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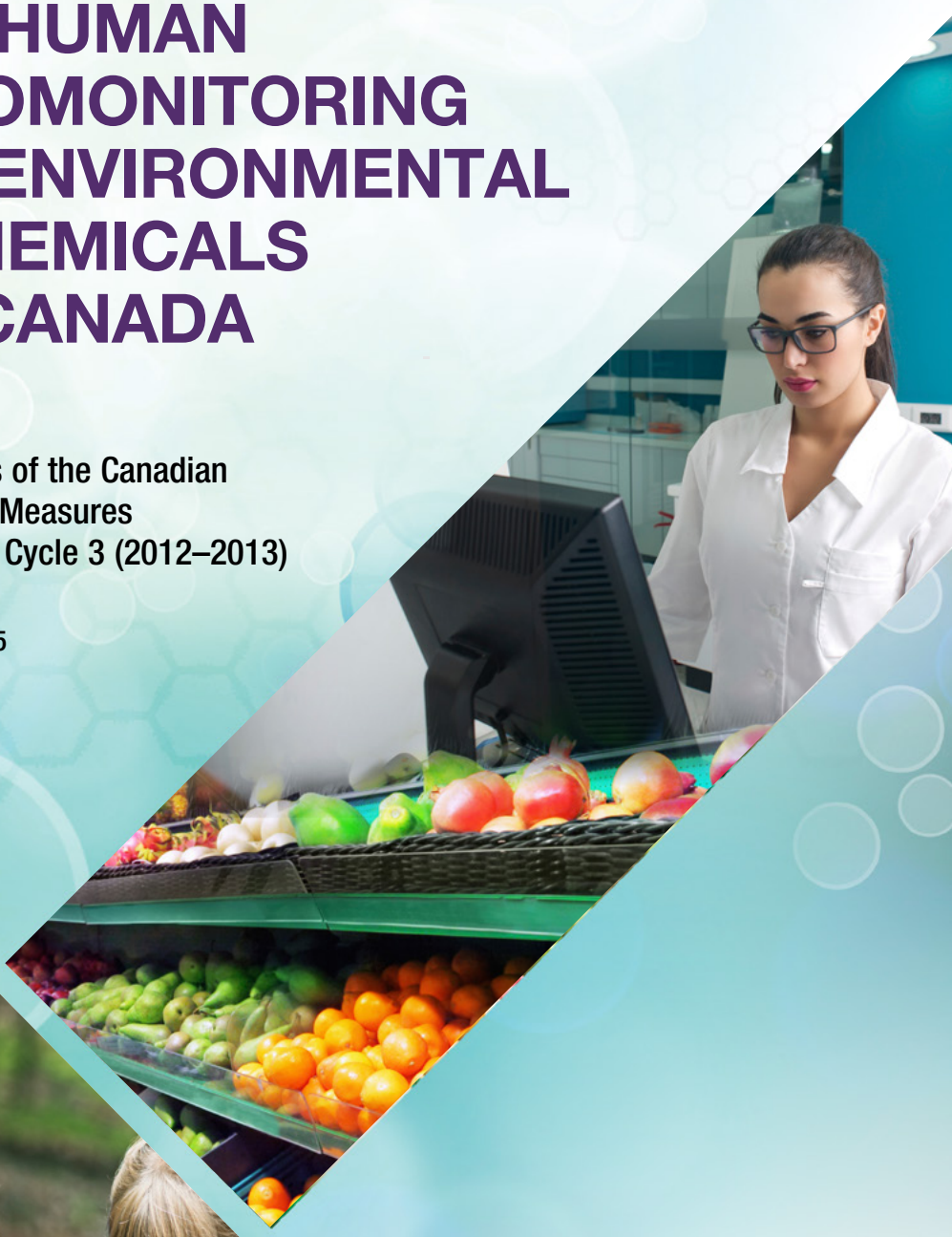
# 3 THIRD REPORT ON HUMAN BIOMONITORING OF ENVIRONMENTAL CHEMICALS IN CANADA

## Results of the Canadian Health Measures Survey Cycle 3 (2012–2013)

July 2015





Canada

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Health Measures
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# Results for Acrylamide

## ACRYLAMIDE HAEMOGLOBIN ADDUCT

Acrylamide haemoglobin adduct – Geometric means and selected percentiles of whole blood concentrations (pmol/g Hb) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 3 (2012–2013) | 2492 | 0 | 73 (65–82) | 35 (30–40) | 64 (57–70) | 190 (160–230) | 240 (190–290) |
| Males | 3–79 | 3 (2012–2013) | 1225 | 0 | 79 (69–90) | 36 (31–40) | 68 (61–75) | 200 (150–260) | 270[E] (160–380) |
| Females | 3–79 | 3 (2012–2013) | 1267 | 0 | 68 (59–78) | 35 (29–41) | 60 (51–69) | 180 (130–230) | 210 (180–250) |
| Total | 3–5 | 3 (2012–2013) | 471 | 0 | 59 (55–64) | 39 (35–43) | 59 (55–63) | 87 (73–100) | 100 (82–120) |
| Total | 6–11 | 3 (2012–2013) | 505 | 0 | 61 (57–65) | 37 (34–41) | 6 (58–67) | 100 (88–110) | 110 (98–120) |
| Total | 12–19 | 3 (2012–2013) | 507 | 0 | 63 (59–67) | 37 (31–42) | 57 (53–61) | 110 (87–130) | 170[E] (96–240) |
| Total | 20–39 | 3 (2012–2013) | 348 | 0 | 80 (65–97) | 34 (24–43) | 74 (59–89) | 190 (130–260) | 260 (190–340) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 83 (67–100) | 35 (24–47) | 66 (49–82) | 230 (180–290) | 330 (210–450) |
| Total | 60–79 | 3 (2012–2013) | 350 | 0 | 63 (59–68) | 34 (29–40) | 62 (59–65) | 130 (100–150) | 160 (130–190) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

## GLYCIDAMIDE HAEMOGLOBIN ADDUCT

Glycidamide haemoglobin adduct — Geometric means and selected percentiles of whole blood concentrations (pmol/g Hb) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 3 (2012–2013) | 2492 | 0.76 | 68 (62–75) | 36 (34–38) | 65 (59–70) | 150 (120–180) | 190 (150–220) |
| Males | 3–79 | 3 (2012–2013) | 1225 | 1.14 | 69 (62–77) | 37 (35–38) | 66 (58–74) | 170 (120–210) | 210 (160–260) |
| Females | 3–79 | 3 (2012–2013) | 1267 | 0.39 | 67 (60–74) | 36 (32–40) | 64 (57–71) | 130 (100–160) | 160 (120–200) |
| Total | 3–5 | 3 (2012–2013) | 471 | 0 | 80 (75–85) | 51 (43–59) | 78 (74–81) | 120 (110–130) | 140 (120–150) |
| Total | 6–11 | 3 (2012–2013) | 505 | 0 | 73 (70–77) | 47 (45–48) | 74 (68–81) | 110 (97–120) | 130 (110–150) |
| Total | 12–19 | 3 (2012–2013) | 507 | 1.18 | 62 (59–65) | 35 (32–37) | 60 (57–62) | 110 (95–130) | 160 (120–200) |
| Total | 20–39 | 3 (2012–2013) | 348 | 0.86 | 72 (60–86) | 38 (30–46) | 74 (62–86) | 160 (130–190) | 210 (160–260) |
| Total | 40–59 | 3 (2012–2013) | 311 | 1.29 | 71 (58–86) | 36 (31–42) | 62 (50–74) | 180 (140–220) | 230 (170–290) |
| Total | 60–79 | 3 (2012–2013) | 350 | 1.71 | 60 (53–67) | 34 (29–39) | 60 (50–70) | 100 (90–110) | 120 (110–130) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

# Results for Environmental Phenols

## BISPHENOL A

Bisphenol A (BPA) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5476 | 9.26 | 1.2 (1.1–1.2) | F | 1.3 (1.1–1.4) | 4.6 (4.1–5.1) | 6.9 (5.6–8.2) |
| Total | 6–79 | 2 (2009–2011) | 2036 | 5.26 | 1.2 (1.1–1.3) | 0.27 (0.22–0.31) | 1.2 (1.1–1.3) | 4.5 (3.9–5.0) | 6.7 (4.8–8.5) |
| Total | 6–79 | 3 (2012–2013) | 5149 | 8.00 | 1.1 (1.0–1.2) | 0.29 (0.26–0.32) | 1.1 (0.95–1.2) | 4.2 (3.6–4.8) | 6.6 (5.7–7.5) |
| Males | 6–79 | 1 (2007–2009) | 2659 | 7.67 | 1.3 (1.2–1.4) | 0.23[E] (<LOD–0.34) | 1.4 (1.2–1.6) | 4.4 (3.9–5.0) | 6.7 (5.3–8.1) |
| Males | 6–79 | 2 (2009–2011) | 1021 | 4.90 | 1.3 (1.1–1.4) | 0.27[E] (<LOD–0.37) | 1.3 (1.1–1.5) | 4.6 (4.1–5.2) | 7.3[E] (4.0–11) |
| Males | 6–79 | 3 (2012–2013) | 2566 | 7.21 | 1.2 (1.1–1.3) | 0.35 (0.25–0.46) | 1.2 (0.98–1.4) | 4.4 (3.7–5.0) | 6.5 (5.5–7.5) |
| Females | 6–79 | 1 (2007–2009) | 2817 | 10.76 | 1.0 (0.93–1.2) | <LOD | 1.1 (0.94–1.3) | 4.9 (4.2–5.5) | 7.0 (5.3–8.6) |
| Females | 6–79 | 2 (2009–2011) | 1015 | 5.62 | 1.2 (1.0–1.3) | 0.26 (0.21–0.32) | 1.1 (0.98–1.3) | 4.0 (2.9–5.2) | 6.6 (4.8–8.4) |
| Females | 6–79 | 3 (2012–2013) | 2583 | 8.79 | 1.0 (0.88–1.2) | 0.29 (<LOD–0.38) | 1.0 (0.90–1.1) | 4.1 (3.2–4.9) | 6.9 (5.3–8.5) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Bisphenol A (BPA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5462 | 9.26 | 1.4 (1.3–1.5) | 0.39 (0.30–0.49) | 1.3 (1.2–1.5) | 4.7 (4.0–5.4) | 7.2 (6.4–8.0) |
| Total | 6–79 | 2 (2009–2011) | 2027 | 5.26 | 1.2 (1.1–1.2) | 0.39 (0.34–0.44) | 1.0 (0.96–1.0) | 4.0 (3.5–4.5) | 6.6 (4.8–8.5) |
| Total | 6–79 | 3 (2012–2013) | 5147 | 8.00 | 1.1 (1.0–1.2) | 0.40 (0.35–0.44) | 0.98 (0.92–1.0) | 3.3 (2.9–3.7) | 5.7 (4.2–7.2) |
| Males | 6–79 | 1 (2007–2009) | 2650 | 7.67 | 1.3 (1.2–1.4) | 0.38 (0.28–0.48) | 1.2 (1.0–1.4) | 3.9 (3.5–4.3) | 6.0 (5.3–6.7) |
| Males | 6–79 | 2 (2009–2011) | 1018 | 4.90 | 1.0 (0.94–1.2) | 0.36 (0.24–0.48) | 0.99 (0.90–1.1) | 3.5 (2.6–4.3) | 5.8[E] (3.4–8.3) |
| Males | 6–79 | 3 (2012–2013) | 2566 | 7.21 | 1.0 (0.94–1.1) | 0.38 (0.31–0.45) | 0.97 (0.87–1.1) | 3.0 (2.6–3.4) | 4.8 (3.5–6.2) |
| Females | 6–79 | 1 (2007–2009) | 2812 | 10.76 | 1.5 (1.4–1.6) | <LOD | 1.5 (1.3–1.6) | 5.9 (4.9–6.9) | 8.5 (6.9–10) |
| Females | 6–79 | 2 (2009–2011) | 1009 | 5.62 | 1.3 (1.2 – 1.4) | 0.48 (0.39 – 0.57) | 1.1 (0.89 – 1.3) | 4.5 (3.4 – 5.5) | 6.8 (4.5 – 9.2) |
| Females | 6–79 | 3 (2012–2013) | 2581 | 8.79 | 1.2 (1.1 – 1.3) | 0.41 (0.37 – 0.45) | 0.99 (0.92 – 1.1) | 3.9 (2.9 – 4.8) | 6.9[E] (4.1 – 9.7) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Bisphenol A (BPA) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79b | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 2560 | 5.04 | 1.2 (1.1–1.3) | 0.27 (0.22–0.31) | 1.2 (1.1–1.3) | 4.5 (4.0–5.0) | 6.7 (4.8–8.6) |
| Total | 3–79 | 3 (2012–2013) | 5670 | 7.80 | 1.1 (1.0–1.2) | 0.29 (0.27–0.32) | 1.1 (0.95–1.2) | 4.2 (3.6–4.8) | 6.6 (5.8–7.5) |
| Males | 3–79b | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 1281 | 4.84 | 1.3 (1.1–1.5) | 0.27 (<LOD–0.36) | 1.3 (1.1–1.5) | 4.6 (4.1–5.2) | 7.9E (4.3–11) |
| Males | 3–79 | 3 (2012–2013) | 2826 | 6.97 | 1.2 (1.1–1.4) | 0.35 (0.25–0.46) | 1.2 (0.99–1.4) | 4.4 (3.7–5.0) | 6.4 (5.2–7.7) |
| Females | 3–79b | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 1279 | 5.24 | 1.2 (1.0–1.3) | 0.26 (0.21–0.32) | 1.1 (0.98–1.3) | 4.1 (3.0–5.1) | 6.6 (4.9–8.4) |
| Females | 3–79 | 3 (2012–2013) | 2844 | 8.61 | 1.0 (0.88–1.2) | 0.29 (<LOD–0.39) | 1.0 (0.91–1.1) | 4.1 (3.3–4.9) | 6.9 (5.4–8.4) |
| Total | 3–5b | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 524 | 4.20 | 1.4 (1.1–1.8) | 0.30E (<LOD–0.46) | 1.3 (1.1–1.5) | 5.4E (1.9–9.0) | 9.9E (5.5–14) |
| Total | 3–5 | 3 (2012–2013) | 521 | 5.76 | 1.2 (0.87–1.6) | 0.29E (<LOD–0.47) | 1.2 (0.95–1.5) | 4.0 (2.6–5.4) | 6.0 (4.3–7.7) |
| Total | 6–11 | 1 (2007–2009) | 1031 | 6.79 | 1.3 (1.2–1.4) | 0.28 (<LOD–0.37) | 1.3 (1.1–1.6) | 4.5 (3.8–5.1) | 7.1 (5.5–8.7) |
| Total | 6–11 | 2 (2009–2011) | 516 | 5.81 | 1.4 (1.1–1.7) | 0.25E (<LOD–0.41) | 1.3 (0.94–1.7) | 4.6E (2.6–6.6) | F |
| Total | 6–11 | 3 (2012–2013) | 1004 | 5.58 | 1.2 (1.1–1.4) | 0.39 (0.30–0.49) | 1.2 (1.0–1.3) | 3.8 (2.8–4.8) | 5.3E (3.0–7.6) |
| Total | 12–19 | 1 (2007–2009) | 980 | 6.22 | 1.5 (1.3–1.8) | 0.29 (0.22–0.36) | 1.6 (1.3–1.9) | 5.9 (4.8–7.0) | 8.3 (6.2–10) |
| Total | 12–19 | 2 (2009–2011) | 512 | 4.69 | 1.3 (1.1–1.6) | 0.35 (0.23–0.47) | 1.3 (0.99–1.6) | 4.4 (2.9–5.9) | 7.6E (4.3–11) |
| Total | 12–19 | 3 (2012–2013) | 992 | 6.15 | 1.3 (1.1–1.6) | 0.30E (<LOD–0.46) | 1.4 (1.3–1.6) | 4.8 (3.4–6.2) | 8.0E (4.1–12) |
| Total | 20–39 | 1 (2007–2009) | 1165 | 8.84 | 1.3 (1.2–1.5) | F | 1.4 (1.2–1.6) | 4.8 (4.1–5.4) | 7.3 (5.2–9.5) |
| Total | 20–39 | 2 (2009–2011) | 357 | 2.80 | 1.3 (1.1–1.5) | 0.32 (0.21–0.42) | 1.3 (0.92–1.6) | 4.6 (3.7–5.5) | F |
| Total | 20–39 | 3 (2012–2013) | 1040 | 7.88 | 1.1 (0.92–1.4) | 0.29 (<LOD–0.39) | 1.1 (0.81–1.3) | 5.5 (3.9–7.0) | 6.7 (5.1–8.3) |
| Total | 40–59 | 1 (2007–2009) | 1219 | 12.06 | 1.0 (0.96–1.1) | <LOD | 1.2 (1.1–1.4) | 4.4 (3.5–5.3) | 6.6 (4.8–8.4) |
| Total | 40–59 | 2 (2009–2011) | 360 | 6.11 | 1.2 (0.97–1.5) | 0.25E (<LOD–0.37) | 1.2 (0.98–1.4) | 4.3E (2.7–6.0) | 6.7E (2.6–11) |
| Total | 40–59 | 3 (2012–2013) | 1075 | 9.86 | 1.1 (1.0–1.3) | 0.30 (<LOD–0.36) | 1.1 (0.94–1.2) | 4.2 (3.1–5.3) | 7.5E (4.3–11) |
| Total | 60–79 | 1 (2007–2009) | 1081 | 11.66 | 0.90 (0.81–0.99) | <LOD | 0.99 (0.87–1.1) | 3.7 (3.3–4.2) | 5.2 (3.8–6.6) |
| Total | 60–79 | 2 (2009–2011) | 291 | 7.22 | 1.0 (0.84–1.3) | 0.21E (<LOD–0.31) | 0.99 (0.76–1.2) | 4.4E (2.5–6.2) | 6.3 (4.4–8.1) |
| Total | 60–79 | 3 (2012–2013) | 1038 | 10.31 | 0.88 (0.77–1.0) | <LOD | 0.88 (0.76–1.0) | 3.3 (2.8–3.7) | 5.5 (4.2–6.7) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

Bisphenol A (BPA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 2550 | 5.04 | 1.2 (1.1–1.3) | 0.39 (0.35–0.44) | 1.0 (0.92–1.1) | 4.1 (3.6–4.6) | 6.9 (5.1–8.7) |
| Total | 3–79 | 3 (2012–2013) | 5667 | 7.80 | 1.1 (1.0–1.2) | 0.40 (0.36–0.45) | 0.99 (0.94–1.0) | 3.6 (3.0–4.2) | 5.9 (4.4–7.5) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 1277 | 4.84 | 1.1 (0.96–1.2) | 0.36 (0.24–0.48) | 0.99 (0.93–1.1) | 3.7 (2.7–4.8) | 6.2[E] (3.5–8.8) |
| Males | 3–79 | 3 (2012–2013) | 2826 | 6.97 | 1.1 (0.96–1.2) | 0.38 (0.32–0.45) | 0.98 (0.90–1.1) | 3.1 (2.8–3.4) | 5.1 (3.9–6.4) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 1273 | 5.24 | 1.3 (1.2–1.5) | 0.48 (0.40–0.57) | 1.1 (0.95–1.3) | 4.5 (3.5–5.5) | 6.9 (4.5–9.4) |
| Females | 3–79 | 3 (2012–2013) | 2841 | 8.61 | 1.2 (1.1–1.4) | 0.42 (0.37–0.46) | 1.0 (0.91–1.1) | 4.0 (3.1–5.0) | 7.1[E] (4.4–9.9) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 523 | 4.20 | 2.4 (1.9–3.1) | 0.88[E] (0.54–1.2) | 2.0 (1.8–2.3) | 10[E] (4.6–15) | 13 (8.6–17) |
| Total | 3–5 | 3 (2012–2013) | 520 | 5.76 | 2.3 (1.8–2.9) | 0.86[E] (0.48–1.2) | 2.1 (1.4–2.7) | 5.9 (4.1–7.8) | 8.4 (6.7–10) |
| Total | 6–11 | 1 (2007–2009) | 1028 | 6.79 | 2.0 (1.8–2.2) | 0.68 (0.53–0.82) | 2.0 (1.8–2.1) | 5.8 (4.8–6.9) | 9.8 (7.4–12) |
| Total | 6–11 | 2 (2009–2011) | 514 | 5.81 | 1.5 (1.2–1.9) | 0.44[E] (0.20–0.68) | 1.4 (1.1–1.7) | F | 10[E] (3.0–18) |
| Total | 6–11 | 3 (2012–2013) | 1004 | 5.58 | 1.5 (1.3–1.7) | 0.58 (0.46–0.69) | 1.4 (1.1–1.6) | 3.9 (2.6–5.2) | 5.3[E] (2.0–8.6) |
| Total | 12–19 | 1 (2007–2009) | 978 | 6.22 | 1.3 (1.2–1.4) | 0.40 (0.30–0.50) | 1.2 (0.99–1.4) | 4.2 (3.3–5.0) | 6.4[E] (4.0–8.8) |
| Total | 12–19 | 2 (2009–2011) | 510 | 4.69 | 1.0 (0.83–1.2) | 0.30[E] (<LOD–0.43) | 0.94 (0.79–1.1) | 3.4[E] (1.5–5.2) | 5.0 (3.8–6.3) |
| Total | 12–19 | 3 (2012–2013) | 991 | 6.15 | 1.0 (0.85–1.2) | 0.35 (0.25–0.44) | 0.95 (0.82–1.1) | 3.0 (2.3–3.8) | 5.4[E] (2.6–8.2) |
| Total | 20–39 | 1 (2007–2009) | 1161 | 8.84 | 1.5 (1.4–1.6) | 0.44 (0.33–0.55) | 1.4 (1.2–1.6) | 4.4 (3.4–5.4) | 6.8 (5.9–7.7) |
| Total | 20–39 | 2 (2009–2011) | 355 | 2.80 | 1.1 (0.89–1.3) | 0.39 (0.27–0.50) | 0.99 (0.85–1.1) | 2.8 (1.8–3.7) | F |
| Total | 20–39 | 3 (2012–2013) | 1040 | 7.88 | 1.0 (0.90–1.2) | 0.36 (0.29–0.43) | 0.93 (0.80–1.1) | 3.3 (2.6–3.9) | 5.4[E] (2.7–8.1) |
| Total | 40–59 | 1 (2007–2009) | 1214 | 12.06 | 1.3 (1.2–1.5) | 0.36[E] (0.22–0.51) | 1.2 (1.0–1.4) | 4.7 (3.8–5.7) | 7.5 (6.1–8.8) |
| Total | 40–59 | 2 (2009–2011) | 358 | 6.11 | 1.2 (0.99–1.4) | 0.39 (0.27–0.50) | 1.1 (0.86–1.3) | 4.2[E] (2.3–6.2) | 6.9[E] (3.4–10) |
| Total | 40–59 | 3 (2012–2013) | 1074 | 9.86 | 1.2 (1.1–1.3) | 0.47 (0.42–0.52) | 0.99 (0.90–1.1) | 3.8 (2.9–4.6) | 6.1[E] (3.7–8.5) |
| Total | 60–79 | 1 (2007–2009) | 1081 | 11.66 | 1.2 (1.1–1.4) | 0.30 (0.21–0.39) | 1.1 (0.94–1.3) | 4.3 (3.0–5.6) | 7.6 (5.4–9.8) |
| Total | 60–79 | 2 (2009–2011) | 290 | 7.22 | 1.2 (0.99–1.4) | 0.29[E] (<LOD–0.45) | 1.0 (0.89–1.1) | 4.7 (3.3–6.0) | 6.8[E] (2.9–11) |
| Total | 60–79 | 3 (2012–2013) | 1038 | 10.31 | 1.0 (0.97–1.1) | 0.35 (0.30–0.41) | 0.99 (0.94–1.0) | 3.0 (2.7–3.4) | 4.7[E] (2.7–6.7) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

# TRICLOSAN

Triclosan — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2550 | 28.20 | 16 (13–20) | <LOD | 9.5[E] (5.8–13) | 400 (280–520) | 710 (540–880) |
| Total | 3–79 | 3 (2012–2013) | 5645 | 34.47 | 17 (15–19) | <LOD | 9.9 (8.4–11) | 350 (270–430) | 720 (460–980) |
| Males | 3–79 | 2 (2009–2011) | 1274 | 26.77 | 18 (13–26) | <LOD | 12[E] (5.3–18) | 510 (330–690) | 790[E] (350–1200) |
| Males | 3–79 | 3 (2012–2013) | 2815 | 34.03 | 17 (14–21) | <LOD | 10 (7.4–13) | 330[E] (180–480) | 760[E] (380–1100) |
| Females | 3–79 | 2 (2009–2011) | 1276 | 29.62 | 14 (11–18) | <LOD | 7.5[E] (3.1–12) | 310[E] (140–470) | 680[E] (410–960) |
| Females | 3–79 | 3 (2012–2013) | 2830 | 34.91 | 17 (13–22) | <LOD | 9.6 (7.8–12) | 390[E] (220–550) | 700[E] (280–1100) |
| Total | 3–5 | 2 (2009–2011) | 523 | 29.45 | 8.9 (7.3–11) | <LOD | 7.3 (4.9–9.6) | 50 (40–61) | 120[E] (68–160) |
| Total | 3–5 | 3 (2012–2013) | 518 | 36.29 | 9.5 (7.4–12) | <LOD | 7.7[E] (<LOD–11) | 78[E] (43–110) | 110[E] (47–170) |
| Total | 6–11 | 2 (2009–2011) | 515 | 33.98 | 8.5 (6.7–11) | <LOD | 3.8[E] (<LOD–5.9) | 130[E] (54–210) | 250[E] (82–410) |
| Total | 6–11 | 3 (2012–2013) | 1001 | 36.26 | 11 (8.4–16) | <LOD | 7.2[E] (<LOD–10) | F | 340[E] (190–500) |
| Total | 12–19 | 2 (2009–2011) | 510 | 19.02 | 20 (14–27) | <LOD | 13[E] (7.7–18) | 350[E] (230–480) | 640[E] (400–870) |
| Total | 12–19 | 3 (2012–2013) | 984 | 28.35 | 19 (14–26) | <LOD | 10 (7.2–13) | 510[E] (220–800) | 840 (580–1100) |
| Total | 20–39 | 2 (2009–2011) | 353 | 19.26 | 21[E] (13–32) | <LOD | 17[E] (9.1–25) | 470[E] (180–760) | 910[E] (430–1400) |
| Total | 20–39 | 3 (2012–2013) | 1035 | 27.44 | 24 (18–30) | <LOD | 15 (11–19) | 420[E] (250–580) | F |
| Total | 40–59 | 2 (2009–2011) | 359 | 28.97 | 19[E] (12–29) | <LOD | 12[E] (4.3–20) | 470[E] (200–740) | 740[E] (290–1200) |
| Total | 40–59 | 3 (2012–2013) | 1072 | 37.22 | 16 (12–22) | <LOD | 8.9 (6.6–11) | 380[E] (140–620) | 910[E] (250–1600) |
| Total | 60–79 | 2 (2009–2011) | 290 | 41.72 | – | <LOD | 4.8[E] (<LOD–6.8) | 360[E] (160–560) | 590 (430–750) |
| Total | 60–79 | 3 (2012–2013) | 1035 | 41.84 | – | <LOD | 6.9 (6.0–7.7) | 260[E] (140–380) | 580[E] (270–890) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Triclosan (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2540 | 28.20 | 15 (11–19) | <LOD | 9.1 (7.2–11) | 370 (260–480) | 610 (400–830) |
| Total | 3–79 | 3 (2012–2013) | 5642 | 34.47 | 17 (15–20) | <LOD | 9.9 (9.2–11) | 350 (310–390) | 640 (510–770) |
| Males | 3–79 | 2 (2009–2011) | 1270 | 26.77 | 15 (10–21) | <LOD | 8.8 (6.1–11) | 390 (280–490) | 700[E] (360–1000) |
| Males | 3–79 | 3 (2012–2013) | 2815 | 34.03 | 15 (12–18) | <LOD | 8.7 (7.1–10) | 310[E] (190–440) | 470 (340–610) |
| Females | 3–79 | 2 (2009–2011) | 1270 | 29.62 | 15 (11–19) | <LOD | 9.9 (7.9–12) | 320[E] (150–480) | 570[E] (340–800) |
| Females | 3–79 | 3 (2012–2013) | 2827 | 34.91 | 21 (16–27) | <LOD | 11 (8.0–13) | 390 (260–520) | 810 (560–1100) |
| Total | 3–5 | 2 (2009–2011) | 522 | 29.45 | 14 (12–17) | <LOD | 12 (8.8–16) | 84 (58–110) | 180 (140–230) |
| Total | 3–5 | 3 (2012–2013) | 517 | 36.29 | 18 (15–23) | <LOD | 13 (8.8–17) | 110[E] (47–180) | 260 (170–350) |
| Total | 6–11 | 2 (2009–2011) | 513 | 33.98 | 8.5 (6.2–12) | <LOD | 5.0[E] (<LOD–7.3) | 150[E] (57–250) | 270[E] (82–470) |
| Total | 6–11 | 3 (2012–2013) | 1001 | 36.26 | 14 (11–17) | <LOD | 8.8 (7.0–11) | F | 340[E] (160–530) |
| Total | 12–19 | 2 (2009–2011) | 508 | 19.02 | 14 (10–19) | <LOD | 9.4[E] (5.5–13) | 280[E] (150–420) | 490[E] (280–710) |
| Total | 12–19 | 3 (2012–2013) | 983 | 28.35 | 14 (11–19) | <LOD | 8.7 (7.0–11) | 350[E] (160–540) | 530 (380–680) |
| Total | 20–39 | 2 (2009–2011) | 351 | 19.26 | 17[E] (11–27) | <LOD | 11[E] (6.9–15) | 410[E] (220–600) | 680[E] (290–1100) |
| Total | 20–39 | 3 (2012–2013) | 1035 | 27.44 | 22 (16–29) | <LOD | 11 (7.6–15) | 350 (270–430) | 560[E] (320–810) |
| Total | 40–59 | 2 (2009–2011) | 357 | 28.97 | 17[E] (11–28) | <LOD | 9.9[E] (<LOD–17) | 410[E] (230–590) | 820[E] (440–1200) |
| Total | 40–59 | 3 (2012–2013) | 1071 | 37.22 | 17 (13–22) | <LOD | 9.4 (7.1–12) | 400[E] (240–560) | 900[E] (410–1400) |
| Total | 60–79 | 2 (2009–2011) | 289 | 41.72 | – | <LOD | 7.1 (5.0–9.2) | 370[E] (200–550) | 600[E] (280–910) |
| Total | 60–79 | 3 (2012–2013) | 1035 | 41.84 | – | <LOD | 9.5 (8.2–11) | 340[E] (200–480) | 720[E] (430–1000) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# Results for Metals and Trace Elements

