### *Beck Depression Inventory (BDI-II)*

Because depression is the most commonly diagnosed psychiatric disorder in CFS [39], a quantitative measure of depression severity was used. Depressive symptomatology was measured with the BDI-II [40], a 21-item self-report instrument with well-established psychometric properties. This version of the BDI is more consonant with DSM-IV criteria for major depressive disorder. The BDI-II is the only depression rating scale to be empirically tested and interpreted for both depressed and non-depressed patients with CFS [41]. Also the Beck Depression Inventory has shown sensitivity to treatment changes in two cognitive behavioral treatment studies of CFS [42].

### *Brief COPE*

This inventory assesses how individuals cope with the stress in their lives [43]. It is derived from the Coping Orientation to Problems Experienced Scale [44], which consists of conceptually distinct problem-focused coping and conceptually distinct emotion-focused coping scales. This instrument has been validated and has adequate reliability. There are 28 items concerning ways of coping, and each is rated on a four point scales (anchor points ranging from not doing the coping strategy to doing it a lot). There are 14 coping methods found in these 28 items; the scales are as follows: Self-distraction, Active coping, Denial, Substance use, Use of emotional support, Use of instrumental support, Behavioral disengagement, Venting, Positive reframing, Planning, Humor, Acceptance, Religion, and Self-blame. There are two items for each of these 14 coping methods; the sum of the two items is the score for that particular coping method. Adequate psychometric properties of this instrument have been found [43].

### *Brief Pain Inventory*

The Brief Pain Inventory [45] was administered to measure the severity of pain and the interference of pain in the patient's life. Higher scores indicate more severe levels of persistent pain and higher levels of interference with functioning. This measure exhibits adequate levels of reliability to assess pain in noncancer samples, with coefficient alphas of .70 and above, also evidences good concurrent validity with other generic pain measures, and has been shown to be sensitive to changes in pain status over time [46].

### *Pittsburg Sleep Quality Index*

Sleep disturbances were examined by using the Pittsburg Sleep Quality Index, which was developed to measure sleep quality in psychiatric research [47]. This Index measures sleep disruptions and sleep quality. There are nineteen questions (on 0–3 scale) which generate seven "component" scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of scores for these seven components yields one global score, which can range from 0 to 21, with higher scores indicating worse sleep quality.

### *Actigraph*

An actigraph is a small, light-weight, cost-efficient activity monitor that can be worn on the waist. It has a long battery life and can continuously collect data every minute of the day and night for 22 days before its memory is filled to capacity [48]. Unlike most activity monitoring devices, the actigraph is capable of recording movement intensity. The actigraph transduces activity using an accelerometer. An 8-bit analog-to-digital converter quantifies these measurements into 128 levels of positive acceleration and 128 levels of negative acceleration 10 times each second. Integration over the resulting sampling time of 0.1 s in combination with other details provided by Tryon and Williams [48] would result in measurement units of 1.664 milli-g/activity activity count. For simplicity, analog-to-digital (A/D) counts are retained as activity units. The average of 600 absolute A/D values is stored in memory at the end of every minute. Participants wore the actigraph on their waist at all times except for when bathing or sleeping for one week.

### *Six minute walking test*

As an in vivo measure of physical functioning, the six minute walking test [49] was used. The test measures the distance walked during a six minute interval. The test is a useful and reproducible measure of exercise tolerance, provides a simple practical guide to everyday disability, and does not require expensive apparatus [49].

### *Rating of Perceived Exertion*

The Rating of Perceived Exertion (RPE) measures perceived intensity of activity based on bodily sensations such as increased heart rate and breathing [50]. Higher scores indicate higher perceived exertion, with scores ranging from 6 (no exertion) to 20 (maximal exertion). The measure was given at 30 second intervals during the six minute walk test. The RPE has evidenced good reliability and validity, particularly for progressive exercise tests [51].

### *Sit and reach*

In order to gain an assessment of flexibility, we administered the sit and reach test, which is the most widely-used measure of flexibility and a primary component of most physical fitness tests. The test is designed to measure the extensibility of the hamstring muscles and the lower back articulations by evaluating the maximal reach an individual can make in a seated position. This test has excellent test-retest and intra-rater reliability [52].