



Assessment of Consistency Between the Arm-Fossa Test and Gillet Test: A Pilot Study



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Received 29 June 2014; received in revised form 9 October 2014; accepted 13 October 2014

Key indexing terms:

Sacroiliac joint;
Palpation;
Range of motion,
articular;
Reproducibility of
results;
Validity;
Muscle strength;
Chiropractic

Abstract

Objective: The purpose of this pilot study was to test methods needed to conduct a study with adequate power to investigate consistency between the arm-fossa test (AFT) and the Gillet test.

Methods: A convenience sample of chiropractic college students enrolled in a weekend Sacro-Occipital Technique seminar participated. Each was tested with AFT and sacroiliac orthopedic tests, including the Gillet test. Statistical testing included calculation of κ for consistency of the AFT and Gillet test and their diagnostic efficiency.

Results: This study recruited 14 participants. Important issues arose in gathering and recording data, the standardization of examiner methods, and the flow of participants to examination stations. κ for AFT and Gillet test consistency = 0.55, corresponding to “moderate.”

Conclusion: This pilot suggests that the future study should include a mix of symptomatic and asymptomatic participants; record trichotomous data, where appropriate; use washout periods between diagnostic tests; and refine the selection of orthopedic tests deployed besides the AFT. The preliminary data are consistent with but do not establish due to the very small sample size and experimental design issues, that a positive AFT may be consistent with a negative Gillet test.

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Introduction

The arm-fossa test (AFT), also called the “arm pull-down test,” is a manual muscle test used by practitioners of Sacro-Occipital Technique (SOT), a proprietary chiropractic technique originally developed

by Dr DeJarnette.¹ It tests the ability of a supine patient to maintain the arm in a flexed position, whereas the examiner applies pressure inferiorly and simultaneously makes light contact with a series of contact points on the inguinal ligaments (see Fig 1). The AFT is considered “positive” if the arm “weakens” and “negative” if it does not. Sacro-Occipital Technique practitioners believe that a positive AFT is associated with a complex of findings including sacroiliac hypermobility, whereas a negative AFT is consistent

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Fig 1. The AFT for sacroiliac hypermobility. (Color version of figure appears online.)

with (but does not necessarily identify) sacroiliac hypomobility.² Because a positive AFT is thought to be related to sacroiliac dysfunction, the authors hypothesized that its findings might be consistent with sacroiliac motion tests such as the Gillet test (see Fig 2).³ The Gillet test determines if anatomic landmarks on the sacrum and ilium diverge during flexion of the hip in the standing position. A positive finding is thought to identify sacroiliac fixation: if so, a negative Gillet test would be consistent with (but not necessarily identify) a positive AFT.

The AFT is poorly studied, despite that thousands of SOT practitioners use it every day.⁴ Gatterman et al⁵ recommended that the research community prioritize areas of attention by focusing on procedures that have little supportive evidence but very widespread use. The authors know of only 1 study in the peer-reviewed literature investigating the association of the AFT and Gillet tests: in a 1988 validity study, Leboeuf et al⁶ reported no significant association between a positive AFT and the side of a fixated sacroiliac joint. Because no AFT-negative participants were entered into that study, specificity and sensitivity calculations were precluded. A more thorough investigation of the association of AFT and Gillet test results would include both AFT-positive and AFT-negative participants.

Although the Gillet test has not been demonstrated to be reliable in most studies,⁷ Hungerford et al⁸ showed good reliability for 1 version of the test. Cooperstein et al⁹ suggested that limiting hip flexion in the Gillet test to approximately 30°, rather than the more typical 90°, may enable more accurate detection



Fig 2. The Gillet test for sacroiliac fixation. (Color version of figure appears online.)

of sacroiliac fixation. Besides the validity study of 1988,⁶ Leboeuf^{10,11} and Leboeuf et al^{6,12} reported the following series of results for the AFT: high¹² and low¹⁰ intraexaminer reliability, low interexaminer reliability¹⁰, some validity in correctly distinguishing a correctly treated from an incorrectly treated group of participants⁶, and some validity¹¹ in relationship to lumbopelvic pain (sensitivity, 54%; specificity, 69%).

The primary goal of the present pilot study was to assess the feasibility of conducting a future study with adequate power to assess the consistency of both positive and negative AFT findings with Gillet test findings. Besides these tests, the pilot included a group of other sacroiliac and sacroiliac-related examination procedures that could interact not only with the AFT and Gillet tests but with each other (Table 1). The secondary goal was to determine if there was a trend toward consistency among the included orthopedic tests and agreement among examiners. The qualitative assessments of this study (Table 2) would include each of the following: suitability of a teaching seminar in SOT to serve as a venue for gathering exploratory data, cohesiveness of the team of investigators, degree to which pilot data demonstrated the need to standardize the AFT examiners' protocols, appropriateness of each of the included orthopedic tests, practicality of running this series of orthopedic tests in relatively rapid succession, ease of use of the data entry form, degree

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