## ARSENIC

### Arsenate

Arsenate — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2538 | 99.49 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2536 | 99.25 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1271 | 99.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1251 | 99.04 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1267 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1285 | 99.46 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 516 | 98.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 500 | 98.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 511 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 507 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 510 | 99.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 510 | 98.82 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 355 | 99.44 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 355 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 357 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 312 | 99.04 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 289 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 352 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

Arsenate (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2528 | 99.49 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2535 | 99.25 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1267 | 99.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1251 | 99.04 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1261 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1284 | 99.46 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 515 | 98.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 499 | 98.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 509 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 507 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 508 | 99.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 510 | 98.82 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 353 | 99.44 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 355 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 355 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 312 | 99.04 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 288 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 352 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## Arsenite

Arsenite — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2537 | 75.60 | – | <LOD | <LOD | 1.7 (1.1–2.3) | 2.7[E] (1.3–4.0) |
| Total | 3–79 | 3 (2012–2013) | 2535 | 73.96 | – | <LOD | <LOD | 1.7[E] (0.92–2.5) | F |
| Males | 3–79 | 2 (2009–2011) | 1271 | 72.54 | – | <LOD | <LOD | 1.7 (1.1–2.3) | 2.8[E] (0.88–4.7) |
| Males | 3–79 | 3 (2012–2013) | 1250 | 71.20 | – | <LOD | <LOD | 1.4 (1.0–1.8) | F |
| Females | 3–79 | 2 (2009–2011) | 1266 | 78.67 | – | <LOD | <LOD | 1.5[E] (0.72–2.3) | 2.4[E] (1.1–3.7) |
| Females | 3–79 | 3 (2012–2013) | 1285 | 76.65 | – | <LOD | <LOD | F | F |
| Total | 3–5 | 2 (2009–2011) | 516 | 84.50 | – | <LOD | <LOD | 0.79[E] (<LOD–1.2) | 1.3[E] (0.74–1.9) |
| Total | 3–5 | 3 (2012–2013) | 500 | 81.80 | – | <LOD | <LOD | 0.94 (<LOD–1.2) | 1.9[E] (0.75–3.0) |
| Total | 6–11 | 2 (2009–2011) | 511 | 78.86 | – | <LOD | <LOD | 1.0[E] (<LOD–1.4) | 1.8[E] (1.1–2.4) |
| Total | 6–11 | 3 (2012–2013) | 506 | 76.09 | – | <LOD | <LOD | 1.1 (0.81–1.4) | 1.6[E] (0.82–2.5) |
| Total | 12–19 | 2 (2009–2011) | 510 | 72.35 | – | <LOD | <LOD | 1.9[E] (1.2–2.7) | F |
| Total | 12–19 | 3 (2012–2013) | 510 | 68.43 | – | <LOD | <LOD | 1.5[E] (<LOD–2.3) | 2.6[E] (1.1–4.0) |
| Total | 20–39 | 2 (2009–2011) | 355 | 69.86 | – | <LOD | <LOD | 1.9[E] (<LOD–3.1) | F |
| Total | 20–39 | 3 (2012–2013) | 355 | 70.70 | – | <LOD | <LOD | F | F |
| Total | 40–59 | 2 (2009–2011) | 356 | 70.51 | – | <LOD | <LOD | 1.3[E] (0.75–1.8) | 2.0[E] (1.0–2.9) |
| Total | 40–59 | 3 (2012–2013) | 312 | 70.19 | – | <LOD | <LOD | F | F |
| Total | 60–79 | 2 (2009–2011) | 289 | 73.01 | – | <LOD | <LOD | 1.9[E] (1.1–2.7) | F |
| Total | 60–79 | 3 (2012–2013) | 352 | 74.43 | – | <LOD | <LOD | 1.8 (1.1–2.4) | 3.2[E] (1.3–5.2) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Arsenite (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2527 | 75.60 | – | <LOD | <LOD | 2.0 (1.6–2.3) | 2.9 (1.9–3.9) |
| Total | 3–79 | 3 (2012–2013) | 2534 | 73.96 | – | <LOD | <LOD | 1.9[E] (1.2–2.7) | F |
| Males | 3–79 | 2 (2009–2011) | 1267 | 72.54 | – | <LOD | <LOD | 1.4[E] (0.85–1.9) | F |
| Males | 3–79 | 3 (2012–2013) | 1250 | 71.20 | – | <LOD | <LOD | 1.2 (0.94–1.5) | F |
| Females | 3–79 | 2 (2009–2011) | 1260 | 78.67 | – | <LOD | <LOD | 2.2 (1.6–2.8) | 3.0 (2.1–3.9) |
| Females | 3–79 | 3 (2012–2013) | 1284 | 76.65 | – | <LOD | <LOD | 2.4[E] (0.86–3.9) | F |
| Total | 3–5 | 2 (2009–2011) | 515 | 84.50 | – | <LOD | <LOD | 1.9 (1.7–2.2) | 2.9 (1.9–3.9) |
| Total | 3–5 | 3 (2012–2013) | 499 | 81.80 | – | <LOD | <LOD | 2.5[E] (1.3–3.7) | 4.3[E] (2.6–6.1) |
| Total | 6–11 | 2 (2009–2011) | 509 | 78.86 | – | <LOD | <LOD | 1.6[E] (1.0–2.2) | 2.2[E] (1.2–3.1) |
| Total | 6–11 | 3 (2012–2013) | 506 | 76.09 | – | <LOD | <LOD | 1.7 (1.1–2.2) | 2.5[E] (1.3–3.6) |
| Total | 12–19 | 2 (2009–2011) | 508 | 72.35 | – | <LOD | <LOD | 1.4[E] (0.85–2.0) | 2.9[E] (1.4–4.5) |
| Total | 12–19 | 3 (2012–2013) | 510 | 68.43 | – | <LOD | <LOD | 1.4[E] (<LOD–2.0) | 1.9[E] (1.0–2.8) |
| Total | 20–39 | 2 (2009–2011) | 353 | 69.86 | – | <LOD | <LOD | 1.9[E] (0.89–3.0) | 2.6[E] (0.86–4.3) |
| Total | 20–39 | 3 (2012–2013) | 355 | 70.70 | – | <LOD | <LOD | F | F |
| Total | 40–59 | 2 (2009–2011) | 354 | 70.51 | – | <LOD | <LOD | 1.9 (1.3–2.6) | 2.0[E] (1.2–2.8) |
| Total | 40–59 | 3 (2012–2013) | 312 | 70.19 | – | <LOD | <LOD | F | F |
| Total | 60–79 | 2 (2009–2011) | 288 | 73.01 | – | <LOD | <LOD | 2.3[E] (1.2–3.3) | F |
| Total | 60–79 | 3 (2012–2013) | 352 | 74.43 | – | <LOD | <LOD | 2.3[E] (0.79–3.8) | 3.7[E] (1.7–5.6) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## Arsenocholine

Arsenocholine — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 3 (2012–2013) | 2536 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1251 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1285 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 500 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 507 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 510 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 355 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 312 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 352 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

Arsenocholine (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 3 (2012–2013) | 2535 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1251 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1284 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 499 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 507 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 510 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 355 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 312 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 352 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## Arsenocholine and Arsenobetaine

Arsenocholine and arsenobetaine — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2538 | 48.50 | – | <LOD | 1.4[E] (<LOD–2.2) | 28[E] (18–39) | 48[E] (30–67) |
| Total | 3–79 | 3 (2012–2013) | 2536 | 48.15 | – | <LOD | 1.4[E] (<LOD–2.1) | 24[E] (11–36) | 56 (37–75) |
| Males | 3–79 | 2 (2009–2011) | 1271 | 46.34 | – | <LOD | 1.5[E] (<LOD–2.5) | 29[E] (14–43) | F |
| Males | 3–79 | 3 (2012–2013) | 1251 | 47.40 | – | <LOD | 1.4[E] (<LOD–2.0) | 21[E] (13–29) | 38 (25–51) |
| Females | 3–79 | 2 (2009–2011) | 1267 | 50.67 | – | <LOD | F | 28[E] (15–41) | 49[E] (29–69) |
| Females | 3–79 | 3 (2012–2013) | 1285 | 48.87 | – | <LOD | 1.5[E] (<LOD–2.6) | F | 58[E] (33–83) |
| Total | 3–5 | 2 (2009–2011) | 516 | 59.69 | – | <LOD | <LOD | F | 34[E] (19–49) |
| Total | 3–5 | 3 (2012–2013) | 500 | 57.40 | – | <LOD | <LOD | 12[E] (6.3–17) | F |
| Total | 6–11 | 2 (2009–2011) | 511 | 58.12 | – | <LOD | <LOD | F | F |
| Total | 6–11 | 3 (2012–2013) | 507 | 59.57 | – | <LOD | <LOD | F | 27[E] (14–39) |
| Total | 12–19 | 2 (2009–2011) | 510 | 57.65 | – | <LOD | <LOD | 12[E] (4.5–19) | 38[E] (16–59) |
| Total | 12–19 | 3 (2012–2013) | 510 | 51.18 | – | <LOD | <LOD | 16[E] (7.2–24) | 37[E] (17–56) |
| Total | 20–39 | 2 (2009–2011) | 355 | 38.59 | 2.3[E] (1.5–3.6) | <LOD | F | 33[E] (15–52) | 68[E] (20–110) |
| Total | 20–39 | 3 (2012–2013) | 355 | 44.51 | – | <LOD | F | 19[E] (11–28) | 35[E] (12–58) |
| Total | 40–59 | 2 (2009–2011) | 357 | 30.81 | 1.8 (1.4–2.4) | <LOD | 1.4[E] (<LOD–2.5) | F | 35[E] (19–52) |
| Total | 40–59 | 3 (2012–2013) | 312 | 34.29 | 2.2[E] (1.3–3.8) | <LOD | F | F | 57[E] (30–84) |
| Total | 60–79 | 2 (2009–2011) | 289 | 29.41 | 3.6[E] (2.2–5.9) | <LOD | 3.6[E] (1.4–5.8) | 40[E] (21–59) | 74[E] (33–120) |
| Total | 60–79 | 3 (2012–2013) | 352 | 30.11 | 2.6[E] (1.8–3.8) | <LOD | 2.1[E] (0.86–3.4) | F | 67[E] (29–100) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Arsenocholine and arsenobetaine (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2528 | 48.50 | – | <LOD | 1.5[E] (<LOD–2.5) | 22 (16–28) | 44[E] (18–71) |
| Total | 3–79 | 3 (2012–2013) | 2535 | 48.15 | – | <LOD | 1.6 (1.1–2.1) | 25[E] (12–39) | 44[E] (24–63) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 46.34 | – | <LOD | F | 18[E] (9.4–27) | F |
| Males | 3–79 | 3 (2012–2013) | 1251 | 47.40 | – | <LOD | 1.2 (0.77–1.6) | 16[E] (7.3–24) | 34 (25–43) |
| Females | 3–79 | 2 (2009–2011) | 1261 | 50.67 | – | <LOD | <LOD | 25 (19–32) | 61[E] (20–100) |
| Females | 3–79 | 3 (2012–2013) | 1284 | 48.87 | – | <LOD | 2.1[E] (0.84–3.3) | 33[E] (9.5–56) | F |
| Total | 3–5 | 2 (2009–2011) | 515 | 59.69 | – | <LOD | <LOD | F | F |
| Total | 3–5 | 3 (2012–2013) | 499 | 57.40 | – | <LOD | <LOD | 21[E] (11–31) | F |
| Total | 6–11 | 2 (2009–2011) | 509 | 58.12 | – | <LOD | <LOD | F | F |
| Total | 6–11 | 3 (2012–2013) | 507 | 59.57 | – | <LOD | <LOD | F | 40[E] (12–69) |
| Total | 12–19 | 2 (2009–2011) | 508 | 57.65 | – | <LOD | <LOD | 9.3[E] (4.0–15) | 24[E] (10–38) |
| Total | 12–19 | 3 (2012–2013) | 510 | 51.18 | – | <LOD | <LOD | 10[E] (3.8–17) | F |
| Total | 20–39 | 2 (2009–2011) | 353 | 38.59 | 1.9[E] (1.2–2.8) | <LOD | F | 22[E] (7.8–37) | F |
| Total | 20–39 | 3 (2012–2013) | 355 | 44.51 | – | <LOD | 1.4[E] (0.88–1.9) | 12[E] (5.5–19) | 21[E] (9.8–32) |
| Total | 40–59 | 2 (2009–2011) | 355 | 30.81 | 1.8 (1.3–2.5) | <LOD | 1.9[E] (<LOD–3.1) | 17[E] (10–24) | 24[E] (9.8–39) |
| Total | 40–59 | 3 (2012–2013) | 312 | 34.29 | 2.6[E] (1.6–4.4) | <LOD | F | 33[E] (14–52) | F |
| Total | 60–79 | 2 (2009–2011) | 288 | 29.41 | 4.2[E] (2.6–6.8) | <LOD | 4.6[E] (1.7–7.5) | 47[E] (13–80) | 84[E] (43–120) |
| Total | 60–79 | 3 (2012–2013) | 352 | 30.11 | 2.9[E] (1.9–4.4) | <LOD | F | 35[E] (13–57) | F |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## Dimethylarsinic Acid

Dimethylarsinic acid (DMA) — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2538 | 3.78 | 3.5 (3.0–4.0) | 0.93 (0.89–0.97) | 3.6 (3.1–4.1) | 11 (8.3–13) | 16[E] (6.6–25) |
| Total | 3–79 | 3 (2012–2013) | 2536 | 3.86 | 3.6 (3.2–4.0) | 1.1 (0.89–1.4) | 3.4 (3.0–3.8) | 11 (7.8–13) | 16[E] (7.4–25) |
| Males | 3–79 | 2 (2009–2011) | 1271 | 3.15 | 3.6 (3.1–4.3) | 0.95 (<LOD–1.3) | 3.7 (2.8–4.5) | 11 (7.9–14) | 16[E] (7.7–24) |
| Males | 3–79 | 3 (2012–2013) | 1251 | 2.96 | 3.8 (3.3–4.4) | 1.3[E] (0.75–1.8) | 3.8 (3.3–4.3) | 9.8 (7.8–12) | 14[E] (4.8–23) |
| Females | 3–79 | 2 (2009–2011) | 1267 | 4.42 | 3.3 (2.8–3.9) | 0.92 (0.75–1.1) | 3.5 (3.0–3.9) | 11 (7.5–14) | 18[E] (7.3–29) |
| Females | 3–79 | 3 (2012–2013) | 1285 | 4.75 | 3.4 (2.9–4.1) | 1.0 (0.85–1.2) | 3.1 (2.7–3.5) | 12 (8.4–16) | F |
| Total | 3–5 | 2 (2009–2011) | 516 | 3.68 | 3.6 (3.1–4.3) | 1.4[E] (0.89–1.9) | 3.5 (3.0–4.0) | 9.4 (6.9–12) | 13[E] (8.5–18) |
| Total | 3–5 | 3 (2012–2013) | 500 | 3.00 | 3.3 (3.0–3.8) | 1.1 (0.83–1.4) | 3.4 (2.8–3.9) | 10 (7.9–12) | 16[E] (9.9–21) |
| Total | 6–11 | 2 (2009–2011) | 511 | 2.74 | 3.9 (3.5–4.4) | 1.5 (1.0–1.9) | 4.1 (3.5–4.7) | 9.8 (8.4–11) | 14[E] (7.7–20) |
| Total | 6–11 | 3 (2012–2013) | 507 | 2.76 | 3.6 (3.1–4.1) | 1.1[E] (<LOD–1.6) | 3.7 (3.0–4.4) | 9.1 (6.6–12) | 14[E] (6.9–22) |
| Total | 12–19 | 2 (2009–2011) | 510 | 2.75 | 3.6 (2.9–4.6) | 0.94[E] (<LOD–1.5) | 3.5 (2.5–4.4) | 11 (7.5–14) | 17[E] (9.3–25) |
| Total | 12–19 | 3 (2012–2013) | 510 | 3.53 | 3.6 (3.0–4.3) | 1.3 (0.88–1.7) | 3.4 (2.6–4.2) | 9.9 (6.6–13) | F |
| Total | 20–39 | 2 (2009–2011) | 355 | 5.63 | 3.6 (2.9–4.5) | 0.92 (0.72–1.1) | 3.9 (3.0–4.8) | F | 22[E] (11–33) |
| Total | 20–39 | 3 (2012–2013) | 355 | 4.79 | 3.8 (3.3–4.5) | 1.2[E] (<LOD–1.9) | 3.5 (2.9–4.1) | 12[E] (4.4–20) | 24[E] (8.5–40) |
| Total | 40–59 | 2 (2009–2011) | 357 | 5.32 | 3.2 (2.6–3.8) | 0.91[E] (<LOD–1.2) | 3.1 (2.5–3.8) | 9.0 (7.4–11) | 12 (8.8–15) |
| Total | 40–59 | 3 (2012–2013) | 312 | 6.09 | 3.5 (2.8–4.4) | 1.1 (0.77–1.5) | 3.4 (2.7–4.1) | 12[E] (6.0–17) | F |
| Total | 60–79 | 2 (2009–2011) | 289 | 3.46 | 3.6 (2.8–4.5) | 0.92 (0.82–1.0) | 3.6 (2.9–4.3) | 13[E] (5.8–20) | 21[E] (6.5–35) |
| Total | 60–79 | 3 (2012–2013) | 352 | 4.26 | 3.5 (3.0–4.2) | 1.0 (0.86–1.2) | 3.4 (2.6–4.2) | 10 (7.4–13) | 18[E] (10–26) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Dimethylarsinic acid (DMA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2528 | 3.78 | 3.5 (3.0 - 4.0) | 1.4 (1.2 - 1.6) | 3.0 (2.6 - 3.4) | 9.5 (7.1 - 12) | 15[E] (9.1 - 21) |
| Total | 3–79 | 3 (2012-2013) | 2535 | 3.86 | 3.7 (3.2 - 4.3) | 1.4 (1.3 - 1.5) | 3.4 (3.0 - 3.8) | 11[E] (5.6 - 16) | 20[E] (11 - 30) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 3.15 | 3.1 (2.7 - 3.6) | 1.3 (1.0 - 1.5) | 2.9 (2.5 - 3.3) | 7.7 (5.3 - 10) | 10[E] (4.4 - 16) |
| Males | 3–79 | 3 (2012-2013) | 1251 | 2.96 | 3.1 (2.8 - 3.6) | 1.3 (1.1 - 1.4) | 3.0 (2.4 - 3.5) | 7.2 (5.4 - 9.1) | 13[E] (7.1 - 19) |
| Females | 3–79 | 2 (2009–2011) | 1261 | 4.42 | 3.9 (3.3 - 4.5) | 1.6 (1.3 - 1.8) | 3.3 (2.8 - 3.9) | 11[E] (5.9 - 16) | 18[E] (11 - 24) |
| Females | 3–79 | 3 (2012-2013) | 1284 | 4.75 | 4.3 (3.6 - 5.3) | 1.5 (1.3 - 1.7) | 3.8 (3.1 - 4.4) | 15[E] (5.2 - 25) | 24[E] (15 - 33) |
| Total | 3–5 | 2 (2009–2011) | 515 | 3.68 | 6.4 (5.6 - 7.3) | 3.0 (2.7 - 3.3) | 5.6 (4.7 - 6.5) | 16 (11 - 20) | 23[E] (10 - 36) |
| Total | 3–5 | 3 (2012-2013) | 499 | 3.00 | 6.5 (5.9 - 7.1) | 2.8 (2.1 - 3.4) | 6.1 (5.5 - 6.8) | 14 (11 - 17) | 24[E] (13 - 36) |
| Total | 6–11 | 2 (2009–2011) | 509 | 2.74 | 4.5 (4.1 - 5.0) | 2.1 (1.9 - 2.3) | 4.2 (3.8 - 4.7) | 11 (7.9 - 13) | 17[E] (10 - 24) |
| Total | 6–11 | 3 (2012-2013) | 507 | 2.76 | 4.5 (3.9 - 5.2) | 2.2 (1.9 - 2.4) | 4.1 (3.7 - 4.4) | 9.9 (6.7 - 13) | 14[E] (7.2 - 21) |
| Total | 12–19 | 2 (2009–2011) | 508 | 2.75 | 2.8 (2.3 - 3.5) | 1.1 (0.76 - 1.4) | 2.4 (1.9 - 3.0) | 8.5[E] (4.5 - 13) | 13[E] (7.6 - 19) |
| Total | 12–19 | 3 (2012-2013) | 510 | 3.53 | 2.7 (2.2 - 3.4) | 1.2 (1.1 - 1.4) | 2.3 (1.7 - 2.9) | 7.4[E] (2.9 - 12) | 12[E] (5.9 - 17) |
| Total | 20–39 | 2 (2009–2011) | 353 | 5.63 | 3.1 (2.5 - 3.9) | 1.3 (0.97 - 1.6) | 2.6 (1.9 - 3.3) | 9.1[E] (5.8 - 12) | 14[E] (7.2 - 21) |
| Total | 20–39 | 3 (2012-2013) | 355 | 4.79 | 2.9 (2.6 - 3.3) | 1.1[E] (<LOD - 1.6) | 2.7 (2.3 - 3.0) | F | 17[E] (4.7 - 29) |
| Total | 40–59 | 2 (2009–2011) | 355 | 5.32 | 3.3 (2.9 - 3.7) | 1.6 (1.3 - 1.8) | 3.0 (2.7 - 3.2) | 7.7 (5.5 - 9.9) | 11[E] (6.1 - 15) |
| Total | 40–59 | 3 (2012-2013) | 312 | 6.09 | 4.1 (3.3 - 5.2) | 1.5 (1.2 - 1.7) | 3.8 (3.1 - 4.5) | F | 24[E] (7.1 - 40) |
| Total | 60–79 | 2 (2009–2011) | 288 | 3.46 | 4.2 (3.4 - 5.3) | 1.5[E] (0.88 - 2.1) | 4.1 (3.1 - 5.0) | F | F |
| Total | 60–79 | 3 (2012-2013) | 352 | 4.26 | 4.0 (3.2 - 4.9) | 1.5 (1.2 - 1.9) | 3.6 (2.9 - 4.3) | 11[E] (4.6 - 18) | 20[E] (10 - 30) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## Monomethylarsonic Acid

