Item S1

Mathematica (12.0.0.0) code for calculation of body surface area, creatinine excretion rate

and total body water:

```
fbsa[weight_, height_] := 0.007184 x height^0.725 x weight^0.425
fbmi[weight_, height_] := weight / (0.01 * height)^2
fixfwcer[age_, weight_] := 0.00884` (500.47` - 6.19` age + 12.51` weight)
fixmwcer[age_, weight_] := 0.00884` (879.89` - 6.19` age + 12.51` weight)
fixfbcer[age_, weight_] := 0.00884` (534.98` - 6.19` age + 12.51` weight)
fixmbcer[age_, weight_] := 0.00884` (914.4` - 6.19` age + 12.51` weight)
fIxWeb[sex_, race_, age_, weight_] :=
 If[sex == 2, If[race == 4, fixfbcer[age, weight], fixfwcer[age, weight]],
   If[race == 4, fixmbcer[age, weight], fixmwcer[age, weight]]]
ftbwchfw[age_, weight_, height_] := -10.5` - 0.01` age + 0.18` height + 0.2` weight

ftbwchmw[age_, weight_, height_] := 23.04` - 0.03` age + 0.5` weight - (6200.` weight)/(height^2)

ftbwchfb[age_, weight_, height_] := -16.71` - 0.05` age + 0.24` height + 0.22` weight
ftbwchmb[age_, weight_, height_] := -18.37` - 0.09` age + 0.25` height + 0.34` weight
fChumleaWeb[sex_, race_, age_, weight_, height_] :=
 If[sex == 2, If[race == 4, ftbwchfb[age, weight, height], ftbwchfw[age, weight, height]],
   If[race == 4, ftbwchmb[age, weight, height], ftbwchmw[age, weight, height]]]
impath = "NHANES-File.csv";
nhanestaskimp = Dataset[Import[impath, "Dataset", "HeaderLines" -> 1]];
%[All, Append[#, "bsa" -> If[#bmxwt > 0 && #bmxht > 0, NumberForm[fbsa[#bmxwt, #bmxht], 3], "na", "na"]] &];
%[All,
   Append[#,
     "cerix" -> If[#bmxwt > 0 && #ridageyr > 19, NumberForm[fIxWeb[#riagendr, #ridreth3, #ridageyr, #bmxwt] / 0.00884, {5, 0}],
       "na", "na"]] &];
%[All,
   Append[#, "tbwch" -> If[#bmxwt > 0 && #bmxht > 0 && #ridageyr > 19,
     NumberForm[fChumleaWeb[#riagendr, #ridreth3, #ridageyr, #bmxwt, #bmxht], {4, 1}], "na", "na"]] &];
%[All,
   Append[#, "cerixsi" -> If[#bmxwt > 0 && #ridageyr > 19, NumberForm[fIxWeb[#riagendr, #ridreth3, #ridageyr, #bmxwt], {5, 3}],
       "na", "na"]] &]
```

