

## Addendum to Technical Paper #4

### National Health and Aging Trends Study (NHATS)

SAS Programming Statements for Construction of Performance-Based Summary Measures of Physical Capacity in the National Health and Aging Trends Study.

November 29, 2012

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SAS PROGRAM USED TO CONSTRUCT PERFORMANCE BASED SUMMARY MEASURES OF PHYSICAL CAPACITY USING NATIONAL HEALTH AND AGING TRENDS STUDY (NHATS) DATA

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DATE: DECEMBER 5, 2012  
PROG: MARLENE NIEFELD  
RE: CONSTRUCTION OF PERFORMANCE BASED SUMMARY MEASURES OF PHYSICAL  
CAPACTIY IN THE NATIONAL HEALTH AND AGING TRENDS STUDY  
RE: INCLUDING CREATION OF TWO VERSIONS OF THE SPPB SCORE  
\*\*\*\*\*,

\*\*\*\*\*  
DEFINITION: BALANCE STANDS RESULT VARIABLES  
1=COMPLETED TEST WITH RESULTS  
2=NOT APPLICABLE  
3=ATTEMPTED TEST/WITH RESULTS  
4=ATTEMPTED TEST/MISSING RESULTS  
5=NOT ATTEMPTED FOR SAFETY REASONS  
6=NOT ATTEMPTED FOR OTHER REASONS OR MISSING REASONS  
-9= ELSE (NOT ELIGIBLE/DID NOT COMPLETE PRIOR TEST/ELIGIBLE AND MISSING)  
\*\*\*\*\*,

\*\*\*\* SIDE BY SIDE BALANCE STANDS \*\*\*\*;

IF (BA1DBLSSADM =1) THEN DO;

IF (BA1SXSRESULT =1) THEN BSSS\_RESULT =1;  
ELSE IF (BA1SXSRESULT =2) AND (BA1BLSTDSECS >= 0) THEN BSSS\_RESULT =3;  
ELSE IF (BA1SXSRESULT =2) AND (BA1BLSTDSECS IN (-1,-7,-8,-9)) THEN BSSS\_RESULT =4;  
ELSE IF (BA1RSN1SSSTD =1) OR (BA1RSN2SSSTD =1) OR (BA1RSN3SSSTD =1) THEN BSSS\_RESULT =5;  
ELSE IF (BA1RSN1SSSTD NE 1) AND (BA1RSN2SSSTD NE 1) AND (BA1RSN3SSSTD NE 1) THEN BSSS\_RESULT =6;  
ELSE IF (BA1SXSRESULT = 3) AND (BA1RSN1SSSTD IN (-1,-7,-8,-9)) AND (BA1RSN2SSSTD IN (-1,-7,-8,-9))  
AND (BA1RSN3SSSTD IN (-1,-7,-8,-9)) AND (BA1RSN4SSSTD IN (-1,-7,-8,-9)) AND (BA1RSN9SSSTD IN (-1,-7,-8,-9))  
THEN BSSS\_RESULT =6;  
END;

ELSE BSSS\_RESULT =-9;

\*\*\*\* SEMI TANDEM BALANCE STANDS \*\*\*\*;

IF (BA1DBLSTADM =1) THEN DO;

IF (BA1STDMRESLT =1) THEN BSST\_RESULT =1;  
ELSE IF (BA1STDMRESLT =2) AND (BA1STDMSECS >= 0) THEN BSST\_RESULT =3;  
ELSE IF (BA1STDMRESLT =2) AND (BA1STDMSECS IN (-1,-7,-8,-9)) THEN BSST\_RESULT =4;  
ELSE IF (BA1RSN1STSTD =1) OR (BA1RSN2STSTD =1) OR (BA1RSN3STSTD =1) THEN BSST\_RESULT =5;  
ELSE IF (BA1RSN1STSTD NE 1) AND (BA1RSN2STSTD NE 1)AND (BA1RSN3STSTD NE 1) THEN BSST\_RESULT =6;  
ELSE IF (BA1STDMRESLT = 3) AND (BA1RSN1STSTD IN (-1,-7,-8,-9)) AND (BA1RSN2STSTD IN (-1,-7,-8,-9))  
AND (BA1RSN3STSTD IN (-1,-7,-8,-9)) AND (BA1RSN4STSTD IN (-1,-7,-8,-9)) AND (BA1RSN9STSTD IN (-1,-7,-8,-9))  
THEN BSST\_RESULT =6;  
END;

ELSE BSST\_RESULT =-9;

\*\*\*\* FULL TANDEM BALANCE STANDS \*\*\*\*;

IF (BA1DBLFTADM =1) THEN DO;

IF (BA1FTDMRESLT =1) THEN BSFT\_RESULT =1;  
ELSE IF (BA1FTDMRESLT =2) AND (BA1FTDMSECS >= 0) THEN BSFT\_RESULT =3;  
ELSE IF (BA1FTDMRESLT =2) AND (BA1FTDMSECS IN (-1,-7,-8,-9)) THEN BSFT\_RESULT =4;  
ELSE IF (BA1RSN1FTSTD =1) OR (BA1RSN2FTSTD =1) OR (BA1RSN3FTSTD =1) THEN BSFT\_RESULT =5;  
ELSE IF (BA1RSN1FTSTD NE 1) AND (BA1RSN2FTSTD NE 1) AND (BA1RSN3FTSTD NE 1) THEN BSFT\_RESULT =6;  
ELSE IF (BA1FTDMRESLT = 3) AND (BA1RSN1FTSTD IN (-1,-7,-8,-9)) AND (BA1RSN2FTSTD IN (-1,-7,-8,-9))  
AND (BA1RSN3FTSTD IN (-1,-7,-8,-9)) AND (BA1RSN4FTSTD IN (-1,-7,-8,-9)) AND (BA1RSN9FTSTD IN (-1,-7,-8,-9))  
THEN BSFT\_RESULT =6;  
END;

ELSE BSFT\_RESULT =-9;

\*\*\*\* ONE LEG EYES OPEN BALANCE STANDS \*\*\*\*;

IF (BA1DBLOPADM =1) THEN DO;

IF (BA11LEORESULT =1) THEN BSEO\_RESULT =1;  
ELSE IF (BA11LEORESULT =2) AND (BA11LEOSFSEC >= 0) THEN BSEO\_RESULT =3;  
ELSE IF (BA11LEORESULT =2) AND (BA11LEOSFSEC IN (-1,-7,-8,-9)) THEN BSEO\_RESULT =4;  
ELSE IF (BA1RSN11LEO =1) OR (BA1RSN21LEO =1) OR (BA1RSN31LEO =1) THEN BSEO\_RESULT =5;  
ELSE IF (BA1RSN11LEO NE 1) AND (BA1RSN21LEO NE 1) AND (BA1RSN31LEO NE 1) THEN BSEO\_RESULT =6;  
ELSE IF (BA11LEORESULT = 3) AND (BA1RSN11LEO IN (-1,-7,-8,-9)) AND (BA1RSN21LEO IN (-1,-7,-8,-9))  
AND (BA1RSN31LEO IN (-1,-7,-8,-9)) AND (BA1RSN41LEO IN (-1,-7,-8,-9)) AND (BA1RSN91LEO IN (-1,-7,-8,-9))  
THEN BSEO\_RESULT =6;  
END;