Monomethylarsonic acid (MMA) — Geometric means and selected percentiles of urine concentrations (µg As/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2538 | 73.01 | – | <LOD | <LOD | 0.97 (0.94–0.99) | 1.1[E] (<LOD–1.5) |
| Total | 3–79 | 3 (2012–2013) | 2536 | 71.53 | – | <LOD | <LOD | 1.2 (1.1–1.4) | 1.5 (1.3–1.7) |
| Males | 3–79 | 2 (2009–2011) | 1271 | 69.63 | – | <LOD | <LOD | 0.98 (0.81–1.2) | 1.5[E] (0.88–2.1) |
| Males | 3–79 | 3 (2012–2013) | 1251 | 68.35 | – | <LOD | <LOD | 1.2 (1.0–1.4) | 1.5 (1.3–1.7) |
| Females | 3–79 | 2 (2009–2011) | 1267 | 76.40 | – | <LOD | <LOD | 0.95 (0.90–1.0) | 0.99 (0.88–1.1) |
| Females | 3–79 | 3 (2012–2013) | 1285 | 74.63 | – | <LOD | <LOD | 1.2 (0.88–1.5) | 1.5 (1.3–1.8) |
| Total | 3–5 | 2 (2009–2011) | 516 | 77.91 | – | <LOD | <LOD | 0.92 (0.84–1.0) | 0.98 (0.96–1.0) |
| Total | 3–5 | 3 (2012–2013) | 500 | 79.20 | – | <LOD | <LOD | 0.91 (<LOD–1.2) | 1.5 (1.1–1.9) |
| Total | 6–11 | 2 (2009–2011) | 511 | 76.52 | – | <LOD | <LOD | 0.93 (0.83–1.0) | 1.2 (0.77–1.6) |
| Total | 6–11 | 3 (2012–2013) | 507 | 72.58 | – | <LOD | <LOD | 1.0 (0.84–1.2) | 1.3 (1.1–1.4) |
| Total | 12–19 | 2 (2009–2011) | 510 | 62.94 | – | <LOD | <LOD | 0.99 (0.80–1.2) | 1.5[E] (0.93–2.1) |
| Total | 12–19 | 3 (2012–2013) | 510 | 62.16 | – | <LOD | <LOD | 1.3 (1.1–1.6) | 1.6 (1.3–1.8) |
| Total | 20–39 | 2 (2009–2011) | 355 | 70.14 | – | <LOD | <LOD | 0.98 (0.86–1.1) | 1.3[E] (<LOD–2.0) |
| Total | 20–39 | 3 (2012–2013) | 355 | 66.48 | – | <LOD | <LOD | 1.3 (1.0–1.5) | 1.5 (1.3–1.7) |
| Total | 40–59 | 2 (2009–2011) | 357 | 71.43 | – | <LOD | <LOD | 0.96 (0.92–1.0) | 1.0[E] (<LOD–1.6) |
| Total | 40–59 | 3 (2012–2013) | 312 | 72.76 | – | <LOD | <LOD | 1.1 (0.84–1.4) | 1.6 (1.1–2.2) |
| Total | 60–79 | 2 (2009–2011) | 289 | 81.31 | – | <LOD | <LOD | 0.93 (0.81–1.0) | 0.99[E] (<LOD–1.4) |
| Total | 60–79 | 3 (2012–2013) | 352 | 76.70 | – | <LOD | <LOD | 1.1 (0.79–1.5) | 1.4 (1.2–1.6) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Monomethylarsonic acid (MMA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg As/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011)[a] and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2528 | 73.01 | – | <LOD | <LOD | 1.0 (0.79 – 1.2) | 1.6 (1.3 – 1.9) |
| Total | 3–79 | 3 (2012–2013) | 2535 | 71.53 | – | <LOD | <LOD | 1.2 (1.1 – 1.4) | 1.7 (1.5 – 1.9) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 69.63 | – | <LOD | <LOD | 0.96 (0.92 – 0.99) | 1.2[E] (0.70 – 1.7) |
| Males | 3–79 | 3 (2012–2013) | 1251 | 68.35 | – | <LOD | <LOD | 1.0 (0.87 – 1.1) | 1.3 (1.0 – 1.6) |
| Females | 3–79 | 2 (2009–2011) | 1261 | 76.40 | – | <LOD | <LOD | 1.3 (0.95 – 1.7) | 1.8 (1.3 – 2.3) |
| Females | 3–79 | 3 (2012–2013) | 1284 | 74.63 | – | <LOD | <LOD | 1.6 (1.3 – 1.9) | 2.1 (1.8 – 2.5) |
| Total | 3–5 | 2 (2009–2011) | 515 | 77.91 | – | <LOD | <LOD | 1.5 (1.2 – 1.8) | 2.2 (1.6 – 2.8) |
| Total | 3–5 | 3 (2012–2013) | 499 | 79.20 | – | <LOD | <LOD | 2.0 (1.5 – 2.5) | 3.0 (2.0 – 4.0) |
| Total | 6–11 | 2 (2009–2011) | 509 | 76.52 | – | <LOD | <LOD | 0.99 (0.87 – 1.1) | 1.5 (1.2 – 1.9) |
| Total | 6–11 | 3 (2012–2013) | 507 | 72.58 | – | <LOD | <LOD | 1.3 (1.1 – 1.5) | 1.8 (1.5 – 2.0) |
| Total | 12–19 | 2 (2009–2011) | 508 | 62.94 | – | <LOD | <LOD | 0.93 (0.83 – 1.0) | 0.99[E] (<LOD – 1.5) |
| Total | 12–19 | 3 (2012–2013) | 510 | 62.16 | – | <LOD | <LOD | 0.99 (0.75 – 1.2) | 1.5 (1.0 – 2.0) |
| Total | 20–39 | 2 (2009–2011) | 353 | 70.14 | – | <LOD | <LOD | 0.98[E] (<LOD – 1.5) | 1.6[E] (<LOD – 2.5) |
| Total | 20–39 | 3 (2012–2013) | 355 | 66.48 | – | <LOD | <LOD | 0.97 (<LOD – 1.2) | 1.3 (0.87 – 1.8) |
| Total | 40–59 | 2 (2009–2011) | 355 | 71.43 | – | <LOD | <LOD | 0.99 (0.76 – 1.2) | 1.5 (1.0 – 2.0) |
| Total | 40–59 | 3 (2012–2013) | 312 | 72.76 | – | <LOD | <LOD | 1.3 (0.92 – 1.6) | 1.7 (1.3 – 2.0) |
| Total | 60–79 | 2 (2009–2011) | 288 | 81.31 | – | <LOD | <LOD | 1.4 (0.95 – 1.9) | 1.8 (1.5 – 2.1) |
| Total | 60–79 | 3 (2012–2013) | 352 | 76.70 | – | <LOD | <LOD | 1.4[E] (0.87 – 1.9) | 2.1[E] (1.3 – 2.9) |

a In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g., µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# CADMIUM

Cadmium — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5319 | 2.91 | 0.34 (0.31–0.37) | 0.091 (0.087–0.094) | 0.27 (0.25–0.29) | 2.4 (2.0–2.8) | 3.6 (3.1–4.1) |
| Total | 6–79 | 2 (2009–2011) | 5575 | 4.27 | 0.30 (0.27–0.33) | 0.089 (0.080–0.097) | 0.27 (0.25–0.30) | 1.7 (1.4–2.1) | 2.6 (2.2–3.1) |
| Total | 6–79 | 3 (2012–2013) | 5067 | 8.51 | 0.34 (0.31–0.37) | 0.10 (0.098–0.10) | 0.28 (0.26–0.30) | 2.1 (1.5–2.7) | 3.4 (2.5–4.3) |
| Males | 6–79 | 1 (2007–2009) | 2576 | 3.34 | 0.30 (0.27–0.34) | 0.084 (0.073–0.095) | 0.22 (0.20–0.25) | 2.3 (1.8–2.8) | 3.4 (2.8–4.0) |
| Males | 6–79 | 2 (2009–2011) | 2687 | 4.84 | 0.27 (0.25–0.30) | 0.084 (0.074–0.093) | 0.24 (0.21–0.27) | 1.7 (1.5–2.0) | 2.5 (2.0–3.0) |
| Males | 6–79 | 3 (2012–2013) | 2540 | 9.53 | 0.31 (0.28–0.34) | 0.099 (0.085–0.11) | 0.23 (0.20–0.26) | 2.1 (1.5–2.7) | 3.5 (2.6–4.3) |
| Females | 6–79 | 1 (2007–2009) | 2743 | 2.52 | 0.38 (0.35–0.41) | 0.093 (0.091–0.095) | 0.32 (0.29–0.36) | 2.5 (2.0–2.9) | 3.7 (3.1–4.3) |
| Females | 6–79 | 2 (2009–2011) | 2888 | 3.74 | 0.33 (0.29–0.38) | 0.091 (0.086–0.095) | 0.31 (0.27–0.34) | 1.6[E] (0.94–2.2) | 2.7 (2.1–3.4) |
| Females | 6–79 | 3 (2012–2013) | 2527 | 7.48 | 0.39 (0.34–0.44) | 0.10 (0.10–0.11) | 0.33 (0.29–0.38) | 1.8[E] (0.71–2.9) | 3.4[E] (1.7–5.1) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Cadmium — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 6070 | 5.16 | 0.29 (0.26–0.32) | 0.083 (0.074–0.093) | 0.26 (0.24–0.29) | 1.7 (1.3–2.0) | 2.6 (2.1–3.0) |
| Total | 3–79 | 3 (2012–2013) | 5538 | 11.48 | 0.33 (0.30–0.36) | 0.099 (0.092–0.11) | 0.27 (0.25–0.29) | 2.0 (1.4–2.6) | 3.4 (2.5–4.3) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 2940 | 5.78 | 0.26 (0.24–0.29) | 0.079 (0.070–0.089) | 0.23 (0.20–0.26) | 1.7 (1.5–2.0) | 2.4 (2.0–2.9) |
| Males | 3–79 | 3 (2012–2013) | 2769 | 12.35 | 0.29 (0.27–0.32) | 0.089 (<LOD–0.10) | 0.22 (0.19–0.25) | 2.1 (1.5–2.7) | 3.3 (2.5–4.2) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 3130 | 4.57 | 0.32 (0.28–0.36) | 0.089 (0.080–0.098) | 0.30 (0.27–0.33) | 1.5[E] (0.92–2.1) | 2.7 (2.1–3.4) |
| Females | 3–79 | 3 (2012–2013) | 2769 | 10.62 | 0.37 (0.33–0.41) | 0.10 (0.099–0.10) | 0.32 (0.28–0.37) | 1.7[E] (0.62–2.8) | 3.4[E] (1.8–5.0) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 495 | 15.15 | 0.073 (0.065–0.081) | <LOD | 0.078 (0.069–0.087) | 0.099 (0.098–0.10) | F |
| Total | 3–5 | 3 (2012–2013) | 471 | 43.52 | – | <LOD | 0.091 (<LOD–0.11) | 0.16 (0.11–0.20) | 0.18[E] (<LOD–0.29) |
| Total | 6–11 | 1 (2007–2009) | 910 | 9.12 | 0.091 (0.082–0.10) | <LOD[E] (<LOD–0.053) | 0.092 (0.090–0.094) | 0.20 (0.18–0.21) | 0.22 (0.19–0.26) |
| Total | 6–11 | 2 (2009–2011) | 961 | 14.05 | 0.083 (0.076–0.090) | <LOD | 0.090 (0.087–0.094) | 0.17[E] (0.088–0.25) | 0.20 (0.18–0.23) |
| Total | 6–11 | 3 (2012–2013) | 944 | 27.44 | 0.095 (0.085–0.11) | <LOD | 0.10 (0.099–0.10) | 0.18 (0.16–0.20) | 0.21 (0.18–0.24) |
| Total | 12–19 | 1 (2007–2009) | 945 | 3.92 | 0.16 (0.13–0.20) | 0.066 (0.045–0.086) | F | F | F |
| Total | 12–19 | 2 (2009–2011) | 997 | 5.72 | 0.13 (0.12–0.15) | 0.062 (0.040–0.084) | 0.096 (0.095–0.097) | 0.48[E] (0.27–0.70) | 0.82[E] (0.45–1.2) |
| Total | 12–19 | 3 (2012–2013) | 977 | 12.49 | 0.17 (0.15–0.20) | <LOD | 0.12[E] (<LOD–0.17) | 0.82[E] (0.31–1.3) | 1.7[E] (0.91–2.4) |
| Total | 20–39 | 1 (2007–2009) | 1165 | 1.55 | 0.34 (0.30–0.38) | 0.091 (0.084–0.098) | 0.24 (0.21–0.27) | 2.6 (2.0–3.1) | 3.4 (3.1–3.7) |
| Total | 20–39 | 2 (2009–2011) | 1313 | 2.21 | 0.28 (0.24–0.34) | 0.090 (0.066–0.11) | 0.24 (0.20–0.29) | 1.7[E] (1.0–2.3) | 2.7 (2.1–3.2) |
| Total | 20–39 | 3 (2012–2013) | 1032 | 3.68 | 0.31 (0.24–0.41) | 0.10 (0.084–0.12) | 0.25 (0.20–0.29) | 2.0[E] (0.71–3.3) | F |
| Total | 40–59 | 1 (2007–2009) | 1220 | 0.90 | 0.48 (0.43–0.54) | 0.098[E] (0.054–0.14) | 0.36 (0.32–0.41) | 3.1 (2.3–3.9) | 4.2 (3.7–4.7) |
| Total | 40–59 | 2 (2009–2011) | 1222 | 0.98 | 0.41 (0.37–0.46) | 0.095 (0.090–0.10) | 0.34 (0.31–0.37) | 2.2 (1.5–2.8) | 3.1 (2.3–3.8) |
| Total | 40–59 | 3 (2012–2013) | 1071 | 1.12 | 0.50 (0.43–0.57) | 0.11 (0.084–0.13) | 0.39 (0.30–0.48) | 3.0 (2.3–3.7) | 4.6 (3.7–5.5) |
| Total | 60–79 | 1 (2007–2009) | 1079 | 0.56 | 0.45 (0.42–0.49) | 0.19 (0.18–0.20) | 0.39 (0.37–0.41) | 1.7 (1.2–2.2) | 2.7 (2.2–3.2) |
| Total | 60–79 | 2 (2009–2011) | 1082 | 0.46 | 0.45 (0.41–0.50) | 0.18 (0.13–0.23) | 0.40 (0.35–0.44) | 1.6 (1.3–2.0) | 2.4 (1.9–2.8) |
| Total | 60–79 | 3 (2012–2013) | 1043 | 0 | 0.48 (0.43–0.54) | 0.19 (0.17–0.20) | 0.41 (0.35–0.46) | 1.5 (1.3–1.8) | 2.6 (1.9–3.3) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

# FLUORIDE

Fluoride — Geometric means and selected percentiles of urine concentrations (mg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2530 | 0 | 0.50 (0.46–0.55) | 0.19 (0.17–0.22) | 0.48 (0.44–0.53) | 1.2 (1.0–1.3) | 1.5 (1.2–1.7) |
| Total | 3–79 | 3 (2012–2013) | 2671 | 0 | 0.43 (0.39–0.48) | 0.15 (0.14–0.17) | 0.44 (0.39–0.49) | 1.1 (0.97–1.3) | 1.4 (0.99–1.7) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 0 | 0.53 (0.47–0.60) | 0.23 (0.20–0.25) | 0.51 (0.42–0.60) | 1.3 (1.0–1.5) | 1.6 (1.4–1.9) |
| Males | 3–79 | 3 (2012–2013) | 1320 | 0 | 0.44 (0.39–0.49) | 0.16 (0.13–0.19) | 0.44 (0.39–0.49) | 1.1 (0.92–1.3) | 1.3[E] (0.81–1.8) |
| Females | 3–79 | 2 (2009–2011) | 1263 | 0 | 0.47 (0.43–0.52) | 0.17 (0.15–0.20) | 0.47 (0.41–0.53) | 1.1 (0.92–1.3) | 1.3 (1.0–1.6) |
| Females | 3–79 | 3 (2012–2013) | 1351 | 0 | 0.43 (0.38–0.48) | 0.14 (0.11–0.16) | 0.45 (0.37–0.53) | 1.1 (0.92–1.4) | 1.4 (1.0–1.8) |
| Total | 3–5 | 2 (2009–2011) | 510 | 0 | 0.47 (0.42–0.52) | 0.18 (0.13–0.23) | 0.51 (0.44–0.58) | 0.99 (0.88–1.1) | 1.3 (0.92–1.7) |
| Total | 3–5 | 3 (2012–2013) | 493 | 0 | 0.39 (0.32–0.48) | 0.13 (0.098–0.17) | 0.37 (0.25–0.50) | 0.99 (0.77–1.2) | 1.2 (0.97–1.5) |
| Total | 6–11 | 2 (2009–2011) | 514 | 0 | 0.50 (0.44–0.57) | 0.20 (0.17–0.24) | 0.49 (0.42–0.55) | 1.1 (0.90–1.3) | 1.5 (1.1–1.8) |
| Total | 6–11 | 3 (2012–2013) | 549 | 0 | 0.40 (0.36–0.45) | 0.18 (0.15–0.20) | 0.38 (0.35–0.41) | 0.85 (0.61–1.1) | 1.1 (0.88–1.4) |
| Total | 12–19 | 2 (2009–2011) | 507 | 0 | 0.41 (0.37–0.46) | 0.17 (0.15–0.19) | 0.44 (0.36–0.52) | 0.94 (0.82–1.1) | 1.2 (0.98–1.3) |
| Total | 12–19 | 3 (2012–2013) | 549 | 0 | 0.39 (0.35–0.44) | 0.16 (0.13–0.20) | 0.37 (0.33–0.41) | 0.93 (0.71–1.2) | 1.1 (0.85–1.3) |
| Total | 20–39 | 2 (2009–2011) | 354 | 0 | 0.53 (0.47–0.59) | 0.23 (0.19–0.27) | 0.50 (0.38–0.62) | 1.2 (0.96–1.5) | 1.4 (1.1–1.8) |
| Total | 20–39 | 3 (2012–2013) | 371 | 0 | 0.43 (0.35–0.53) | 0.15 (0.11–0.19) | 0.47 (0.37–0.57) | 1.1 (0.77–1.4) | 1.3[E] (0.58–2.1) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 0.51 (0.44–0.61) | 0.19 (0.13–0.25) | 0.51 (0.40–0.61) | 1.2 (0.93–1.6) | 1.7 (1.3–2.2) |
| Total | 40–59 | 3 (2012–2013) | 359 | 0 | 0.46 (0.42–0.50) | 0.16 (0.13–0.20) | 0.46 (0.41–0.50) | 1.2 (1.0–1.3) | 1.4 (0.88–1.9) |
| Total | 60–79 | 2 (2009–2011) | 288 | 0 | 0.50 (0.44–0.56) | 0.19[E] (0.11–0.27) | 0.48 (0.42–0.54) | 1.2 (0.99–1.5) | 1.6 (1.3–2.0) |
| Total | 60–79 | 3 (2012–2013) | 350 | 0 | 0.43 (0.36–0.51) | 0.13 (0.086–0.18) | 0.45 (0.34–0.56) | 1.3 (0.85–1.7) | 1.7 (1.3–2.0) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Fluoride (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (mg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2520 | 0 | 0.50 (0.45–0.55) | 0.20 (0.18–0.22) | 0.48 (0.41–0.54) | 1.2 (0.99–1.4) | 1.6 (1.3–2.0) |
| Total | 3–79 | 3 (2012–2013) | 2669 | 0 | 0.46 (0.41–0.51) | 0.18 (0.16–0.21) | 0.45 (0.37–0.53) | 1.0 (0.88–1.1) | 1.4 (1.1–1.7) |
| Males | 3–79 | 2 (2009–2011) | 1263 | 0 | 0.46 (0.40–0.52) | 0.20 (0.16–0.24) | 0.43 (0.36–0.50) | 1.0 (0.85–1.2) | 1.2 (0.86–1.6) |
| Males | 3–79 | 3 (2012–2013) | 1320 | 0 | 0.40 (0.35–0.45) | 0.16 (0.12–0.20) | 0.41 (0.33–0.48) | 0.87 (0.75–0.98) | 1.1 (0.90–1.2) |
| Females | 3–79 | 2 (2009–2011) | 1257 | 0 | 0.54 (0.49–0.60) | 0.21 (0.18–0.24) | 0.52 (0.45–0.60) | 1.4 (1.2–1.6) | 1.9 (1.5–2.3) |
| Females | 3–79 | 3 (2012–2013) | 1349 | 0 | 0.53 (0.47–0.59) | 0.22 (0.19–0.25) | 0.53 (0.43–0.63) | 1.2 (0.93–1.4) | 1.6 (1.3–2.0) |
| Total | 3–5 | 2 (2009–2011) | 509 | 0 | 0.81 (0.73–0.90) | 0.40 (0.34–0.46) | 0.78 (0.72–0.85) | 1.7 (1.3–2.0) | 2.8[E] (1.7–4.0) |
| Total | 3–5 | 3 (2012–2013) | 492 | 0 | 0.76 (0.68–0.86) | 0.37 (0.30–0.44) | 0.73 (0.55–0.90) | 1.5 (1.3–1.6) | 1.7 (1.4–1.9) |
| Total | 6–11 | 2 (2009–2011) | 512 | 0 | 0.58 (0.53–0.63) | 0.30 (0.28–0.32) | 0.57 (0.50–0.63) | 1.2 (0.96–1.4) | 1.5 (1.0–2.0) |
| Total | 6–11 | 3 (2012–2013) | 549 | 0 | 0.50 (0.43–0.57) | 0.24 (0.19–0.28) | 0.45 (0.39–0.50) | 1.0 (0.91–1.1) | 1.2 (0.86–1.5) |
| Total | 12–19 | 2 (2009–2011) | 505 | 0 | 0.32 (0.28–0.35) | 0.15 (0.13–0.16) | 0.32 (0.28–0.37) | 0.62 (0.52–0.72) | 0.75 (0.54–0.97) |
| Total | 12–19 | 3 (2012–2013) | 548 | 0 | 0.29 (0.25–0.33) | 0.14 (0.12–0.16) | 0.27 (0.23–0.31) | 0.61 (0.45–0.76) | 0.76 (0.63–0.89) |
| Total | 20–39 | 2 (2009–2011) | 352 | 0 | 0.46 (0.39–0.55) | 0.20 (0.17–0.24) | 0.42 (0.33–0.51) | 1.1 (0.74–1.4) | F |
| Total | 20–39 | 3 (2012–2013) | 371 | 0 | 0.40 (0.35–0.46) | 0.16 (0.12–0.19) | 0.39 (0.30–0.49) | 0.87 (0.71–1.0) | 1.0 (0.76–1.2) |
| Total | 40–59 | 2 (2009–2011) | 355 | 0 | 0.53 (0.46–0.60) | 0.22 (0.18–0.26) | 0.54 (0.43–0.66) | 1.2 (0.94–1.4) | 1.6 (1.2–2.0) |
| Total | 40–59 | 3 (2012–2013) | 359 | 0 | 0.52 (0.46–0.59) | 0.22 (0.20–0.24) | 0.55 (0.44–0.66) | 1.0 (0.87–1.2) | 1.2 (0.77–1.7) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0 | 0.58 (0.50–0.68) | 0.22 (0.16–0.27) | 0.55 (0.44–0.67) | 1.6 (1.3–1.9) | 1.9 (1.4–2.5) |
| Total | 60–79 | 3 (2012–2013) | 350 | 0 | 0.52 (0.43–0.62) | 0.20 (0.16–0.24) | 0.52 (0.45–0.59) | 1.4[E] (0.86–1.9) | 2.1[E] (1.1–3.0) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# LEAD

Lead — Geometric means and selected percentiles of whole blood concentrations (µg/dL) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5319 | 0.02 | 1.3 (1.2–1.4) | 0.60 (0.56–0.64) | 1.2 (1.2–1.3) | 3.0 (2.7–3.3) | 3.8 (3.3–4.2) |
| Total | 6–79 | 2 (2009–2011) | 5575 | 0 | 1.2 (1.1–1.3) | 0.54 (0.50–0.59) | 1.1 (1.1–1.2) | 2.5 (2.3–2.8) | 3.2 (3.0–3.5) |
| Total | 6–79 | 3 (2012–2013) | 5067 | 0.10 | 1.1 (1.0–1.2) | 0.49 (0.46–0.52) | 1.0 (0.96–1.1) | 2.4 (2.3–2.5) | 3.2 (2.9–3.4) |
| Males | 6–79 | 1 (2007–2009) | 2576 | 0 | 1.5 (1.4–1.6) | 0.71 (0.65–0.76) | 1.4 (1.3–1.5) | 3.2 (2.8–3.6) | 4.2 (3.6–4.7) |
| Males | 6–79 | 2 (2009–2011) | 2687 | 0 | 1.3 (1.3–1.4) | 0.62 (0.56–0.68) | 1.2 (1.2–1.3) | 2.8 (2.5–3.2) | 3.4 (3.1–3.7) |
| Males | 6–79 | 3 (2012–2013) | 2540 | 0.08 | 1.2 (1.2–1.3) | 0.57 (0.55–0.59) | 1.2 (1.1–1.2) | 2.7 (2.4–2.9) | 3.6 (3.1–4.1) |
| Females | 6–79 | 1 (2007–2009) | 2743 | 0.04 | 1.2 (1.1–1.3) | 0.55 (0.50–0.59) | 1.1 (0.99–1.2) | 2.7 (2.3–3.1) | 3.5 (3.0–3.9) |
| Females | 6–79 | 2 (2009–2011) | 2888 | 0 | 1.1 (1.0–1.1) | 0.50 (0.46–0.54) | 1.0 (0.96–1.1) | 2.3 (2.1–2.5) | 2.8 (2.6–3.0) |
| Females | 6–79 | 3 (2012–2013) | 2527 | 0.12 | 0.97 (0.91–1.0) | 0.42 (0.37–0.47) | 0.94 (0.88–1.0) | 2.2 (2.1–2.3) | 2.7 (2.2–3.1) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

Lead — Geometric means and selected percentiles of whole blood concentrations (µg/dL) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 6070 | 0 | 1.2 (1.1–1.2) | 0.54 (0.50–0.59) | 1.1 (1.1–1.2) | 2.5 (2.3–2.7) | 3.2 (2.9–3.4) |
| Total | 3–79 | 3 (2012–2013) | 5538 | 0.09 | 1.1 (1.0–1.1) | 0.49 (0.46–0.52) | 1.0 (0.95–1.1) | 2.4 (2.3–2.5) | 3.2 (2.9–3.4) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 2940 | 0 | 1.3 (1.3–1.4) | 0.62 (0.56–0.67) | 1.2 (1.2–1.3) | 2.8 (2.5–3.1) | 3.4 (3.1–3.7) |
| Males | 3–79 | 3 (2012–2013) | 2769 | 0.07 | 1.2 (1.2–1.3) | 0.56 (0.55–0.58) | 1.1 (1.0–1.2) | 2.6 (2.4–2.9) | 3.6 (3.1–4.0) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 3130 | 0 | 1.1 (1.0–1.1) | 0.50 (0.46–0.54) | 1.0 (0.96–1.1) | 2.3 (2.1–2.5) | 2.8 (2.6–3.0) |
| Females | 3–79 | 3 (2012–2013) | 2769 | 0.11 | 0.96 (0.90–1.0) | 0.42 (0.37–0.47) | 0.93 (0.87–1.0) | 2.2 (2.1–2.3) | 2.6 (2.2–3.1) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 495 | 0 | 0.93 (0.87–1.0) | 0.51 (0.44–0.58) | 0.93 (0.86–1.0) | 1.6 (1.5–1.8) | 2.1 (1.8–2.4) |
| Total | 3–5 | 3 (2012–2013) | 471 | 0 | 0.77 (0.73–0.82) | 0.40 (0.33–0.47) | 0.72 (0.68–0.77) | 1.4 (1.0–1.8) | 2.2 (1.4–2.9) |
| Total | 6–11 | 1 (2007–2009) | 910 | 0 | 0.90 (0.81–0.99) | 0.53 (0.49–0.56) | 0.87 (0.77–0.97) | 1.6 (1.4–1.7) | 1.9 (1.6–2.2) |
| Total | 6–11 | 2 (2009–2011) | 961 | 0 | 0.79 (0.74–0.84) | 0.44 (0.38–0.50) | 0.74 (0.68–0.81) | 1.4 (1.2–1.6) | 1.7 (1.5–1.9) |
| Total | 6–11 | 3 (2012–2013) | 944 | 0 | 0.71 (0.67–0.76) | 0.39 (0.36–0.42) | 0.67 (0.64–0.71) | 1.3 (1.1–1.5) | 1.6 (1.3–1.9) |
| Total | 12–19 | 1 (2007–2009) | 945 | 0 | 0.80 (0.74–0.85) | 0.47 (0.44–0.50) | 0.76 (0.70–0.82) | 1.3 (1.1–1.5) | 1.6 (1.4–1.8) |
| Total | 12–19 | 2 (2009–2011) | 997 | 0 | 0.71 (0.68–0.75) | 0.39 (0.35–0.43) | 0.68 (0.63–0.72) | 1.2 (1.1–1.2) | 1.6 (1.3–1.8) |
| Total | 12–19 | 3 (2012–2013) | 977 | 0.10 | 0.64 (0.60–0.69) | 0.34 (0.32–0.36) | 0.60 (0.56–0.64) | 1.2 (1.1–1.4) | 1.5 (1.3–1.6) |
| Total | 20–39 | 1 (2007–2009) | 1165 | 0.09 | 1.1 (1.0–1.2) | 0.57 (0.52–0.61) | 1.0 (0.95–1.1) | 2.3 (2.0–2.6) | 3.1 (2.7–3.4) |
| Total | 20–39 | 2 (2009–2011) | 1313 | 0 | 0.98 (0.88–1.1) | 0.50 (0.43–0.57) | 0.94 (0.87–1.0) | 1.8 (1.5–2.1) | 2.2 (1.6–2.9) |
| Total | 20–39 | 3 (2012–2013) | 1032 | 0.19 | 0.90 (0.79–1.0) | 0.44 (0.36–0.53) | 0.88 (0.79–0.97) | 1.7 (1.5–2.0) | 2.1 (1.8–2.4) |
| Total | 40–59 | 1 (2007–2009) | 1220 | 0 | 1.6 (1.5–1.8) | 0.82 (0.69–0.94) | 1.5 (1.4–1.6) | 3.1 (2.6–3.6) | 3.8 (3.1–4.5) |
| Total | 40–59 | 2 (2009–2011) | 1222 | 0 | 1.4 (1.3–1.5) | 0.70 (0.61–0.79) | 1.4 (1.3–1.4) | 2.7 (2.4–3.0) | 3.2 (2.9–3.5) |
| Total | 40–59 | 3 (2012–2013) | 1071 | 0.09 | 1.3 (1.3–1.4) | 0.61 (0.55–0.68) | 1.3 (1.2–1.4) | 2.6 (2.2–2.9) | 3.5 (2.9–4.2) |
| Total | 60–79 | 1 (2007–2009) | 1079 | 0 | 2.1 (1.9–2.3) | 1.0 (0.92–1.1) | 2.0 (1.8–2.2) | 4.1 (3.5–4.8) | 5.2 (4.2–6.2) |
| Total | 60–79 | 2 (2009–2011) | 1082 | 0 | 1.9 (1.8–1.9) | 1.0 (0.94–1.1) | 1.7 (1.7–1.8) | 3.5 (3.2–3.8) | 4.2 (3.8–4.6) |
| Total | 60–79 | 3 (2012–2013) | 1043 | 0.10 | 1.6 (1.6–1.7) | 0.81 (0.78–0.85) | 1.6 (1.4–1.7) | 3.3 (3.0–3.5) | 4.0 (3.6–4.4) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

