



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 October 2014 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 April 30, 2016:

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

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 November 2014 issue of the JAOA.

Changes in Rat Spinal Cord Gene Expression After Inflammatory Hyperalgesia of the Joint and Manual Therapy

Rachel L. Ruhlen, PhD; Vineet K. Singh, PhD;
Vanessa K. Pazdernik, MS; Lex C. Towns, PhD;
Eric J. Snider, DO; Neil J. Sargentini, PhD;
and Brian F. Degenhardt, DO

- Sample A RNA is labeled with cyanine 3 (Cy3) dye, and sample B RNA is labeled with cyanine 5 (Cy5) dye. The samples are combined and hybridized to the probe on a microarray slide. By what method can the relative target gene expression of the samples then be determined?
 - (a) quantitative reverse-transcription polymerase chain reaction
 - (b) measuring the intensities of the Cy3 and Cy5 signal
 - (c) visually examining the slide under a microscope

- Microarray experiments can be used to assess the relative levels of gene expression between 2 different conditions. In a hypothetical gene expression experiment, the mRNA from condition 1 is labeled with Cy3 and the mRNA from condition 2 is labeled with Cy5, and after microarray hybridization, the color intensities produced by the hybridized gene sequences are determined using an appropriate scanner. In this hypothetical experiment, genes with higher Cy5 intensities indicate that...
 - (a) these genes are up-regulated under condition 1.
 - (b) these genes are up-regulated under condition 2.
 - (c) these genes are equally expressed under conditions 1 and conditions 2.
 - (d) a measure of Cy5 or Cy3 intensities is inadequate to conclude up- or down-regulation of genes.

Deformations Experienced in the Human Skin, Adipose Tissue, and Fascia in Osteopathic Manipulative Medicine

Hans Chaudhry, PhD; Bruce Bukiet, PhD;
Zhiming Ji, PhD; Antonio Stecco, MD;
and Thomas W. Findley, MD, PhD

- The forces on the surface of the skin during manual medicine techniques are transmitted entirely through which of the following layers:
 - (a) skin
 - (b) adipose tissue
 - (c) fascia
 - (d) all of the above
- When a specified force is applied to the skin, what is the magnitude of the deformation produced in the adipose layer relative to that in the skin?
 - (a) about half that in the skin
 - (b) about the same as that in the skin
 - (c) about 50% greater than that in the skin
 - (d) about 5 times that in the skin
- Which of the following is the correct order of softness of tissue layers (softest to stiffest):
 - (a) adipose, skin, fascia
 - (b) skin, fascia, adipose
 - (c) adipose, fascia, skin
 - (d) fascia, adipose, skin
 - (e) skin, adipose, fascia
- Under a specified force on the skin, how much deformation is produced on the skin relative to fascia?
 - (a) about half that in the fascia
 - (b) about the same as that in the fascia
 - (c) about 50% greater than that in the fascia
 - (d) about 5 times that in the fascia

Acceptance of Lesbian, Gay, Bisexual, and Transgender Patients, Attitudes About Their Treatment, and Related Medical Knowledge Among Osteopathic Medical Students

Jessica Lapinski, OMS III;
Patricia Sexton, MS, DHEd;
and Lauren Baker, BA

7. Lesbian, gay, bisexual, and transgender (LGBT) patients have an increased risk of which of the following mental health issues:
- (a) psychiatric disorders
 - (b) substance abuse
 - (c) suicidal ideation
 - (d) all of the above
8. Which of the following has been identified as a primary reason why LGBT patients are hesitant to disclose their sexual orientation to health care professionals:
- (a) fear of discriminatory treatment
 - (b) fear of being "outed"
 - (c) desire to keep their sexual orientation private
 - (d) LGBT patients are *not* hesitant to disclose their sexual orientation to health care professionals.
9. Which of the following statements best summarizes the results of the study by Lapinski et al:
- (a) Osteopathic medical students had negative attitudes toward LGBT patients, but disparities were present.
 - (b) Osteopathic medical students had positive attitudes toward LGBT patients, but disparities were present.
 - (c) Osteopathic medical students had positive attitudes toward LGBT patients, and no disparities were present.
 - (d) Osteopathic medical students had negative attitudes toward LGBT patients, and no disparities were present.

A Call to Include Medical Humanities in the Curriculum of Colleges of Osteopathic Medicine and in Applicant Selection

Gary Hoff, DO; Norma J. Hirsch, MD;
J. Jeffrey Means, MS, MD, PhD;
and Lisa Streyffeler, PhD

10. Humanities may assist medical professionals in which of the following ways:
- (a) to empathize with patient suffering
 - (b) to reflect critically on medical knowledge
 - (c) to create new representations of the medical experience
 - (d) to confront moral, psychological, and ethical dilemmas
 - (e) all of the above
11. Widening of the admission process of colleges of osteopathic medicine, making it a holistic review rather than a limited evaluation of academic achievement alone (grade point average, Medical College Admissions Test scores, etc), might include which of the following:
- (a) investigating ethics, humanities, and the potential for professional development
 - (b) requiring at least 8 hours of undergraduate humanities content
 - (c) requiring that students complete a Minnesota Multiphasic Personality Inventory
 - (d) adding a minimum number of required hours of community service
 - (e) requiring that students complete at least 1 undergraduate course in ethics

