Introduction
A recent national survey of people with fibromyalgia (2015) found 40% self-reported having balance problems within the last 30 days and over 50% self-reported having difficulty with upper body activities of daily living (e.g., climbing stairs and using one or more forms of transportation). We report a critical step to the prevention of physical frailty and treatment of mobility and balance disorders in early intervention of the underlying physiologic impairments. This study is the first to investigate the stability of functional fitness and balance performance measures for women with fibromyalgia prevent physical frailty.

Purpose
To determine the stability of functional fitness and balance performance measures for women 50+ years of age with fibromyalgia. All measures have been previously found valid with stable scores among older adults.

Methodology
Twenty-one adult females with fibromyalgia who were recruited for a separate exercise intervention study were tested to evaluate the current study’s reliability. A total of 12 fibromyalgia women ages 50-73 were included in the study. The inclusion criteria included a diagnosis of fibromyalgia according to the ACR criteria for fibromyalgia (2010), with major depression (ICD-9, 296.3), community dwelling ambulatory and have no medical conditions prior to an exercise program. Functional fitness was measured using the 30 foot walk, maximum speed (functional mobility) (Figure 1) and the 30-second chair-stand test. A 30-s chair-stand (lower body strength) (Figure 2) was measured using a 30-second chair-stand test using the Rikli and Jones (1999) protocol. Protocol: The participant sits on the chair, back straight, and feet flat on the floor.  Arms are placed on the sides. Verbal instructions: Please mark the lowest category that applies.

30-Foot Walk (maximum speed)

Purpose: To identify gait speed and overall functional mobility

Equipment: Stopwatch. 2 cones (markers), masking tape, and tape measure

Protocol: Measure a 30-foot distance and place markers at the start and 30 feet at the floor along the course facing in before walking towards the participants to walk the 30-foot distance at a normal gait speed. The additional 10 feet at the beginning and the end of the 30-foot runways are included to reduce speed bias. The participant is encouraged to step around the cone, back to a fully seated position. The participant is encouraged to complete as many full 30-foot trials as possible within 30 seconds. Scoring: The scores the total number of arrows executed correctly within 30 seconds. If the participant moves more than halfway up the wall at the end of 30 seconds, it counts as a full trial.

30-Second Chair Stand

Purpose: To assess lower body strength

Equipment: Stopwatch, straight back or folding chair (without arms) with height approximately 17” For safety purposes, the chair should be placed against a wall, or in some other way stable to prevent forward movement of the chair.

Protocol: The test begins with the participant seated in the middle of the chair back straight and the feet on the floor. Time is counted from when the participant is seated and the chair against the wall. On the signal “go” the participant must lift their feet and attempt to maintain balance back to a fully seated position. The participant is encouraged to complete as many full 30-second trials as possible within 30 seconds to 1 trial. Scoring: The scores the total number of 30-second chair-stand trials performed correctly within 30 seconds. If the participant moves more than halfway up the wall at the end of 30 seconds, it counts as a full trial.

Implications
This study demonstrates that all three performance measures provided stable scores for women with fibromyalgia using different measurement protocols. The results of this study have practical implications that support the use of the 30-foot walk and the 30-second chair-stand as tests of functional fitness and balance in community-residing older adults. Research (Quarterly for Exercise and Sport, 70, 113-119).

Results
The table below displays the descriptive and reliability analyses for the three measures. The scores were statistically analyzed with the reliability and the 10% difference in reliability coefficients for the three measures with confidence intervals of 40% were as follows: 30 foot walk maximum speed (chair stand); 30-second chair stand (lower body strength).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Coefficient of Variation</th>
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<tbody>
<tr>
<td>30-foot walk maximum speed</td>
<td>0.19</td>
<td>1.3</td>
<td>0.58</td>
<td>0.15</td>
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<tr>
<td>30-second chair stand</td>
<td>0.05</td>
<td>0.7</td>
<td>0.33</td>
<td>0.17</td>
<td>10%</td>
</tr>
</tbody>
</table>

References
