



# 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 February 2015 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 August 31, 2016:

American Osteopathic Association

Division of CME

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AOA No. \_\_\_\_\_

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If you mail or fax this form to the Division of CME, 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 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 March 2015 issue of the JAOA.

## Duration and Magnitude of Myofascial Release in 3-Dimensional Bioengineered Tendons: Effects on Wound Healing

Thanh V. Cao, BSc; Michael R. Hicks, PhD; Manal Zein-Hammoud, PhD; and Paul R. Standley, PhD

1. Fibroblasts serve all of the following functions except:
- (a) synthesis and reorganization of extracellular matrix proteins
  - (b) secretion of cytokines and growth factors to stimulate local inflammatory response
  - (c) induction of contraction forces for wound remodeling
  - (d) presentation of antigen markers to activate lymphocyte activity

2. Which of the following combinations of strain duration and magnitude improves wound-healing times in vitro:
- (a) long duration and high magnitude
  - (b) short duration and low magnitude
  - (c) long duration and low magnitude
  - (d) short duration and high magnitude

## Osteopathic Manipulative Treatment for Self-Reported Fatigue, Stress, and Depression in First-Year Osteopathic Medical Students

Sarah Wiegand, OMS IV, MSc;  
William Bianchi, OMS IV, MSc;  
Thomas A. Quinn, DO;  
Mark Best, MD, MBA, MPH, MS;  
and Thomas Fotopoulos, DO

3. The nondirected osteopathic manipulative treatment (OMT) protocol focused on which of the following:
- (a) cervical spine
  - (b) ribs
  - (c) pelvis and extremities
  - (d) craniosacral axis
4. Participants in the directed OMT group had statistically significant improvement in which of the following:
- (a) stress symptoms only
  - (b) fatigue symptoms only
  - (c) stress and depression symptoms only
  - (d) fatigue and depression symptoms only
  - (e) fatigue, depression, and stress symptoms

## Lidocaine-Induced Methemoglobinemia: A Clinical Reminder

Mark Barash, DO; Keith A. Reich, DO, RhMSUS; and Dennis Rademaker, DO

5. Which of the following compounds is known to be the most potent in causing methemoglobinemia:
- (a) dapsone
  - (b) lidocaine
  - (c) prilocaine
  - (e) metoclopramide
6. At what concentration of methemoglobin or percent total hemoglobin will patients generally begin to exhibit anxiety, lightheadedness, headache, and tachycardia?
- (a) <1.5 g/dL or <10%
  - (b) 1.5-3.0 g/dL or 10%-20%
  - (c) 3.0-4.5 g/dL or 20%-30%
  - (d) 4.5-7.5 g/dL or 30%-50%

(continued)

### Relationship of Admissions Variables and College of Osteopathic Medicine Variables to Performance on COMLEX-USA Level 3

Helen H. Baker, PhD, MBA; Victoria L. Shuman, DO; Lance C. Ridpath, MS; Lorenzo L. Pence, DO; Robert M. Fisk Jr, PhD, MA; and Craig S. Boisvert, DO

7. Which of the following variables was most closely related to the Comprehensive Osteopathic Medical Licensing Examination-USA (COMLEX-USA) Level 3 performance:
- (a) undergraduate science grade point average (GPA)
  - (b) year 1 GPA
  - (c) passing COMLEX-USA Level 2-Performance Evaluation
  - (d) COMLEX-USA Level 2-Cognitive Evaluation (CE) score
  - (e) clinical rotation GPA
8. A weak relationship was found between performance on COMLEX-USA Level 3 and...
- (a) admission variables (ie, MCAT [Medical College Admission Test] scores and GPA).
  - (b) year 2 GPA.
  - (c) clinical rotation GPA.
  - (d) COMLEX-USA Level 1 score.
  - (e) COMLEX-USA Level 2-CE score.

### Resolution of Dacryostenosis After Osteopathic Manipulative Treatment

Theresa E. Apoznanski, OMS III; Reem Abu-Sbaih, DO; Michael J. Terzella, DO; and Sheldon Yao, DO

9. Which of the following statements is true regarding dacryostenosis:
- (a) Spontaneous resolution occurs by age 3 months in up to 90% of children.
  - (b) It must be diagnosed using the fluorescein-stained saline "tear-drop test."
  - (c) It may be caused by the frontal process of the maxilla being driven posteriorly during birth.
  - (d) The chance of resolution increases between ages 6 and 12 months.
  - (e) It is caused by a malfunctioning of the lacrimal gland secondary to birth trauma.

## Answers to the January 2015 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.

### Identification of Musculoskeletal Disorders in Medically Underserved Regions of South America and Vietnam

Robin J. Jacobs, PhD, MSW, MS; Belinda A. Collias, DO; Arif M. Rana, PhD, EdS, MS; Elaine M. Wallace, DO; Michael N. Kane, PhD, MSW, ACSW; and David R. Boesler, DO

1. (a) The most prevalent musculoskeletal condition reported among the Vietnamese participants in the study was knee pain.
2. (b) Findings from this study suggest that osteopathic manipulative treatment health interventions in Vietnam and South America should be heavily targeted to women and elderly persons.

### The Emerging Use of Platelet Rich Plasma in Musculoskeletal Medicine

Jamil Bashir, MD; Alberto J. Panero, DO; and Andrew L. Sherman, MD

3. (a) A 54-year-old man with medial left knee pain and abnormal sensations radiating distally along the medial aspect of the left foot and leg is referred for electromyography and nerve conduction studies. He underwent a left total knee arthroplasty 2 months previously. The saphenous nerve is important to screen. The saphenous nerve can be injured in the subsartorial (Hunter) canal or between the sartorius and gracilis. It can also be related to trauma from knee or vascular surgery. This is a pure sensory syndrome; muscle strength is not affected. The presentation is medial knee pain with abnormal sensation radiating distally along the medial aspect of the leg and foot.

4. (b) A 32-year-old man with a recent severe spinal cord injury continues to have fevers of unknown origin. You suspect heterotopic ossification (HO) as the cause of the persistent fevers. A bone scan will confirm the suspected diagnosis earliest, as it is the most sensitive method for detection of early HO. Heterotopic ossification can be seen during the first 2 to 4 weeks after injury in phase 1 and phase 2 of a 3-phase bone scan, and in phase 3 in 4 to 8 weeks, with normalization by 7 to 12 months. Plain radiographs require 3 weeks to 2 months after injury to reveal HO.

### Use of a Novel Assay to Measure Pre- to Posttraining Palpatory Skills of First-Year Osteopathic Medical Students

Meredith S. Loh, OMS IV; Norman Gevitz, PhD; Wolfgang G. Gilliar, DO; Lauren M. Iacono, OMS IV; Min-Kyung Jung, PhD; Bhuma Krishnamachari, PhD; and Kurt Amsler, PhD

5. (a) From the beginning to the end of their first term, first-year osteopathic medical students' ability to correctly identify the location of a dime in a stack of paper improved.
6. (c) From the beginning to the end of the first term, the range of palpatory skills exhibited by first-year osteopathic medical students did not change markedly.

### Resolution of Hypothyroidism After Correction of Somatovisceral Reflex Dysfunction by Refusion of the Cervical Spine

Murray R. Berkowitz, DO, MA, MS, MPH

7. (c) The superior cervical paraspinal ganglia are located in the fascia of spinal level C6.
8. (b) The parasympathetic innervation of the thyroid comes from the main vagus nerve.