Item S2

Example R code for calculating means, standard errors and quantiles (Table S3):

```r
# INSTALL AND LOAD PACKAGES #
#+ message = FALSE, warning=FALSE
library(survey)
library(plyr)
library(dplyr)
library(data.table)
library(gt)
# READ.CSV FOR CSV FILES #
nhanesimp.csv <- read.csv("NHANESfile.csv", header = TRUE)
#  Missing to 0 #
nhanesAnalysis <- nhanesimp.csv
nhanesAnalysis[is.na(nhanesAnalysis)] <- 0
# Survey Weights #
nhanesDesign <- svydesign(id     = ~sdmvpsu,
                strata  = ~sdmvstra,
                weights = ~wtmec4yr,
                nest    = TRUE,
                data    = nhanesAnalysis)
################################################################################
# female, bsa ################
testDesign1 <- subset(nhanesDesign, ridageyr>19 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign2 <- subset(nhanesDesign, ridageyr>19 & ridageyr<30 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign3 <- subset(nhanesDesign, ridageyr>29 & ridageyr<40 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign4 <- subset(nhanesDesign, ridageyr>39 & ridageyr<50 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign5 <- subset(nhanesDesign, ridageyr>49 & ridageyr<60 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign6 <- subset(nhanesDesign, ridageyr>59 & ridageyr<70 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign7 <- subset(nhanesDesign, ridageyr>69 & ridageyr<80 & riagendr==2 & ridexprg!=1 & bsa>0)
testDesign8 <- subset(nhanesDesign, ridageyr>79 & riagendr==2 & ridexprg!=1 & bsa>0)
# step 1 ###
dim <- dim(testDesign1)
mean <- svymean(~bsa,testDesign1,na.rm=T)
quant <- svyquantile(~bsa, testDesign1, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp1 <- dat5
# step 2 ###
dim <- dim(testDesign2)
mean <- svymean(~bsa,testDesign2,na.rm=T)
quant <- svyquantile(~bsa, testDesign2, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp2 <- rbind(temp1,dat5)
# step 3 ###
dim <- dim(testDesign3)
mean <- svymean(~bsa,testDesign3,na.rm=T)
quant <- svyquantile(~bsa, testDesign3, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp3 <- rbind(temp2,dat5)
# step 4 ###
dim <- dim(testDesign4)
mean <- svymean(~bsa,testDesign4,na.rm=T)
```

```
quant <- svyquantile(~bsa, testDesign4, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp4 <- rbind(temp3,dat5)
# step 5 ###
dim <- dim(testDesign5)
mean <- svymean(~bsa,testDesign5,na.rm=T)
quant <- svyquantile(~bsa, testDesign5, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp5 <- rbind(temp4,dat5)
# step 6 ###
dim <- dim(testDesign6)
mean <- svymean(~bsa,testDesign6,na.rm=T)
quant <- svyquantile(~bsa, testDesign6, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp6 <- rbind(temp5,dat5)
# step 7 ###
dim <- dim(testDesign7)
mean <- svymean(~bsa,testDesign7,na.rm=T)
quant <- svyquantile(~bsa, testDesign7, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp7 <- rbind(temp6,dat5)
# step 8 ###
dim <- dim(testDesign8)
mean <- svymean(~bsa,testDesign8,na.rm=T)
quant <- svyquantile(~bsa, testDesign8, quantile=c(0.05,0.1,0.15,0.25,0.5,0.75,0.85,0.9,0.95),ci=TRUE)
dat1 <- as.data.frame(dim[1])
names(dat1) <- c("Number of examined persons")
dat2 <- as.data.frame(mean)
names(dat2) <- c("Mean","Standard error of the mean")
dat3 <- as.data.frame(quant[1])
names(dat3) <- c("5th","10th","15th","25th","50th","75th","85th","90th","95th")
dat4 <- merge(dat1,dat2)
dat5 <- merge(dat4,dat3)
temp8 <- rbind(temp7,dat5)
setattr(temp8, "row.names", c("20 -79 years", "20-29 years", "30-39 years","40-49 years", "50-59 years", "60-69 years", "70-79 years", "80 years and over"))
bsafemale1518 <-temp8
```

Table S1

Table S1: Body surface area for non-pregnant women, 20 years and over, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				m²								
20 years and over . . .	5381	1.80	0.007	1.48	1.53	1.58	1.64	1.78	1.94	2.03	2.11	2.22
20-29 years	827	1.79	0.011	1.46	1.51	1.55	1.61	1.75	1.92	2.03	2.13	2.22
30-39 years	871	1.83	0.011	1.49	1.54	1.58	1.67	1.79	1.98	2.07	2.17	2.30
40-49 years	899	1.84	0.014	1.52	1.57	1.61	1.68	1.82	1.99	2.09	2.14	2.26
50-59 years	915	1.82	0.010	1.49	1.55	1.60	1.66	1.81	1.94	2.03	2.11	2.23
60-69 years	979	1.81	0.013	1.49	1.56	1.60	1.67	1.80	1.94	2.04	2.10	2.17
70-79 years	531	1.76	0.011	1.46	1.51	1.56	1.63	1.74	1.87	1.94	2.00	2.09
80 years and over	359	1.67	0.012	1.38	1.44	1.49	1.55	1.65	1.78	1.85	1.92	1.97

Table S2

Table S2: Body surface area for men, 20 years and over, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				m²								
20 years and over . . .	5076	2.05	0.007	1.71	1.76	1.81	1.88	2.03	2.20	2.29	2.36	2.46
20-29 years	801	2.00	0.015	1.69	1.73	1.75	1.82	1.97	2.16	2.27	2.32	2.45
30-39 years	804	2.10	0.012	1.75	1.81	1.87	1.93	2.06	2.24	2.35	2.42	2.56
40-49 years	765	2.09	0.011	1.73	1.81	1.86	1.94	2.08	2.22	2.34	2.39	2.49
50-59 years	840	2.07	0.012	1.71	1.78	1.83	1.90	2.05	2.21	2.33	2.40	2.46
60-69 years	964	2.05	0.010	1.71	1.77	1.81	1.89	2.05	2.19	2.28	2.34	2.44
70-79 years	571	2.01	0.012	1.68	1.74	1.79	1.86	2.01	2.16	2.21	2.25	2.37
80 years and over	331	1.92	0.012	1.60	1.66	1.70	1.79	1.93	2.05	2.13	2.16	2.23

Table S3

Table S3: Creatinine excretion rate for non-pregnant women, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				mg/d								
20 - 79 years	5027	1187	9.1	802	872	919	994	1136	1340	1460	1567	1740
20-29 years	827	1289	14.1	960	996	1032	1077	1221	1440	1576	1699	1827
30-39 years	872	1283	12.5	918	968	1008	1086	1211	1429	1564	1686	1878
40-49 years	900	1239	17.9	883	945	977	1039	1174	1384	1518	1649	1794
50-59 years	915	1152	12.7	786	853	901	965	1099	1286	1398	1465	1703
60-69 years	981	1085	15.1	747	804	839	906	1040	1226	1343	1397	1529
70-79 years	532	980	11.9	675	716	759	825	962	1091	1172	1247	1403

