**Supplementary Table** - GAMLSS pairwise correlation models.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **y** | **x** | **sex** | **link** | **mu.formula** | **sigma.formula** | **df** | **N** | **data** |
| GEC | age | A | NO | cs(age, 2) | cs(age, 1) | 7 | 99 | duc1979(13), duf1992(5), mar1988(50), sch1986(13), tyg1963(18) |
| GEC | age | M |  |  |  |  | 10 |  |
| GEC | age | F |  |  |  |  | 8 |  |
| GECkg | age | A | NO | cs(age, 4) | age | 8 | 140 | duc1979(13), duf1992(5), lan2011(10), sch1986(94), tyg1963(18) |
| GECkg | age | M |  |  |  |  | 4 |  |
| GECkg | age | F |  |  |  |  | 1 |  |
| volLiver | age | A | BCCG | cs(age, 4) | age | 12.8 | 2030 | boy1933(306), hei1999(1588), mar1988(50), naw1998(21), wyn1989(65) |
| volLiver | age | M | BCCG | cs(age, 4) | age | 11 | 1480 | boy1933(229), hei1999(1204), mar1988(0), naw1998(14), wyn1989(33) |
| volLiver | age | F | BCCG | cs(age, 4) | 1 | 8 | 500 | boy1933(77), hei1999(384), mar1988(0), naw1998(7), wyn1989(32) |
| volLiverkg | age | A | BCCG | cs(age, 1) | 1 | 15 | 1762 | hei1999(1588), naw1998(21), ura1995(88), wyn1989(65) |
| volLiverkg | age | M | BCCG | cs(age, 1) | 1 | 13 | 1251 | hei1999(1204), naw1998(14), ura1995(0), wyn1989(33) |
| volLiverkg | age | F | BCCG | cs(age, 1) | 1 | 7.2 | 423 | hei1999(384), naw1998(7), ura1995(0), wyn1989(32) |
| volLiver | bodyweight | A | BCCG | cs(bodyweight, 2) | bodyweight | 7 | 1946 | hei1999(1588), naw1998(21), vau2002(272), wyn1989(65) |
| volLiver | bodyweight | M | BCCG | cs(bodyweight, 2) | bodyweight | 7 | 1251 | hei1999(1204), naw1998(14), vau2002(0), wyn1989(33) |
| volLiver | bodyweight | F | BCCG | cs(bodyweight, 2) | cs(bodyweight, 1) | 8 | 423 | hei1999(384), naw1998(7), vau2002(0), wyn1989(32) |
| volLiverkg | bodyweight | A | BCCG | cs(bodyweight, 2) | bodyweight | 7.8 | 1946 | hei1999(1588), naw1998(21), vau2002(272), wyn1989(65) |
| volLiverkg | bodyweight | M | BCCG | cs(bodyweight, 2) | bodyweight | 7 | 1251 | hei1999(1204), naw1998(14), vau2002(0), wyn1989(33) |
| volLiverkg | bodyweight | F | BCCG | cs(bodyweight, 2) | bodyweight | 7 | 423 | hei1999(384), naw1998(7), vau2002(0), wyn1989(32) |
| volLiver | height | A | BCCG | cs(height, 5) | height | 10 | 1609 | hei1999(1588), naw1998(21) |
| volLiver | height | M | BCCG | cs(height, 5) | height | 10 | 1218 | hei1999(1204), naw1998(14) |
| volLiver | height | F | BCCG | cs(height, 4) | height | 9 | 391 | hei1999(384), naw1998(7) |
| volLiverkg | height | A | BCCG | cs(height, 2) | 1 | 6 | 1609 | hei1999(1588), naw1998(21) |
| volLiverkg | height | M | BCCG | cs(height, 2) | 1 | 6 | 1218 | hei1999(1204), naw1998(14) |
| volLiverkg | height | F | BCCG | cs(height, 2) | 1 | 6 | 391 | hei1999(384), naw1998(7) |
| volLiver | BSA | A | BCCG | cs(BSA, 3) | cs(BSA, 1) | 10.1 | 2896 | hei1999(1588), naw1998(21), ura1995(85), vau2002(285), yos2002(917) |
| volLiver | BSA | M | BCCG | cs(BSA, 3) | cs(BSA, 1) | 9 | 1218 | hei1999(1204), naw1998(14), ura1995(0), vau2002(0), yos2002(0) |
| volLiver | BSA | F | BCCG | cs(BSA, 3) | cs(BSA, 1) | 9 | 391 | hei1999(384), naw1998(7), ura1995(0), vau2002(0), yos2002(0) |
| volLiverkg | BSA | A | BCCG | cs(BSA, 2) | 1 | 6 | 1609 | hei1999(1588), naw1998(21) |
| volLiverkg | BSA | M | BCCG | cs(BSA, 2) | 1 | 6 | 1218 | hei1999(1204), naw1998(14) |
