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QUANTIFICATION OF TAIJI LEARNING IN OLDER ADULTS

To the Editor: Taiji (also known as tai chi) is an ancient Chinese martial art that has been used in a variety of intervention programs with older adults assessing overall health,¹ falls,² balance,³ fear of falling,² self-efficacy,⁴ and general physical function.⁵ The results of these studies have been mixed,⁶ with some reporting significant improvements^{2–5} and others reporting little or no effect of taiji practice on certain variables.^{7,8} Wu⁶ attributed these disparate findings to variation in the measures used between studies, subject populations, the type of taiji taught, and the overall amount and intensity of taiji training. An additional factor that may contribute to these disparate findings is variation in the extent to which participants actually learn taiji. There has been no attempt to quantify taiji learning in older adults. Quantification of taiji learning is important if researchers are to determine the appropriate length of intervention programs and whether the benefits are derived merely from participation or require acquisition of a certain skill level. One goal of this report was to describe a method for quantifying the acquisition of taiji forms. A second goal was to examine the course of taiji learning over a 6-month period by a group of older adults.

Sixteen community-dwelling older adults (mean age \pm standard deviation = 65 ± 6 ; 5 men, 11 women) with no prior taiji experience and no history of cognitive, gait, or balance problems participated in 1-hour taiji classes three times a week for 6 months. The classes began and ended with 10 minutes of qigong (a type of meditation). Most class time was devoted to practicing and learning particular taiji forms. Participants were taught four standard forms, used for the skill assessment, and 12 movement routines selected and modified from the original Chen style of taiji to be suitable for older adults. An individual with more than 25 years of taiji teaching experience taught the classes.

Taiji learning was examined by assessing participants' ability to perform four standard forms: the golden rooster standing on one leg, cloud hands, double spiral arms, and a transitional form. All forms were chosen to emphasize balance, weight shifting, range of motion, and overall coordination. During the assessment, the participants watched a videotape of their instructor performing the four standard forms. After viewing each form, the participants were asked to perform the form twice while being videotaped. Assessments were made before the start of the taiji classes and at 2, 4, and 6 months. Two independent coders rated the videotapes on five different 3-point rating scales: accu-

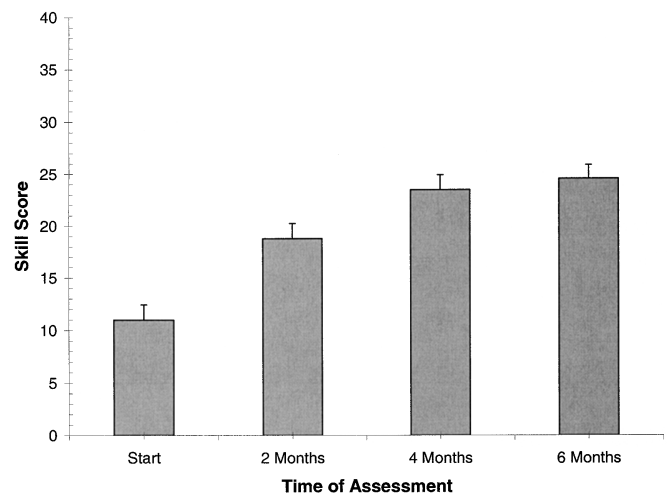


Figure 1. Mean taiji skill performance score by assessment time. Standard errors are represented by the added bars.

racy of movement (0 = not accurate, 2 = highly accurate), stability of balance (0 = unstable, 2 = stable), weight shifting (0 = limited, 2 = appropriate for form), range of motion (0 = limited, 2 = extensive), and coordination (0 = little or no coordination, 2 = smooth coordinated movement). Both coders assessed participants' best trial for each form. Scores were summed across the four standard forms to create an overall performance score ranging from 0 to 40. Details regarding the assessment may be obtained from the first author. Reliability of the two coders was high ($r = 0.874$).