# MERCURY

## Mercury (inorganic)

Mercury (inorganic) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5444 | 49.63 | – | <LOD | 0.24 (0.19–0.29) | 1.8 (1.6–2.0) | 2.9 (2.5–3.3) |
| Total | 6–79 | 3 (2012–2013) | 5176 | 47.97 | – | <LOD | 0.20 (<LOD–0.25) | 1.3 (1.1–1.5) | 2.0 (1.7–2.3) |
| Males | 6–79 | 1 (2007–2009) | 2636 | 48.33 | – | <LOD | 0.24 (0.19–0.29) | 1.7 (1.6–1.9) | 2.7 (2.3–3.0) |
| Males | 6–79 | 3 (2012–2013) | 2582 | 46.90 | – | <LOD | 0.20[E] (<LOD–0.28) | 1.2 (0.93–1.5) | 1.9 (1.3–2.4) |
| Females | 6–79 | 1 (2007–2009) | 2808 | 50.85 | – | <LOD | 0.23 (0.18–0.29) | 2.0 (1.7–2.3) | 3.1 (2.7–3.6) |
| Females | 6–79 | 3 (2012–2013) | 2594 | 49.04 | – | <LOD | 0.20 (<LOD–0.26) | 1.4 (0.99–1.8) | 2.2 (1.5–2.8) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Mercury (inorganic) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5432 | 49.63 | – | <LOD | 0.26 (0.19–0.32) | 1.6 (1.5–1.8) | 2.5 (2.1–2.9) |
| Total | 6–79 | 3 (2012–2013) | 5175 | 47.97 | – | <LOD | 0.24 (0.20–0.27) | 1.0 (0.94–1.1) | 1.6 (1.3–1.9) |
| Males | 6–79 | 1 (2007–2009) | 2628 | 48.33 | – | <LOD | 0.21 (0.16–0.26) | 1.2 (1.1–1.3) | 1.8 (1.5–2.1) |
| Males | 6–79 | 3 (2012–2013) | 2582 | 46.90 | – | <LOD | 0.21 (0.17–0.24) | 0.87 (0.63–1.1) | 1.2 (1.0–1.4) |
| Females | 6–79 | 1 (2007–2009) | 2804 | 50.85 | – | <LOD | <LOD | 2.1 (1.7–2.4) | 2.8 (2.2–3.5) |
| Females | 6–79 | 3 (2012–2013) | 2593 | 49.04 | – | <LOD | 0.29 (0.23–0.35) | 1.3 (0.88–1.6) | 1.9 (1.5–2.4) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

Mercury (inorganic) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 3 (2012–2013) | 5696 | 50.42 | – | <LOD | 0.19 (<LOD–0.24) | 1.3 (1.1–1.5) | 2.0 (1.7–2.3) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 3 (2012–2013) | 2842 | 49.37 | – | <LOD | 0.20[E] (<LOD–0.27) | 1.2 (0.92–1.5) | 1.9 (1.3–2.4) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 3 (2012–2013) | 2854 | 51.47 | – | <LOD | 0.19 (<LOD–0.25) | 1.4 (0.97–1.8) | 2.1 (1.5–2.8) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 3 (2012–2013) | 520 | 74.81 | – | <LOD | <LOD | 0.28[E] (<LOD–0.48) | 0.59[E] (0.35–0.84) |
| Total | 6–11 | 1 (2007–2009) | 1028 | 66.05 | – | <LOD | <LOD | 0.99[E] (0.56–1.4) | 1.8[E] (0.99–2.7) |
| Total | 6–11 | 3 (2012–2013) | 1010 | 61.29 | – | <LOD | <LOD | 0.93[E] (0.50–1.4) | F |
| Total | 12–19 | 1 (2007–2009) | 975 | 57.54 | – | <LOD | <LOD | 1.2 (0.76–1.6) | 2.2 (1.5–3.0) |
| Total | 12–19 | 3 (2012–2013) | 997 | 59.58 | – | <LOD | <LOD | 0.55[E] (0.33–0.78) | 1.1[E] (0.53–1.6) |
| Total | 20–39 | 1 (2007–2009) | 1166 | 46.23 | – | <LOD | 0.22 (0.16–0.28) | 1.4 (1.0–1.7) | 2.3 (1.8–2.7) |
| Total | 20–39 | 3 (2012–2013) | 1048 | 45.13 | – | <LOD | 0.20[E] (<LOD–0.28) | 1.1 (0.87–1.3) | 1.9[E] (0.89–3.0) |
| Total | 40–59 | 1 (2007–2009) | 1207 | 36.04 | 0.31 (0.25–0.37) | <LOD | 0.37 (0.28–0.47) | 2.5 (1.8–3.2) | 3.5 (2.3–4.7) |
| Total | 40–59 | 3 (2012–2013) | 1080 | 36.20 | 0.31 (0.26–0.39) | <LOD | 0.30 (0.20–0.40) | 1.7 (1.2–2.2) | 2.2 (1.7–2.6) |
| Total | 60–79 | 1 (2007–2009) | 1068 | 45.69 | – | <LOD | 0.25[E] (0.15–0.35) | 2.0 (1.4–2.5) | 3.0 (2.5–3.5) |
| Total | 60–79 | 3 (2012–2013) | 1041 | 39.00 | 0.26 (0.23–0.30) | <LOD | 0.24 (0.18–0.30) | 1.4 (0.98–1.8) | 2.3 (1.6–2.9) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

Mercury (inorganic) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 3 (2012–2013) | 5694 | 50.42 | – | <LOD | <LOD | 1.0 (0.94–1.1) | 1.6 (1.3–1.9) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 3 (2012–2013) | 2842 | 49.37 | – | <LOD | 0.21 (0.17–0.24) | 0.86 (0.63–1.1) | 1.2 (1.1–1.4) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 3 (2012–2013) | 2852 | 51.47 | – | <LOD | <LOD | 1.2 (0.87–1.5) | 1.9 (1.5–2.3) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 3 (2012–2013) | 519 | 74.81 | – | <LOD | <LOD | 0.73[E] (0.45–1.0) | 1.0 (0.72–1.3) |
| Total | 6–11 | 1 (2007–2009) | 1025 | 66.05 | – | <LOD | <LOD | 1.3[E] (0.62–1.9) | 2.0 (1.3–2.7) |
| Total | 6–11 | 3 (2012–2013) | 1010 | 61.29 | – | <LOD | <LOD | 0.99[E] (0.55–1.4) | 1.9[E] (0.84–3.0) |
| Total | 12–19 | 1 (2007–2009) | 975 | 57.54 | – | <LOD | <LOD | 0.79 (0.55–1.0) | 1.3[E] (0.79–1.8) |
| Total | 12–19 | 3 (2012–2013) | 997 | 59.58 | – | <LOD | <LOD | 0.42[E] (0.27–0.58) | 0.73[E] (0.42–1.0) |
| Total | 20–39 | 1 (2007–2009) | 1162 | 46.23 | – | <LOD | 0.21 (0.18–0.24) | 1.1 (0.89–1.4) | 1.9 (1.5–2.2) |
| Total | 20–39 | 3 (2012–2013) | 1048 | 45.13 | – | <LOD | 0.22 (0.18–0.26) | 0.85 (0.56–1.2) | 1.2 (0.97–1.3) |
| Total | 40–59 | 1 (2007–2009) | 1202 | 36.04 | 0.39 (0.33–0.48) | <LOD | 0.43 (0.33–0.52) | 2.1 (1.5–2.7) | 3.0 (2.3–3.7) |
| Total | 40–59 | 3 (2012–2013) | 1079 | 36.20 | 0.33 (0.29–0.38) | <LOD | 0.33 (0.27–0.40) | 1.3 (0.91–1.7) | 1.7 (1.5–2.0) |
| Total | 60–79 | 1 (2007–2009) | 1068 | 45.69 | – | <LOD | 0.29[E] (0.17–0.42) | 2.0 (1.7–2.3) | 2.7 (2.1–3.4) |
| Total | 60–79 | 3 (2012–2013) | 1041 | 39.00 | 0.32 (0.28–0.36) | <LOD | 0.32 (0.27–0.37) | 1.3 (0.95–1.6) | 2.2 (1.6–2.8) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

## Mercury (total)

Mercury (total) — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5319 | 11.64 | 0.69 (0.55–0.86) | <LOD | 0.81 (0.64–0.97) | 3.0 (2.2–3.9) | 4.6[E] (2.5–6.7) |
| Total | 6–79 | 2 (2009–2011) | 5575 | 14.28 | 0.71 (0.57–0.89) | <LOD | 0.76 (0.57–0.96) | 3.5 (2.4–4.6) | 5.6[E] (3.3–7.8) |
| Total | 6–79 | 3 (2012–2013) | 5067 | 34.93 | 0.81 (0.65–1.0) | <LOD | 0.81 (0.63–0.99) | 3.2[E] (1.5–5.0) | 5.4[E] (3.1–7.6) |
| Males | 6–79 | 1 (2007–2009) | 2576 | 12.11 | 0.68 (0.55–0.84) | <LOD | 0.79 (0.64–0.94) | 3.1 (2.1–4.1) | 5.1[E] (2.7–7.5) |
| Males | 6–79 | 2 (2009–2011) | 2687 | 14.77 | 0.74 (0.58–0.94) | <LOD | 0.80 (0.56–1.0) | 3.9 (2.7–5.2) | 6.3[E] (2.9–9.7) |
| Males | 6–79 | 3 (2012–2013) | 2540 | 35.67 | 0.78 (0.61–1.0) | <LOD | 0.77 (0.56–0.98) | 3.3[E] (1.4–5.1) | 5.7[E] (3.4–7.9) |
| Females | 6–79 | 1 (2007–2009) | 2743 | 11.19 | 0.70 (0.56–0.88) | <LOD[E] (<LOD–0.11) | 0.82 (0.63–1.0) | 3.0 (2.1–3.8) | 4.5[E] (2.6–6.4) |
| Females | 6–79 | 2 (2009–2011) | 2888 | 13.82 | 0.69 (0.55–0.86) | <LOD | 0.74 (0.56–0.92) | 3.0 (2.0–4.0) | 5.1[E] (3.0–7.2) |
| Females | 6–79 | 3 (2012–2013) | 2527 | 34.19 | 0.83 (0.68–1.0) | <LOD | 0.84 (0.68–0.99) | 3.2[E] (1.4–5.0) | 5.1[E] (2.4–7.9) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

Mercury (total) — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 6070 | 15.55 | 0.69 (0.56–0.87) | <LOD | 0.74 (0.55–0.93) | 3.4 (2.4–4.5) | 5.5[E] (3.3–7.6) |
| Total | 3–79 | 3 (2012–2013) | 5538 | 37.02 | 0.79 (0.64–0.97) | <LOD | 0.79 (0.62–0.96) | 3.2[E] (1.5–4.9) | 5.2[E] (3.0–7.5) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 2940 | 16.16 | 0.72 (0.56–0.91) | <LOD | 0.76 (0.53–0.99) | 3.9 (2.7–5.1) | 6.1[E] (2.7–9.5) |
| Males | 3–79 | 3 (2012–2013) | 2769 | 37.63 | 0.76 (0.60–0.97) | <LOD | 0.74 (0.54–0.94) | 3.2[E] (1.3–5.0) | 5.6[E] (3.4–7.8) |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 3130 | 14.98 | 0.67 (0.54–0.83) | <LOD | 0.71 (0.53–0.88) | 3.0 (2.0–4.0) | 5.1[E] (3.0–7.1) |
| Females | 3–79 | 3 (2012–2013) | 2769 | 36.40 | 0.81 (0.67–0.99) | <LOD | 0.82 (0.67–0.97) | 3.2[E] (1.4–4.9) | 5.1[E] (2.4–7.8) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 495 | 29.90 | 0.27 (0.20–0.36) | <LOD | 0.19[E] (<LOD–0.29) | 1.4[E] (0.44–2.3) | 3.0[E] (1.7–4.3) |
| Total | 3–5 | 3 (2012–2013) | 471 | 59.45 | – | <LOD | <LOD | 1.3 (1.0–1.7) | 1.7[E] (0.88–2.5) |
| Total | 6–11 | 1 (2007–2009) | 910 | 24.84 | 0.26 (0.22–0.32) | <LOD | 0.24 (0.18–0.29) | 1.3 (1.0–1.6) | 2.1[E] (1.3–2.9) |
| Total | 6–11 | 2 (2009–2011) | 961 | 29.03 | 0.28 (0.22–0.34) | <LOD | 0.21[E] (0.11–0.30) | 1.2 (0.84–1.5) | 2.0 (1.3–2.6) |
| Total | 6–11 | 3 (2012–2013) | 944 | 54.77 | – | <LOD | <LOD | 1.2 (0.78–1.7) | 1.9[E] (0.91–2.9) |
| Total | 12–19 | 1 (2007–2009) | 945 | 20.85 | 0.30 (0.23–0.40) | <LOD | 0.28 (0.20–0.37) | 1.3[E] (0.47–2.2) | 2.2[E] (0.88–3.5) |
| Total | 12–19 | 2 (2009–2011) | 997 | 26.58 | 0.27 (0.21–0.35) | <LOD | 0.19[E] (<LOD–0.30) | 1.3 (0.84–1.7) | 2.4[E] (1.3–3.5) |
| Total | 12–19 | 3 (2012–2013) | 977 | 52.61 | – | <LOD | <LOD | 1.6[E] (0.62–2.6) | 2.8[E] (1.3–4.4) |
| Total | 20–39 | 1 (2007–2009) | 1165 | 8.76 | 0.65 (0.52–0.81) | <LOD | 0.76 (0.61–0.91) | 3.0[E] (1.9–4.1) | 4.9[E] (2.4–7.4) |
| Total | 20–39 | 2 (2009–2011) | 1313 | 10.05 | 0.64 (0.47–0.85) | <LOD | 0.65 (0.43–0.86) | 2.9 (2.0–3.9) | 5.2[E] (2.6–7.8) |
| Total | 20–39 | 3 (2012–2013) | 1032 | 30.91 | 0.82 (0.65–1.0) | <LOD | 0.77 (0.57–0.96) | 4.1[E] (1.5–6.6) | 6.0[E] (3.6–8.3) |
| Total | 40–59 | 1 (2007–2009) | 1220 | 3.52 | 1.0 (0.80–1.3) | 0.21[E] (0.12–0.30) | 1.1 (0.83–1.3) | 3.6 (2.3–4.9) | 6.4[E] (3.0–9.8) |
| Total | 40–59 | 2 (2009–2011) | 1222 | 5.16 | 1.0 (0.79–1.3) | 0.15 (0.11–0.20) | 1.0 (0.84–1.2) | 4.1[E] (2.4–5.8) | 7.3[E] (2.5–12) |
| Total | 40–59 | 3 (2012–2013) | 1071 | 20.54 | 0.96 (0.74–1.2) | <LOD | 0.99 (0.78–1.2) | 3.4[E] (1.5–5.4) | 5.2[E] (2.8–7.6) |
| Total | 60–79 | 1 (2007–2009) | 1079 | 4.73 | 0.87 (0.64–1.2) | F | 0.96 (0.75–1.2) | 3.4 (2.4–4.4) | 4.8[E] (2.7–6.9) |
| Total | 60–79 | 2 (2009–2011) | 1082 | 5.27 | 1.1 (0.86–1.5) | 0.17[E] (<LOD–0.28) | 1.2 (0.89–1.5) | 4.3 (3.1–5.5) | 6.5[E] (3.9–9.1) |
| Total | 60–79 | 3 (2012–2013) | 1043 | 19.18 | 1.0 (0.82–1.3) | <LOD | 0.99 (0.71–1.3) | 3.8[E] (2.2–5.3) | 6.7[E] (1.9–11) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

## Methylmercury

Methylmercury — Geometric means and selected percentiles of whole blood concentrations (µg Hg/L) for the Canadian population aged 20–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 20–79 | 3 (2012-2013) | 1032 | 18.70 | 0.64 (0.48 - 0.84) | <LOD | 0.72 (0.50 - 0.95) | 3.1[E] (1.2 - 5.0) | 5.2[E] (2.7 - 7.6) |
| Males | 20–79 | 3 (2012-2013) | 502 | 18.33 | 0.63[E] (0.38 - 1.0) | <LOD | 0.63[E] (0.23 - 1.0) | 4.3[E] (1.2 - 7.3) | 7.5[E] (3.9 - 11) |
| Females | 20–79 | 3 (2012-2013) | 530 | 19.06 | 0.65 (0.53 - 0.79) | <LOD | 0.83 (0.68 - 0.97) | 2.6[E] (1.3 - 3.9) | 4.4[E] (2.8 - 6.1) |
| Total | 20–39 | 3 (2012-2013) | 359 | 24.51 | 0.56 (0.42 - 0.76) | <LOD | 0.60 (0.38 - 0.81) | F | 4.6[E] (1.7 - 7.4) |
| Total | 40–59 | 3 (2012-2013) | 313 | 19.17 | 0.60[E] (0.41 - 0.89) | <LOD | 0.66[E] (0.24 - 1.1) | 3.0[E] (0.85 - 5.1) | 5.4[E] (2.1 - 8.7) |
| Total | 60–79 | 3 (2012-2013) | 360 | 12.50 | 0.87 (0.62 - 1.2) | <LOD | 0.99 (0.65 - 1.3) | 3.1[E] (1.8 - 4.5) | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# Results for Nicotine Metabolite

## COTININE

Cotinine (non-smokers) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 4704 | 85.84 | – | <LOD | <LOD | 3.3[E] (1.6–4.9) | F |
| Total | 6–79 | 2 (2009–2011) | 4895 | 86.88 | – | <LOD | <LOD | 2.6[E] (<LOD–4.2) | F |
| Total | 6–79 | 3 (2012–2013) | 4456 | 88.64 | – | <LOD | <LOD | <LOD | F |
| Males | 6–79 | 1 (2007–2009) | 2252 | 82.95 | – | <LOD | <LOD | 4.4[E] (1.7–7.0) | F |
| Males | 6–79 | 2 (2009–2011) | 2304 | 84.55 | – | <LOD | <LOD | F | F |
| Males | 6–79 | 3 (2012–2013) | 2183 | 87.27 | – | <LOD | <LOD | F | F |
| Females | 6–79 | 1 (2007–2009) | 2452 | 88.50 | – | <LOD | <LOD | F | 9.9[E] (3.4–16) |
| Females | 6–79 | 2 (2009–2011) | 2591 | 88.96 | – | <LOD | <LOD | 1.4[E] (<LOD–2.3) | F |
| Females | 6–79 | 3 (2012–2013) | 2273 | 89.97 | – | <LOD | <LOD | <LOD | F |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Cotinine (non-smokers) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 6–79 years[a], Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[b] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 4694 | 85.84 | – | <LOD | <LOD | 4.6 (3.3–5.8) | F |
| Total | 6–79 | 2 (2009–2011) | 4883 | 86.88 | – | <LOD | <LOD | 3.1 (2.1–4.1) | F |
| Total | 6–79 | 3 (2012–2013) | 4455 | 88.64 | – | <LOD | <LOD | 2.5 (2.0–3.1) | F |
| Males | 6–79 | 1 (2007–2009) | 2246 | 82.95 | – | <LOD | <LOD | 4.8[E] (2.7–6.9) | F |
| Males | 6–79 | 2 (2009–2011) | 2299 | 84.55 | – | <LOD | <LOD | 3.8[E] (1.7–5.9) | F |
| Males | 6–79 | 3 (2012–2013) | 2183 | 87.27 | – | <LOD | <LOD | 2.3[E] (1.4–3.3) | F |
| Females | 6–79 | 1 (2007–2009) | 2448 | 88.50 | – | <LOD | <LOD | 4.0 (2.7–5.3) | F |
| Females | 6–79 | 2 (2009–2011) | 2584 | 88.96 | – | <LOD | <LOD | 3.0 (2.2–3.7) | F |
| Females | 6–79 | 3 (2012–2013) | 2272 | 89.97 | – | <LOD | <LOD | 2.7 (2.1–3.2) | 4.4[E] (1.7–7.0) |

a For the purpose of total population comparisons, only values from participants aged 6–79 years were included as participants under the age of 6 years were not included in cycle 1 (2007–2009).

b If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

Cotinine (non-smokers) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 5468 | 86.85 | – | <LOD | <LOD | 2.6[E] (<LOD–4.4) | F |
| Total | 3–79 | 3 (2012–2013) | 4978 | 88.59 | – | <LOD | <LOD | <LOD | F |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 2594 | 84.93 | – | <LOD | <LOD | F | F |
| Males | 3–79 | 3 (2012–2013) | 2444 | 87.11 | – | <LOD | <LOD | F | F |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 2874 | 88.59 | – | <LOD | <LOD | 1.5[E] (<LOD–2.5) | F |
| Females | 3–79 | 3 (2012–2013) | 2534 | 90.02 | – | <LOD | <LOD | <LOD | F |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 573 | 86.56 | – | <LOD | <LOD | F | F |
| Total | 3–5 | 3 (2012–2013) | 522 | 88.12 | – | <LOD | <LOD | F | F |
| Total | 6–11 | 1 (2007–2009) | 1045 | 83.83 | – | <LOD | <LOD | 3.9[E] (1.9–5.8) | 10[E] (5.7–14) |
| Total | 6–11 | 2 (2009–2011) | 1061 | 83.79 | – | <LOD | <LOD | 4.9[E] (1.9–7.9) | 12[E] (6.3–18) |
| Total | 6–11 | 3 (2012–2013) | 1007 | 86.79 | – | <LOD | <LOD | F | 7.1[E] (2.7–11) |
| Total | 12–19 | 1 (2007–2009) | 882 | 80.27 | – | <LOD | <LOD | 8.3[E] (3.8–13) | 19[E] (8.3–30) |
| Total | 12–19 | 2 (2009–2011) | 928 | 80.06 | – | <LOD | <LOD | F | F |
| Total | 12–19 | 3 (2012–2013) | 889 | 82.56 | – | <LOD | <LOD | F | 13[E] (7.6–19) |
| Total | 20–39 | 1 (2007–2009) | 874 | 85.35 | – | <LOD | <LOD | F | F |
| Total | 20–39 | 2 (2009–2011) | 1009 | 86.22 | – | <LOD | <LOD | F | F |
| Total | 20–39 | 3 (2012–2013) | 792 | 90.53 | – | <LOD | <LOD | <LOD | F |
| Total | 40–59 | 1 (2007–2009) | 947 | 88.81 | – | <LOD | <LOD | F | F |
| Total | 40–59 | 2 (2009–2011) | 972 | 91.56 | – | <LOD | <LOD | <LOD | F |
| Total | 40–59 | 3 (2012–2013) | 851 | 91.19 | – | <LOD | <LOD | F | F |
| Total | 60–79 | 1 (2007–2009) | 956 | 90.69 | – | <LOD | <LOD | <LOD | F |
| Total | 60–79 | 2 (2009–2011) | 925 | 93.08 | – | <LOD | <LOD | <LOD | F |
| Total | 60–79 | 3 (2012–2013) | 917 | 92.58 | – | <LOD | <LOD | <LOD | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

Cotinine (non-smokers) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–79 | 2 (2009–2011) | 5455 | 86.85 | – | <LOD | <LOD | 3.3 (2.2–4.4) | F |
| Total | 3–79 | 3 (2012–2013) | 4976 | 88.59 | – | <LOD | <LOD | 2.6 (2.0–3.2) | 6.1[E] (1.9–10) |
| Males | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Males | 3–79 | 2 (2009–2011) | 2588 | 84.93 | – | <LOD | <LOD | 3.9[E] (2.0–5.9) | F |
| Males | 3–79 | 3 (2012–2013) | 2444 | 87.11 | – | <LOD | <LOD | 2.4[E] (1.4–3.3) | F |
| Females | 3–79[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Females | 3–79 | 2 (2009–2011) | 2867 | 88.59 | – | <LOD | <LOD | 3.0 (2.0–3.9) | F |
| Females | 3–79 | 3 (2012–2013) | 2532 | 90.02 | – | <LOD | <LOD | 2.9 (2.3–3.5) | 5.2[E] (2.6–7.8) |
| Total | 3–5[b] | 1 (2007–2009) | – | – | – | – | – | – | – |
| Total | 3–5 | 2 (2009–2011) | 572 | 86.56 | – | <LOD | <LOD | F | F |
| Total | 3–5 | 3 (2012–2013) | 521 | 88.12 | – | <LOD | <LOD | 5.6[E] (3.5–7.7) | F |
| Total | 6–11 | 1 (2007–2009) | 1042 | 83.83 | – | <LOD | <LOD | 6.2[E] (1.9–10) | F |
| Total | 6–11 | 2 (2009–2011) | 1059 | 83.79 | – | <LOD | <LOD | 5.2[E] (1.9–8.5) | 12[E] (5.4–18) |
| Total | 6–11 | 3 (2012–2013) | 1007 | 86.79 | – | <LOD | <LOD | 3.5[E] (1.1–5.8) | 7.7[E] (2.6–13) |
| Total | 12–19 | 1 (2007–2009) | 881 | 80.27 | – | <LOD | <LOD | 7.9[E] (4.6–11) | F |
| Total | 12–19 | 2 (2009–2011) | 926 | 80.06 | – | <LOD | <LOD | F | F |
| Total | 12–19 | 3 (2012–2013) | 889 | 82.56 | – | <LOD | <LOD | 3.2[E] (<LOD–5.5) | F |
| Total | 20–39 | 1 (2007–2009) | 871 | 85.35 | – | <LOD | <LOD | 4.5[E] (1.7–7.4) | F |
| Total | 20–39 | 2 (2009–2011) | 1007 | 86.22 | – | <LOD | <LOD | F | F |
| Total | 20–39 | 3 (2012–2013) | 792 | 90.53 | – | <LOD | <LOD | 2.2 (1.5–2.9) | 3.3[E] (1.3–5.2) |
| Total | 40–59 | 1 (2007–2009) | 944 | 88.81 | – | <LOD | <LOD | 4.6[E] (2.9–6.4) | F |
| Total | 40–59 | 2 (2009–2011) | 970 | 91.56 | – | <LOD | <LOD | 2.8[E] (1.7–3.9) | 4.7[E] (1.6–7.8) |
| Total | 40–59 | 3 (2012–2013) | 850 | 91.19 | – | <LOD | <LOD | 3.0[E] (1.5–4.4) | F |
| Total | 60–79 | 1 (2007–2009) | 956 | 90.69 | – | <LOD | <LOD | 3.0 (1.9–4.0) | F |
| Total | 60–79 | 2 (2009–2011) | 921 | 93.08 | – | <LOD | <LOD | 2.7 (1.9–3.6) | F |
| Total | 60–79 | 3 (2012–2013) | 917 | 92.58 | – | <LOD | <LOD | 2.6 (1.9–3.2) | 4.1[E] (1.4–6.8) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

b Data not available as participants under the age of 6 years were not included in cycle 1 (2007–2009).