Secondary Pseudoainhum in a Patient With Turner Syndrome

Brady S. Davis, OMS IV; Scott Harris, DO;
and Mitchell D. Forman, DO

12. A 35-year-old patient with Turner syndrome (45,X) presents with deep transverse constricting bands between the interphalangeal joints of the fourth and fifth toes bilaterally. She states that they are asymptomatic and have been present for 1 year. There is no evidence of ulceration, plaque, or numbness. Antinuclear antibody test result is negative. The diagnosis is secondary pseudoainhum. What is a histologic feature of this disease?
- (a) vegetative granulomas
 - (b) prominent vertically oriented blood vessels
 - (c) scarring in the subcutis
 - (d) lymphocytic mediated vasculitis
 - (e) birefringent crystals

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Answers to September 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.

Pilot Trial of Osteopathic Manipulative Therapy for Patients With Frequent Episodic Tension-Type Headache

Guido Rolle, MD, DO (Italy);

Lucio Tremolizzo, MD, PhD; Francesco Somalvico, MS; Carlo Ferrarese, MD, PhD; and Livio C. Bressan, MD

- (c) In the management of episodic tension-type headache, osteopathic manipulative therapy reduces headache frequency and use of over-the-counter medications over time.

Foley Catheter vs Prostaglandin as Ripening Agent in Pregnant Women With Premature Rupture of Membranes

A. Dhanya Mackeen, MD, MPH; LaToya Walker, MD; Kelly Ruhstaller, MD; Meike Schuster, DO; and Anthony Sciscione, DO

- (c) Cesarean delivery is not associated with prolongation of latency.
- (b) In previous studies, the use of Foley catheter as a method for induction of labor has been shown to be equal to prostaglandin use.

Osteopathic Primary Care of Patients With Inflammatory Bowel Disease: A Review

Jack D. Bragg, DO

- (a) In the primary care treatment of patients with inflammatory bowel disease (IBD), physicians should evaluate and treat patients with anemia because it can cause symptoms such as fatigue and loss of stamina and result in loss of quality of life.

- (c) Although patients with IBD have a decreased immune response compared with patients without IBD, they should receive a parenteral form of the influenza vaccine. However, if a patient with IBD is taking immunosuppressive medications, he or she should not receive a live virus vaccination.
- (b) Patients with IBD are at higher risk for osteoporosis because of the effect of inflammation on the bones, smoking, low serum vitamin D levels, and the use of corticosteroids.

Management of Ionizing Radiation Injuries and Illnesses, Part 4: Acute Radiation Syndrome

Doran M. Christensen, DO; Carol J. Iddins, MD; Steven J. Parrillo, DO; Erik S. Glassman, EMT-P, MS; and Ronald E. Goans, PhD, MD, MPH

- (a) Hemato-orthopedic is not a subsyndrome of acute radiation syndrome.
- (c) The median lethal dose of ionizing radiation exposure when no treatment is provided is 4 Gy (400 rad).

Relationships Between the Comprehensive Osteopathic Medical Achievement Test (COMAT) Subject Examinations and COMLEX-USA Level 2-Cognitive Evaluation

Feiming Li, PhD; Kevin E. Kalinowski, PhD; Hao Song, PhD; and Bruce P. Bates, DO

- (c) Scores from the COMAT internal medicine examination consistently had the highest correlations with scores from the Comprehensive Osteopathic Medical Licensing Examination-USA Level 2-Cognitive Evaluation (COMLEX-USA Level 2-CE).

- (d) Students who take 5 or more COMAT subject examinations are predicted to gain approximately 29 points on the COMLEX-USA Level 2-CE over candidates taking 4 or fewer COMAT subject examinations.
- (a) The most variance in COMLEX-USA Level 2-CE scores is attributed to COMAT scores from high-stakes students.

Pierre Robin Sequence in a Neonate With Suckling Difficulty and Weight Loss

Jeffery Summers, OMS IV; Jacob Ludwig, OMS IV; and David Kanze, DO

- (d) A woman gives birth to a male neonate weighing 7 lb 6 oz. She received prenatal care in the first trimester. During feeding 2 hours after birth, the neonate has oxygen desaturation, and micrognathia and glossoptosis are noted. A lateral feeding position should be tried initially to prevent oxygen desaturation during feeding.
- (b) In the presence of Pierre Robin sequence, it is important to consult a geneticist because the condition can be associated with other genetic abnormalities.

Use of a Small Intestine Submucosa Extracellular Matrix Patch in Repeated Carotid Endarterectomy

Nicholas J. Madden, DO; Douglas A. Troutman, DO; and Arthur J. DeMarsico, DO

- (c) Small intestine submucosa extracellular matrix patches in the setting of carotid endarterectomy are more expensive than other available patches.