

IMPACT OF BLUEBERRY CONSUMPTION ON THE HUMAN FECAL BILEACIDOME: A PILOT STUDY

William Gagnon^{1,2,3}, Véronique Garneau^{3,4}, Jocelyn Trottier^{1,3}, Mélanie Verreault^{1,3}, Charles Couillard^{2,3,4}, Denis Roy^{2,3}, André Marette^{2,3,5}, Jean-Philippe Drouin-Chartier^{2,3,4}, Marie-Claude Vohl^{2,3,4} and Olivier Barbier^{1,2,3,4}

Supplemental table 1: Comparison of the baseline BA profile in fecal samples from male and female volunteers.

| Bile acids | Men (n= 11) | | Women (n=13) | | Mean Diff. | Ajusted p value |
|--------------------|-------------|----------|--------------|----------|------------|-----------------|
| | Mean | SEM | Mean | SEM | | |
| CA | 0,1051 | ± 0,0585 | 0,2595 | ± 0,1255 | 0,1544 | >0,999 |
| CDCA | 0,0595 | ± 0,0267 | 0,1282 | ± 0,0453 | 0,0687 | >0,999 |
| DCA | 2,6994 | ± 0,5642 | 3,0877 | ± 0,3504 | 0,3883 | >0,999 |
| LCA | 2,3580 | ± 0,4183 | 2,6709 | ± 0,2440 | 0,3128 | >0,999 |
| HDCA | 0,0093 | ± 0,0018 | 0,0083 | ± 0,0015 | -0,0010 | >0,999 |
| HCA | 0,0016 | ± 0,0008 | 0,0029 | ± 0,0011 | 0,0014 | >0,999 |
| UDCA | 0,0221 | ± 0,0093 | 0,0410 | ± 0,0152 | 0,0189 | >0,999 |
| GCA | 0,0244 | ± 0,0162 | 0,0087 | ± 0,0030 | -0,0156 | >0,999 |
| GCDCA | 0,0141 | ± 0,0068 | 0,0070 | ± 0,0013 | -0,0070 | >0,999 |
| GDCA | 0,0153 | ± 0,0064 | 0,0114 | ± 0,0024 | -0,0039 | >0,999 |
| GLCA | 0,0003 | ± 0,0001 | 0,0003 | ± 0,0001 | 0,0000 | >0,999 |
| GUDCA | 0,0014 | ± 0,0005 | 0,0006 | ± 0,0002 | -0,0008 | >0,999 |
| TCA | 0,0090 | ± 0,0051 | 0,0206 | ± 0,0145 | 0,0116 | >0,999 |
| TCDCa | 0,0052 | ± 0,0024 | 0,0092 | ± 0,0052 | 0,0040 | >0,999 |
| TDCA | 0,0124 | ± 0,0062 | 0,0460 | ± 0,0204 | 0,0336 | >0,999 |
| TLCA | 0,0002 | ± 0,0001 | 0,0026 | ± 0,0012 | 0,0025 | >0,999 |
| TUDCA | 0,0002 | ± 0,0001 | 0,0010 | ± 0,0007 | 0,0008 | >0,999 |
| TOTAL BA | 5,4549 | ± 1,0199 | 6,4739 | ± 0,6204 | 1,0190 | >0,999 |
| Unconjugated | 5,2549 | ± 0,9853 | 6,1985 | ± 0,6111 | 0,9436 | >0,999 |
| Taurine-conjugated | 0,0270 | ± 0,0132 | 0,0794 | ± 0,0402 | 0,0524 | >0,999 |
| Glycine-conjugated | 0,0555 | ± 0,0296 | 0,0281 | ± 0,0062 | -0,0274 | >0,999 |
| Primary | 0,2172 | ± 0,0901 | 0,4333 | ± 0,1827 | 0,2160 | >0,999 |
| Secondary | 5,0857 | ± 0,9654 | 5,8189 | ± 0,5461 | 0,7333 | >0,999 |
| 6α-hydroxylated | 0,0108 | ± 0,0018 | 0,0112 | ± 0,0023 | 0,0004 | >0,999 |
| Total CA | 0,1385 | ± 0,0668 | 0,2889 | ± 0,1406 | 0,1504 | >0,999 |
| Total CDCA | 0,0789 | ± 0,0289 | 0,1444 | ± 0,0491 | 0,0655 | >0,999 |
| Total DCA | 2,7273 | ± 0,5700 | 3,1452 | ± 0,3601 | 0,4179 | >0,999 |
| Total LC | 2,3587 | ± 0,4185 | 2,6739 | ± 0,2444 | 0,3152 | >0,999 |
| Total HDCA | 0,0093 | ± 0,0018 | 0,0083 | ± 0,0015 | -0,0010 | >0,999 |
| Total HCA | 0,0016 | ± 0,0009 | 0,0029 | ± 0,0011 | 0,0013 | >0,999 |

Values are presented as mean concentration (nmol/mg of feces) of the 24 pre- and post-diet samples \pm SEM (standard error of the mean).

Mean Diff., namely the difference between pre- vs post-treatment were calculated for each of the participants (11 men and 13 women), and values represent the mean \pm SEM.

P values were calculated using Mann-Whitney test than adjusted for multiple comparisons using the Bonferroni-Dunn method. Bile acids composition analysis were performed as detailed in the materials and method section.