ELSE BSEO\_RESULT =-9;

\*\*\*\* ONE LEG EYES CLOSED BALANCE STANDS \*\*\*\*;

IF (BA1DBLCLADM =1) THEN DO;

IF (BA11LECRESLT =1) THEN BSEC\_RESULT =1;  
ELSE IF (BA11LECRESLT =2) AND (BA11LECSFSEC >= 0) THEN BSEC\_RESULT =3;  
ELSE IF (BA11LECRESLT =2) AND (BA11LECSFSEC IN (-1,-7,-8,-9)) THEN BSEC\_RESULT =4;  
ELSE IF (BA1RSN11LEC =1) OR (BA1RSN21LEC =1) OR (BA1RSN31LEC =1) THEN BSEC\_RESULT =5;  
ELSE IF (BA1RSN11LEC NE 1) AND (BA1RSN21LEC NE 1) AND (BA1RSN31LEC NE 1) THEN BSEC\_RESULT =6;  
ELSE IF (BA11LECRESLT = 3) AND (BA1RSN11LEC IN (-1,-7,-8,-9)) AND (BA1RSN21LEC IN (-1,-7,-8,-9))  
AND (BA1RSN31LEC IN (-1,-7,-8,-9)) AND (BA1RSN41LEC IN (-1,-7,-8,-9)) AND (BA1RSN91LEC IN (-1,-7,-8,-9))  
THEN BSEC\_RESULT =6;  
END;

ELSE BSEC\_RESULT =-9;

\*\*\*\*\* WALKING COURSE \*\*\*\*\*;

\*\*\*\*\*

DEFINITION: WALKING COURSE RESULT VARIABLE

1=COMPLETED TEST WITH RESULTS

2=COMPLETED TEST/MISSING RESULTS

3=ATTEMPTED TEST  
 4=NOT APPLICABLE  
 5=NOT ATTEMPTED FOR SAFETY REASONS  
 6=NOT ATTEMPTED FOR OTHER REASONS OR MISSING REASON  
 7=NO SPACE AVAILABLE  
 -9=ELSE (NOT ELIGIBLE/ELIGIBLE AND MISSING)  
 \*\*\*\*\*;

\*\*\*\* 1ST WALK COURSE \*\*\*\*;

IF (WA1DWLKADM IN (1, 5)) THEN DO;

IF (WA1WLKC1RSLT =1) AND (WA1WLKC1SECS >=0) THEN WK1\_RESULT =1;  
 ELSE IF (WA1WLKC1RSLT =1) AND (WA1WLKC1SECS IN (-1,-7,-8,-9)) THEN WK1\_RESULT =2;  
 ELSE IF (WA1WLKC1RSLT =2) THEN WK1\_RESULT = 3;  
 ELSE IF (WA1RSN11WKC =1) OR (WA1RSN21WKC =1) OR (WA1RSN31WKC =1) THEN WK1\_RESULT =5;  
 ELSE IF (WA1RSN41WKC =1) OR (WA1RSN51WKC =1) OR (WA1RSN91WKC =1) THEN WK1\_RESULT =6;  
 ELSE IF (WA1WLKC1RSLT =3) AND ((WA1RSN11WKC IN (-1,-7,-8,-9)) AND (WA1RSN21WKC IN (-1,-7,-8,-9))  
 AND (WA1RSN31WKC IN (-1,-7,-8,-9)) AND (WA1RSN41WKC IN (-1,-7,-8,-9)) AND (WA1RSN51WKC IN (-1,-7,-8,-9))  
 AND (WA1RSN91WKC IN (-1,-7,-8,-9))) THEN WK1\_RESULT =6;  
 ELSE IF (WA1WLKCORSPC=2) THEN WK1\_RESULT =7;

END;

ELSE WK1\_RESULT =-9;

\*\*\*\*\* CHAIR STANDS \*\*\*\*\*;

\*\*\*\*\*

DEFINITION: SINGLE CHAIR STAND RESULT VARIABLE  
 1=COMPLETED TEST WITHOUT USING ARMS  
 2=COMPLETED TEST WITH ARMS OR MISSING ARM INFORMATION  
 3=ATTEMPTED TEST/WITH RESULTS  
 5=NOT ATTEMPTED FOR SAFETY REASONS  
 6=NOT ATTEMPTED FOR OTHER REASONS  
 7=NO CHAIR AVAILABLE AND DID NOT ATTEMPT FOR SAFETY REASON  
 8=NO CHAIR AVAILABLE AND DID NOT ATTEMPT FOR OTHER REASON  
 9=NOT ATTEMPTED/MISSING REASONS  
 10=DID NOT COMPLETE SINGLE CHAIR STAND/MISSING REASON  
 -9=ELSE (NOT ELIGIBLE/ELIGIBLE AND MISSING)

\*\*\*\*\*;

\*\*\*\* SINGLE CHAIR STANDS \*\*\*\*;

IF (CH1DSCHRADM =1) THEN DO;

IF (CH1SGCHSTRES =1) AND (CH1ARMUSE =2) THEN CH1\_RESULT =1;  
 ELSE IF (CH1SGCHSTRES =1) AND (CH1ARMUSE IN (1,-1,-7,-8,-9)) THEN CH1\_RESULT =2; \*SINGLE CHAIR STAND W/ARMS \*;  
 ELSE IF (CH1SGCHSTRES =2) THEN CH1\_RESULT =3;  
 ELSE IF (CH1CHRAVAIL =2) AND ((CH1RSN11CHS =1) OR (CH1RSN21CHS =1) OR (CH1RSN31CHS =1)) THEN CH1\_RESULT =7;  
 ELSE IF (CH1RSN11CHS =1) OR (CH1RSN21CHS =1) OR (CH1RSN31CHS =1) THEN CH1\_RESULT =5;  
 ELSE IF (CH1CHRAVAIL =2) AND ((CH1RSN41CHS =1) OR (CH1RSN51CHS =1) OR (CH1RSN91CHS =1)) THEN CH1\_RESULT =8;  
 ELSE IF (CH1RSN41CHS =1) OR (CH1RSN51CHS =1) OR (CH1RSN91CHS =1) THEN CH1\_RESULT =6;

ELSE IF (CH1CHSTCOMPL =1) THEN CH1\_RESULT =10;  
ELSE IF ((CH1SGCHSTRES =3) OR (CH1CHRAVAIL =2)) AND ((CH1RSN11CHS IN (-1,-7,-8,-9)) AND (CH1RSN21CHS IN (-1,-7,-8,-9)) AND (CH1RSN31CHS IN (-1,-7,-8,-9)) AND ((CH1RSN41CHS IN (-1,-7,-8,-9)) AND (CH1RSN51CHS IN (-1,-7,-8,-9)) AND (CH1RSN91CHS IN (-1,-7,-8,-9)))) THEN CH1\_RESULT =9;  
END;