E Use data with caution.

F Data is too unreliable to be published.

Cotinine (smokers) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 1 (2007–2009) | 805 | 4.22 | 590 (420–820) | F | 1000 (810–1200) | 2200 (2000–2400) | 2600 (2300–2900) |
| Total | 12–79 | 2 (2009–2011) | 819 | 5.74 | 490 (340–700) | F | 1000 (810–1200) | 2200 (1900–2500) | 2600 (2100–3100) |
| Total | 12–79 | 3 (2012–2013) | 701 | 5.14 | 490 (410–590) | F | 990 (900–1100) | 2000 (1600–2300) | 2300 (2000–2600) |
| Males | 12–79 | 1 (2007–2009) | 406 | 4.43 | 660[E] (400–1100) | F | 1200 (920–1500) | 2300 (2000–2600) | 2800 (2400–3300) |
| Males | 12–79 | 2 (2009–2011) | 425 | 4.47 | 470[E] (280–770) | F | 1000 (780–1200) | 2300 (1900–2700) | 2900 (2300–3500) |
| Males | 12–79 | 3 (2012–2013) | 387 | 5.17 | 460 (340–630) | F | 990 (820–1100) | 2100 (1700–2500) | 2400 (2100–2600) |
| Females | 12–79 | 1 (2007–2009) | 399 | 4.01 | 520 (390–700) | F | 860 (640–1100) | 2100 (1900–2300) | 2500 (2300–2700) |
| Females | 12–79 | 2 (2009–2011) | 394 | 7.11 | 510[E] (320–810) | F | 1000 (720–1300) | 2100 (1800–2400) | 2400 (1900–2900) |
| Females | 12–79 | 3 (2012–2013) | 314 | 5.10 | 550 (380–790) | F | 990 (760–1200) | 1700 (1200–2300) | 2100 (1700–2500) |
| Total | 12–19 | 1 (2007–2009) | 102 | 10.78 | 160[E] (78–330) | F | F | 1600 (1400–1900) | X |
| Total | 12–19 | 2 (2009–2011) | 102 | 11.76 | F | <LOD | F | 1700 (1200–2300) | X |
| Total | 12–19 | 3 (2012–2013) | 98 | 14.29 | F | X | F | 2100[E] (1200–3000) | X |
| Total | 20–39 | 1 (2007–2009) | 300 | 3.00 | 500[E] (300–850) | F | 930 (620–1200) | 2000 (1800–2200) | 2500 (2100–2900) |
| Total | 20–39 | 2 (2009–2011) | 311 | 9.00 | 400[E] (260–630) | F | 850 (570–1100) | 2200 (1600–2900) | 2900 (2200–3600) |
| Total | 20–39 | 3 (2012–2013) | 254 | 5.12 | 310[E] (190–520) | F | 700[E] (350–1100) | 1600 (1300–1900) | 2000 (1600–2400) |
| Total | 40–59 | 1 (2007–2009) | 275 | 3.27 | 830 (610–1100) | F | 1200 (910–1500) | 2500 (2200–2800) | 2800 (2400–3100) |
| Total | 40–59 | 2 (2009–2011) | 253 | 1.58 | 800[E] (480–1300) | F | 1400 (1000–1700) | 2200 (1900–2600) | 2600 (2000–3300) |
| Total | 40–59 | 3 (2012–2013) | 228 | 2.63 | 770 (550–1100) | 340[E] (150–530) | 1000 (890–1200) | 2100 (1700–2600) | 2300 (2000–2700) |
| Total | 60–79 | 1 (2007–2009) | 128 | 3.91 | 650[E] (430–980) | F | 860 (600–1100) | 2200 (1900–2400) | X |
| Total | 60–79 | 2 (2009–2011) | 153 | 1.96 | F | F | 980 (720–1200) | 1800 (1500–2000) | X |
| Total | 60–79 | 3 (2012–2013) | 121 | 2.48 | 940 (800–1100) | 390[E] (240–540) | 990 (830–1200) | 2100 (1400–2700) | X |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

X Suppressed to meet the confidentiality requirements of the *Statistics Act.*

Cotinine (smokers) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009), cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 1 (2007–2009) | 803 | 4.22 | 650 (480–890) | F | 1000 (830–1200) | 3000 (2500–3500) | 4400 (3500–5300) |
| Total | 12–79 | 2 (2009–2011) | 816 | 5.74 | 430[E] (290–630) | F | 840 (620–1100) | 2700 (1800–3700) | 3800[E] (2300–5300) |
| Total | 12–79 | 3 (2012–2013) | 701 | 5.14 | 440 (340–570) | F | 750 (590–900) | 2600[E] (1600–3700) | 3900[E] (2100–5800) |
| Males | 12–79 | 1 (2007–2009) | 405 | 4.43 | 560[E] (360–880) | F | 930 (680–1200) | 2300 (1900–2700) | 3200 (2300–4200) |
| Males | 12–79 | 2 (2009–2011) | 425 | 4.47 | 370[E] (210–620) | F | 730 (480–980) | 2700[E] (1600–3700) | 3700[E] (2300–5100) |
| Males | 12–79 | 3 (2012–2013) | 387 | 5.17 | 360[E] (250–520) | F | 710 (500–920) | 2300 (1500–3100) | 3000[E] (1900–4100) |
| Females | 12–79 | 1 (2007–2009) | 398 | 4.01 | 780 (590–1000) | F | 1100 (900–1400) | 3700 (2900–4500) | 5500 (4300–6600) |
| Females | 12–79 | 2 (2009–2011) | 391 | 7.11 | 520[E] (300–890) | F | 1000 (650–1400) | F | 4800[E] (2300–7400) |
| Females | 12–79 | 3 (2012–2013) | 314 | 5.10 | 600 (420–850) | F | 860[E] (510–1200) | 3200[E] (1000–5300) | 4900 (3300–6400) |
| Total | 12–19 | 1 (2007–2009) | 102 | 10.78 | 120[E] (58–250) | <LOD | 290[E] (<LOD–470) | 1400[E] (600–2200) | X |
| Total | 12–19 | 2 (2009–2011) | 102 | 11.76 | F | <LOD | F | 1300 (990–1500) | X |
| Total | 12–19 | 3 (2012–2013) | 98 | 14.29 | F | X | F | 940 (610–1300) | X |
| Total | 20–39 | 1 (2007–2009) | 299 | 3.00 | 510[E] (310–840) | F | 850 (560–1100) | 2200 (1900–2600) | 2500 (1900–3000) |
| Total | 20–39 | 2 (2009–2011) | 311 | 9.00 | 330[E] (200–530) | F | 710 (470–940) | 2300 (1500–3000) | 3200[E] (1700–4700) |
| Total | 20–39 | 3 (2012–2013) | 254 | 5.12 | 230[E] (120–410) | F | 520[E] (310–720) | 1500[E] (830–2200) | 2100[E] (1300–2900) |
| Total | 40–59 | 1 (2007–2009) | 275 | 3.27 | 1000 (810–1300) | F | 1300 (920–1600) | 4100 (2900–5400) | 5500 (4400–6600) |
| Total | 40–59 | 2 (2009–2011) | 251 | 1.58 | 710[E] (400–1200) | F | 990[E] (560–1400) | 3400[E] (1400–5400) | 4900[E] (2800–7000) |
| Total | 40–59 | 3 (2012–2013) | 228 | 2.63 | 840[E] (520–1300) | 390[E] (190–580) | 940[E] (570–1300) | 3500[E] (1500–5500) | 5200[E] (2500–7800) |
| Total | 60–79 | 1 (2007–2009) | 127 | 3.91 | 840[E] (530–1300) | F | 1300 (1000–1500) | 3200 (2100–4300) | X |
| Total | 60–79 | 2 (2009–2011) | 152 | 1.96 | F | F | 1000 (700–1400) | 3000[E] (1700–4300) | X |
| Total | 60–79 | 3 (2012–2013) | 121 | 2.48 | 960 (730–1200) | 390 (270–500) | 960[E] (530–1400) | 3100[E] (1600–4700) | X |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

X Suppressed to meet the confidentiality requirements of the *Statistics Act*.

# Results for Polycyclic Aromatic Hydrocarbon Metabolites

## BENZO[a]PYRENE

### 3-Hydroxybenzo[*a*]pyrene

3-Hydroxybenzo[*a*]pyrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2294 | 99.91 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2378 | 99.96 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1163 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1188 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1131 | 99.82 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1190 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 420 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 453 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 466 | 99.79 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 468 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 473 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 486 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 328 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 340 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 340 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 300 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 267 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 331 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

3-Hydroxybenzo[*a*]pyrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2284 | 99.91 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2377 | 99.96 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1159 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1188 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1125 | 99.82 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1189 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 419 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 452 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 464 | 99.79 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 468 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 471 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 486 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 326 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 340 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 338 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 300 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 266 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 331 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

# CHRYSENE

## 2-Hydroxychrysene

2-Hydroxychrysene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2497 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2496 | 99.96 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1254 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1243 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1259 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 499 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 492 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 508 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 498 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 504 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 352 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 345 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 357 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 283 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

2-Hydroxychrysene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2487 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2495 | 99.96 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1250 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1237 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1258 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 498 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 491 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 506 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 496 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 504 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 350 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 345 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 355 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 282 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## 3-Hydroxychrysene

3-Hydroxychrysene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2495 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2498 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1255 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1240 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1261 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 499 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 492 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 506 | 99.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 498 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 505 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 351 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 358 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 283 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

3-Hydroxychrysene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2485 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2497 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1251 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1234 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1260 | 99.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 498 | 99.60 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 491 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 504 | 99.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 496 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 505 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 349 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 356 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 282 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## 4-Hydroxychrysene

4-Hydroxychrysene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2498 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2498 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1257 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1241 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1261 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 498 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 492 | 99.39 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 508 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 499 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 505 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 352 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 358 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 99.68 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 283 | 99.65 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

4-Hydroxychrysene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2488 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2497 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1253 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1237 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1235 | 99.76 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1260 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 497 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 491 | 99.39 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 506 | 99.61 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 496 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 497 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 505 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 350 | 99.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 356 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 311 | 99.68 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 282 | 99.65 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 100 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## 6-Hydroxychrysene

6-Hydroxychrysene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2459 | 96.87 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2494 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1239 | 96.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1234 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1220 | 97.38 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1260 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 494 | 97.37 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 492 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 499 | 95.79 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 494 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 489 | 97.55 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 504 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 344 | 96.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 99.42 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 354 | 96.33 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 310 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 279 | 97.49 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

6-Hydroxychrysene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2449 | 96.87 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2493 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1235 | 96.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1234 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1214 | 97.38 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1259 | 99.84 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 493 | 97.37 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 491 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 497 | 95.79 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 494 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 487 | 97.55 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 504 | 99.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 342 | 96.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 346 | 99.42 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 352 | 96.33 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 310 | 100 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 278 | 97.49 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 348 | 99.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

# FLUORANTHENE

## 3-Hydroxyfluoranthene

3-Hydroxyfluoranthene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2265 | 98.23 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2263 | 98.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1145 | 98.25 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1133 | 98.41 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1120 | 98.21 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1130 | 98.32 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 428 | 97.20 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 435 | 97.93 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 463 | 97.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 450 | 98.67 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 460 | 99.57 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 469 | 98.08 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 319 | 99.69 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 312 | 98.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 329 | 97.87 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 288 | 98.26 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 266 | 97.74 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 309 | 98.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

3-Hydroxyfluoranthene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2257 | 98.23 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–79 | 3 (2012–2013) | 2262 | 98.37 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 2 (2009–2011) | 1142 | 98.25 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 3–79 | 3 (2012–2013) | 1133 | 98.41 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 2 (2009–2011) | 1115 | 98.21 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 3–79 | 3 (2012–2013) | 1129 | 98.32 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 2 (2009–2011) | 428 | 97.20 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 3–5 | 3 (2012–2013) | 434 | 97.93 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 2 (2009–2011) | 462 | 97.41 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 6–11 | 3 (2012–2013) | 450 | 98.67 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 2 (2009–2011) | 458 | 99.57 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 469 | 98.08 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 2 (2009–2011) | 317 | 99.69 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 312 | 98.72 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 2 (2009–2011) | 327 | 97.87 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 288 | 98.26 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 2 (2009–2011) | 265 | 97.74 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 309 | 98.71 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

# FLUORENE

## 2-Hydroxyfluorene

2-Hydroxyfluorene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2524 | 0 | 0.27 (0.24–0.29) | 0.069 (0.058–0.080) | 0.24 (0.21–0.27) | 1.2 (0.95–1.5) | 2.3 (1.7–2.8) |
| Total | 3–79 | 3 (2012–2013) | 2514 | 0 | 0.26 (0.24–0.29) | 0.063 (0.051–0.075) | 0.22 (0.20–0.24) | 1.6 (1.4–1.8) | 2.2 (1.6–2.7) |
| Males | 3–79 | 2 (2009–2011) | 1268 | 0 | 0.32 (0.27–0.38) | 0.087 (0.071–0.10) | 0.27 (0.23–0.32) | 1.6[E] (0.95–2.3) | 3.0 (2.1–4.0) |
| Males | 3–79 | 3 (2012–2013) | 1243 | 0 | 0.32 (0.29–0.35) | 0.079 (0.058–0.10) | 0.26 (0.23–0.29) | 1.8 (1.5–2.0) | 2.5 (1.7–3.2) |
| Females | 3–79 | 2 (2009–2011) | 1256 | 0 | 0.22 (0.21–0.25) | 0.064 (0.051–0.076) | 0.21 (0.17–0.26) | 0.88[E] (0.54–1.2) | 1.8 (1.3–2.3) |
| Females | 3–79 | 3 (2012–2013) | 1271 | 0 | 0.21 (0.17–0.27) | 0.050 (0.035–0.065) | 0.18 (0.14–0.21) | 1.4[E] (0.84–2.0) | 2.0 (1.4–2.6) |
| Total | 3–5 | 2 (2009–2011) | 506 | 0 | 0.17 (0.16–0.19) | 0.069 (0.061–0.077) | 0.18 (0.16–0.20) | 0.37 (0.29–0.45) | 0.47 (0.32–0.62) |
| Total | 3–5 | 3 (2012–2013) | 496 | 0 | 0.16 (0.13–0.18) | 0.045 (0.029–0.060) | 0.17 (0.13–0.21) | 0.41 (0.32–0.51) | 0.61 (0.41–0.81) |
| Total | 6–11 | 2 (2009–2011) | 511 | 0 | 0.22 (0.18–0.25) | 0.088 (0.077–0.10) | 0.24 (0.19–0.29) | 0.48 (0.40–0.56) | 0.57 (0.38–0.76) |
| Total | 6–11 | 3 (2012–2013) | 502 | 0 | 0.19 (0.17–0.21) | 0.062 (0.045–0.078) | 0.18 (0.16–0.21) | 0.49 (0.38–0.60) | 0.66 (0.53–0.78) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0 | 0.26 (0.24–0.29) | 0.098 (0.073–0.12) | 0.26 (0.22–0.30) | 0.73 (0.55–0.90) | 1.1 (0.87–1.3) |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 0.28 (0.23–0.33) | 0.079 (0.063–0.095) | 0.25 (0.19–0.31) | 1.0[E] (0.52–1.5) | F |
| Total | 20–39 | 2 (2009–2011) | 355 | 0 | 0.30 (0.25–0.35) | 0.085 (0.061–0.11) | 0.28 (0.22–0.33) | 1.3 (0.88–1.7) | 2.2 (1.5–3.0) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.36 (0.29–0.46) | 0.087 (0.066–0.11) | 0.33 (0.27–0.39) | 1.8 (1.3–2.4) | F |
| Total | 40–59 | 2 (2009–2011) | 359 | 0 | 0.30 (0.25–0.37) | 0.066[E] (0.037–0.095) | 0.25 (0.18–0.31) | 1.9 (1.2–2.6) | 3.3 (2.4–4.2) |
| Total | 40–59 | 3 (2012–2013) | 312 | 0 | 0.27 (0.21–0.34) | 0.062 (0.044–0.081) | 0.21 (0.16–0.27) | 1.6 (1.2–2.0) | 2.0[E] (1.3–2.8) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0 | 0.21 (0.18–0.25) | 0.054 (0.043–0.064) | 0.18 (0.15–0.20) | 1.1[E] (0.63–1.5) | 2.3[E] (1.2–3.3) |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 0.21 (0.16–0.27) | 0.041[E] (0.020–0.062) | 0.17 (0.14–0.20) | 1.7[E] (0.82–2.7) | 3.0[E] (1.3–4.8) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

2-Hydroxyfluorene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2514 | 0 | 0.27 (0.24–0.29) | 0.10 (0.091–0.11) | 0.21 (0.19–0.22) | 1.1 (0.82–1.4) | 1.9 (1.4–2.4) |
| Total | 3–79 | 3 (2012–2013) | 2513 | 0 | 0.27 (0.25–0.29) | 0.095 (0.089–0.10) | 0.20 (0.18–0.23) | 1.4 (1.1–1.7) | 2.0 (1.6–2.3) |
| Males | 3–79 | 2 (2009–2011) | 1264 | 0 | 0.27 (0.23–0.32) | 0.096 (0.089–0.10) | 0.21 (0.18–0.23) | 1.4[E] (0.81–1.9) | 2.4[E] (1.3–3.5) |
| Males | 3–79 | 3 (2012–2013) | 1243 | 0 | 0.27 (0.23–0.31) | 0.083 (0.071–0.096) | 0.20 (0.16–0.23) | 1.5 (1.0–2.0) | 1.9 (1.4–2.3) |
| Females | 3–79 | 2 (2009–2011) | 1250 | 0 | 0.26 (0.24–0.28) | 0.12 (0.10–0.13) | 0.21 (0.19–0.22) | 0.87[E] (0.46–1.3) | 1.7 (1.3–2.1) |
| Females | 3–79 | 3 (2012–2013) | 1270 | 0 | 0.27 (0.23–0.32) | 0.10 (0.097–0.11) | 0.21 (0.18–0.24) | 1.4 (0.87–1.9) | 2.0 (1.5–2.5) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0 | 0.31 (0.28–0.34) | 0.16 (0.14–0.18) | 0.30 (0.26–0.33) | 0.62 (0.46–0.78) | 0.75 (0.63–0.88) |
| Total | 3–5 | 3 (2012–2013) | 495 | 0 | 0.30 (0.28–0.33) | 0.16 (0.15–0.18) | 0.28 (0.26–0.31) | 0.57 (0.50–0.65) | 0.77 (0.58–0.95) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0 | 0.25 (0.22–0.28) | 0.14 (0.12–0.16) | 0.23 (0.19–0.26) | 0.46 (0.37–0.55) | 0.59 (0.41–0.78) |
| Total | 6–11 | 3 (2012–2013) | 502 | 0 | 0.24 (0.21–0.27) | 0.12 (0.11–0.13) | 0.22 (0.18–0.26) | 0.55 (0.44–0.66) | 0.67 (0.58–0.75) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0 | 0.20 (0.18–0.22) | 0.099 (0.092–0.11) | 0.17 (0.16–0.18) | 0.44 (0.33–0.55) | F |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 0.21 (0.18–0.24) | 0.099 (0.091–0.11) | 0.17 (0.15–0.20) | 0.58[E] (0.33–0.83) | 1.1[E] (0.37–1.8) |
| Total | 20–39 | 2 (2009–2011) | 353 | 0 | 0.27 (0.22–0.33) | 0.10 (0.080–0.12) | 0.20 (0.17–0.24) | 1.1[E] (0.56–1.6) | 2.2[E] (1.0–3.3) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.28 (0.23–0.35) | 0.096 (0.080–0.11) | 0.22 (0.16–0.29) | 1.3[E] (0.50–2.1) | 1.7 (1.1–2.2) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 0.30 (0.26–0.36) | 0.10 (0.081–0.12) | 0.22 (0.18–0.25) | 1.6 (1.1–2.1) | 2.5 (1.6–3.3) |
| Total | 40–59 | 3 (2012–2013) | 312 | 0 | 0.31 (0.25–0.38) | 0.090 (0.074–0.11) | 0.23 (0.17–0.29) | 1.7 (1.1–2.2) | 2.2 (1.6–2.9) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 0.25 (0.22–0.28) | 0.098 (0.092–0.10) | 0.18 (0.16–0.20) | 1.3[E] (0.78–1.8) | 1.8 (1.3–2.2) |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 0.24 (0.19–0.30) | 0.084 (0.069–0.099) | 0.16 (0.12–0.20) | 1.6[E] (0.92–2.2) | 2.2[E] (1.2–3.1) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## 3-Hydroxyfluorene

3-Hydroxyfluorene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2523 | 0.04 | 0.096 (0.087–0.11) | 0.022 (0.020–0.025) | 0.081 (0.072–0.089) | 0.64 (0.46–0.81) | 1.3 (0.96–1.7) |
| Total | 3–79 | 3 (2012–2013) | 2513 | 0 | 0.10 (0.090–0.11) | 0.019 (0.016–0.022) | 0.082 (0.072–0.091) | 0.95 (0.70–1.2) | 1.3 (1.0–1.7) |
| Males | 3–79 | 2 (2009–2011) | 1266 | 0 | 0.12 (0.099–0.14) | 0.028 (0.024–0.032) | 0.096 (0.080–0.11) | 0.79[E] (0.34–1.2) | 1.7[E] (1.1–2.3) |
| Males | 3–79 | 3 (2012–2013) | 1242 | 0 | 0.13 (0.11–0.15) | 0.024 (0.016–0.031) | 0.099 (0.093–0.11) | 1.1 (0.75–1.4) | 1.5 (1.1–1.9) |
| Females | 3–79 | 2 (2009–2011) | 1257 | 0.08 | 0.078 (0.070–0.086) | 0.019 (0.015–0.023) | 0.071 (0.058–0.083) | 0.38[E] (0.15–0.60) | 0.99[E] (0.59–1.4) |
| Females | 3–79 | 3 (2012–2013) | 1271 | 0 | 0.078 (0.061–0.10) | 0.016 (0.012–0.020) | 0.063 (0.043–0.083) | 0.68[E] (0.39–0.98) | 1.2 (0.84–1.6) |
| Total | 3–5 | 2 (2009–2011) | 507 | 0 | 0.069 (0.063–0.077) | 0.025 (0.020–0.030) | 0.071 (0.061–0.080) | 0.16 (0.10–0.22) | 0.23[E] (0.099–0.37) |
| Total | 3–5 | 3 (2012–2013) | 496 | 0 | 0.064 (0.054–0.075) | 0.016[E] (0.0076–0.024) | 0.068 (0.052–0.083) | 0.18 (0.13–0.23) | 0.26 (0.18–0.34) |
| Total | 6–11 | 2 (2009–2011) | 511 | 0 | 0.084 (0.069–0.10) | 0.033 (0.028–0.038) | 0.087 (0.066–0.11) | 0.22 (0.17–0.27) | 0.26 (0.19–0.32) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.077 (0.067–0.089) | 0.023 (0.016–0.031) | 0.080 (0.073–0.087) | 0.25[E] (0.16–0.35) | 0.36[E] (0.21–0.52) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0.20 | 0.093 (0.082–0.11) | 0.029 (0.022–0.036) | 0.093 (0.081–0.11) | 0.31[E] (0.19–0.42) | 0.53[E] (0.33–0.73) |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 0.10 (0.088–0.12) | 0.028 (0.019–0.037) | 0.088 (0.074–0.10) | 0.59[E] (0.24–0.93) | 0.94[E] (0.31–1.6) |
| Total | 20–39 | 2 (2009–2011) | 354 | 0 | 0.11 (0.092–0.13) | 0.025 (0.018–0.032) | 0.10 (0.079–0.12) | 0.75[E] (0.39–1.1) | 1.1[E] (0.70–1.5) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.14 (0.11–0.18) | 0.026[E] (0.014–0.038) | 0.10 (0.089–0.11) | 1.1 (0.77–1.4) | 1.4[E] (0.72–2.0) |
| Total | 40–59 | 2 (2009–2011) | 358 | 0 | 0.11 (0.090–0.14) | 0.020[E] (0.011–0.030) | 0.080 (0.062–0.099) | 1.2[E] (0.66–1.8) | 2.2 (1.5–3.0) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.11 (0.079–0.14) | 0.018[E] (0.011–0.025) | 0.078 (0.052–0.10) | 0.99[E] (0.54–1.4) | 1.3[E] (0.76–1.8) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0 | 0.067 (0.056–0.079) | 0.018 (0.014–0.022) | 0.050 (0.043–0.057) | 0.44[E] (0.24–0.64) | 1.1[E] (0.58–1.7) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.074 (0.057–0.095) | 0.012[E] (0.0050–0.018) | 0.052 (0.037–0.068) | 0.95[E] (0.28–1.6) | 1.8[E] (0.83–2.8) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

