elderly:
- (a) Spencer technique
 - (b) high-velocity, low-amplitude
 - (c) Sutherland maneuver
 - (d) Still technique

Tobacco Dependence Curricula in US Osteopathic Medical Schools: A Follow-up Study

Brian N. Griffith, MS, PhD;

Norman J. Montalto, DO; Lance Ridpath, MS; and Kendra Sullivan, MPA

8. Compared with 1998 findings, osteopathic medical schools in 2010 demonstrated statistically significant curricular improvements in which of the following educational components of tobacco dependence management:
- (a) motivational interviewing
 - (b) smokeless tobacco
 - (c) stages of change theory
 - (d) number of curricular hours

Thoracic Splenosis More Than 40 Years After Thoracoabdominal Trauma

Albert H. O-Yurvati, DO; Jared B.

Thompson, OMS IV; and Tessa N. Woods, DO

9. Ectopic splenosis is a rare pathologic entity. The condition is most commonly found in which of following sites:

- (a) thorax
- (b) liver
- (c) mesentery
- (d) pelvis

10. Postoperative osteopathic manipulative treatment for a patient who undergoes treatment for ectopic thoracic splenosis may include which of the following techniques:
- (a) rib raising
 - (b) high-velocity, low-amplitude
 - (c) lymphatic pump
 - (d) both a and c

Osteopathic Manipulative Treatment in Tarsal Somatic Dysfunction: A Case Study

Joshua Batt, DO, and Michael

M. Neeki, DO, MS

11. Most tarsal subluxations are caused by:
- (a) overuse syndrome
 - (b) obesity
 - (c) excessive dorsiflexion
 - (d) inversion injury
 - (e) idiopathic causes

12. Which of the following structures support the longitudinal arch of the foot:

- (a) cuneiform bones
- (b) cuboid and navicular bones
- (c) tibialis posterior muscle
- (d) metatarsal bones
- (e) all of the above

13. Which of the following is used when performing high-velocity, low-amplitude manipulation of a subluxed cuboid:

- (a) a whipping motion
- (b) a dorsiflexed foot
- (c) a plantar-flexed foot
- (d) the supine position
- (e) thumbs along the metatarsal bases

Answers to October 2013 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.

Prevention of Progressive Back-Specific Dysfunction During Pregnancy: An Assessment of Osteopathic Manual Treatment Based on Cochrane Back Review Group Criteria

John C. Licciardone, DO, MS, MBA, and Subhash Aryal, PhD

1. (a) The Cochrane Back Review Group recommends a risk ratio of less than 0.5 as the criterion for a large treatment effect in preventing adverse outcomes. Thus, the observed treatment effect of combining osteopathic manual treatment with usual obstetric care was considered large in preventing progressive back-specific dysfunction on the basis of a less than 0.5 risk ratio in comparison with usual obstetric care.
2. (d) On the basis of a replication of the study's methods and results, the relevant number needed to treat is 2.5. Thus, on average, for every 2.5 women treated with osteopathic manual treatment, 1 case of progressive back-specific dysfunction would be prevented. Hence, if 100 pregnant women received osteopathic manual treatment in addition to usual obstetric care during the third trimester of pregnancy, about 40 cases of progressive back-specific dysfunction would be prevented.

Influence of Manual Therapy on Functional Mobility After Joint Injury in a Rat Model

Rachel L. Ruhlen, PhD; Eric J. Snider, DO; Neil J. Sargentini, PhD; Bart D. Worthington, DO; Vineet K. Singh, PhD; Vanessa M. Pazdernik, MS; Jane C. Johnson, MA; and Brian F. Degenhardt, DO

3. (b) After intra-articular injection of carrageenan into the ankle, voluntary running of rats decreases dramatically. It took 4 days for postinjection running to return to baseline levels.
4. (a) The authors attempted to establish a positive control for the pain model, but morphine, ketorolac, prednisone, and the manual therapy protocols tested were ineffective. Because the positive controls were ineffective, one cannot conclude that manual therapy is ineffective. In the absence of a positive control, no conclusion can be drawn as to the lack of effect of a test condition (answer b). Simply saying something is a positive control or was intended to be a positive control does not make it a positive control (answer c). It must show an effect relative to the negative control to be a positive control. Finally, answer d is flawed logic of the form "p implies q; not p, therefore, not q."

Retrospective Medical Record Review of an Osteopathic Manipulative Medicine Hospital Consultation Service

Karen T. Snider, DO; Eric J. Snider, DO; Brett R. DeGooyer, DO; Allison M. Bukowski, DO; Regina K. Fleming, DO; and Jane C. Johnson, MA

5. (e) In 2008, the most common primary diagnosis for acute care hospital admissions in the United States was pregnancy, childbirth, and liveborn infant.

6. (b) In the study by Snider et al, the most common reason for obtaining an inpatient osteopathic manipulative medicine consultation was chest/rib pain.

Dementia: An Evidence-Based Review of Common Presentations and Family-Based Interventions

Angela L.H. Buffington, PhD; Dorothy M. Lipski, MA; and Erin Westfall, DO

7. (b) A diagnosis of dementia does not require a decline from a previous level of functioning. According to the *Diagnostic and Statistical Manual of Mental Disorders*, dementia results in a functional impairment in activities of daily living.
8. (a) Cortical dementias are typically progressive and degenerative and associated with aphasia, apraxia, agnosia, and impaired reasoning, problem solving, learning, and recall. By contrast, subcortical dementias may be progressive, static, or reversible and are associated with cognitive slowing, emotionality, and deficits in attention, arousal, and processing speed but preserved recall with recognition cuing.
9. (d) Dementia with Lewy bodies results in a prominent impairment in attention, visuospatial functioning, and executive functions, as well as sleep disturbance, extrapyramidal symptoms, visual hallucinations, and fluctuations in attention and alertness. By contrast, Alzheimer disease results in prominent impairment in memory and naming and poor insight, but social behavior is preserved.

10. (d) Frontotemporal dementia, as well as Alzheimer disease and dementia with Lewy bodies, is an example of cortical dementia. Vascular dementia, depression, and dementia due to Parkinson disease are examples of subcortical dementias.

Medicare Reform and Primary Care Concerns for Future Physicians

Charles H. Mitchell, OMS IV, and Robert Spinelli, DBA, MPH

11. (d) Family medicine, general internists, preventive medicine, geriatric medicine, osteopathic general practice, and obstetrics-gynecology are considered "primary care" by the Medicare Direct Graduate Medical Education payment system.

I Can't Move My Face! A Case of Bilateral Facial Palsy

Marna Rayl Greenberg, DO, MPH; Megan C. Urquhart, DO; Jessica K. Eygnor, DO; Charles C. Worrilow, MD; Nicole Ceccacci Gesell, DO; Bernadette Glenn Porter, BS; and Andrew C. Miller, DO

12. (b) The statement that bilateral facial palsy is common is false. In fact, bilateral facial palsy is quite uncommon.