ELSE CH1\_RESULT =-9;

\*\*\*\* REPEATED CHAIR STANDS \*\*\*\*;

\*\*\*\*\*  
DEFINITION: REPEAT CHAIR STAND RESULT VARIABLE  
1=COMPLETED TEST WITH RESULTS  
2=COMPLETED TEST MISSING RESULTS  
3=ATTEMPTED TEST  
4=NOT APPLICABLE  
5=NOT ATTEMPTED FOR SAFETY REASONS  
6=NOT ATTEMPTED FOR OTHER REASON  
9=NOT ATTEMPTED/MISSING REASON OR NO CHAIR AVAILABLE  
-9=ELSE (NOT ELIGIBLE/DID NOT COMPLETE SINGLE CHAIR STAND/ELIGIBLE AND MISSING  
\*\*\*\*\*;

IF (CH1DRCHRADM =1) THEN DO;

IF (CH12CHSTRSLT =1) AND (CH1CHSTNDSEC >= 0) THEN CH2\_RESULT =1;  
ELSE IF (CH12CHSTRSLT =1) AND (CH1CHSTNDSEC IN (-1,-7,-8,-9)) THEN CH2\_RESULT =2;  
ELSE IF (CH12CHSTRSLT =2) THEN CH2\_RESULT =3;  
ELSE IF (CH1CHSTNTAT1 =1) OR (CH1CHSTNTAT2 =1) OR (CH1CHSTNTAT3 =1) THEN CH2\_RESULT =5;  
ELSE IF (CH1CHSTNTAT4 =1) OR (CH1CHSTNTAT9 =1) THEN CH2\_RESULT =6;  
ELSE IF ((CH12CHSTRSLT =3) OR (CH1CHRAVAIL =2)) AND ((CH1CHSTNTAT1 IN (-1,-7,-8,-9)) AND (CH1CHSTNTAT2 IN (-1,-7,-8,-9)) AND (CH1CHSTNTAT3 IN (-1,-7,-8,-9)) AND (CH1CHSTNTAT4 IN (-1,-7,-8,-9)) AND (CH1CHSTNTAT9 IN (-1,-7,-8,-9))) THEN CH2\_RESULT =9;

END;

ELSE CH2\_RESULT =-9;

\*\*\*\*\*  
GRIP STRENGTH AND PEAK AIR FLOW RESULT VARIABLES  
1=COMPLETED TEST WITH RESULTS  
2=COMPLETED TEST/MISSING RESULTS  
3=ATTEMPTED TEST  
4=NOT APPLICABLE  
5=NOT ATTEMPTED FOR SAFETY REASONS  
6=NOT ATTEMPTED FOR OTHER REASONS OR MISSING REASON  
-9=ELSE (NOT ELIGIBLE GRIP STRENGTH/ELIGIBLE AND MISSING)  
\*\*\*\*\*;

\*\*\*\* GRIP STRENGTH \*\*\*\*;

\*\*\*\* 1ST GRIP STRENGTH TEST \*\*\*\*;

IF (GR1DGRIPADM =1) THEN DO;

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IF (GR1GRP1RESLT =1) AND (GR1GRP1RDNG >=0) THEN GR1_RESULT =1;
ELSE IF (GR1GRP1RESLT =1) AND (GR1GRP1RDNG IN (-1,-7,-8,-9)) THEN GR1_RESULT =2;
ELSE IF (GR1GRP1RESLT =2) THEN GR1_RESULT =3;
ELSE IF (GR1GRP1NOAT1 =1) OR (GR1GRP1NOAT2 =1) OR (GR1GRP1NOAT3 =1) THEN GR1_RESULT =5;
ELSE IF (GR1GRP1NOAT4 =1) OR (GR1GRP1NOAT9 =1) THEN GR1_RESULT =6;
ELSE IF (GR1GRP1RESLT =3) AND ((GR1GRP1NOAT1 IN (-1,-7,-8,-9)) AND (GR1GRP1NOAT2 IN (-1,-7,-8,-9))
AND (GR1GRP1NOAT3 IN (-1,-7,-8,-9)) AND (GR1GRP1NOAT4 IN (-1,-7,-8,-9)) AND
(GR1GRP1NOAT9 IN (-1,-7,-8,-9))) THEN GR1_RESULT =6;
END;

ELSE GR1_RESULT =-9;

**** PEAK AIR FLOW ****;
**** 1ST PEAK AIR FLOW TEST ****;

IF (PK1DPEAKADM =1) THEN DO;

IF (PK1PKARFL1RS =1) AND (PK1PKARFL1RD >=0) THEN PK1_RESULT =1;
ELSE IF (PK1PKARFL1RS =1) AND (PK1PKARFL1RD IN (-1,-7,-8,-9)) THEN PK1_RESULT =2;
ELSE IF (PK1PKARFL1RS =2) THEN PK1_RESULT =3;
ELSE IF (PK1PK1NOATT1 =1) OR (PK1PK1NOATT2 =1) OR (PK1PK1NOATT3 =1) THEN PK1_RESULT =5;
ELSE IF (PK1PK1NOATT4 =1) OR (PK1PK1NOATT9 =1) THEN PK1_RESULT =6;
ELSE IF (PK1PKARFL1RS =3) AND ((PK1PK1NOATT1 IN (-1,-7,-8,-9)) AND (PK1PK1NOATT2 IN (-1,-7,-8,-9))
AND (PK1PK1NOATT3 IN (-1,-7,-8,-9)) AND (PK1PK1NOATT4 IN (-1,-7,-8,-9)) AND (PK1PK1NOATT9 IN (-1,-7,-8,-9)))
THEN PK1_RESULT =6;
END;

ELSE PK1_RESULT =-9;

*****
SET BALANCE STANDS SECONDS TO 0 WHERE
BALANCE STANDS WERE ATTEMPTED BUT THERE ARE MISSING RESULTS
FOR HOW LONG THE ATTEMPTED BALANCE STAND WAS HELD
*****;

**** ASSIGN 0 SECONDS FOR ATTEMPTED/MISSING RESULTS ON SEMI-TANDEM STANDS ****;
**** N=87 ****;

BA1STDMHNR_R = BA1STDMHNR;
IF (BA1STDMHNR IN (-1,-9)) THEN BA1STDMHNR_R = .; ** SET INAPPLICABLE & ERROR MISSING VALUES TO MISSING **;
ELSE IF (BA1STDMHNR IN (-7,-8)) THEN BA1STDMHNR_R = .00; ** SET DK/REF VALUES TO 0 **;
ELSE BA1STDMHNR_R = (.01*BA1STDMHNR); ** TURN HUNDREDTHS OF A SECOND VARIABLE INTO A DECIMAL **;

BA1STDMSECS_R = BA1STDMSECS + BA1STDMHNR_R; ** ADD SECONDS AND HUNDREDTHS OF A SECOND **;

IF (BSST_RESULT =3) THEN DO;
BSST_ISEC = BA1STDMSECS_R;
END;

IF (BSST_RESULT =4) THEN BSST_ISEC =0; ** IF ATTEMPTED BUT MISSING RESULT SET SEMI TANDEM RESULT TO 0 **;