3-Hydroxyfluorene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2513 | 0.04 | 0.096 (0.087–0.11) | 0.032 (0.031–0.034) | 0.070 (0.063–0.077) | 0.68[E] (0.41–0.95) | 1.1 (0.84–1.3) |
| Total | 3–79 | 3 (2012–2013) | 2512 | 0 | 0.10 (0.095–0.11) | 0.029 (0.025–0.032) | 0.072 (0.063–0.081) | 0.83 (0.64–1.0) | 1.2 (0.94–1.4) |
| Males | 3–79 | 2 (2009–2011) | 1262 | 0 | 0.10 (0.086–0.12) | 0.031 (0.029–0.033) | 0.074 (0.060–0.088) | 0.81[E] (0.47–1.1) | 1.4[E] (0.88–1.9) |
| Males | 3–79 | 3 (2012–2013) | 1242 | 0 | 0.11 (0.090–0.13) | 0.026 (0.021–0.030) | 0.077 (0.062–0.091) | 0.84 (0.64–1.0) | 1.0 (0.82–1.3) |
| Females | 3–79 | 2 (2009–2011) | 1251 | 0.08 | 0.089 (0.081–0.098) | 0.035 (0.031–0.038) | 0.069 (0.063–0.074) | F | 0.99 (0.73–1.3) |
| Females | 3–79 | 3 (2012–2013) | 1270 | 0 | 0.10 (0.084–0.12) | 0.032 (0.028–0.036) | 0.071 (0.061–0.082) | 0.79[E] (0.38–1.2) | 1.2 (0.92–1.6) |
| Total | 3–5 | 2 (2009–2011) | 506 | 0 | 0.12 (0.11–0.14) | 0.061 (0.057–0.066) | 0.11 (0.089–0.13) | 0.25 (0.19–0.30) | 0.32[E] (0.16–0.49) |
| Total | 3–5 | 3 (2012–2013) | 495 | 0 | 0.12 (0.11–0.14) | 0.062 (0.053–0.072) | 0.11 (0.10–0.13) | 0.27 (0.23–0.30) | 0.40 (0.27–0.53) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0 | 0.098 (0.085–0.11) | 0.050 (0.042–0.057) | 0.094 (0.080–0.11) | 0.20 (0.15–0.25) | 0.26 (0.20–0.33) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.099 (0.083–0.12) | 0.044 (0.038–0.050) | 0.085 (0.070–0.10) | 0.25[E] (0.11–0.38) | 0.43[E] (0.23–0.62) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0.20 | 0.071 (0.062–0.082) | 0.031 (0.027–0.035) | 0.063 (0.055–0.070) | 0.22[E] (0.11–0.33) | F |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 0.079 (0.069–0.090) | 0.033 (0.028–0.038) | 0.065 (0.056–0.074) | F | 0.61[E] (0.25–0.96) |
| Total | 20–39 | 2 (2009–2011) | 352 | 0 | 0.099 (0.081–0.12) | 0.033 (0.027–0.038) | 0.070 (0.056–0.083) | 0.66[E] (0.28–1.0) | 1.1[E] (0.47–1.7) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.11 (0.083–0.14) | 0.032 (0.026–0.037) | 0.079 (0.060–0.098) | 0.78[E] (0.36–1.2) | 0.99 (0.69–1.3) |
| Total | 40–59 | 2 (2009–2011) | 356 | 0 | 0.11 (0.092–0.14) | 0.033 (0.028–0.038) | 0.072 (0.052–0.093) | 1.0 (0.72–1.4) | 1.6 (1.2–2.0) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.12 (0.095–0.16) | 0.027 (0.019–0.035) | 0.078 (0.058–0.099) | 1.1 (0.80–1.4) | 1.5 (1.0–1.9) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 0.078 (0.067–0.090) | 0.028 (0.025–0.031) | 0.055 (0.047–0.063) | 0.58[E] (0.23–0.92) | 0.96 (0.81–1.1) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.085 (0.067–0.11) | 0.025 (0.022–0.028) | 0.053 (0.041–0.064) | 0.82[E] (0.48–1.2) | 1.4 (1.0–1.8) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## 9-Hydroxyfluorene

9-Hydroxyfluorene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2514 | 0 | 0.16 (0.15–0.17) | 0.051 (0.045–0.058) | 0.16 (0.14–0.17) | 0.46 (0.37–0.55) | 0.66 (0.57–0.76) |
| Total | 3–79 | 3 (2012–2013) | 2499 | 0 | 0.15 (0.13–0.17) | 0.045 (0.037–0.053) | 0.14 (0.13–0.16) | 0.53 (0.44–0.61) | 0.71 (0.60–0.82) |
| Males | 3–79 | 2 (2009–2011) | 1260 | 0 | 0.17 (0.15–0.20) | 0.057 (0.048–0.066) | 0.17 (0.13–0.20) | 0.58 (0.46–0.70) | 0.73 (0.61–0.85) |
| Males | 3–79 | 3 (2012–2013) | 1238 | 0 | 0.17 (0.15–0.18) | 0.051 (0.037–0.065) | 0.16 (0.15–0.17) | 0.58 (0.46–0.71) | 0.73 (0.62–0.85) |
| Females | 3–79 | 2 (2009–2011) | 1254 | 0 | 0.15 (0.13–0.16) | 0.048 (0.040–0.055) | 0.14 (0.13–0.16) | 0.39 (0.33–0.46) | 0.49 (0.32–0.66) |
| Females | 3–79 | 3 (2012–2013) | 1261 | 0 | 0.13 (0.11–0.16) | 0.041 (0.031–0.050) | 0.13 (0.10–0.16) | 0.49 (0.36–0.63) | 0.65 (0.43–0.86) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0 | 0.098 (0.088–0.11) | 0.040 (0.032–0.048) | 0.098 (0.086–0.11) | 0.24 (0.19–0.29) | 0.30 (0.25–0.34) |
| Total | 3–5 | 3 (2012–2013) | 490 | 0 | 0.084 (0.070–0.099) | 0.029 (0.022–0.036) | 0.085 (0.065–0.10) | 0.22 (0.15–0.28) | 0.29 (0.21–0.37) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0 | 0.11 (0.091–0.13) | 0.042 (0.032–0.051) | 0.11 (0.086–0.13) | 0.29 (0.21–0.37) | 0.38 (0.28–0.47) |
| Total | 6–11 | 3 (2012–2013) | 498 | 0 | 0.091 (0.082–0.10) | 0.038 (0.030–0.045) | 0.081 (0.072–0.090) | 0.24 (0.19–0.30) | 0.34 (0.26–0.42) |
| Total | 12–19 | 2 (2009–2011) | 501 | 0 | 0.15 (0.13–0.17) | 0.060 (0.047–0.073) | 0.14 (0.12–0.17) | 0.38 (0.32–0.45) | 0.49 (0.35–0.62) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.13 (0.12–0.15) | 0.047 (0.039–0.055) | 0.13 (0.11–0.15) | 0.38[E] (0.23–0.54) | 0.58 (0.40–0.77) |
| Total | 20–39 | 2 (2009–2011) | 355 | 0 | 0.17 (0.15–0.20) | 0.058 (0.041–0.076) | 0.18 (0.15–0.21) | 0.52 (0.34–0.70) | 0.66 (0.53–0.79) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.20 (0.17–0.22) | 0.065[E] (0.041–0.089) | 0.19 (0.13–0.25) | 0.54[E] (0.34–0.74) | 0.77 (0.60–0.93) |
| Total | 40–59 | 2 (2009–2011) | 358 | 0 | 0.17 (0.15–0.20) | 0.048[E] (0.029–0.066) | 0.17 (0.13–0.20) | 0.51 (0.34–0.68) | 0.80 (0.55–1.1) |
| Total | 40–59 | 3 (2012–2013) | 310 | 0 | 0.17 (0.13–0.20) | 0.045 (0.035–0.056) | 0.15 (0.11–0.19) | 0.58 (0.49–0.68) | 0.76 (0.56–0.95) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 0.16 (0.14–0.18) | 0.052 (0.046–0.058) | 0.15 (0.13–0.17) | 0.48 (0.31–0.66) | 0.73[E] (0.46–1.0) |
| Total | 60–79 | 3 (2012–2013) | 345 | 0 | 0.13 (0.11–0.16) | 0.037[E] (0.018–0.056) | 0.12 (0.10–0.15) | 0.49[E] (0.28–0.71) | 0.71 (0.48–0.94) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

9-Hydroxyfluorene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2504 | 0 | 0.16 (0.15–0.17) | 0.059 (0.053–0.066) | 0.14 (0.13–0.16) | 0.43 (0.35–0.52) | 0.62 (0.51–0.72) |
| Total | 3–79 | 3 (2012–2013) | 2498 | 0 | 0.16 (0.14–0.17) | 0.055 (0.048–0.062) | 0.14 (0.13–0.16) | 0.48 (0.43–0.52) | 0.72 (0.64–0.81) |
| Males | 3–79 | 2 (2009–2011) | 1256 | 0 | 0.15 (0.13–0.17) | 0.055 (0.047–0.064) | 0.13 (0.11–0.15) | 0.50 (0.35–0.64) | 0.62 (0.50–0.73) |
| Males | 3–79 | 3 (2012–2013) | 1238 | 0 | 0.14 (0.12–0.16) | 0.049 (0.041–0.058) | 0.13 (0.10–0.15) | 0.46 (0.35–0.56) | 0.62 (0.48–0.76) |
| Females | 3–79 | 2 (2009–2011) | 1248 | 0 | 0.17 (0.15–0.19) | 0.065 (0.058–0.071) | 0.15 (0.13–0.18) | 0.42 (0.34–0.50) | 0.62 (0.44–0.80) |
| Females | 3–79 | 3 (2012–2013) | 1260 | 0 | 0.17 (0.15–0.20) | 0.061 (0.050–0.071) | 0.15 (0.14–0.17) | 0.57[E] (0.35–0.80) | 0.83 (0.63–1.0) |
| Total | 3–5 | 2 (2009–2011) | 504 | 0 | 0.17 (0.15–0.19) | 0.068 (0.053–0.083) | 0.17 (0.15–0.20) | 0.41 (0.31–0.50) | 0.62 (0.42–0.81) |
| Total | 3–5 | 3 (2012–2013) | 489 | 0 | 0.16 (0.14–0.18) | 0.065 (0.058–0.072) | 0.15 (0.12–0.18) | 0.44 (0.36–0.52) | 0.54 (0.45–0.64) |
| Total | 6–11 | 2 (2009–2011) | 507 | 0 | 0.13 (0.11–0.15) | 0.056 (0.049–0.064) | 0.11 (0.090–0.13) | 0.31 (0.22–0.40) | 0.42[E] (0.20–0.64) |
| Total | 6–11 | 3 (2012–2013) | 498 | 0 | 0.12 (0.10–0.13) | 0.046[E] (0.029–0.063) | 0.11 (0.096–0.13) | 0.27 (0.22–0.31) | 0.43 (0.30–0.56) |
| Total | 12–19 | 2 (2009–2011) | 499 | 0 | 0.11 (0.097–0.13) | 0.048 (0.039–0.056) | 0.10 (0.083–0.12) | 0.27 (0.19–0.35) | 0.37[E] (0.16–0.57) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.10 (0.087–0.12) | 0.042 (0.035–0.048) | 0.088 (0.077–0.098) | 0.25 (0.17–0.34) | 0.37[E] (0.22–0.51) |
| Total | 20–39 | 2 (2009–2011) | 353 | 0 | 0.15 (0.13–0.18) | 0.060 (0.049–0.070) | 0.14 (0.11–0.16) | 0.35[E] (0.15–0.54) | 0.56 (0.39–0.73) |
| Total | 20–39 | 3 (2012–2013) | 351 | 0 | 0.15 (0.13–0.18) | 0.055 (0.038–0.072) | 0.13 (0.092–0.16) | 0.51 (0.33–0.69) | 0.68 (0.52–0.84) |
| Total | 40–59 | 2 (2009–2011) | 356 | 0 | 0.17 (0.16–0.19) | 0.064 (0.055–0.073) | 0.16 (0.14–0.18) | 0.52 (0.40–0.63) | 0.64[E] (0.40–0.88) |
| Total | 40–59 | 3 (2012–2013) | 310 | 0 | 0.19 (0.16–0.23) | 0.063 (0.043–0.084) | 0.20 (0.15–0.24) | 0.62[E] (0.38–0.86) | 0.81 (0.52–1.1) |
| Total | 60–79 | 2 (2009–2011) | 285 | 0 | 0.19 (0.16–0.22) | 0.065 (0.044–0.086) | 0.16 (0.13–0.19) | 0.52 (0.34–0.70) | 0.77 (0.56–0.98) |
| Total | 60–79 | 3 (2012–2013) | 345 | 0 | 0.15 (0.13–0.18) | 0.056 (0.038–0.073) | 0.15 (0.13–0.17) | 0.45 (0.31–0.60) | 0.64 (0.52–0.76) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# NAPHTHALENE

## 1-Hydroxynaphthalene

1-Hydroxynaphthalene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2522 | 0.79 | 1.5 (1.3–1.7) | 0.27 (0.18–0.37) | 1.3 (1.1–1.5) | 9.9 (7.7–12) | 15 (12–19) |
| Total | 3–79 | 3 (2012–2013) | 2511 | 2.27 | 1.0 (0.89–1.2) | 0.19 (0.16–0.23) | 0.85 (0.68–1.0) | 7.8 (6.6–9.0) | 11 (8.2–14) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 0.39 | 1.6 (1.3–2.0) | 0.29[E] (0.16–0.42) | 1.3 (1.0–1.7) | 11 (9.5–14) | 17 (13–21) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 1.69 | 1.3 (1.1–1.6) | 0.24 (0.18–0.30) | 1.1 (0.75–1.4) | 8.3 (6.4–10) | 12[E] (7.2–16) |
| Females | 3–79 | 2 (2009–2011) | 1255 | 1.20 | 1.4 (1.2–1.6) | 0.26[E] (0.14–0.37) | 1.2 (1.1–1.4) | 6.2[E] (2.4–10) | F |
| Females | 3–79 | 3 (2012–2013) | 1270 | 2.83 | 0.80 (0.57–1.1) | 0.18 (0.12–0.23) | 0.72 (0.48–0.97) | 6.6[E] (3.7–9.4) | 9.9 (6.8–13) |
| Total | 3–5 | 2 (2009–2011) | 506 | 0.40 | 1.4 (1.2–1.6) | 0.43 (0.35–0.50) | 1.2 (1.0–1.4) | 5.4[E] (3.3–7.5) | F |
| Total | 3–5 | 3 (2012–2013) | 495 | 1.82 | 0.69 (0.54–0.88) | 0.19[E] (0.12–0.26) | 0.68 (0.53–0.82) | 2.9 (2.1–3.8) | 4.2 (2.7–5.7) |
| Total | 6–11 | 2 (2009–2011) | 511 | 0.39 | 0.95 (0.79–1.1) | 0.25[E] (<LOD–0.40) | 0.92 (0.73–1.1) | 2.8 (2.1–3.5) | 4.0 (2.9–5.2) |
| Total | 6–11 | 3 (2012–2013) | 502 | 2.19 | 0.75 (0.63–0.90) | 0.23 (0.16–0.30) | 0.68 (0.55–0.82) | 3.0[E] (1.8–4.2) | F |
| Total | 12–19 | 2 (2009–2011) | 505 | 1.39 | 1.2 (0.98–1.4) | 0.28[E] (0.14–0.41) | 1.0 (0.83–1.2) | 4.1[E] (2.1–6.1) | F |
| Total | 12–19 | 3 (2012–2013) | 505 | 2.57 | 0.95 (0.70–1.3) | 0.19[E] (0.12–0.26) | 0.74 (0.50–0.98) | 7.2 (4.8–9.6) | F |
| Total | 20–39 | 2 (2009–2011) | 354 | 1.13 | 1.4 (1.1–1.7) | 0.29[E] (0.14–0.43) | 1.4 (1.0–1.7) | 7.1[E] (4.5–9.7) | 13 (9.9–15) |
| Total | 20–39 | 3 (2012–2013) | 350 | 2.29 | 1.2 (0.84–1.6) | 0.20[E] (0.12–0.28) | 0.91[E] (0.56–1.3) | 8.4[E] (5.2–12) | 12[E] (5.4–18) |
| Total | 40–59 | 2 (2009–2011) | 359 | 1.11 | 1.7 (1.3–2.2) | 0.28[E] (0.11–0.44) | 1.3 (0.97–1.7) | 13 (10–15) | 19[E] (11–27) |
| Total | 40–59 | 3 (2012–2013) | 311 | 3.22 | 1.1[E] (0.74–1.6) | 0.18[E] (0.10–0.25) | 0.97[E] (0.27–1.7) | 8.1 (5.2–11) | 11 (7.1–15) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0.35 | 1.7 (1.3–2.2) | 0.25[E] (0.12–0.39) | 1.6 (1.2–1.9) | F | F |
| Total | 60–79 | 3 (2012–2013) | 348 | 1.72 | 0.99 (0.77–1.3) | 0.21[E] (0.13–0.28) | 0.86 (0.68–1.0) | 7.0 (4.6–9.4) | 13[E] (7.5–19) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

1-Hydroxynaphthalene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2512 | 0.79 | 1.5 (1.3–1.7) | 0.32 (0.23–0.41) | 1.2 (1.0–1.4) | 9.5 (7.0–12) | 15 (12–18) |
| Total | 3–79 | 3 (2012–2013) | 2510 | 2.27 | 1.1 (0.91–1.2) | 0.20 (0.16–0.25) | 0.99 (0.81–1.2) | 6.9 (5.4–8.4) | 10 (7.7–12) |
| Males | 3–79 | 2 (2009–2011) | 1263 | 0.39 | 1.4 (1.1–1.7) | 0.27 (0.18–0.36) | 1.1 (0.84–1.3) | 9.8[E] (6.0–14) | 16 (12–20) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 1.69 | 1.1 (0.85–1.4) | 0.20 (0.15–0.25) | 1.0 (0.66–1.3) | 7.6 (5.0–10) | 9.2 (6.8–12) |
| Females | 3–79 | 2 (2009–2011) | 1249 | 1.20 | 1.6 (1.4–1.8) | 0.41 (0.31–0.50) | 1.4 (1.2–1.5) | 8.7 (5.6–12) | F |
| Females | 3–79 | 3 (2012–2013) | 1269 | 2.83 | 1.0 (0.77–1.4) | 0.23[E] (0.14–0.31) | 0.97 (0.66–1.3) | 6.5[E] (3.1–9.9) | 12 (8.3–15) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0.40 | 2.5 (2.2–2.9) | 0.74 (0.53–0.94) | 2.2 (1.9–2.6) | 8.4[E] (3.5–13) | 16[E] (5.7–25) |
| Total | 3–5 | 3 (2012–2013) | 494 | 1.82 | 1.3 (1.1–1.6) | 0.46 (0.34–0.57) | 1.2 (1.1–1.4) | 4.9 (3.6–6.2) | 6.7 (4.8–8.6) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0.39 | 1.1 (0.92–1.3) | 0.35[E] (0.22–0.48) | 1.0 (0.85–1.1) | 3.4 (2.5–4.2) | 4.9 (3.4–6.5) |
| Total | 6–11 | 3 (2012–2013) | 502 | 2.19 | 0.96 (0.76–1.2) | 0.30 (0.26–0.34) | 0.79 (0.61–0.98) | 4.1[E] (2.5–5.8) | 5.8[E] (3.2–8.5) |
| Total | 12–19 | 2 (2009–2011) | 503 | 1.39 | 0.90 (0.75–1.1) | 0.26 (0.18–0.35) | 0.83 (0.72–0.94) | 3.5[E] (1.9–5.0) | F |
| Total | 12–19 | 3 (2012–2013) | 505 | 2.57 | 0.72 (0.56–0.92) | 0.15[E] (0.089–0.22) | 0.67 (0.46–0.88) | 4.7[E] (1.3–8.2) | F |
| Total | 20–39 | 2 (2009–2011) | 352 | 1.13 | 1.3 (0.97–1.7) | 0.24[E] (0.15–0.33) | 1.2 (0.79–1.7) | 8.2[E] (3.8–13) | 13[E] (7.2–18) |
| Total | 20–39 | 3 (2012–2013) | 350 | 2.29 | 0.89 (0.62–1.3) | 0.17[E] (0.074–0.26) | 0.78[E] (0.40–1.2) | 5.9[E] (2.1–9.6) | 9.1[E] (5.7–13) |
| Total | 40–59 | 2 (2009–2011) | 357 | 1.11 | 1.7 (1.3–2.1) | 0.37[E] (0.19–0.54) | 1.3[E] (0.74–1.9) | 13[E] (8.3–18) | 18[E] (10–27) |
| Total | 40–59 | 3 (2012–2013) | 311 | 3.22 | 1.3 (0.88–1.8) | 0.23[E] (0.11–0.36) | 1.3[E] (0.80–1.8) | 9.8 (6.3–13) | 13 (8.6–17) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0.35 | 2.0 (1.6–2.5) | 0.50 (0.36–0.65) | 1.5 (1.2–1.8) | F | F |
| Total | 60–79 | 3 (2012–2013) | 348 | 1.72 | 1.1 (0.93–1.4) | 0.24[E] (0.13–0.36) | 1.0 (0.70–1.3) | 6.5[E] (4.1–8.9) | 11 (8.0–14) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## 2-Hydroxynaphthalene

2-Hydroxynaphthalene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2503 | 0 | 3.8 (3.4–4.4) | 0.84 (0.68–1.0) | 3.8 (3.2–4.4) | 17 (14–20) | 24 (18–30) |
| Total | 3–79 | 3 (2012–2013) | 2506 | 0 | 4.1 (3.6–4.6) | 0.93 (0.79–1.1) | 4.0 (3.4–4.6) | 18 (14–22) | 26 (22–30) |
| Males | 3–79 | 2 (2009–2011) | 1251 | 0 | 4.0 (3.3–4.9) | 0.99 (0.81–1.2) | 3.9 (3.1–4.8) | 19 (13–26) | 26 (19–32) |
| Males | 3–79 | 3 (2012–2013) | 1239 | 0 | 4.6 (4.0–5.3) | 0.96 (0.80–1.1) | 4.4 (3.7–5.2) | 20 (13–27) | 30 (22–38) |
| Females | 3–79 | 2 (2009–2011) | 1252 | 0 | 3.7 (3.2–4.2) | 0.63[E] (0.40–0.87) | 3.5 (3.0–4.1) | 17 (13–20) | 23[E] (13–32) |
| Females | 3–79 | 3 (2012–2013) | 1267 | 0 | 3.7 (2.9–4.7) | 0.88 (0.65–1.1) | 3.7 (2.8–4.6) | 16 (12–20) | 23 (18–28) |
| Total | 3–5 | 2 (2009–2011) | 499 | 0 | 3.3 (2.8–3.8) | 1.1 (0.91–1.2) | 3.0 (2.4–3.6) | 11[E] (5.8–15) | 17[E] (8.9–24) |
| Total | 3–5 | 3 (2012–2013) | 494 | 0 | 3.2 (2.6–4.0) | 0.72 (0.50–0.93) | 3.4 (2.7–4.1) | 12[E] (6.7–16) | 19[E] (12–26) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0 | 3.2 (2.6–4.0) | 1.1 (0.82–1.3) | 3.0 (2.3–3.8) | 8.8[E] (4.7–13) | F |
| Total | 6–11 | 3 (2012–2013) | 498 | 0 | 3.2 (2.8–3.7) | 0.84 (0.60–1.1) | 3.2 (2.6–3.8) | 10[E] (6.3–14) | 14 (9.6–18) |
| Total | 12–19 | 2 (2009–2011) | 503 | 0 | 4.4 (3.8–5.0) | 1.1 (0.93–1.3) | 4.4 (3.5–5.3) | 15 (9.6–20) | 24 (19–29) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 5.3 (4.6–6.2) | 1.2 (0.77–1.7) | 5.0 (3.8–6.2) | 23 (15–32) | 36 (30–43) |
| Total | 20–39 | 2 (2009–2011) | 352 | 0 | 4.4 (3.5–5.5) | 0.88[E] (0.53–1.2) | 4.8 (3.8–5.9) | 17 (13–21) | 22 (18–27) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 5.2 (4.3–6.3) | 1.2 (0.91–1.6) | 5.6 (3.6–7.6) | 18[E] (9.7–26) | 26[E] (15–37) |
| Total | 40–59 | 2 (2009–2011) | 354 | 0 | 4.1 (3.1–5.4) | 0.75[E] (0.27–1.2) | 3.7[E] (2.1–5.2) | 21[E] (13–30) | 31 (20–42) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 4.2 (3.5–5.2) | 0.97 (0.77–1.2) | 4.1 (2.7–5.5) | 18[E] (9.6–26) | 28 (21–35) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 2.8 (2.4–3.3) | 0.58[E] (0.31–0.86) | 2.5 (1.9–3.2) | 12[E] (7.5–16) | 22 (19–26) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 3.0 (2.5–3.5) | 0.73 (0.48–0.97) | 2.9 (2.4–3.4) | 14[E] (6.4–22) | 24 (15–33) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

2-Hydroxynaphthalene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2493 | 0 | 3.8 (3.4–4.3) | 1.2 (1.0–1.3) | 3.4 (2.9–4.0) | 15 (13–17) | 20 (17–22) |
| Total | 3–79 | 3 (2012–2013) | 2505 | 0 | 4.3 (3.9–4.7) | 1.3 (1.1–1.5) | 4.1 (3.4–4.7) | 14 (12–17) | 19 (16–21) |
| Males | 3–79 | 2 (2009–2011) | 1247 | 0 | 3.5 (2.9–4.1) | 1.0 (0.94–1.2) | 2.9 (2.3–3.5) | 14 (10–19) | 20 (14–25) |
| Males | 3–79 | 3 (2012–2013) | 1239 | 0 | 3.9 (3.3–4.5) | 1.1 (0.91–1.4) | 3.5 (2.6–4.4) | 13 (9.7–17) | 18 (15–21) |
| Females | 3–79 | 2 (2009–2011) | 1246 | 0 | 4.3 (3.9–4.6) | 1.4 (1.1–1.7) | 3.8 (3.3–4.2) | 15 (12–18) | 20 (16–23) |
| Females | 3–79 | 3 (2012–2013) | 1266 | 0 | 4.7 (4.0–5.5) | 1.6 (1.3–1.8) | 4.4 (3.4–5.3) | 15 (13–17) | 19 (16–23) |
| Total | 3–5 | 2 (2009–2011) | 498 | 0 | 5.9 (5.1–6.8) | 2.1 (1.9–2.2) | 5.0 (4.2–5.9) | 16 (11–21) | 23[E] (13–33) |
| Total | 3–5 | 3 (2012–2013) | 493 | 0 | 6.3 (5.4–7.3) | 2.2 (1.7–2.7) | 5.8 (4.8–6.8) | 19 (13–25) | 27[E] (17–37) |
| Total | 6–11 | 2 (2009–2011) | 507 | 0 | 3.8 (3.2–4.5) | 1.5 (1.3–1.8) | 3.6 (2.6–4.6) | 9.4 (6.8–12) | 12[E] (5.1–19) |
| Total | 6–11 | 3 (2012–2013) | 498 | 0 | 4.1 (3.4–5.0) | 1.5 (1.1–1.9) | 3.9 (3.3–4.5) | 11 (8.3–14) | 13[E] (4.5–22) |
| Total | 12–19 | 2 (2009–2011) | 501 | 0 | 3.4 (3.0–3.9) | 1.1 (1.0–1.3) | 3.1 (2.6–3.6) | 9.9 (7.6–12) | 13 (10–16) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 4.1 (3.7–4.4) | 1.4 (1.1–1.7) | 3.6 (3.2–4.0) | 12 (9.6–15) | 15 (11–20) |
| Total | 20–39 | 2 (2009–2011) | 350 | 0 | 3.9 (3.3–4.7) | 1.2 (0.93–1.4) | 3.4 (2.5–4.4) | 15 (10–19) | 19 (15–23) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 4.0 (3.4–4.8) | 1.3[E] (0.80–1.8) | 4.0 (3.1–4.9) | 11 (8.7–13) | 14 (11–18) |
| Total | 40–59 | 2 (2009–2011) | 352 | 0 | 4.1 (3.3–5.2) | 1.0[E] (0.64–1.4) | 3.7 (2.8–4.7) | 19 (14–25) | 25 (20–30) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 5.0 (4.1–6.0) | 1.4 (1.1–1.8) | 5.1 (3.4–6.7) | 18 (14–21) | 21 (17–25) |
| Total | 60–79 | 2 (2009–2011) | 285 | 0 | 3.3 (2.9–3.7) | 1.1 (1.0–1.3) | 2.6 (2.1–3.1) | 14 (9.7–18) | 18 (15–20) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 3.4 (3.0–3.9) | 1.0 (0.77–1.2) | 3.2 (2.7–3.6) | 12 (8.1–16) | 17 (13–21) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# PHENANTHRENE