CA: cholic acid; CDCA: chenodeoxycholic acid; LCA: lithocholic acid; DCA: deoxycholic acid; HDCA: hyodeoxycholic acid; HCA: hyocholic acid; UDCA: Ursodeoxycholic acid. G: glyco; T: tauro.

Supplemental table 2: Comparison of the bile acid profile in fecal samples from male and female volunteers harvested after the 8-week freeze-dried blueberry consumption period.

| Bile acids | Men (n= 11) | | Women (n=13) | | Mean Diff. | Ajusted p value |
|-------------------------|-------------|----------|--------------|----------|------------|-----------------|
| | Mean | SEM | Mean | SEM | | |
| CA | 0,5167 | ± 0,3585 | 0,0671 | ± 0,0242 | -0,4496 | >0.999 |
| CDCA | 0,2443 | ± 0,1419 | 0,0325 | ± 0,0102 | -0,2118 | >0.999 |
| DCA | 1,8429 | ± 0,3261 | 2,3693 | ± 0,3279 | 0,5265 | >0.999 |
| LCA | 1,7667 | ± 0,2542 | 2,1686 | ± 0,1894 | 0,4019 | >0.999 |
| HDCA | 0,0056 | ± 0,0008 | 0,0072 | ± 0,0013 | 0,0016 | >0.999 |
| HCA | 0,0024 | ± 0,0011 | 0,0014 | ± 0,0005 | -0,0009 | >0.999 |
| UDCA | 0,0529 | ± 0,0264 | 0,0508 | ± 0,0286 | -0,0021 | >0.999 |
| GCA | 0,0391 | ± 0,0192 | 0,0184 | ± 0,0034 | -0,0207 | >0.999 |
| GCDCA | 0,0222 | ± 0,0090 | 0,0127 | ± 0,0023 | -0,0095 | >0.999 |
| GDCA | 0,0142 | ± 0,0020 | 0,0147 | ± 0,0029 | 0,0006 | >0.999 |
| GLCA | 0,0003 | ± 0,0000 | 0,0003 | ± 0,0001 | 0,0000 | >0.999 |
| GUDCA | 0,0021 | ± 0,0006 | 0,0014 | ± 0,0005 | -0,0007 | >0.999 |
| TCA | 0,0359 | ± 0,0210 | 0,0087 | ± 0,0019 | -0,0273 | >0.999 |
| TCDCA | 0,0350 | ± 0,0202 | 0,0051 | ± 0,0011 | -0,0299 | >0.999 |
| TDCA | 0,0191 | ± 0,0115 | 0,0214 | ± 0,0074 | 0,0023 | >0.999 |
| TLCA | 0,0006 | ± 0,0003 | 0,0015 | ± 0,0007 | 0,0009 | >0.999 |
| TUDCA | 0,0023 | ± 0,0016 | 0,0006 | ± 0,0004 | -0,0017 | >0.999 |
| TOTAL BA | 4,7414 | ± 0,8047 | 4,9157 | ± 0,5387 | 0,1744 | >0.999 |
| Unconjugated | 4,4314 | ± 0,8005 | 4,6969 | ± 0,5316 | 0,2655 | >0.999 |
| Taurine-conjugated | 0,0930 | ± 0,0483 | 0,0374 | ± 0,0109 | -0,0556 | >0.999 |
| Glycine-conjugated | 0,0778 | ± 0,0291 | 0,0475 | ± 0,0084 | -0,0303 | >0.999 |
| Primary | 0,8932 | ± 0,5258 | 0,1445 | ± 0,0403 | -0,7487 | >0.999 |
| Secondary | 3,6436 | ± 0,5431 | 4,5758 | ± 0,4952 | 0,9322 | >0.999 |
| 6α-hydroxylated | 0,0080 | ± 0,0011 | 0,0086 | ± 0,0013 | 0,0006 | >0.999 |
| Total CA ⁹ | 0,5918 | ± 0,3696 | 0,0942 | ± 0,0281 | -0,4977 | >0.999 |
| Total CDCA ⁹ | 0,3024 | ± 0,1591 | 0,0503 | ± 0,0125 | -0,2520 | >0.999 |
| Total DCA ⁹ | 1,8768 | ± 0,3312 | 2,4055 | ± 0,3322 | 0,5286 | >0.999 |
| Total LCA ⁹ | 1,7678 | ± 0,2541 | 2,1704 | ± 0,1895 | 0,4026 | >0.999 |
| Total HDCA ⁹ | 0,0056 | ± 0,0008 | 0,0072 | ± 0,0013 | 0,0015 | >0.999 |
| Total HCA ⁹ | 0,0025 | ± 0,0012 | 0,0014 | ± 0,0005 | -0,0011 | >0.999 |

Values are presented as mean concentration (nmol/mg of feces) of the 24 pre- and post-diet samples \pm SEM (standard error of the mean).

Mean Diff., namely the difference between pre- vs post-treatment were calculated for each of the participants (11 men and 13 women), and values represent the mean \pm SEM.

P values were calculated using Mann-Whitney test adjusted for multiple comparisons using the Bonferroni-Dunn method. Bile acids composition analysis were performed as detailed in the materials and method section.

CA: cholic acid; CDCA: chenodeoxycholic acid; LCA: lithocholic acid; DCA: deoxycholic acid; HDCA: hyodeoxycholic acid; HCA: hyocholic acid; UDCA: Ursodeoxycholic acid. G: glyco; T: tauro.