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\*\*\*\* ASSIGN 0 SECONDS FOR ATTEMPTED/MISSING RESULTS ON FULL TANDEM STANDS \*\*\*\*;  
\*\*\*\* N=211 \*\*\*;

BA1FTDMHNR\_R = BA1FTDMHNR;  
IF (BA1FTDMHNR IN (-1,-9)) THEN BA1FTDMHNR\_R = .;  
ELSE IF (BA1FTDMHNR IN (-7,-8)) THEN BA1FTDMHNR\_R = .00;  
ELSE BA1FTDMHNR\_R = (.01\*BA1FTDMHNR);

BA1FTDMSECS\_R = BA1FTDMSECS + BA1FTDMHNR\_R;

IF (BSFT\_RESULT =3) THEN DO;  
BSFT\_ISEC = BA1FTDMSECS\_R;  
END;

IF (BSFT\_RESULT =4) THEN BSFT\_ISEC = 0;

\*\*\*\* ASSIGN 0 SECONDS FOR ATTEMPTED/MISSING RESULTS ON ONE LEG EYES OPEN STANDS \*\*\*\*;  
\*\*\*\* N=2 \*\*\*\*;

BA11LEOHNR\_R = BA11LEOHNR;  
IF (BA11LEOHNR IN (-1,-9)) THEN BA11LEOHNR\_R = .;  
ELSE IF (BA11LEOHNR IN (-7,-8)) THEN BA11LEOHNR\_R = .00;  
ELSE BA11LEOHNR\_R = (.01\*BA11LEOHNR);

BA11LEOSFSEC\_R = BA11LEOSFSEC + BA11LEOHNR\_R;  
IF (BSEO\_RESULT =3) THEN DO;  
BSEO\_ISEC = BA11LEOSFSEC\_R;  
END;

IF (BSEO\_RESULT =4) THEN BSEO\_ISEC = 0;

\*\*\*\*\*  
INELIGIBLE FOR WALKING COURSE AND ELIGIBLE NO INFO RECORDED  
ON REPEAT CHAIR STAND ADMIN VAR  
FLAG CREATED  
\*\*\*\*\*;

WLK4CHR2 = .;

IF (WA1DWLADM =4)AND (CH1DRCHRADM =2) THEN WLK4CHR2 = 2; \*\*\* N=255 \*\*\*;  
ELSE WLK4CHR2 =1;

\*\*\*\*\*  
WALKING SPEED  
\*\*\*\*\*;

\*\*\*\* 1ST TIMED WALK \*\*\*\*;

\*\*\*\* CONVERT INTEGERS INTO HUNDREDTHS OF A SECOND \*\*\*\*;

IF (WK1\_RESULT =1) THEN DO;

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WK1_HNDR      = WA1WLK1HNDR; *** WHOLE NUMBERS ****;
IF (WA1WLK1HNDR IN (-1,-7,-8,-9)) THEN WK1_HNDR = .;
ELSE WK1_HNDR = (.01*WA1WLK1HNDR); *** MULTIPLY BY .01 TO GET HUNDREDTHS ***;

WK1_SEC       = WA1WLKC1SECS;      **** SECONDS ****;
IF (WA1WLKC1SECS IN (-1,-7,-8,-9)) THEN WK1_SEC =.;

**** GENERATE TOTAL TIME TO WALK FIRST WALK ****;
**** IF DATA MISSING FOR HUNDREDTHS OF A SECOND THEN SECONDS ONLY ARE USED ****;

WK1_SECH=0; *** ADD SECONDS AND HUNDREDTHS OF A SECOND ****;
WK1_SECH = WK1_SEC + WK1_HNDR;
IF (WK1_HNDR =.) AND (WK1_SEC >= 0) THEN WK1_SECH = WK1_SEC; *** (N=99) ****;

END;

***** N=6181 *****;

IF (WK1_RESULT =1) THEN DO;

WK2_SEC = WA1WLKC2SECS;
IF (WA1WLKC2SECS IN (-1,-7,-8,-9)) THEN WK2_SEC =.;

WK2_HNDR = WA1WLK2HNDR;
IF (WA1WLK2HNDR IN (-1,-7,-8,-9)) THEN WK2_HNDR =.;
ELSE WK2_HNDR = (.01*WA1WLK2HNDR);

WK2_SECH =0;
WK2_SECH = WK2_SEC + WK2_HNDR;
IF (WK2_HNDR =.) AND (WK2_SEC >= 0) THEN WK2_SECH = WK2_SEC;

END;

***** BEST WALKING TIME *****;
***** TOTAL N =6181 *****;
IF (WK1_RESULT =1) THEN DO;

IF (WK1_SECH >= WK2_SECH) THEN WK_BEST = WK1_SECH;
ELSE IF (WK2_SECH > WK1_SECH) THEN WK_BEST = WK2_SECH;
ELSE IF (WK2_SECH =.) AND (WK1_SECH >= 0) THEN WK_BEST = WK1_SECH; *** IF SECOND WALK SCORE IS MISSING USE
FIRST WALK SCORE ***;

END;

***** BEST OUT OF 2 TESTS USED M/S *****;

WKBEST_MS = (3/WK_BEST);

WKBEST_MSR   = ROUND(WKBEST_MS,.001);      **** ROUNDED TO 3 DECIMAL PLACES ****;

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*****
ORIGINAL WALKING SPEED USING CUTPOINTS INTERPOLATED FROM 8 FT WALK IN METERS PER SECOND (M/S)
0 = NOT ELIGIBLE/NOT COMPLETED/NOT ATTEMPTED SAFETY REASONS
1 = LE .441 (SLOWEST GROUP/WORST SCORE)(AT OR BELOW 25TH PERCENTILE)
2 = .442 - .624 (26TH TO 50TH PERCENTILE)
3 = .625 - .798 (51ST TO 75TH PERCENTILE)
4 = GE .799 (FASTEST GROUP/BEST SCORE) (ABOVE 75TH PERCENTILE)
-9=MISSING
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IF (WA1DWLKADM =4) OR (WK1_RESULT IN (2,3,5)) THEN WA_QUARTILES_ORIG =0; ***** N=819 *****;
ELSE IF (WA1DWLKADM =2) OR (WK1_RESULT =6) THEN WA_QUARTILES_ORIG =-9; *** N=609 ***;

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IF (WK1_RESULT =1) THEN DO;

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IF (WKBEST_MSR <= .441) THEN WA_QUARTILES_ORIG =1;
ELSE IF (.442 <= WKBEST_MSR <= .624) THEN WA_QUARTILES_ORIG =2;
ELSE IF (.625 <= WKBEST_MSR <= .798) THEN WA_QUARTILES_ORIG =3;
ELSE IF (WKBEST_MSR => .799) THEN WA_QUARTILES_ORIG =4;
END;