## 1-Hydroxyphenanthrene

1-Hydroxyphenanthrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2522 | 0.04 | 0.15 (0.14–0.17) | 0.049 (0.042–0.056) | 0.15 (0.14–0.17) | 0.47 (0.38–0.57) | 0.69 (0.53–0.84) |
| Total | 3–79 | 3 (2012–2013) | 2505 | 0.04 | 0.15 (0.13–0.16) | 0.040 (0.028–0.051) | 0.13 (0.12–0.15) | 0.50 (0.38–0.62) | 0.73 (0.58–0.88) |
| Males | 3–79 | 2 (2009–2011) | 1268 | 0 | 0.16 (0.14–0.19) | 0.054 (0.046–0.062) | 0.16 (0.14–0.19) | 0.50 (0.38–0.62) | 0.73 (0.57–0.90) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 0.08 | 0.16 (0.14–0.18) | 0.051 (0.038–0.064) | 0.15 (0.13–0.17) | 0.48 (0.37–0.59) | 0.78 (0.54–1.0) |
| Females | 3–79 | 2 (2009–2011) | 1254 | 0.08 | 0.14 (0.13–0.16) | 0.041 (0.032–0.049) | 0.14 (0.12–0.16) | 0.42 (0.30–0.54) | 0.66[E] (0.40–0.92) |
| Females | 3–79 | 3 (2012–2013) | 1264 | 0 | 0.13 (0.11–0.16) | 0.035 (0.026–0.044) | 0.13 (0.096–0.15) | 0.51 (0.35–0.66) | 0.67 (0.56–0.79) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0 | 0.11 (0.097–0.13) | 0.044 (0.037–0.051) | 0.10 (0.094–0.12) | 0.29 (0.23–0.36) | 0.34 (0.26–0.42) |
| Total | 3–5 | 3 (2012–2013) | 490 | 0 | 0.092 (0.079–0.11) | 0.031 (0.021–0.042) | 0.097 (0.086–0.11) | 0.27 (0.22–0.31) | 0.36 (0.30–0.42) |
| Total | 6–11 | 2 (2009–2011) | 510 | 0 | 0.12 (0.11–0.14) | 0.046 (0.039–0.054) | 0.12 (0.097–0.14) | 0.30 (0.21–0.39) | 0.42 (0.32–0.51) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0.20 | 0.11 (0.094–0.12) | 0.031[E] (0.015–0.047) | 0.11 (0.092–0.12) | 0.26 (0.21–0.30) | 0.36 (0.30–0.42) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0 | 0.15 (0.14–0.17) | 0.058 (0.044–0.073) | 0.15 (0.13–0.18) | 0.44 (0.29–0.59) | 0.55 (0.43–0.67) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.15 (0.13–0.18) | 0.050 (0.035–0.066) | 0.14 (0.11–0.17) | 0.53 (0.40–0.65) | 0.76[E] (0.41–1.1) |
| Total | 20–39 | 2 (2009–2011) | 355 | 0 | 0.16 (0.14–0.18) | 0.049 (0.033–0.066) | 0.17 (0.15–0.19) | 0.49 (0.35–0.63) | 0.64[E] (0.41–0.87) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.18 (0.16–0.21) | 0.052 (0.036–0.068) | 0.20 (0.14–0.26) | 0.46[E] (0.27–0.65) | 0.70[E] (0.28–1.1) |
| Total | 40–59 | 2 (2009–2011) | 359 | 0 | 0.16 (0.14–0.19) | 0.052[E] (0.031–0.073) | 0.16 (0.12–0.19) | 0.51[E] (0.32–0.71) | 0.77 (0.58–0.97) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.14 (0.12–0.17) | 0.036[E] (0.018–0.055) | 0.13 (0.095–0.16) | 0.51[E] (0.30–0.73) | 0.69[E] (0.43–0.94) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0.35 | 0.15 (0.13–0.17) | 0.038 (0.026–0.050) | 0.16 (0.13–0.18) | 0.50 (0.37–0.64) | 0.81 (0.53–1.1) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.14 (0.11–0.17) | 0.032[E] (0.0094–0.054) | 0.12 (0.085–0.15) | 0.68 (0.53–0.82) | 0.85[E] (0.37–1.3) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

1-Hydroxyphenanthrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2512 | 0.04 | 0.15 (0.14–0.16) | 0.069 (0.064–0.075) | 0.14 (0.12–0.15) | 0.37 (0.31–0.44) | 0.52 (0.41–0.63) |
| Total | 3–79 | 3 (2012–2013) | 2504 | 0.04 | 0.15 (0.14–0.16) | 0.059 (0.050–0.068) | 0.14 (0.13–0.15) | 0.39 (0.31–0.46) | 0.59 (0.47–0.72) |
| Males | 3–79 | 2 (2009–2011) | 1264 | 0 | 0.14 (0.13–0.16) | 0.060 (0.051–0.069) | 0.13 (0.11–0.15) | 0.35 (0.27–0.43) | 0.51 (0.39–0.64) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 0.08 | 0.13 (0.12–0.15) | 0.052 (0.042–0.061) | 0.13 (0.11–0.14) | 0.34 (0.29–0.39) | 0.53[E] (0.32–0.75) |
| Females | 3–79 | 2 (2009–2011) | 1248 | 0.08 | 0.17 (0.15–0.18) | 0.078 (0.066–0.090) | 0.15 (0.13–0.16) | 0.39 (0.31–0.46) | 0.55 (0.40–0.71) |
| Females | 3–79 | 3 (2012–2013) | 1263 | 0 | 0.17 (0.15–0.19) | 0.070 (0.058–0.081) | 0.15 (0.13–0.17) | 0.47 (0.36–0.57) | 0.63 (0.52–0.74) |
| Total | 3–5 | 2 (2009–2011) | 504 | 0 | 0.20 (0.17–0.22) | 0.094 (0.077–0.11) | 0.18 (0.16–0.21) | 0.40 (0.32–0.47) | 0.57 (0.39–0.75) |
| Total | 3–5 | 3 (2012–2013) | 489 | 0 | 0.18 (0.17–0.19) | 0.088 (0.073–0.10) | 0.16 (0.14–0.18) | 0.38 (0.33–0.43) | 0.53 (0.42–0.64) |
| Total | 6–11 | 2 (2009–2011) | 508 | 0 | 0.14 (0.13–0.16) | 0.079 (0.071–0.087) | 0.12 (0.11–0.14) | 0.31 (0.26–0.37) | 0.44[E] (0.26–0.63) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0.20 | 0.13 (0.12–0.15) | 0.068 (0.060–0.077) | 0.12 (0.10–0.14) | 0.29 (0.20–0.38) | 0.37 (0.28–0.45) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0 | 0.12 (0.11–0.13) | 0.059 (0.055–0.063) | 0.11 (0.095–0.12) | 0.25 (0.18–0.32) | 0.32 (0.25–0.40) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.11 (0.097–0.13) | 0.052 (0.040–0.064) | 0.099 (0.090–0.11) | 0.29 (0.22–0.35) | 0.37[E] (0.10–0.64) |
| Total | 20–39 | 2 (2009–2011) | 353 | 0 | 0.14 (0.12–0.16) | 0.057 (0.043–0.071) | 0.12 (0.090–0.16) | 0.35 (0.23–0.47) | 0.49 (0.36–0.62) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.14 (0.12–0.16) | 0.060 (0.041–0.079) | 0.13 (0.12–0.14) | 0.34 (0.27–0.41) | 0.50 (0.39–0.61) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 0.17 (0.15–0.18) | 0.078 (0.067–0.088) | 0.15 (0.12–0.17) | 0.42 (0.36–0.47) | 0.58 (0.45–0.70) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.17 (0.15–0.19) | 0.062[E] (0.038–0.085) | 0.16 (0.13–0.19) | 0.48[E] (0.30–0.67) | 0.63 (0.44–0.82) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0.35 | 0.18 (0.16–0.19) | 0.075 (0.060–0.089) | 0.16 (0.14–0.18) | 0.38[E] (0.24–0.53) | 0.62 (0.47–0.78) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.16 (0.13–0.19) | 0.059 (0.048–0.069) | 0.13 (0.11–0.15) | 0.46 (0.36–0.57) | 0.81[E] (0.24–1.4) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

## 2-Hydroxyphenanthrene

2-Hydroxyphenanthrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2520 | 0 | 0.067 (0.062–0.071) | 0.027 (0.024–0.031) | 0.065 (0.060–0.069) | 0.17 (0.14–0.20) | 0.23 (0.18–0.29) |
| Total | 3–79 | 3 (2012–2013) | 2503 | 0 | 0.061 (0.054–0.068) | 0.021 (0.016–0.025) | 0.056 (0.048–0.064) | 0.18 (0.16–0.20) | 0.28 (0.24–0.33) |
| Males | 3–79 | 2 (2009–2011) | 1265 | 0 | 0.074 (0.066–0.083) | 0.029 (0.025–0.033) | 0.070 (0.062–0.078) | 0.18 (0.13–0.23) | 0.26 (0.19–0.33) |
| Males | 3–79 | 3 (2012–2013) | 1238 | 0 | 0.071 (0.065–0.078) | 0.027 (0.023–0.031) | 0.065 (0.058–0.071) | 0.19 (0.15–0.23) | 0.31 (0.21–0.41) |
| Females | 3–79 | 2 (2009–2011) | 1255 | 0 | 0.060 (0.056–0.065) | 0.024 (0.020–0.029) | 0.058 (0.052–0.064) | 0.14 (0.11–0.16) | 0.19[E] (0.12–0.26) |
| Females | 3–79 | 3 (2012–2013) | 1265 | 0 | 0.052 (0.044–0.063) | 0.017 (0.013–0.021) | 0.047 (0.035–0.059) | 0.15 (0.11–0.18) | 0.22[E] (0.10–0.33) |
| Total | 3–5 | 2 (2009–2011) | 506 | 0 | 0.043 (0.038–0.049) | 0.023 (0.019–0.027) | 0.040 (0.033–0.046) | 0.086 (0.060–0.11) | 0.11 (0.077–0.15) |
| Total | 3–5 | 3 (2012–2013) | 490 | 0 | 0.033 (0.028–0.038) | 0.014 (0.010–0.018) | 0.031 (0.028–0.035) | 0.074 (0.067–0.081) | 0.090 (0.076–0.10) |
| Total | 6–11 | 2 (2009–2011) | 510 | 0 | 0.052 (0.046–0.059) | 0.025 (0.021–0.030) | 0.050 (0.045–0.056) | 0.10 (0.076–0.13) | 0.14 (0.11–0.17) |
| Total | 6–11 | 3 (2012–2013) | 500 | 0 | 0.041 (0.036–0.045) | 0.018 (0.014–0.022) | 0.040 (0.034–0.047) | 0.090 (0.073–0.11) | 0.12 (0.085–0.17) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0 | 0.067 (0.061–0.074) | 0.033 (0.024–0.042) | 0.064 (0.058–0.069) | 0.16 (0.11–0.20) | 0.19 (0.15–0.24) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.064 (0.054–0.075) | 0.024 (0.017–0.032) | 0.061 (0.051–0.071) | 0.16 (0.12–0.20) | 0.26[E] (0.13–0.38) |
| Total | 20–39 | 2 (2009–2011) | 354 | 0 | 0.069 (0.060–0.078) | 0.028 (0.023–0.033) | 0.067 (0.059–0.074) | 0.17 (0.13–0.21) | 0.23[E] (0.13–0.32) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.083 (0.072–0.095) | 0.031 (0.026–0.036) | 0.087 (0.068–0.11) | 0.19[E] (0.12–0.26) | 0.33[E] (0.17–0.49) |
| Total | 40–59 | 2 (2009–2011) | 359 | 0 | 0.073 (0.064–0.083) | 0.027 (0.018–0.036) | 0.071 (0.062–0.081) | 0.20 (0.14–0.26) | 0.27 (0.20–0.35) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.057 (0.048–0.068) | 0.019[E] (0.011–0.028) | 0.050 (0.037–0.062) | 0.16[E] (0.098–0.23) | 0.27[E] (0.17–0.37) |
| Total | 60–79 | 2 (2009–2011) | 285 | 0 | 0.064 (0.058–0.071) | 0.026 (0.018–0.034) | 0.062 (0.055–0.070) | 0.15 (0.11–0.19) | F |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 0.059 (0.049–0.073) | 0.019[E] (0.012–0.027) | 0.054 (0.043–0.064) | 0.24[E] (0.12–0.36) | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

2-Hydroxyphenanthrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2510 | 0 | 0.067 (0.062–0.072) | 0.030 (0.027–0.034) | 0.062 (0.057–0.067) | 0.14 (0.12–0.16) | 0.18 (0.16–0.20) |
| Total | 3–79 | 3 (2012–2013) | 2502 | 0 | 0.063 (0.058–0.068) | 0.028 (0.025–0.031) | 0.056 (0.052–0.060) | 0.16 (0.14–0.18) | 0.21 (0.17–0.26) |
| Males | 3–79 | 2 (2009–2011) | 1261 | 0 | 0.063 (0.058–0.070) | 0.029 (0.027–0.031) | 0.059 (0.052–0.066) | 0.15 (0.12–0.18) | 0.19 (0.15–0.23) |
| Males | 3–79 | 3 (2012–2013) | 1238 | 0 | 0.059 (0.053–0.066) | 0.028 (0.024–0.031) | 0.054 (0.049–0.059) | 0.17 (0.14–0.19) | 0.20 (0.16–0.24) |
| Females | 3–79 | 2 (2009–2011) | 1249 | 0 | 0.070 (0.062–0.078) | 0.033 (0.028–0.039) | 0.066 (0.060–0.072) | 0.14 (0.11–0.17) | 0.18 (0.12–0.23) |
| Females | 3–79 | 3 (2012–2013) | 1264 | 0 | 0.067 (0.060–0.075) | 0.031 (0.025–0.036) | 0.061 (0.050–0.073) | 0.16 (0.12–0.19) | 0.22 (0.17–0.28) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0 | 0.077 (0.066–0.089) | 0.040 (0.032–0.047) | 0.076 (0.064–0.088) | 0.15 (0.12–0.19) | 0.18[E] (0.089–0.27) |
| Total | 3–5 | 3 (2012–2013) | 489 | 0 | 0.063 (0.056–0.071) | 0.034 (0.027–0.040) | 0.058 (0.051–0.064) | 0.13 (0.11–0.15) | 0.17 (0.14–0.19) |
| Total | 6–11 | 2 (2009–2011) | 508 | 0 | 0.061 (0.055–0.067) | 0.034 (0.029–0.039) | 0.057 (0.052–0.061) | 0.11 (0.080–0.15) | 0.17 (0.12–0.22) |
| Total | 6–11 | 3 (2012–2013) | 500 | 0 | 0.052 (0.045–0.060) | 0.027 (0.020–0.034) | 0.048 (0.039–0.058) | 0.10 (0.085–0.12) | 0.13 (0.10–0.16) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0 | 0.051 (0.046–0.057) | 0.027 (0.025–0.029) | 0.047 (0.042–0.052) | 0.10 (0.073–0.13) | 0.13[E] (0.078–0.18) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.048 (0.040–0.058) | 0.024 (0.020–0.028) | 0.045 (0.036–0.053) | 0.099 (0.072–0.13) | 0.13[E] (0.060–0.21) |
| Total | 20–39 | 2 (2009–2011) | 352 | 0 | 0.061 (0.053–0.071) | 0.029 (0.026–0.032) | 0.057 (0.048–0.066) | 0.15 (0.10–0.19) | 0.18 (0.14–0.22) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.064 (0.055–0.073) | 0.029 (0.024–0.033) | 0.055 (0.049–0.062) | 0.17 (0.14–0.20) | 0.20 (0.14–0.26) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 0.074 (0.067–0.081) | 0.033 (0.028–0.038) | 0.071 (0.063–0.078) | 0.17 (0.13–0.20) | 0.18 (0.14–0.22) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.067 (0.059–0.077) | 0.029 (0.024–0.035) | 0.066 (0.057–0.075) | 0.17 (0.12–0.21) | 0.22 (0.16–0.29) |
| Total | 60–79 | 2 (2009–2011) | 284 | 0 | 0.075 (0.067–0.084) | 0.036 (0.029–0.043) | 0.066 (0.061–0.072) | 0.14[E] (0.085–0.19) | F |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 0.068 (0.057–0.082) | 0.029 (0.022–0.037) | 0.057 (0.048–0.066) | 0.19 (0.13–0.24) | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## 3-Hydroxyphenanthrene

3-Hydroxyphenanthrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2515 | 0 | 0.087 (0.080–0.095) | 0.026 (0.023–0.029) | 0.089 (0.080–0.098) | 0.28 (0.22–0.35) | 0.39 (0.31–0.46) |
| Total | 3–79 | 3 (2012–2013) | 2505 | 0 | 0.083 (0.077–0.090) | 0.021 (0.016–0.026) | 0.081 (0.075–0.087) | 0.29 (0.24–0.34) | 0.48 (0.40–0.57) |
| Males | 3–79 | 2 (2009–2011) | 1265 | 0 | 0.10 (0.087–0.12) | 0.030 (0.026–0.035) | 0.099 (0.085–0.11) | 0.33 (0.25–0.42) | 0.45 (0.30–0.60) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 0 | 0.099 (0.092–0.11) | 0.029 (0.020–0.039) | 0.098 (0.084–0.11) | 0.33 (0.25–0.40) | 0.54 (0.44–0.64) |
| Females | 3–79 | 2 (2009–2011) | 1250 | 0 | 0.075 (0.069–0.082) | 0.022 (0.018–0.026) | 0.078 (0.066–0.090) | 0.22 (0.14–0.29) | 0.35 (0.26–0.44) |
| Females | 3–79 | 3 (2012–2013) | 1264 | 0 | 0.070 (0.060–0.082) | 0.017 (0.013–0.021) | 0.065 (0.051–0.079) | 0.28 (0.22–0.34) | 0.40 (0.27–0.52) |
| Total | 3–5 | 2 (2009–2011) | 501 | 0 | 0.077 (0.068–0.086) | 0.030 (0.026–0.034) | 0.076 (0.064–0.088) | 0.18[E] (0.10–0.25) | 0.28 (0.20–0.35) |
| Total | 3–5 | 3 (2012–2013) | 490 | 0 | 0.065 (0.058–0.074) | 0.020 (0.015–0.024) | 0.067 (0.059–0.075) | 0.19 (0.16–0.22) | 0.28 (0.22–0.34) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0 | 0.084 (0.071–0.099) | 0.029 (0.023–0.035) | 0.092 (0.072–0.11) | 0.21 (0.16–0.27) | 0.28 (0.21–0.34) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.069 (0.059–0.081) | 0.021 (0.014–0.029) | 0.073 (0.059–0.087) | 0.17 (0.13–0.21) | 0.22 (0.16–0.28) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0 | 0.094 (0.084–0.11) | 0.033 (0.025–0.042) | 0.091 (0.077–0.10) | 0.26 (0.18–0.33) | 0.35[E] (0.20–0.50) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.091 (0.081–0.10) | 0.028[E] (0.015–0.040) | 0.089 (0.075–0.10) | 0.28 (0.19–0.38) | 0.42 (0.30–0.55) |
| Total | 20–39 | 2 (2009–2011) | 355 | 0 | 0.091 (0.078–0.11) | 0.027 (0.020–0.034) | 0.099 (0.070–0.13) | 0.30 (0.21–0.39) | 0.38 (0.27–0.49) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.11 (0.093–0.13) | 0.035 (0.026–0.044) | 0.10 (0.077–0.13) | 0.30[E] (0.19–0.40) | 0.58[E] (0.25–0.91) |
| Total | 40–59 | 2 (2009–2011) | 358 | 0 | 0.091 (0.078–0.11) | 0.023[E] (0.014–0.032) | 0.093 (0.082–0.10) | 0.34 (0.27–0.41) | 0.44[E] (0.27–0.60) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.078 (0.066–0.092) | 0.021 (0.015–0.027) | 0.074 (0.060–0.088) | 0.29 (0.22–0.35) | 0.38 (0.26–0.50) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 0.073 (0.063–0.085) | 0.020 (0.016–0.025) | 0.073 (0.059–0.086) | 0.24 (0.18–0.29) | 0.33[E] (0.12–0.54) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.072 (0.058–0.089) | 0.015[E] (0.0058–0.024) | 0.066 (0.050–0.083) | 0.48 (0.32–0.65) | 0.58 (0.39–0.76) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

3-Hydroxyphenanthrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2505 | 0 | 0.087 (0.080–0.094) | 0.038 (0.035–0.041) | 0.079 (0.073–0.085) | 0.23 (0.18–0.27) | 0.37 (0.29–0.46) |
| Total | 3–79 | 3 (2012–2013) | 2504 | 0 | 0.086 (0.080–0.092) | 0.032 (0.029–0.035) | 0.082 (0.072–0.091) | 0.26 (0.23–0.28) | 0.35 (0.28–0.42) |
| Males | 3–79 | 2 (2009–2011) | 1261 | 0 | 0.086 (0.076–0.098) | 0.035 (0.031–0.039) | 0.079 (0.069–0.090) | 0.26 (0.18–0.35) | 0.42 (0.29–0.55) |
| Males | 3–79 | 3 (2012–2013) | 1241 | 0 | 0.083 (0.074–0.093) | 0.031 (0.027–0.036) | 0.078 (0.063–0.093) | 0.26 (0.24–0.27) | 0.35 (0.25–0.44) |
| Females | 3–79 | 2 (2009–2011) | 1244 | 0 | 0.087 (0.079–0.095) | 0.042 (0.037–0.046) | 0.079 (0.072–0.086) | 0.19 (0.15–0.23) | 0.31[E] (0.15–0.47) |
| Females | 3–79 | 3 (2012–2013) | 1263 | 0 | 0.090 (0.081–0.099) | 0.036 (0.033–0.039) | 0.084 (0.073–0.095) | 0.26 (0.20–0.32) | 0.35 (0.26–0.45) |
| Total | 3–5 | 2 (2009–2011) | 500 | 0 | 0.14 (0.12–0.15) | 0.067 (0.059–0.076) | 0.13 (0.11–0.15) | 0.29 (0.25–0.33) | 0.36 (0.27–0.44) |
| Total | 3–5 | 3 (2012–2013) | 489 | 0 | 0.13 (0.12–0.14) | 0.065 (0.056–0.074) | 0.11 (0.097–0.12) | 0.28 (0.24–0.31) | 0.41 (0.31–0.51) |
| Total | 6–11 | 2 (2009–2011) | 507 | 0 | 0.098 (0.087–0.11) | 0.049 (0.039–0.058) | 0.087 (0.075–0.10) | 0.20 (0.14–0.25) | 0.27[E] (0.098–0.44) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.088 (0.076–0.10) | 0.043 (0.038–0.048) | 0.082 (0.064–0.10) | 0.18 (0.13–0.24) | 0.24 (0.17–0.30) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0 | 0.072 (0.064–0.081) | 0.037 (0.034–0.039) | 0.068 (0.061–0.074) | 0.14[E] (0.060–0.22) | 0.23[E] (0.13–0.32) |
| Total | 12–19 | 3 (2012–2013) | 505 | 0 | 0.069 (0.062–0.077) | 0.034 (0.029–0.038) | 0.060 (0.051–0.068) | 0.15 (0.11–0.19) | 0.24[E] (0.13–0.36) |
| Total | 20–39 | 2 (2009–2011) | 353 | 0 | 0.081 (0.071–0.093) | 0.038 (0.033–0.042) | 0.069 (0.055–0.082) | 0.23[E] (0.12–0.33) | 0.38[E] (0.23–0.52) |
| Total | 20–39 | 3 (2012–2013) | 350 | 0 | 0.084 (0.070–0.10) | 0.031 (0.025–0.038) | 0.081 (0.065–0.098) | 0.25 (0.20–0.31) | 0.34 (0.22–0.47) |
| Total | 40–59 | 2 (2009–2011) | 356 | 0 | 0.092 (0.083–0.10) | 0.037 (0.032–0.043) | 0.086 (0.073–0.099) | 0.27 (0.18–0.35) | 0.45 (0.32–0.58) |
| Total | 40–59 | 3 (2012–2013) | 311 | 0 | 0.092 (0.081–0.10) | 0.033 (0.026–0.040) | 0.097 (0.087–0.11) | 0.28 (0.20–0.35) | 0.34 (0.22–0.45) |
| Total | 60–79 | 2 (2009–2011) | 285 | 0 | 0.085 (0.075–0.096) | 0.039 (0.032–0.045) | 0.077 (0.071–0.083) | 0.18[E] (0.11–0.24) | 0.30[E] (0.13–0.47) |
| Total | 60–79 | 3 (2012–2013) | 348 | 0 | 0.083 (0.069–0.10) | 0.030 (0.022–0.038) | 0.069 (0.059–0.079) | 0.33 (0.24–0.41) | 0.43[E] (0.18–0.68) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

## 4-Hydroxyphenanthrene

4-Hydroxyphenanthrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2519 | 0.08 | 0.024 (0.022–0.027) | 0.0065 (0.0055–0.0075) | 0.019 (0.016–0.022) | 0.091 (0.074–0.11) | 0.13 (0.11–0.15) |
| Total | 3–79 | 3 (2012–2013) | 2495 | 4.33 | 0.021 (0.019–0.023) | 0.0055 (0.0044–0.0065) | 0.020 (0.016–0.023) | 0.086 (0.068–0.10) | 0.14 (0.11–0.18) |
| Males | 3–79 | 2 (2009–2011) | 1266 | 0 | 0.027 (0.023–0.031) | 0.0071 (0.0053–0.0088) | 0.022 (0.017–0.027) | 0.10 (0.074–0.13) | 0.15 (0.10–0.20) |
| Males | 3–79 | 3 (2012–2013) | 1236 | 3.32 | 0.024 (0.021–0.027) | 0.0067 (0.0047–0.0087) | 0.023 (0.020–0.026) | 0.097 (0.074–0.12) | 0.15 (0.11–0.19) |
| Females | 3–79 | 2 (2009–2011) | 1253 | 0.16 | 0.022 (0.020–0.024) | 0.0058 (0.0047–0.0070) | 0.017 (0.014–0.020) | 0.085 (0.065–0.10) | 0.13 (0.095–0.16) |
| Females | 3–79 | 3 (2012–2013) | 1259 | 5.32 | 0.018 (0.015–0.023) | 0.0044 (0.0031–0.0058) | 0.017 (0.011–0.022) | 0.076 (0.052–0.10) | 0.13[E] (0.079–0.18) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0 | 0.017 (0.015–0.020) | 0.0056 (0.0045–0.0068) | 0.014 (0.012–0.016) | 0.051 (0.042–0.061) | 0.063[E] (0.032–0.093) |
| Total | 3–5 | 3 (2012–2013) | 488 | 4.30 | 0.014 (0.012–0.016) | 0.0045 (0.0031–0.0059) | 0.013 (0.011–0.016) | 0.047 (0.038–0.056) | 0.062 (0.051–0.073) |
| Total | 6–11 | 2 (2009–2011) | 510 | 0 | 0.020 (0.016–0.023) | 0.0063 (0.0054–0.0073) | 0.016 (0.012–0.020) | 0.057 (0.040–0.075) | 0.074 (0.049–0.099) |
| Total | 6–11 | 3 (2012–2013) | 500 | 4.40 | 0.014 (0.013–0.017) | 0.0046 (0.0033–0.0059) | 0.015 (0.012–0.018) | 0.041 (0.032–0.050) | 0.062 (0.050–0.073) |
| Total | 12–19 | 2 (2009–2011) | 505 | 0.20 | 0.023 (0.020–0.025) | 0.0075 (0.0055–0.0096) | 0.018 (0.016–0.021) | 0.067 (0.053–0.081) | 0.094 (0.062–0.12) |
| Total | 12–19 | 3 (2012–2013) | 504 | 4.56 | 0.021 (0.018–0.024) | 0.0068 (0.0053–0.0083) | 0.018 (0.015–0.021) | 0.077 (0.052–0.10) | 0.11[E] (0.070–0.16) |
| Total | 20–39 | 2 (2009–2011) | 355 | 0 | 0.026 (0.022–0.031) | 0.0064 (0.0045–0.0083) | 0.025[E] (0.014–0.036) | 0.088 (0.057–0.12) | 0.13 (0.086–0.18) |
| Total | 20–39 | 3 (2012–2013) | 349 | 2.87 | 0.027 (0.022–0.034) | 0.0072 (0.0054–0.0090) | 0.028 (0.020–0.036) | 0.095[E] (0.057–0.13) | 0.16[E] (0.088–0.24) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 0.027 (0.023–0.032) | 0.0075 (0.0053–0.0098) | 0.020 (0.015–0.024) | 0.11 (0.085–0.14) | 0.15[E] (0.097–0.21) |
| Total | 40–59 | 3 (2012–2013) | 308 | 4.55 | 0.021 (0.017–0.025) | 0.0045[E] (<LOD–0.0067) | 0.019 (0.014–0.025) | 0.090[E] (0.050–0.13) | 0.12[E] (0.075–0.17) |
| Total | 60–79 | 2 (2009–2011) | 287 | 0.35 | 0.022 (0.019–0.026) | 0.0057 (0.0044–0.0070) | 0.018 (0.013–0.022) | 0.086[E] (0.054–0.12) | 0.14[E] (0.075–0.21) |
| Total | 60–79 | 3 (2012–2013) | 346 | 5.20 | 0.020 (0.016–0.024) | 0.0047[E] (<LOD–0.0071) | 0.018 (0.013–0.022) | F | 0.25[E] (0.12–0.39) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