| volLiverkg | BSA | F | BCCG | cs(BSA, 2) | 1 | 6 | 391 | hei1999(384), naw1998(7) |
| flowLiver | volLiver | A | NO | volLiver | cs(volLiver, 1) | 5 | 65 | wyn1989(65) |
| flowLiver | volLiver | M | NO | volLiver | volLiver | 4 | 33 | wyn1989(33) |
| flowLiver | volLiver | F | NO | volLiver | cs(volLiver, 1) | 5 | 32 | wyn1989(32) |
| flowLiverkg | volLiverkg | A | NO | volLiverkg | cs(volLiverkg, 1) | 5 | 65 | wyn1989(65) |
| flowLiverkg | volLiverkg | M | NO | volLiverkg | volLiverkg | 4 | 33 | wyn1989(33) |
| flowLiverkg | volLiverkg | F | NO | volLiverkg | volLiverkg | 4 | 32 | wyn1989(32) |
| perfusion | age | A | NO | age | 1 | 3 | 65 | wyn1989(65) |
| perfusion | age | M | NO | age | 1 | 3 | 33 | wyn1989(33) |
| perfusion | age | F | NO | age | 1 | 3 | 32 | wyn1989(32) |
| flowLiver | age | A | BCCG | cs(age, 5) | cs(age, 1) | 11.1 | 1489 | bra1945(23), bra1952(91), cat2010(1197)\*, ircp2001(12), she1950(32), tyg1957(13), win1965(7), wyn1989(65), wyn1990(9), zol1999(40) |
| flowLiver | age | M | BCCG | cs(age, 4) | cs(age, 1) | 10 | 834 | bra1945(18), bra1952(73), cat2010(657)\*, ircp2001(6), she1950(29), tyg1957(13), win1965(5), wyn1989(33), wyn1990(0), zol1999(0) |
| flowLiver | age | F | BCCG | cs(age, 4) | cs(age, 1) | 10 | 606 | bra1945(5), bra1952(18), cat2010(540)\*, ircp2001(6), she1950(3), tyg1957(0), win1965(2), wyn1989(32), wyn1990(0), zol1999(0) |
| flowLiverkg | age | A | BCCG | cs(age, 5) | 1 | 9 | 1319 | cat2010(1197)\*, she1950(32), tyg1957(13), win1965(7), wyn1989(65), zol1993(5) |
| flowLiverkg | age | M | BCCG | cs(age, 4) | 1 | 8 | 740 | cat2010(657)\*, she1950(29), tyg1957(13), win1965(5), wyn1989(33), zol1993(3) |
| flowLiverkg | age | F | BCCG | cs(age, 4) | 1 | 8 | 579 | cat2010(540)\*, she1950(3), tyg1957(0), win1965(2), wyn1989(32), zol1993(2) |
| flowLiver | bodyweight | A | BCCG | cs(bodyweight, 3) | 1 | 7 | 1999 | cat2010(1197)\*, she1950(32), sim1997(692)\*, tyg1957(13), wyn1989(65) |
| flowLiver | bodyweight | M | BCCG | cs(bodyweight, 3) | 1 | 7 | 732 | cat2010(657)\*, she1950(29), sim1997(0)\*, tyg1957(13), wyn1989(33) |
| flowLiver | bodyweight | F | BCCG | cs(bodyweight, 3) | 1 | 7 | 575 | cat2010(540)\*, she1950(3), sim1997(0)\*, tyg1957(0), wyn1989(32) |
| flowLiverkg | bodyweight | A | BCCG | cs(bodyweight, 2) | 1 | 6 | 1999 | cat2010(1197)\*, she1950(32), sim1997(692)\*, tyg1957(13), wyn1989(65) |
| flowLiverkg | bodyweight | M | BCCG | cs(bodyweight, 2) | 1 | 6 | 732 | cat2010(657),\* she1950(29), sim1997(0)\*, tyg1957(13), wyn1989(33) |
| flowLiverkg | bodyweight | F | BCCG | cs(bodyweight, 2) | 1 | 6 | 575 | cat2010(540)\*, she1950(3), sim1997(0)\*, tyg1957(0), wyn1989(32) |
| flowLiver | BSA | A | BCCG | cs(BSA, 2) | 1 | 6 | 1356 | bra1945(23), bra1952(91), cat2010(1197)\*, she1950(32), tyg1957(13) |
| flowLiver | BSA | M | BCCG | cs(BSA, 2) | 1 | 6 | 790 | bra1945(18), bra1952(73), cat2010(657)\*, she1950(29), tyg1957(13) |
| flowLiver | BSA | F | BCCG | cs(BSA, 2) | 1 | 6 | 566 | bra1945(5), bra1952(18), cat2010(540)\*, she1950(3), tyg1957(0) |
| flowLiverkg | BSA | A | BCCG | cs(BSA, 2) | 1 | 6 | 1242 | cat2010(1197)\*, she1950(32), tyg1957(13) |
| flowLiverkg | BSA | M | BCCG | cs(BSA, 2) | 1 | 6 | 699 | cat2010(657)\*, she1950(29), tyg1957(13) |
| flowLiverkg | BSA | F | BCCG | cs(BSA, 2) | 1 | 6 | 543 | cat2010(540)\*, she1950(3), tyg1957(0) |