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*****
WALKING SPEED SCORE (WEIGHTED QUARTILES FOR NHATS USING METERS PER SECOND (M/S))
0 = NOT ELIGIBLE/NOT COMPLETED/NOT ATTEMPTED SAFETY REASONS
1 = LE .579 (SLOWEST GROUP/WORST SCORE) (AT OR BELOW 25TH PERCENTILE)
2 = .580 TO .748 (26TH TO 50TH PERCENTILE)
3 = .749 TO .904 (51ST TO 75TH PERCENTILE)
4 = GT .904 (FASTEST/BEST SCORE) (ABOVE 75TH PERCENTILE)
-9= MISSING
*****

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***** NHATS BEST WALKING SCORE IN M/S *****;

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IF (WA1DWLKADM =4) OR (WK1_RESULT IN (2,3,5)) THEN WA_QUARTILES_NHATSMS =0; ***** N=819 *****;
ELSE IF (WA1DWLKADM =2) OR (WK1_RESULT =6) THEN WA_QUARTILES_NHATSMS =-9; *** N=609 ***;

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IF (WK1_RESULT =1) THEN DO;

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```

IF (WKBEST_MSR <= .579) THEN WA_QUARTILES_NHATSMS =1;
ELSE IF (.580 <= WKBEST_MSR <= .748) THEN WA_QUARTILES_NHATSMS =2;
ELSE IF (.749 <= WKBEST_MSR <= .904) THEN WA_QUARTILES_NHATSMS =3;
ELSE IF (WKBEST_MSR => .905) THEN WA_QUARTILES_NHATSMS =4;
END;

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*****
REPEATED CHAIR STANDS
*****

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***** TIME ON REPEATED CHAIR STANDS *****;

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**** TIME ON CHAIR STANDS WHERE SP DID 5 STANDS ****;
**** N=5158 ****;

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IF (CH2_RESULT =1) THEN DO;

CH2_SEC = CH1CHSTNDSEC;
IF (CH1CHSTNDSEC IN (-1,-7,-8,-9)) THEN CH2_SEC = .;

CH2_HNDR = CH1CHSTDHNR;
IF (CH1CHSTDHNR IN (-1,-7,-8,-9)) THEN CH2_HNDR =.;
ELSE CH2_HNDR = (.01*CH1CHSTDHNR);

CH2_SCORE =.;
CH2_SCORE = CH2_SEC + CH2_HNDR;
IF (CH2_HNDR =.) AND (CH2_SEC >=0) THEN CH2_SCORE = CH2_SEC;

END;

*****
CHAIR STAND SCORE (WEIGHTED QUARTILES USED FOR NHATS SCORE)
0 =NOT ELIGIBLE/NOT COMPLETED/NOT ATTEMPTED SAFETY REASONS
1 = GE 13.94 (SLOWEST/WORST SCORE)
2 =11.53 TO 13.93
3 =9.56 TO 11.52
4 =LE 9.55 (FASTEST/BEST SCORE)
-9=MISSING
*****;

CH2_QUARTILES_NHATS =.;
IF (CH1DRCHRADM =4) OR (CH2_RESULT IN (2,3,5)) THEN CH2_QUARTILES_NHATS =0; **** N=1819 ****;
ELSE IF (CH1_RESULT IN (2,3,5,7,10)) AND (CH2_RESULT =-9) THEN CH2_QUARTILES_NHATS =0;
ELSE IF (WLK4CHR2 =2) THEN CH2_QUARTILES_NHATS =0;

IF (CH2_RESULT =1) THEN DO;

IF (0 <= CH2_SCORE <= 9.55) THEN CH2_QUARTILES_NHATS =4;
ELSE IF (9.56 <= CH2_SCORE <= 11.53) THEN CH2_QUARTILES_NHATS =3;
ELSE IF (11.54 <= CH2_SCORE <= 13.93) THEN CH2_QUARTILES_NHATS =2;
ELSE IF (CH2_SCORE => 13.94) THEN CH2_QUARTILES_NHATS =1;

END;

ELSE IF (CH2_QUARTILES_NHATS =.) AND ((CH1DRCHRADM =2) OR (CH1_RESULT IN (6,8,9)) OR
(CH2_RESULT IN (6,9,-9))) THEN CH2_QUARTILES_NHATS =-9; *** N=632 ****;

