Educational Deficiencies in Musculoskeletal Medicine


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FROM ABSTRACT

Background:
We previously reported the results of a study in which a basic competency examination in musculoskeletal medicine was administered to a group of recent medical school graduates.

This examination was validated by 124 orthopaedic program directors, and a passing grade of 73.1% was established.

According to that criterion, 82% of the examinees failed to demonstrate basic competency in musculoskeletal medicine.

It was suggested that perhaps a different passing grade would have been set by program directors of internal medicine departments.

To test that hypothesis, and to determine whether the importance of the individual questions would be rated similarly, the validation process was repeated with program directors of internal medicine residency departments as subjects.

Methods:
Our basic competency examination was sent to all 417 program directors of internal medicine departments in the United States.

Each recipient was mailed a letter of introduction explaining the purpose of the study, a copy of the examination, and our answer key and scoring guide.

There was no mention of the results of the first study.

The subjects were requested to rate the importance of each question on the same visual analog scale, ranging from ‘not important’ to ‘very important,’ as had been used by the orthopedic program directors.

These ratings were converted into numerical scores.
The program directors were also asked to suggest a passing score for the examination, and this score was used to assess the examinees' performance on the examination.

The results on the basis of the internal medicine program directors' responses and those according to the orthopedic program directors' responses were compared.

Results:
Two hundred and forty (58%) of the 417 program directors of internal medicine residency departments responded.

They suggested a mean passing score (and standard deviation) of 70.0% ± 9.9%.

As reported previously, the mean test score of the eighty-five examinees was 59.6%.

Sixty-six (78%) of them failed to demonstrate basic competency on the examination according to the criterion set by the internal medicine program directors.

The internal medicine program directors assigned a mean importance score of 7.4 (of 10) to the questions on the examination compared with a mean score of 7.0 assigned by the orthopedic program directors.

The internal medicine program directors gave twenty-four of the twenty-five questions an importance score of at least 5 and seventeen of the twenty-five questions an importance score of at least 6.6.

Conclusions:
According to the standard suggested by the program directors of internal medicine residency departments, a large majority of the examinees once again failed to demonstrate basic competency in musculoskeletal medicine on the examination.

It is therefore reasonable to conclude that medical school preparation in musculoskeletal medicine is inadequate.

THESE AUTHORS ALSO NOTE:

“Musculoskeletal care is provided by a variety of practitioners, including internists, family practitioners, rheumatologists, emergency physicians, pediatricians, and orthopaedic surgeons.”

“Mastery of the basics of musculoskeletal medicine is therefore essential for many, if not all, medical students.”
“Ideally, a solid knowledge base would be acquired in medical school and refined during postgraduate training.”

The authors previously evaluated the quality of musculoskeletal knowledge among a cohort of 85 recent medical school graduates in residency, and found that 82% “failed to demonstrate basic competency in musculoskeletal medicine.” [Freedman KB, Bernstein J. The adequacy of medical school education in musculoskeletal medicine. J Bone Joint Surg Am, 1998;80: 1421-7.]

“On the basis of these data, we suggested that medical school training in musculoskeletal medicine is inadequate.”

METHODS

25 questions were used.

The previous study’s questions and scoring were validated by having both questions, answers, and scoring procedures assessed by 124 (out of 157) orthopedic residency program directors.

In this current study, the same questions, answers and scoring procedures were evaluated by 244 (out of 417) internal medicine residency program directors.

An open-response format was used to eliminate the possibility of scoring points by guessing.

There was no time limit for completion of the examination.

The responses of the internal medicine program directors and those of the orthopaedic program directors were compared and serve as the basis of this report.

All 25 questions used in the study are in the article along with correct answers and the percent of correct answers given.

THE THREE QUESTIONS PERTAINING TO THE SPINE:

1. A patient comes to the office complaining of low-back pain that wakes him up from sleep. What two diagnoses are you concerned about?

   ANSWER: Tumor and infection

   PERCENT OF CORRECT ANSWERS 33%
2. A patient has a disk herniation pressing on the 5th lumbar nerve root. How is motor function of the 5th lumbar nerve root tested?

**ANSWER:** Dorsiflexion of the great toe (toe extensors also accepted).

**PERCENT OF CORRECT ANSWERS** 20%

3. A patient presents with new-onset low-back pain. Under what conditions are plain radiographs indicated? Please name 5

**ANSWER:** Age >50; neurological deficit; bowel or bladder changes; history of cancer, pregnancy, drug use, or steroid use; systemic symptoms (night pain, fever); pediatric population

**PERCENT OF CORRECT ANSWERS** 50%

**[IMPORTANT: These testers and reviewers in both orthopedics and internal medicine consider new-onset of low back pain in a pediatric population to be an indicator of exposing radiography].**

**DISCUSSION**

“According to the standard suggested by the program directors of internal medicine residency departments, a large majority of the examinees once again failed to demonstrate basic competency in musculoskeletal medicine.”

“It is reasonable, therefore, to conclude that medical school preparation in musculoskeletal medicine is inadequate.”

“The average amount of time spent in courses or rotations dedicated to orthopaedics was only 2.1 weeks for all examinees, and 33% of them graduated from medical school with no such exposure.” [**AMAZING!**]

This represents <2% of the entire typical medical school curriculum. [**AMAZING!**]

The authors suggest that the standard rotation in orthopedic surgery probably emphasizes too many particulars of surgical practice, and does not emphasize conditions that are more clinically important.

“The ideal course in musculoskeletal medicine should concentrate on common outpatient orthopedic problems, orthopedic emergencies, and the musculoskeletal physical examination.”
“Medical school curricula must place a greater emphasis on musculoskeletal medicine. Because of the aging of the population, the prevalence of bone and joint diseases in the United States is already the primary reason that people seek medical care and is sure to rise. Thus, the demands will soon be even greater. Students must master the topic of musculoskeletal medicine. The results of these studies suggest that they have not.”

KEY POINTS FROM DAN MURPHY

(1) On this musculoskeletal medicine test, orthopedic residency directors considered a passing score to be 73.1%, and 82% of the examinees residents failed to demonstrate basic competency.

(2) On this musculoskeletal medicine test, internal medicine residency directors lowered the passing score to 70%, and 78% of the examinees residents still failed to demonstrate basic competency.

(3) The lowest percent of correct answers pertained to questions relating to the spine, indicating that these residents are lease competent in musculoskeletal spine issues.

(4) These experts in both orthopedics and internal medicine consider new-onset of low back pain in a pediatric population to be an indicator for exposing radiographs.

(5) The average amount of time spent in medical education on orthopedics was only 2.1 weeks.

(6) 33% of medical school graduates had no exposure to orthopedics.

(7) The orthopedics in medical school emphasized surgery, and not common daily clinical problems.

(8) Musculoskeletal problems will increase in the future because of the aging population.

(9) Medical school preparation in musculoskeletal problems is inadequate.