Certified Professionals may earn .2 CEUs by completing quizzes based on selected articles in each issue of the Assistive Technology journal.

Each quiz is 12 questions in multiple-choice or true-false format. You must answer nine questions correctly (75%) to earn the .2 CEU credit. Results of the quiz will be emailed (or mailed by request) upon completion. Complete the quiz by circling the correct answers. Mail or fax the completed quiz with payment to RESNA Quizzes, 1560 Wilson Blvd, Suite 850, Arlington, VA 22209. FAX: (703) 524-6630.

☐ RESNA members: $32  ☐ Nonmembers: $45

---

NAME

CREDENTIAL(S)

COMPANY

ADDRESS

CITY  STATE  ZIP  EMAIL (required or check here to receive results by mail ☐)

QUIZ 21.1b PAYMENT INFO:

☐ VISA  ☐ MC  ☐ CHECK payable to RESNA

CREDIT CARD NUMBER  EXP DATE  THREE-DIGIT SECURITY CODE

NAME ON CARD  BILLING ADDRESS (if different)

---

Other quizzes from Assistive Technology Journal articles may be found on the RESNA website (www.RESNA.org). The primary program learning objective is to keep abreast of current findings and practices in assistive technology, research and rehabilitation engineering.

Was the content of the article relevant to current AT practice? ☐ Yes  ☐ No
Was reading the article and completing the quiz a good way for you to learn? ☐ Yes  ☐ No
Quiz 21.1b – Use of MMG Signals for the Control of Powered Orthotic Devices:
Development of a Rectus Femoris Measurement Protocol

1. True/False  Mechanomyographic (MMG) signals consist of either acceleration or sound measurements which are made on the outer skin over a target muscle.

2. True/False  Two general disadvantages of these methods are the following: 1) the possibility of noise signals generated by accidental knocks, and 2) the possibility of sensor detachment.

3. True/False  MMG signals originate from the mechanical oscillations produced by activated motor units, mediated and modulated by the muscle-ligament complex, cartilage and skin.

4. Which of the following is NOT a test parameter of the MMG test protocol?
   
   A. Test rig  
   B. Test procedure  
   C. Measurement equipment  
   D. Analysis and follow-up procedure  
   E. Human postural requirements  
   F. Sensor placement and dermal fixation  
   G. Signal processing requirements

5. Which of the following has most frequently been recommended as the most convenient and accurate measurement method:
   
   A. Accelerometers  
   B. Contact sensors  
   C. Microphones

6. The time data window used for all acquisitions was ________________ seconds.
   
   A. 3.147  
   B. 4.096  
   C. 5.064

7. True/False  The frequency content of MMG signals has been shown to depend upon the location of the sensor as well as upon the strength of fixation of the sensor to the outer skin of the test subject.
8. An ____________ is used to monitor the load cell output voltage to achieve the target value of MVC.
   A. centrifuge
   B. gyroscope
   C. oscilloscope

9. A question of interest regarding rectus femoris MMG signals is whether or not they are ____________:
   A. Gaudian
   B. Descartian
   C. Gaussian

10. The statistics chosen for the analysis were the :
    A. standard deviation
    B. kurtosis
    C. RMS
    D. A + C
    E. B + C

11. ____________ acquisitions were determined to be sufficient to adequately characterize rectus femoris MMG data.
    A. 15
    B. 20
    B. 25
    C. 35

12. True/False The position of the accelerometer on the muscle was found to have little significant effect on the amplitude and spectral characteristics of MMG signals.