*****
ORIGINAL SPPB CHAIR STAND CUTPOINTS
0= NOT ELIGIBLE/NOT COMPLETED/NOT ATTEMPTED SAFETY REASONS
1 =GE 16.70 (SLOWEST/WORST SCORE)
2 =16.69 TO 13.70
3 =13.69 TO 11.20
4 =LE 11.19 (FASTEST/BEST SCORE)
-9=MISSING
*****;

```

CH2\_QUARTILES\_ORIG =.;  
IF (CH1DRCHRADM =4) OR (CH2\_RESULT IN (2,3,5)) THEN CH2\_QUARTILES\_ORIG =0; \*\*\* N=1819 \*\*\*;  
ELSE IF (CH1\_RESULT IN (2,3,5,7,10)) AND (CH2\_RESULT =-9) THEN CH2\_QUARTILES\_ORIG =0;  
ELSE IF (WLK4CHR2 =2) THEN CH2\_QUARTILES\_ORIG =0;

IF (CH2\_RESULT =1) THEN DO;

IF (0 <= CH2\_SCORE <= 11.19) THEN CH2\_QUARTILES\_ORIG =4;  
ELSE IF (11.20 <= CH2\_SCORE <= 13.69) THEN CH2\_QUARTILES\_ORIG =3;  
ELSE IF (13.70 <= CH2\_SCORE <= 16.69) THEN CH2\_QUARTILES\_ORIG =2;  
ELSE IF (CH2\_SCORE >= 16.70) THEN CH2\_QUARTILES\_ORIG =1;

END;

ELSE IF (CH2\_QUARTILES\_ORIG =.) AND ((CH1DRCHRADM =2) OR (CH1\_RESULT IN (6,8,9)) OR  
(CH2\_RESULT IN (6,9))) THEN CH2\_QUARTILES\_ORIG =-9; \*\*\* N=632 \*\*\*;

\*\*\*\*\*  
INELIGIBLE FOR WALKING COURSE AND ELIGIBLE NO INFO RECORDED ON BALANCE STAND ADMIN VAR  
FLAG CREATED  
\*\*\*\*\*;

IF (WA1DWLKADM =4) AND (BA1DBLSSADM =2) THEN WLK4SSBAL2 =2;  
ELSE WLK4SSBAL2 = 1;

\*\*\*\*\*  
ORIGINAL SPPB BALANCE STAND SCORE (SIDE BY SIDE/SEMI TANDEM/FULL TANDEM)

0=INELIGIBLE FOR SIDE BY SIDE STAND/SIDE BY SIDE NOT ATTEMPTED FOR SAFETY REAS/ATTEMPTED BUT UNABLE TO  
COMPLETE SIDE BY SIDE/ NOT ELIGIBLE TO DO WALKING COURSE AND MISSING FOR BALANCE STAND ADMIN VAR  
1=COMPLETED SIDE BY SIDE STANDS/ATTEMPTED BUT UNABLE TO DO SEMI-TANDEM/SEMI TAND NOT ATTEMPTED SAFETY  
REASONS  
2=COMPLETED SEMI-TANDEM/0-2.99 SECONDS ATTEMPTED FULL TANDEM/DID NOT ATTEMPT FULL TAND SAFETY  
REASONS  
3=COMPLETED SEMI-TANDEM/3.00-9.99 SECONDS FULL TANDEM  
4=COMPLETED FULL TANDEM  
-9 = MISSING  
\*\*\*\*\*;

IF (BA1DBLSSADM =4) OR (BSSS\_RESULT IN (3,4,5)) OR (WLK4SSBAL2 =2) THEN BA\_SCORE\_ORIG =0; \*\*\*\* N= 986 \*\*\*;

ELSE IF (BSFT\_RESULT =1) THEN BA\_SCORE\_ORIG = 4;  
ELSE IF (BSST\_RESULT =1) AND (BSFT\_RESULT IN (3,4)) AND (3.00 <= BSFT\_ISEC <= 9.99) THEN BA\_SCORE\_ORIG =3;  
ELSE IF (BSST\_RESULT =1) AND ((BSFT\_RESULT IN (3,4)) AND (0.00 <= BSFT\_ISEC <= 2.99)) THEN BA\_SCORE\_ORIG =2;  
ELSE IF (BSST\_RESULT =1) AND (BSFT\_RESULT =5) THEN BA\_SCORE\_ORIG =2;  
ELSE IF (BSSS\_RESULT =1) AND (BSST\_RESULT IN (3,4,5)) THEN BA\_SCORE\_ORIG =1;

ELSE BA\_SCORE\_ORIG = -9; \*\*\* 405 \*\*\*;

\*\*\*\*\*

NHATS BALANCE STAND SCORE (SIDE BY SIDE/SEMI TANDEM/FULL TANDEM/ONE LEG EYES OPEN)

0=INELIGIBLE FOR SIDE BY SIDE STAND/SIDE BY SIDE NOT ATTEMPTED FOR SAFETY REAS/ATTEMPTED BUT UNABLE TO COMPLETE SIDE BY SIDE/ NOT ELIGIBLE TO DO WALKING COURSE AND MISSING FOR BALANCE STAND ADMIN VAR

1= COMPLETED SIDE BY SIDE AND ATTEMPTED SEMI TANDEM OR NOT ATTEMPTED FOR SAFE REAS OR COMPLETED SEMI TANDEM AND DID NOT COMPLETE FULL TANDEM FOR SAFETY REAS OR COMPLETED SEMI TANDEM AND ATTEMPTED FULL TANDEM AND HELD FOR 0-1.99 SECOND

2= COMPLETED SEMI-TANDEM AND ATTEMPTED FULL TANDEM AND HELD FOR 2.00-9.99 SECONDS OR COMPLETED FULL TANDEM AND HELD ONE LEG EYES OPEN FOR 0-2.99 SECONDS

3= COMPLETED FULL TANDEM AND HELD ONE LEG EYES OPEN STAND FOR 3.00-15.99 SECONDS

4= COMPLETED FULL TANDEM/COMPLETED ONE LEG EYES OPEN/ATTEMPTED ONE LEG EYES OPEN STAND AND HELD FOR 16.00 TO 29.99 SECONDS

-9 = MISSING

\*\*\*\*\*,

IF (BA1DBLSSADM =4) OR (BSSS\_RESULT IN (3,4,5)) OR (WLK4SSBAL2 =2) THEN BA\_SCORE\_NHATS =0; \*\*\*\* N= 986 \*\*\*;

ELSE IF (BSFT\_RESULT =1) AND (BSEO\_RESULT =1) THEN BA\_SCORE\_NHATS =4;

ELSE IF (BSFT\_RESULT =1) AND (BSEO\_RESULT IN (3,4)) AND (16.00 <= BSEO\_ISEC <=29.99) THEN BA\_SCORE\_NHATS =4;

ELSE IF (BSFT\_RESULT =1) AND (BSEO\_RESULT IN (3,4)) AND (3.00 <= BSEO\_ISEC <= 15.99) THEN BA\_SCORE\_NHATS =3;

ELSE IF (BSFT\_RESULT =1) AND (BSEO\_RESULT IN (3,4)) AND (0.00 <= BSEO\_ISEC <=2.99) THEN BA\_SCORE\_NHATS =2;

ELSE IF (BSFT\_RESULT =1) THEN BA\_SCORE\_NHATS = 2;

ELSE IF (BSST\_RESULT =1) AND (BSFT\_RESULT IN (3,4)) AND (2.00 <= BSFT\_ISEC <= 9.99) THEN BA\_SCORE\_NHATS =2;

ELSE IF (BSST\_RESULT =1) AND ((BSFT\_RESULT IN (3,4)) AND (0.00 <= BSFT\_ISEC <= 1.99)) THEN BA\_SCORE\_NHATS =1;

ELSE IF (BSST\_RESULT =1) AND (BSFT\_RESULT =5) THEN BA\_SCORE\_NHATS =1;

ELSE IF (BSSS\_RESULT =1) AND (BSST\_RESULT IN (3,4,5)) THEN BA\_SCORE\_NHATS =1;

ELSE BA\_SCORE\_NHATS =-9; \*\*\* N=405 \*\*\*\*;

\*\*\*\*\*

CREATE SEPARATE VARIABLES THAT INDICATE HOW A SCORE OF 0 WAS ASSIGNED

1=NOT ELIGIBLE DUE TO ELIGIBILITY CRITERIA (NOT APPLICABLE FOR PEAK AIR FLOW)

2=NOT ATTEMPTED FOR SAFETY REASON

3=SINGLE CHAIR STAND NOT COMPLETED FOR A SAFETY REASON/DID NOT COMPLETE PRIOR TEST

4=ATTEMPTED/COMPLETED RESULTS MISSING

5=NEW NOT ELIGIBLE FOR WALKING TEST/MISSING FOR BALANCE STANDS/REPEATED CHAIR STANDS

9=NOT ASSIGNED A ZERO SCORE

\*\*\*\*\*,

\*\*\*\*\* WALKING \*\*\*\*\*;

IF (WA1DWLKADM =4) THEN R1DSCORE0WA = 1;

ELSE IF (WK1\_RESULT =5) THEN R1DSCORE0WA =2;

ELSE IF (WK1\_RESULT IN (2,3)) THEN R1DSCORE0WA =4;

ELSE R1DSCORE0WA =9;

\*\*\*\*\* GRIP STRENGTH \*\*\*\*\*;

IF (GR1DGRIPADM =4) THEN R1DSCORE0GRP = 1;

ELSE IF (GR1\_RESULT =5) THEN R1DSCORE0GRP =2;

ELSE IF (GR1\_RESULT IN (2,3)) THEN R1DSCORE0GRP =4;

ELSE R1DSCORE0GRP =9;

\*\*\*\* PEAK AIR FLOW \*\*\*\*;

IF (PK1\_RESULT =5) THEN R1DScore0PK = 2;  
ELSE IF (PK1\_RESULT IN (2,3)) THEN R1DScore0PK = 4;  
ELSE R1DScore0PK =9;

\*\*\*\*\* BALANCE STANDS \*\*\*\*;

IF (BA1DBLSSADM =4) THEN R1DScore0BA = 1;  
ELSE IF (BSSS\_RESULT = 5) THEN R1DScore0BA = 2;  
ELSE IF (BSSS\_RESULT IN (3,4)) THEN R1DScore0BA =4;  
ELSE IF (WLK4SSBAL2=2) THEN R1DScore0BA =5;  
ELSE R1DScore0BA =9;

\*\*\*\*\* REPEATED CHAIR STANDS \*\*\*\*;

IF CH2\_QUARTILES\_NHATS =0 THEN DO;  
IF (CH1DRCHRADM =4) THEN R1DScore0RCH =1;  
ELSE IF (CH2\_RESULT =5) THEN R1DScore0RCH =2;  
ELSE IF (CH1\_RESULT IN (2,3,5,7,10)) AND (CH2\_RESULT =-9) THEN R1DScore0RCH =3;  
ELSE IF (CH2\_RESULT IN (2,3)) THEN R1DScore0RCH =4;  
ELSE IF (WLK4CHR2 =2) THEN R1DScore0RCH =5;  
ELSE IF (CH2\_QUARTILES\_NHATS =0) THEN R1DScore0RCH =6;  
END;  
ELSE R1DScore0RCH =9;

\*\*\*\*\*  
SPPB SCORES  
\*\*\*\*\*,  
\*\*\*\*\*

ORIGINAL SPPB  
ADD BALANCE STAND/WALKING COURSE/REPEATED CHAIR STAND RESULTS TO CREATE ORIGINAL SPPB  
SCORE FROM 0 TO 12  
\*\*\*\*\*,

CH2\_QUARTILES\_ORIGR = CH2\_QUARTILES\_ORIG;  
IF (CH2\_QUARTILES\_ORIG =-9) THEN CH2\_QUARTILES\_ORIGR =;

WA\_QUARTILES\_ORIGR =WA\_QUARTILES\_ORIG;  
IF (WA\_QUARTILES\_ORIG = -9) THEN WA\_QUARTILES\_ORIGR =;

BA\_SCORE\_ORIGR =BA\_SCORE\_ORIG;  
IF (BA\_SCORE\_ORIG = -9) THEN BA\_SCORE\_ORIGR =;

SPPB\_ORIG = 0;

SPPB\_ORIG = CH2\_QUARTILES\_ORIGR + WA\_QUARTILES\_ORIGR + BA\_SCORE\_ORIGR;

