In 2009-2010, a panel of experts evaluated several methods for collecting/scoring the SPPB Score. The WHI Steering Committee selected the ‘Look AHEAD’ SPPB, which is based on the ‘Health ABC’ SPPB, for use as the primary SPPB Score in the WHI Long Life Study (LLS). The ‘Look AHEAD’ SPPB Score is the sum of 3 ratios, the Standing Balance Ratio (SBRatio), the Chair Stand Ratio (CSRatio), and the Usual Walk Ratio (UWRatio), and results in a continuous score ranging from 0 to 3.

The ‘Established Populations for the Epidemiologic Studies of the Elderly’ (EPESE) SPPB can also be scored from the LLS data. The EPESE’ SPPB Score is the sum of 3 individual scores: the Total Balance Score (BalScore), the Chair Stand Score (ChrStScore), and the Gait Speed Score (GaitScore), and yields a continuous score ranging from 0 to 12.

The scoring details for the ‘Look AHEAD’ (below) and ‘EPESE’ (next page) SPPBs were confirmed in a 12/5/2013 conference with Andrea LaCroix, Ph.D., and Denise Houston, PhD, RD. To maintain consistency between the two SPPB scores, it was decided that ‘refusals’ and data collected not per protocol (e.g., conducting the Timed Walk in an area with mixed flooring types) would be considered missing data. Data used in the scoring below was collected on Form 301 and is referred to by the form question number.

### Look AHEAD SPPB Scoring Details

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Details</th>
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| **1. Standing Balance Ratio (SBRatio)** | a. If SBS = 10.0, calculate Standing Balance Time: $SBTIME = ST + T + OL$ times  
(17.2.1 + the longer of 17.3.1 or 17.3.2 + the longer of 17.4.1 or 17.4.2)  
*Use ONLY valid balance times (according to the Long Life Study Field Protocol)*, as follows:  
- $ST$ time is only valid if $SBS = 10$  
- $T$ time is only valid if $ST = 30$  
- $OL$ time is only valid if $T = 30$  

b. Calculate $SBRatio = SBTIME/90$; round to 2 decimals  
Note: Each test has a max time of 30 seconds. So, the maximum $SBTIME = 90.0$ seconds, which is used as the denominator in the $SBRatio$.  

c. Exceptions (apply in order):  
(1) If 17.1.1 (SBS) is not blank and is < 10 seconds, $SBRatio = 0$  
(2) If 17.5 (Why Not?) = 2, 3, or 4 (Not safe, Unable, Wheelchair) AND there are NO balance times reported, $SBRatio = 0$  
(3) If 17.5 (Why Not?) = 1 (refused) AND there are NO balance times reported, both $SBRatio$ and SPPB Score = MISSING  
(4) If 17.1.1 (SBS) = blank, both $SBRatio$ and SPPB Score = MISSING  

| **2. Chair Stand Ratio (CSRatio)** | a. Calculate Repeated Chair Stand Pace (chair stands/sec): $CHR5PACE = 5/number of seconds for 5 stands (19.3.1)$; round to one decimal  

b. Calculate $CSRatio = CHR5PACE/1$; if $CSRatio > 1$, then $CSRatio = 1$  
Note: The $CSRatio$ denominator of ‘1’ = 1 stand/second, which is a standard for comparison.  

c. Exceptions (apply in order):  
(1) If 19.3.2 = 2 or 9 (Unable, Not safe), $CSRatio = 0$  
(2) If 19.3 and 19.3.1 = Blank AND #19.2 = 2 or 9 (Unable, Not safe), $CSRatio = 0$  
(3) If 19.1 = 3 (chair not per protocol) or Blank, both $CSRatio$ and SPPB Score = MISSING  
(4) If 19.3 = 8 (Refused), both $CSRatio$ and SPPB Score = MISSING  
(5) If 19.3.1 = Blank, both $CSRatio$ and SPPB Score = Missing  

| **3. Usual Walk (UW Ratio)** | a. Calculate Usual Walk Pace (meters/sec): $UWPACE = number of meters walked (18.1.3 or 4)/number of seconds to walk 3 or 4 meters (the smaller of 18.4.1 or 18.4.2)$; round to 2 decimals  

b. Calculate $UWRatio = UWPACE/2$; round to 2 decimals; if $UWRatio > 1$, then $UWRatio = 1$  
Note: The $UWRatio$ denominator of ‘2’ = 2 meters/second, which is a standard for comparison.  

c. Exceptions (apply in order):  
(1) If 18.4 = 2, 9, or 11 (Unsafe, Not safe, Can’t walk), $UWRatio = 0$ (even if #18.1 is blank)  
(2) If 18.1 = Blank, both $UWRatio$ and SPPB Score = MISSING  
(3) If 18.3 = 3 (Mixed), both $UWRatio$ and SPPB Score = MISSING (even if there are times reported in 18.4.1 and/or 18.4.2)  
(4) If 18.4 = 8 or 10 (Refused, Insufficient space), both $UWRatio$ and SPPB Score = MISSING  
(5) If 18.4.1 AND #18.4.2 = Blank, both $UWRatio$ and SPPB Score = MISSING  
(6) If $Alert Flag = 1$ (timed walk not valid because of measurement error), both $UWRatio$ and SPPB Score = MISSING  