**A** all, **M** male, **F** female

**NO** normal, **BCCG** Box-Cox-Cole-Green

**cs** cubic smoothing splines

**df** degree of freedoms of regression

**N** number of data points in regression

**\*** Due to the sparsity of available data in children, the hepatic blood flow in children was estimated based on Cardiac Output data in Children {Cattermole2010, Simone1993} via the formula: Qliver= fCO CO with fCO=0.25. Data points from Cardiac Output were weighted 1/10 of direct measurements of liver blood flow in the GAMLSS regressions.

For the conversion between liver weights and liver volumes the liver density of ρliver=1.08 g/ml {Heinemann1999} was used.

alt1962 {Altman1962}, bra1945 {Bradley1945}, bra1952 {Bradley1952}, boy1933 {Boyd1933}, bac1981 {Bach1981}, cat2010 {Cattermole2010}, del1968 {DeLand1968}, duc1979 {Ducry1979}, duf1992 {Dufour1992}, kay1987 {Kayser1987}, gra2000 {Grandmaison2000}, hei1999 {Heinemann1999}, ircp2001 {IRCP2001}, lan2011 {Lange2011}, lee1962 {Leevy1962}, mar1988 {Marchesini1988}, naw1998 {Nawaratne1998}, she1950 {Sherlock1950}, sch1986 {Schnegg1986}, swi1978 {Swift1978}, tom1965 {Thompson1965}, tyg1958 {Tygstrup1958}, tyg1963 {Tygstrup1963}, ura1995 {Urata1995}, vau2002 {Vauthey2002}, win1965 {Winkler1965}, wyn1989 {Wynne1989}, wyn1990 {Wynne1990}, yos2003 {Yoshizumi2003}, zol1999 {Zoli1999}, zol1993 {Zoller1993}

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