```

*****
NHATS EXPANDED SPPB
ADD NHATS EXPANDED BALANCE STAND/WALKING COURSE/REPEATED CHAIR STAND RESULTS TO CREATE SPPB
SCORE FROM 0-12
*****

```

```

CH2_QUARTILES_NHATSR = CH2_QUARTILES_NHATS;
IF (CH2_QUARTILES_NHATS = -9) THEN CH2_QUARTILES_NHATSR =.;

```

```

BA_SCORE_NHATSR = BA_SCORE_NHATS;
IF (BA_SCORE_NHATS = -9) THEN BA_SCORE_NHATSR =.;

```

```

WA_QUARTILES_NHATSMR = WA_QUARTILES_NHATSMS;
IF (WA_QUARTILES_NHATSMS = -9) THEN WA_QUARTILES_NHATSMR =.;

```

```

SPPB_NHATS = 0;

```

```

SPPB_NHATS = BA_SCORE_NHATSR + CH2_QUARTILES_NHATSR + WA_QUARTILES_NHATSMR;

```

```

**** PEAK AIR FLOW ****;
**** 1ST PEAK AIR FLOW TEST ****;
**** RECODE AND SET TO . MISSING DATA ****;

```

```

IF (PK1_RESULT = 1) THEN DO;
PK1_ISEC = PK1PKARFL1RD;

```

```

IF (PK1_RESULT = 1) AND (PK1PKARFL1RD IN (-1,-7,-8,-9)) THEN PK1_ISEC =.;

```

```

END;

```

```

**** 2ND PEAK AIR FLOW TEST ****;

```

```

PK1PKARFL2RD_R = PK1PKARFL2RD;
IF (PK2_RESULT = 1) THEN DO;
IF (PK1PKARFL2RD IN (-1,-7,-8,-9)) THEN PK1PKARFL2RD_R =.;

```

```

END;

```

```

***** BEST PEAK AIR FLOW RESULT ****;

```

```

IF (PK1_RESULT = 1) THEN DO;

```

```

IF (PK1_ISEC >= PK1PKARFL2RD_R) THEN PK_BESTR = PK1_ISEC;
ELSE IF (PK1_ISEC < PK1PKARFL2RD_R) THEN PK_BESTR = PK1PKARFL2RD_R;
IF (PK1_ISEC >= 0) AND (PK1PKARFL2RD_R =.) THEN PK_BESTR = PK1_ISEC;

```

```

END;

```

```

*****
PEAK AIR FLOW SCORE (BEST TEST USED TO DETERMINE WEIGHTED QUARTILES)
0=ATTEMPTED FOR DID NOT DO FOR SAFETY REASONS
1= LE 240 (WORST SCORE)
2=241 TO 330

```

```

3=331 TO 430
4=GE 431 (BEST SCORE)
-9=MISSING
*****
**** BEST PEAK AIR FLOW TEST ****;

PKBEST_QUARTILES =.;
IF (PK1_RESULT IN (2,3,5)) THEN PKBEST_QUARTILES =0; ***N=142 ****;
ELSE IF (PK1DPEAKADM =2) OR (PK1_RESULT =6) THEN PKBEST_QUARTILES =-9; ***N=725 ****;

IF (PK1_RESULT =1) THEN DO;

IF (0 <= PK_BESTR <= 240) THEN PKBEST_QUARTILES =1;
ELSE IF (241 <= PK_BESTR <= 330) THEN PKBEST_QUARTILES =2;
ELSE IF (331 <= PK_BESTR <= 430) THEN PKBEST_QUARTILES =3;
ELSE IF (PK_BESTR => 431) THEN PKBEST_QUARTILES =4;

END;

PKBEST_QUARTILES_R      = PKBEST_QUARTILES;
IF (PKBEST_QUARTILES = -9) THEN PKBEST_QUARTILES_R = .;

**** AVERAGE PEAK AIR FLOW RESULT ****;
IF (PK1_RESULT =1) THEN DO;

PK_AVG = (PK1_ISEC + PK1PKARFL2RD_R)/2;
IF (PK1_ISEC >= 0) AND (PK1PKARFL2RD_R =.) THEN PK_AVG = PK1_ISEC;

END;

**** PEAK AIR FLOW WEIGHTED QUARTILE SCORES USING THE AVERAGE OF 2 TESTS ****
0=ATTEMPTED/DID NOT DO FOR SAFETY REASONS
1=0-220
2=221-305
3=306-400
4=GE 401
-9=MISSING
*****

PKAVG_QUARTILES =.;