Participants found the standard forms to be difficult to perform (mean score \pm standard deviation = 11 ± 5.8). To examine improvements in the ability to perform the standard forms, a two (sex: male, female) by four (time: pretest, 2 months, 4 months, 6 months) repeated measures analysis of variance was performed on the total score. A significant main effect on time was obtained ($P < .001$). Post hoc comparisons revealed that the ability to perform the forms improved significantly between initial testing and 2 months and between 2 and 4 months but not between 4 and 6 months (Figure 1). After 6 months, participants improved their taiji skill more than 200% (mean score = 24.6 ± 5.2), but there was still substantial room for improvement.

These results suggest that intervention programs that use taiji should be at least 4 months long for individuals to achieve a moderate level of taiji skill. The level of learning that was observed would not be expected in interventions that provide less instruction, as has been the case in past research.⁶ Future interventions should quantify participant's learning so as to determine whether the benefits derived from taiji practice come merely from participation or require acquisition of a certain level of skill.

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BEDSIDE PHYSICIAN OBJECTS

To the Editor: The article by Sloane et al.¹ was sadly disappointing. The authors attempted to establish “politically correct” treatments. In Appendix 1, they listed “inappropriate medications” and offered “possible alternatives.” On its face, this is offensive to the practicing physician who has to maneuver around the numerous “formulary approved drugs.” The authors offer to place additional burdens on the geriatric physician. Such an article can result in further adverse legal consequences when it is cited in malpractice litigation.

In detail, the authors can be blatantly wrong. For example, the authors place doxepin on the improper drug list. Sertraline and other phototherapy are politically correct. In my geriatric practice, 10 mg to 25 mg of doxepin is often used to induce sleep, enhance appetite, and complement a selective serotonin reuptake inhibitor such as citalopram for antidepressant treatment. Citalopram is an excellent antidepressant in the elderly, but it does not address insomnia or weight loss. The authors contend that doxepin is a strong anticholinergic and hence could confuse dementia cases. The answer is that the adverse effects of doxepin on memory can and should be back-titrated by the dosage of the anticholinesterase drug such as rivastigmine. Confusion induced by such a small dose of doxepin may reveal a need to assess the patient for Alzheimer’s disease. By contrast, confusion induced by the author’s politically correct lorazepam or alprazolam work by effecting

gamma-aminobutyric acid systems. There are no available agents to back-titrate benzodiazepine deliriums.

It is comforting to attempt to dictate prescribing patterns of colleagues from the academic ivory towers, but medicine is best practiced at the bedside where the physicians can take all factors affecting an individual patient into account.

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RESPONSE TO DR. WILLIAM SUMMER’S LETTER

Editor’s note: The above letter was referred to the author of the original paper; Dr. Summer’s reply follows.

In reply: Dr. Summers makes a legitimate point that “guidelines” are rarely if ever as good as well-informed, individualized care by a physician who knows the patient and is up to date on the latest research and practice guidelines. The problem is that medicine is so complex these days that we cannot always depend on individualized care to meet professional standards. Thus, guidelines have been developed and used as the basis for practicing medicine and evaluating the practice of medicine, and we believe that this is a legitimate method of assuring and improving quality.

The list of “potentially inappropriate” medications is an example of a guideline that is based in solid research. However, as our manuscript’s discussion section points out, the concept of “potentially inappropriate” medications appears to have become less compelling as a focus for care evaluation, because most of the real bad ones are no longer in much use. Therefore, we agree with the spirit of Dr. Summers’ comments if he implies that the field of quality improvement needs to evolve in directions that take a more sophisticated, and perhaps more individualized, look at practice.

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AGE-RELATED DECLINE OF GAIT CONTROL UNDER A DUAL-TASK CONDITION

To the Editor: Age-related changes in spatial and temporal gait parameters have been associated with an adaptation to a safer gait and an increased risk of falling.¹ In particular, high stride-to-stride variability was found to be a dependable and potent predictor of falls in community-dwelling older adults. In fact, a small increase in stride-to-stride deviation for stride length of 0.017 m doubled the