### Look AHEAD SPPB

*‘Look AHEAD’ SPPB Score = SBRatio + CSRatio + UWRatio*
# EPESE SPPB Scoring Details

<table>
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<tr>
<th>Score</th>
<th>Details</th>
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| **1. Balance Tests (BalScore)** | NOTE: For the BalScore, use ONLY valid balance times (according to the EPESE protocol), as follows:  
- ST time is only valid if SBS ≥ 10  
- T time is only valid if ST time ≥ 10  
  a. Side-by-side: SBSscore = 1 if 17.1.1 ≥ 10; SBSscore = 0 if 17.1 = 0 or 17.1.1 is < 10  
  b. Semi-tandem: STscore = 1 if 17.2.1 ≥ 10; STscore = 0 if 17.2 = 0 or 17.2.1 is < 10  
  c. Tandem: Tscore = 2 if MAX(17.3.1,17.3.2) ≥ 10; Tscore = 1 if MAX(17.3.1,17.3.2) ranges from 3-9.99; Tscore = 0 if 17.3 = 0 or MAX(17.3.1,17.3.2) < 3  
  d. BalScore:  
    - = 0, if SBSscore = 0;  
    - = 1, if SBSscore = 1 and STscore = 0;  
    - Otherwise, BalScore = SBSscore + STscore + Tscore  
  e. Exceptions (apply in order):  
    - (1) If 17.5 (Why Not?) = 2, 3, or 4 (Not safe, Unable, Wheelchair) AND there are NO balance times reported, BalScore = 0  
    - (2) If 17.1 = 0 (not completed) or 17.1.1 is Blank, AND 17.5 = 1 (refused), both BalScore and SPPB Score = MISSING |
| **2. Chair Stand (ChrStScore)** | a. If 19.3.1 > 60 or 19.3 = 2 or 9 or 19.2 = 2 or 9, then ChrStScore = 0  
  [NOTE: The EPESE differs from the Look AHEAD in that the Look AHEAD scoring does not make use of the 19.2 (single chair stand) data]  
  Else if 19.3.1 ≥ 16.70 and 19.3.1 ≤ 60 then ChrStScore=1;  
  Else if 19.3.1 ≥ 13.70 and 19.3.1 < 16.70 then ChrStScore=2;  
  Else if 19.3.1 ≥ 11.20 and 19.3.1 < 13.70 then ChrStScore=3;  
  Else if 19.3.1 < 11.20 then ChrStScore=4;  
  b. Exceptions (apply in order):  
    - (1) If 19.1 = 3 (chair not per protocol) or Blank, both ChrStScore and SPPB Score = MISSING  
    - (2) If 19.3 = 8 (refused), both ChrStScore and SPPB Score = MISSING  
    - (2) If 19.3.1 is Blank, both ChrStScore and SPPB Score = MISSING |
| **3. Gait Speed (GaitScore)** | a. Calculate gait time = MIN(18.4.1, 18.4.2); if one is missing, use the one recorded time  
  b. If 18.4 = 2, 9, or 11, then GaitScore = 0  
    - if 18.1=1 (4m) and:  
      - if gait time>8.70 then GaitScore=1  
      - else if gait time is 6.21-8.70 then GaitScore=2  
      - else if gait time is 4.82-6.20 then GaitScore=3  
      - else if gait time is < 4.82 then GaitScore=4  
    - if 18.1=2 (3m) and:  
      - if gait time>6.52 then GaitScore=1  
      - else if gait time is 4.66-6.52 then GaitScore=2  
      - else if gait time is 3.62-4.65 then GaitScore=3  
      - else if gait time is < 3.62 then GaitScore=4  
  c. Exceptions (apply in order):  
    - (1) If 18.1 = Blank, both GaitScore and SPPB Score = MISSING  
    - (2) If 18.3 = 3 (Mixed) or if 18.4 = 8 or 10 (Refused, Insufficient Space), both GaitScore and SPPB Score = MISSING (even if there are times reported in 18.4.1 and/or 18.4.2)  
    - (3) If 18.4.1 and 18.4.2 = Blank, both GaitScore and SPPB Score = MISSING  
    - (4) If Alert Flag = 1 (timed walk not valid because of measurement error), both GaitScore and SPPB Score = MISSING |

**EPESE SPPB**  
‘EPESE’ SPPB Score = BalScore + ChrStScore + GaitScore

References:  
3. Houston, D (Assistant Professor, Wake Forest School of Medicine). Personal communication to Sue Mann: August 29, 2012 and April 18, 2013.