Table S4

Table S4: Creatinine excretion rate for men, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				mg/d								
20 - 79 years	4750	1736	8.2	1338	1418	1463	1540	1694	1887	2009	2122	2276
20-29 years	802	1802	17.9	1441	1500	1536	1593	1755	1955	2082	2183	2344
30-39 years	804	1853	15.0	1483	1553	1586	1651	1794	1989	2131	2226	2431
40-49 years.	766	1783	13.2	1437	1483	1536	1601	1747	1909	2035	2127	2261
50-59 years.	842	1693	14.0	1343	1404	1433	1504	1661	1827	1928	2096	2185
60-69 years	965	1627	10.4	1280	1333	1364	1441	1604	1768	1861	1942	2087
70-79 years	571	1524	13.5	1172	1249	1291	1366	1507	1656	1746	1788	1922

Table S5

Table S5: Total body water for non-pregnant women, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				l								
20 - 79 years	5022	34.1	0.14	27.3	28.4	29.2	30.6	33.3	36.8	39.2	40.9	44.0
20-29 years	827	34.1	0.23	27.2	28.3	29.1	30.2	33.0	37.0	39.8	41.8	44.0
30-39 years	871	34.8	0.24	27.5	28.4	29.3	30.9	33.6	37.6	40.1	42.8	45.9
40-49 years	899	34.9	0.34	27.8	29.0	29.7	31.1	33.9	37.7	40.1	42.2	45.6
50-59 years	915	34.1	0.22	27.4	28.5	29.4	30.6	33.4	36.4	39.0	40.3	43.4
60-69 years	979	33.7	0.26	27.1	28.4	29.2	30.6	33.2	36.3	38.4	39.9	41.9
70-79 years	531	32.3	0.22	26.4	27.1	28.3	29.5	31.9	34.7	36.0	37.6	39.8

Table S6

Table S6: Total body water for men, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				l								
20 - 79 years	4745	49.3	0.20	39.3	40.7	42.0	43.9	48.2	53.2	56.6	59.2	63.5
20-29 years	801	48.5	0.49	39.6	40.3	41.1	43.1	47.0	52.7	56.2	58.6	64.4
30-39 years	804	50.9	0.38	40.6	42.5	43.6	45.5	49.5	54.5	58.5	61.1	66.5
40-49 years	765	50.4	0.35	39.8	41.7	43.0	45.4	49.2	54.3	57.2	60.3	65.2
50-59 years	840	49.2	0.36	38.8	40.9	42.1	43.8	48.3	53.0	56.7	60.0	62.6
60-69 years	964	48.4	0.30	38.7	39.9	41.2	43.3	47.6	52.1	54.8	58.0	61.0
70-79 years	571	46.7	0.37	37.6	39.1	40.2	42.3	46.3	51.0	52.7	54.0	57.8

Table S7

Table S7: Creatinine excretion rate for non-pregnant women, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				mmol/d								
20 - 79 years . .	5027	10.494	0.080	7.085	7.711	8.127	8.789	10.046	11.845	12.909	13.855	15.382
20-29 years	827	11.398	0.125	8.485	8.806	9.126	9.517	10.798	12.741	13.928	15.027	16.151
30-39 years	872	11.345	0.110	8.110	8.554	8.919	9.597	10.705	12.629	13.822	14.909	16.604
40-49 years	900	10.949	0.158	7.824	8.352	8.639	9.193	10.377	12.234	13.421	14.571	15.858
50-59 years	915	10.180	0.112	6.946	7.536	7.963	8.534	9.713	11.368	12.359	12.946	15.048
60-69 years	981	9.592	0.134	6.607	7.106	7.419	8.013	9.191	10.843	11.869	12.346	13.496
70-79 years	532	8.660	0.105	5.967	6.325	6.712	7.288	8.499	9.643	10.364	11.022	12.400

Table S8

Table S8: Creatinine excretion rate for men, 20 – 79 years, United States, 2015-2018.

	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				mmol/d								
20 - 79 years . .	4750	15.350	0.073	11.830	12.536	12.936	13.619	14.977	16.682	17.759	18.753	20.121
20-29 years	802	15.931	0.158	12.734	13.264	13.579	14.083	15.515	17.280	18.410	19.298	20.723
30-39 years	804	16.377	0.133	13.104	13.728	14.023	14.595	15.844	17.588	18.833	19.677	21.486
40-49 years	766	15.760	0.117	12.701	13.105	13.574	14.156	15.443	16.875	17.996	18.802	19.992
50-59 years	842	14.970	0.124	11.869	12.413	12.665	13.296	14.683	16.149	17.043	18.532	19.302
60-69 years	965	14.384	0.092	11.319	11.782	12.062	12.738	14.177	15.629	16.457	17.164	18.451
70-79 years	571	13.470	0.119	10.363	11.043	11.423	12.078	13.319	14.636	15.429	15.808	17.050