IF (PK1_RESULT IN (2,3,5)) THEN PKAVG_QUARTILES =0; *** N=142 ****;
ELSE IF (PK1DPEAKADM =2) OR (PK1_RESULT =6) THEN PKAVG_QUARTILES = -9; ***N=725 ****;

IF (PK1_RESULT =1) THEN DO;

IF (0 <= PK_AVG <= 220) THEN PKAVG_QUARTILES =1;
ELSE IF (221 <= PK_AVG <= 305) THEN PKAVG_QUARTILES =2;
ELSE IF (306 <= PK_AVG <=400) THEN PKAVG_QUARTILES =3;
ELSE IF (PK_AVG >= 401) THEN PKAVG_QUARTILES =4;

```

```

END;

PKAVG_QUARTILES_R = PKAVG_QUARTILES;

IF (PKAVG_QUARTILES = -9) THEN PKAVG_QUARTILES_R =.;

**** GRIP STRENGTH ****;
**** 1ST GRIP STRENGTH TEST ****;

IF (GR1_RESULT =1) THEN DO;
GR1GRP1RDNG_R = GR1GRP1RDNG;

IF (GR1_RESULT =1) AND (GR1GRP1RDNG IN (-1,-7,-8,-9)) THEN GR1GRP1RDNG_R =.;
END;

GR1_ISEC = GR1GRP1RDNG_R;

**** 2ND GRIP STRENGTH TEST ****;

GR1GRP2RDNG_R = GR1GRP2RDNG;

IF (GR1_RESULT =1) AND (GR1GRP2RDNG IN (-1,-7,-8,-9)) THEN GR1GRP2RDNG_R =.;

***** STRONGEST GRIP STRENGTH TEST USED ****;

IF (GR1_RESULT =1) THEN DO;

IF (GR1_ISEC >= GR1GRP2RDNG_R) THEN GR_BESTR = GR1_ISEC;
ELSE IF (GR1GRP2RDNG_R > GR1_ISEC) THEN GR_BESTR =GR1GRP2RDNG_R;
ELSE IF (GR1_ISEC >=0) AND (GR1GRP2RDNG_R =.) THEN GR_BESTR =GR1_ISEC;
END;

**** AVERAGE GRIP STRENGTH TEST USED ****;

IF (GR1_RESULT =1) THEN DO;

GR_AVG = (GR1_ISEC + GR1GRP2RDNG_R)/2;
IF (GR1_ISEC >=0) AND (GR1GRP2RDNG_R =.) THEN GR_AVG = GR1_ISEC;
END;
*****
GRIP STRENGTH SCORES (BEST TEST OF 2 USED TO DETERMINE WEIGHTED QUARTILES)
0=NOT ELIGIBLE/ATTEMPTED/DID NOT DO FOR SAFETY REAS
1= LE 19.50 (WORST SCORE)
2=19.51 TO 25.30
3=25.31 TO 34.10
4=GE 32.11 (BEST SCORE)
-9=MISSING
*****

```



```

**** BEST TEST ****;

GRBEST_QUARTILES =.;
IF (GR1DGRIPADM =4) OR (GR1_RESULT IN (2,3,5)) THEN GRBEST_QUARTILES =0; ****N=851 ****;

IF (GR1_RESULT =1) THEN DO;

IF (0 <= GR_BESTR <= 19.50) THEN GRBEST_QUARTILES =1;
ELSE IF (19.51 <= GR_BESTR <= 25.30) THEN GRBEST_QUARTILES =2;
ELSE IF (25.31 <= GR_BESTR <= 34.00) THEN GRBEST_QUARTILES =3;
ELSE IF (GR_BESTR => 34.01) THEN GRBEST_QUARTILES =4;

END;

ELSE IF (GR1DGRIPADM =2) OR (GR1_RESULT =6) THEN GRBEST_QUARTILES =-9; **** N=547 ****;

GRBEST_QUARTILESR = GRBEST_QUARTILES;
IF (GRBEST_QUARTILES =-9) THEN GRBEST_QUARTILESR =.;

```

```

**** GRIP STRENGTH WEIGHTED QUARTILE SCORE USING AVERAGE OF 2 TESTS ****
0=NOT ELIGIBLE/ATTEMPTED/DID NOT DO FOR SAFETY REAS
1= LE 18.50 (WORST SCORE)
2=18.51 TO 24.25
3=24.26 TO 32.70
4=GE 32.71 (BEST SCORE)
-9=MISSING
*****
,

```

```

GRAVG_QUARTILES = .;
IF (GR1DGRIPADM =4) OR (GR1_RESULT IN (2,3,5)) THEN GRAVG_QUARTILES =0; **** N=851 ****;

IF (GR1_RESULT =1) THEN DO;

IF (0 <= GR_AVG <= 18.50) THEN GRAVG_QUARTILES =1;
ELSE IF (18.51 <= GR_AVG <= 24.25) THEN GRAVG_QUARTILES =2;
ELSE IF (24.26 <= GR_AVG <= 32.70) THEN GRAVG_QUARTILES =3;
ELSE IF (GR_AVG => 32.71) THEN GRAVG_QUARTILES =4;

END;

ELSE IF (GR1DGRIPADM =2) OR (GR1_RESULT =6) THEN GRAVG_QUARTILES =-9;*** N=547 ****;

GRAVG_QUARTILESR = GRAVG_QUARTILES;
IF (GRAVG_QUARTILES =-9) THEN GRAVG_QUARTILESR =.;

```

```

*****
RENAME VARIABLES FOR THE ROUND 1 FINAL DATA RELEASE
*****
,

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```

***** VARIABLE NAME *****;          **** LABELS ****;
R1DNHATSPPB = SPPB_NHATS;             **** R1 D NHATS SPPB SCORE ****;
R1DNHATSASC = BA_SCORE_NHATS;         **** R1 D NHATS BALANCE SCORE ****;

```

```
R1DNHATSWKSC = WA_QUARTILES_NHATSMS;
R1DNHATSCHSC = CH2_QUARTILES_NHATS;
R1DNHATSGRAV = GRAVG_QUARTILES;
R1DNHATSGRB = GRBEST_QUARTILES;
R1DNHATSPKAV = PKAVG_QUARTILES;
R1DNHATSPKB = PKBEST_QUARTILES;
R1DORIGSPPB = SPPB_ORIG;
R1DORIGBASC = BA_SCORE_ORIG;
R1DORIGWKSC = WA_QUARTILES_ORIG;
R1DORIGCHSC = CH2_QUARTILES_ORIG;

**** R1 D NHATS WALK SCORE ****;
**** R1 D NHATS REPEAT CHAIR SCORE ****;
**** R1 D NHATS AVG GRIP SCORE ****;
**** R1 D NHATS BEST GRIP SCORE ****;
**** R1 D NHATS AVG AIR FLOW SCORE ****;
**** R1 D NHATS BEST AIR FLOW SCORE ****;
**** R1 D ORIGINAL SPPB SCORE ****;
**** R1 D ORIGINAL BALNCE SCORE ****;
**** R1 D ORIGINAL WALK SCORE ****;
**** R1 D ORIGINAL REPEAT CHAIR SCORE ****;
```