4-Hydroxyphenanthrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2509 | 0.08 | 0.024 (0.022–0.026) | 0.0089 (0.0084–0.0095) | 0.020 (0.016–0.024) | 0.077 (0.060–0.094) | 0.11 (0.082–0.14) |
| Total | 3–79 | 3 (2012–2013) | 2494 | 4.33 | 0.022 (0.020–0.024) | 0.0077 (0.0066–0.0088) | 0.019 (0.016–0.021) | 0.076 (0.067–0.085) | 0.10 (0.083–0.12) |
| Males | 3–79 | 2 (2009–2011) | 1262 | 0 | 0.022 (0.019–0.026) | 0.0078 (0.0070–0.0087) | 0.020 (0.019–0.020) | 0.088 (0.061–0.11) | 0.13 (0.085–0.17) |
| Males | 3–79 | 3 (2012–2013) | 1236 | 3.32 | 0.020 (0.017–0.023) | 0.0071 (0.0056–0.0087) | 0.017 (0.014–0.019) | 0.077 (0.063–0.091) | 0.099 (0.081–0.12) |
| Females | 3–79 | 2 (2009–2011) | 1247 | 0.16 | 0.026 (0.023–0.029) | 0.0092 (0.0089–0.0095) | 0.027 (0.018–0.035) | 0.068 (0.051–0.086) | 0.10 (0.070–0.13) |
| Females | 3–79 | 3 (2012–2013) | 1258 | 5.32 | 0.023 (0.021–0.026) | 0.0081 (0.0069–0.0094) | 0.022 (0.019–0.025) | 0.076 (0.061–0.090) | 0.11 (0.079–0.14) |
| Total | 3–5 | 2 (2009–2011) | 504 | 0 | 0.030 (0.026–0.035) | 0.0095 (0.0089–0.010) | 0.024 (0.021–0.028) | 0.085 (0.069–0.10) | 0.097 (0.076–0.12) |
| Total | 3–5 | 3 (2012–2013) | 487 | 4.30 | 0.026 (0.024–0.029) | 0.011 (0.010–0.012) | 0.023 (0.019–0.027) | 0.068 (0.062–0.074) | 0.095 (0.075–0.12) |
| Total | 6–11 | 2 (2009–2011) | 508 | 0 | 0.022 (0.018–0.026) | 0.0091 (0.0088–0.0094) | 0.016 (0.012–0.020) | 0.060 (0.042–0.078) | 0.080 (0.060–0.10) |
| Total | 6–11 | 3 (2012–2013) | 500 | 4.40 | 0.018 (0.016–0.021) | 0.0078 (0.0066–0.0089) | 0.017 (0.014–0.020) | 0.045 (0.040–0.050) | 0.052 (0.043–0.061) |
| Total | 12–19 | 2 (2009–2011) | 503 | 0.20 | 0.017 (0.015–0.019) | 0.0077 (0.0068–0.0086) | 0.019[E] (0.011–0.027) | 0.042 (0.030–0.054) | 0.059 (0.039–0.078) |
| Total | 12–19 | 3 (2012–2013) | 504 | 4.56 | 0.016 (0.014–0.018) | 0.0070 (0.0060–0.0080) | 0.013 (0.011–0.016) | 0.036 (0.025–0.047) | F |
| Total | 20–39 | 2 (2009–2011) | 353 | 0 | 0.023 (0.019–0.027) | 0.0078 (0.0065–0.0091) | 0.020 (0.018–0.021) | 0.070[E] (0.041–0.098) | 0.11[E] (0.067–0.16) |
| Total | 20–39 | 3 (2012–2013) | 349 | 2.87 | 0.021 (0.017–0.026) | 0.0080 (0.0064–0.0096) | 0.017 (0.012–0.022) | 0.077 (0.059–0.095) | 0.093 (0.071–0.11) |
| Total | 40–59 | 2 (2009–2011) | 355 | 0 | 0.027 (0.024–0.030) | 0.0091 (0.0087–0.0095) | 0.027 (0.018–0.036) | 0.091 (0.074–0.11) | 0.14[E] (0.088–0.19) |
| Total | 40–59 | 3 (2012–2013) | 308 | 4.55 | 0.024 (0.020–0.029) | 0.0080 (0.0054–0.011) | 0.024 (0.018–0.030) | 0.083 (0.060–0.11) | 0.11[E] (0.070–0.15) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0.35 | 0.026 (0.023–0.031) | 0.0090 (0.0082–0.0098) | 0.029[E] (0.018–0.040) | 0.081[E] (0.048–0.11) | 0.13[E] (0.070–0.19) |
| Total | 60–79 | 3 (2012–2013) | 346 | 5.20 | 0.023 (0.019–0.027) | 0.0074 (0.0058–0.0090) | 0.020 (0.015–0.024) | 0.096[E] (0.059–0.13) | 0.14[E] (0.075–0.21) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## 9-Hydroxyphenanthrene

9-Hydroxyphenanthrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2474 | 5.86 | 0.039 (0.034–0.044) | 0.0075 (0.0066–0.0084) | 0.036 (0.029–0.043) | 0.24 (0.18–0.31) | 0.41 (0.33–0.49) |
| Total | 3–79 | 3 (2012–2013) | 2295 | 3.66 | 0.036 (0.033–0.040) | 0.0080 (0.0059–0.010) | 0.034 (0.029–0.038) | 0.19 (0.14–0.23) | 0.32 (0.21–0.43) |
| Males | 3–79 | 2 (2009–2011) | 1249 | 5.44 | 0.043 (0.035–0.052) | 0.0080 (0.0065–0.0094) | 0.043 (0.033–0.053) | 0.25[E] (0.15–0.35) | 0.49 (0.32–0.65) |
| Males | 3–79 | 3 (2012–2013) | 1155 | 2.60 | 0.040 (0.036–0.045) | 0.0099 (0.0086–0.011) | 0.037 (0.032–0.041) | 0.19 (0.15–0.22) | 0.26[E] (0.12–0.40) |
| Females | 3–79 | 2 (2009–2011) | 1225 | 6.29 | 0.035 (0.031–0.040) | 0.0070 (0.0053–0.0086) | 0.032 (0.028–0.036) | 0.23[E] (0.11–0.34) | 0.38 (0.26–0.50) |
| Females | 3–79 | 3 (2012–2013) | 1140 | 4.74 | 0.032 (0.026–0.039) | 0.0070 (0.0045–0.0095) | 0.032 (0.026–0.037) | 0.19[E] (0.083–0.29) | 0.39 (0.25–0.53) |
| Total | 3–5 | 2 (2009–2011) | 490 | 11.43 | 0.018 (0.015–0.022) | <LOD | 0.020 (0.017–0.023) | 0.072 (0.054–0.089) | 0.095[E] (0.041–0.15) |
| Total | 3–5 | 3 (2012–2013) | 426 | 4.46 | 0.019 (0.017–0.022) | 0.0069[E] (<LOD–0.0099) | 0.019 (0.015–0.023) | 0.057 (0.042–0.072) | 0.072 (0.051–0.093) |
| Total | 6–11 | 2 (2009–2011) | 502 | 5.78 | 0.019 (0.015–0.023) | 0.0044[E] (<LOD–0.0075) | 0.022 (0.017–0.026) | 0.056 (0.043–0.069) | 0.076 (0.055–0.097) |
| Total | 6–11 | 3 (2012–2013) | 447 | 4.92 | 0.019 (0.017–0.022) | 0.0058[E] (<LOD–0.0091) | 0.021 (0.019–0.023) | 0.048 (0.041–0.054) | F |
| Total | 12–19 | 2 (2009–2011) | 499 | 5.41 | 0.027 (0.023–0.032) | 0.0073 (0.0058–0.0089) | 0.029 (0.023–0.035) | 0.099 (0.076–0.12) | 0.15[E] (0.092–0.20) |
| Total | 12–19 | 3 (2012–2013) | 480 | 3.75 | 0.026 (0.021–0.031) | 0.0070[E] (0.0040–0.0099) | 0.022 (0.018–0.026) | 0.10 (0.066–0.13) | F |
| Total | 20–39 | 2 (2009–2011) | 348 | 3.45 | 0.041 (0.034–0.050) | 0.0088[E] (0.0055–0.012) | 0.040 (0.030–0.050) | 0.23[E] (0.088–0.38) | 0.39[E] (0.20–0.58) |
| Total | 20–39 | 3 (2012–2013) | 331 | 2.11 | 0.040 (0.031–0.051) | 0.0094 (0.0072–0.012) | 0.036 (0.030–0.043) | 0.19 (0.13–0.25) | 0.23[E] (0.088–0.36) |
| Total | 40–59 | 2 (2009–2011) | 350 | 3.14 | 0.049 (0.040–0.059) | 0.0089 (0.0071–0.011) | 0.045 (0.034–0.056) | 0.31 (0.23–0.38) | 0.48 (0.40–0.56) |
| Total | 40–59 | 3 (2012–2013) | 287 | 4.18 | 0.041 (0.031–0.054) | 0.0080 (0.0052–0.011) | 0.043 (0.031–0.055) | 0.22[E] (0.086–0.35) | 0.38[E] (0.22–0.53) |
| Total | 60–79 | 2 (2009–2011) | 285 | 3.51 | 0.043 (0.033–0.056) | 0.0065[E] (<LOD–0.0092) | 0.035 (0.024–0.045) | 0.31[E] (0.19–0.42) | 0.60[E] (0.34–0.85) |
| Total | 60–79 | 3 (2012–2013) | 324 | 1.85 | 0.041 (0.034–0.050) | F | 0.040 (0.031–0.049) | 0.28[E] (0.076–0.49) | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

9-Hydroxyphenanthrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2464 | 5.86 | 0.039 (0.034–0.044) | 0.010 (0.0091–0.011) | 0.032 (0.026–0.038) | 0.22 (0.16–0.28) | 0.34 (0.26–0.42) |
| Total | 3–79 | 3 (2012–2013) | 2294 | 3.66 | 0.037 (0.034–0.041) | 0.011 (0.0095–0.012) | 0.032 (0.028–0.037) | 0.17 (0.13–0.21) | 0.29 (0.20–0.38) |
| Males | 3–79 | 2 (2009–2011) | 1245 | 5.44 | 0.037 (0.030–0.045) | 0.0099 (0.0077–0.012) | 0.029 (0.022–0.035) | 0.23[E] (0.14–0.33) | 0.38 (0.27–0.48) |
| Males | 3–79 | 3 (2012–2013) | 1155 | 2.60 | 0.033 (0.028–0.040) | 0.0097 (0.0079–0.012) | 0.030 (0.023–0.037) | 0.16 (0.11–0.21) | 0.23 (0.16–0.30) |
| Females | 3–79 | 2 (2009–2011) | 1219 | 6.29 | 0.041 (0.035–0.048) | 0.010[E] (0.0060–0.014) | 0.035 (0.027–0.043) | 0.21[E] (0.13–0.29) | 0.29[E] (0.18–0.39) |
| Females | 3–79 | 3 (2012–2013) | 1139 | 4.74 | 0.041 (0.037–0.046) | 0.012 (0.010–0.013) | 0.035 (0.030–0.039) | 0.21[E] (0.12–0.30) | 0.39 (0.25–0.53) |
| Total | 3–5 | 2 (2009–2011) | 489 | 11.43 | 0.032 (0.027–0.037) | <LOD | 0.037 (0.030–0.043) | 0.11 (0.086–0.13) | 0.14[E] (0.086–0.20) |
| Total | 3–5 | 3 (2012–2013) | 425 | 4.46 | 0.037 (0.035–0.040) | 0.017 (0.013–0.020) | 0.036 (0.032–0.040) | 0.081 (0.066–0.095) | 0.10 (0.086–0.12) |
| Total | 6–11 | 2 (2009–2011) | 500 | 5.78 | 0.022 (0.018–0.027) | 0.0068[E] (<LOD–0.010) | 0.025 (0.021–0.029) | 0.053 (0.044–0.063) | 0.071 (0.050–0.093) |
| Total | 6–11 | 3 (2012–2013) | 447 | 4.92 | 0.025 (0.022–0.028) | 0.012 (0.0086–0.015) | 0.023 (0.020–0.025) | 0.057 (0.046–0.069) | 0.082[E] (0.037–0.13) |
| Total | 12–19 | 2 (2009–2011) | 497 | 5.41 | 0.021 (0.018–0.024) | 0.0076 (0.0060–0.0092) | 0.020 (0.017–0.022) | 0.059[E] (0.037–0.082) | 0.087[E] (0.043–0.13) |
| Total | 12–19 | 3 (2012–2013) | 480 | 3.75 | 0.019 (0.017–0.022) | 0.0087 (0.0071–0.010) | 0.016 (0.014–0.018) | 0.056[E] (0.030–0.082) | 0.097[E] (0.042–0.15) |
| Total | 20–39 | 2 (2009–2011) | 346 | 3.45 | 0.037 (0.029–0.047) | 0.010[E] (0.0047–0.015) | 0.028 (0.020–0.035) | 0.26[E] (0.11–0.41) | 0.36[E] (0.22–0.51) |
| Total | 20–39 | 3 (2012–2013) | 331 | 2.11 | 0.030 (0.023–0.040) | 0.010 (0.0066–0.013) | 0.025[E] (0.012–0.038) | 0.12[E] (0.048–0.20) | 0.17[E] (0.093–0.25) |
| Total | 40–59 | 2 (2009–2011) | 348 | 3.14 | 0.049 (0.040–0.060) | 0.012[E] (0.0067–0.018) | 0.043 (0.030–0.056) | 0.25 (0.19–0.31) | 0.40[E] (0.25–0.55) |
| Total | 40–59 | 3 (2012–2013) | 287 | 4.18 | 0.048 (0.038–0.060) | 0.011 (0.0076–0.015) | 0.042[E] (0.024–0.061) | 0.24[E] (0.10–0.37) | 0.39[E] (0.23–0.56) |
| Total | 60–79 | 2 (2009–2011) | 284 | 3.51 | 0.051 (0.040–0.064) | 0.013[E] (0.0078–0.019) | 0.039[E] (0.023–0.056) | 0.29[E] (0.18–0.40) | F |
| Total | 60–79 | 3 (2012–2013) | 324 | 1.85 | 0.048 (0.040–0.058) | 0.013 (0.0097–0.017) | 0.041 (0.031–0.051) | 0.25[E] (0.14–0.36) | 0.37[E] (0.21–0.54) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# PYRENE

## 1-Hydroxypyrene

1-Hydroxypyrene — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2422 | 0.04 | 0.11 (0.099–0.12) | 0.031 (0.027–0.034) | 0.10 (0.092–0.11) | 0.35 (0.31–0.39) | 0.57 (0.47–0.68) |
| Total | 3–79 | 3 (2012–2013) | 2410 | 0.04 | 0.088 (0.078–0.10) | 0.027 (0.020–0.035) | 0.087 (0.078–0.096) | 0.31 (0.26–0.35) | 0.46 (0.38–0.55) |
| Males | 3–79 | 2 (2009–2011) | 1206 | 0 | 0.12 (0.11–0.14) | 0.040 (0.034–0.045) | 0.12 (0.10–0.13) | 0.38 (0.25–0.50) | 0.59 (0.46–0.73) |
| Males | 3–79 | 3 (2012–2013) | 1178 | 0.08 | 0.10 (0.090–0.12) | 0.033 (0.023–0.042) | 0.094 (0.088–0.10) | 0.36 (0.30–0.43) | 0.52 (0.45–0.60) |
| Females | 3–79 | 2 (2009–2011) | 1216 | 0.08 | 0.095 (0.088–0.10) | 0.026 (0.021–0.031) | 0.095 (0.085–0.10) | 0.33 (0.28–0.37) | 0.48 (0.34–0.62) |
| Females | 3–79 | 3 (2012–2013) | 1232 | 0 | 0.077 (0.064–0.092) | 0.022[E] (0.014–0.031) | 0.077 (0.061–0.093) | 0.26 (0.21–0.30) | 0.36 (0.25–0.48) |
| Total | 3–5 | 2 (2009–2011) | 504 | 0 | 0.12 (0.11–0.13) | 0.050 (0.041–0.059) | 0.11 (0.10–0.12) | 0.27 (0.20–0.34) | 0.40 (0.30–0.51) |
| Total | 3–5 | 3 (2012–2013) | 493 | 0 | 0.093 (0.077–0.11) | 0.029 (0.023–0.036) | 0.098 (0.081–0.12) | 0.26 (0.21–0.31) | 0.31 (0.25–0.37) |
| Total | 6–11 | 2 (2009–2011) | 507 | 0 | 0.13 (0.11–0.15) | 0.049 (0.039–0.058) | 0.12 (0.096–0.14) | 0.34 (0.25–0.42) | 0.47 (0.34–0.60) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.092 (0.084–0.10) | 0.032 (0.024–0.039) | 0.097 (0.088–0.11) | 0.21 (0.16–0.26) | 0.28 (0.22–0.33) |
| Total | 12–19 | 2 (2009–2011) | 480 | 0 | 0.15 (0.14–0.17) | 0.050[E] (0.031–0.069) | 0.15 (0.13–0.17) | 0.44 (0.36–0.52) | 0.62 (0.45–0.79) |
| Total | 12–19 | 3 (2012–2013) | 473 | 0 | 0.12 (0.097–0.14) | 0.040[E] (0.024–0.057) | 0.11 (0.092–0.13) | 0.34 (0.24–0.43) | 0.47 (0.34–0.60) |
| Total | 20–39 | 2 (2009–2011) | 327 | 0 | 0.13 (0.11–0.15) | 0.041 (0.027–0.054) | 0.12 (0.10–0.14) | 0.35 (0.29–0.42) | 0.48[E] (0.27–0.69) |
| Total | 20–39 | 3 (2012–2013) | 308 | 0 | 0.12 (0.10–0.15) | 0.037 (0.025–0.048) | 0.11 (0.077–0.15) | 0.36 (0.25–0.47) | F |
| Total | 40–59 | 2 (2009–2011) | 329 | 0.30 | 0.10 (0.084–0.12) | 0.026[E] (0.012–0.039) | 0.094 (0.076–0.11) | 0.44[E] (0.22–0.65) | 0.58 (0.47–0.69) |
| Total | 40–59 | 3 (2012–2013) | 296 | 0 | 0.080 (0.067–0.095) | 0.027[E] (0.016–0.039) | 0.079 (0.063–0.095) | 0.26[E] (0.14–0.38) | 0.43[E] (0.26–0.60) |
| Total | 60–79 | 2 (2009–2011) | 275 | 0 | 0.067 (0.057–0.079) | 0.024 (0.018–0.030) | 0.062 (0.048–0.076) | 0.20 (0.16–0.24) | F |
| Total | 60–79 | 3 (2012–2013) | 339 | 0.29 | 0.064 (0.051–0.081) | 0.015[E] (0.0086–0.022) | 0.060 (0.041–0.079) | 0.31 (0.20–0.41) | 0.50[E] (0.29–0.71) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

1-Hydroxypyrene (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2412 | 0.04 | 0.11 (0.10–0.12) | 0.045 (0.042–0.048) | 0.099 (0.096–0.10) | 0.28 (0.24–0.33) | 0.40 (0.31–0.50) |
| Total | 3–79 | 3 (2012–2013) | 2409 | 0.04 | 0.094 (0.084–0.10) | 0.034 (0.028–0.040) | 0.088 (0.079–0.096) | 0.25 (0.20–0.29) | 0.36 (0.24–0.47) |
| Males | 3–79 | 2 (2009–2011) | 1202 | 0 | 0.11 (0.093–0.12) | 0.042 (0.036–0.047) | 0.098 (0.091–0.10) | 0.31 (0.24–0.39) | 0.43[E] (0.28–0.59) |
| Males | 3–79 | 3 (2012–2013) | 1178 | 0.08 | 0.089 (0.076–0.10) | 0.030 (0.020–0.039) | 0.087 (0.075–0.099) | 0.25 (0.18–0.31) | 0.35 (0.26–0.44) |
| Females | 3–79 | 2 (2009–2011) | 1210 | 0.08 | 0.11 (0.10–0.12) | 0.048 (0.044–0.052) | 0.099 (0.094–0.11) | 0.26 (0.21–0.31) | 0.38 (0.28–0.49) |
| Females | 3–79 | 3 (2012–2013) | 1231 | 0 | 0.099 (0.087–0.11) | 0.038 (0.027–0.049) | 0.088 (0.071–0.11) | 0.25 (0.19–0.30) | 0.42[E] (0.23–0.60) |
| Total | 3–5 | 2 (2009–2011) | 503 | 0 | 0.21 (0.20–0.23) | 0.11 (0.089–0.12) | 0.20 (0.18–0.23) | 0.41 (0.35–0.46) | 0.51 (0.42–0.60) |
| Total | 3–5 | 3 (2012–2013) | 492 | 0 | 0.18 (0.16–0.20) | 0.094 (0.078–0.11) | 0.17 (0.15–0.20) | 0.34 (0.28–0.41) | 0.43 (0.38–0.49) |
| Total | 6–11 | 2 (2009–2011) | 505 | 0 | 0.15 (0.13–0.16) | 0.074 (0.063–0.085) | 0.14 (0.12–0.15) | 0.28 (0.22–0.34) | 0.37 (0.26–0.49) |
| Total | 6–11 | 3 (2012–2013) | 501 | 0 | 0.12 (0.11–0.13) | 0.066 (0.057–0.074) | 0.11 (0.091–0.12) | 0.21 (0.17–0.25) | 0.27 (0.23–0.31) |
| Total | 12–19 | 2 (2009–2011) | 478 | 0 | 0.12 (0.10–0.13) | 0.056 (0.051–0.062) | 0.10 (0.091–0.12) | 0.28 (0.20–0.37) | 0.39[E] (0.21–0.57) |
| Total | 12–19 | 3 (2012–2013) | 473 | 0 | 0.089 (0.073–0.11) | 0.044 (0.031–0.057) | 0.087 (0.074–0.10) | 0.19[E] (0.12–0.26) | 0.26[E] (0.15–0.37) |
| Total | 20–39 | 2 (2009–2011) | 325 | 0 | 0.12 (0.096–0.14) | 0.050 (0.035–0.065) | 0.10 (0.083–0.12) | 0.28 (0.18–0.38) | 0.41 (0.27–0.54) |
| Total | 20–39 | 3 (2012–2013) | 308 | 0 | 0.10 (0.087–0.12) | 0.036 (0.026–0.047) | 0.099 (0.087–0.11) | 0.26[E] (0.083–0.44) | 0.54[E] (0.20–0.88) |
| Total | 40–59 | 2 (2009–2011) | 327 | 0.30 | 0.10 (0.090–0.12) | 0.043 (0.039–0.047) | 0.094 (0.085–0.10) | 0.33 (0.25–0.41) | 0.59[E] (0.24–0.94) |
| Total | 40–59 | 3 (2012–2013) | 296 | 0 | 0.093 (0.080–0.11) | 0.033[E] (0.020–0.046) | 0.088 (0.074–0.10) | 0.26[E] (0.15–0.37) | 0.38[E] (0.20–0.56) |
| Total | 60–79 | 2 (2009–2011) | 274 | 0 | 0.079 (0.069–0.091) | 0.035 (0.028–0.042) | 0.078 (0.072–0.084) | 0.16 (0.13–0.20) | 0.23[E] (0.11–0.36) |
| Total | 60–79 | 3 (2012–2013) | 339 | 0.29 | 0.073 (0.060–0.090) | 0.028 (0.023–0.034) | 0.062 (0.050–0.075) | 0.23 (0.16–0.30) | 0.35 (0.23–0.48) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# Results for Volatile Organic Compounds

## BENZENE

### Benzene

Benzene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2488 | 12.58 | 0.036 (0.025–0.050) | <LOD | 0.039 (0.030–0.049) | 0.15 (0.12–0.19) | 0.24 (0.18–0.29) |
| Males | 12–79 | 3 (2012–2013) | 1245 | 11.57 | 0.037 (0.026–0.052) | <LOD | 0.040 (0.030–0.049) | 0.15 (0.13–0.18) | 0.24 (0.18–0.30) |
| Females | 12–79 | 3 (2012–2013) | 1243 | 13.60 | 0.035[E] (0.024–0.051) | <LOD | 0.038 (0.028–0.049) | 0.17[E] (0.093–0.24) | 0.23[E] (0.11–0.35) |
| Total | 12–19 | 3 (2012–2013) | 750 | 14.00 | 0.028 (0.019–0.040) | <LOD | 0.034 (0.025–0.043) | 0.084 (0.063–0.10) | 0.12 (0.076–0.16) |
| Total | 20–39 | 3 (2012–2013) | 548 | 10.40 | 0.037[E] (0.023–0.059) | F | 0.040 (0.027–0.054) | 0.13 (0.080–0.17) | 0.18 (0.14–0.22) |
| Total | 40–59 | 3 (2012–2013) | 598 | 8.70 | 0.040 (0.030–0.055) | <LOD | 0.039 (0.028–0.050) | 0.23 (0.16–0.31) | 0.40[E] (0.24–0.56) |
| Total | 60–79 | 3 (2012–2013) | 592 | 16.72 | 0.031[E] (0.021–0.047) | <LOD | 0.038 (0.026–0.051) | 0.13 (0.085–0.17) | 0.20 (0.16–0.24) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## *S*-Phenylmercapturic acid (*S*-PMA)

*S*-Phenylmercapturic acid (*S*-PMA) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2525 | 22.10 | 0.20 (0.18–0.23) | <LOD | 0.12 (0.095–0.15) | 1.3 (0.85–1.7) | 3.5 (2.5–4.5) |
| Total | 3–79 | 3 (2012–2013) | 2472 | 34.67 | 0.17 (0.14–0.21) | <LOD | 0.10[E] (<LOD–0.16) | F | 3.4 (2.3–4.5) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 20.21 | 0.23 (0.20–0.26) | <LOD | 0.13 (0.10–0.16) | F | 3.9[E] (2.5–5.4) |
| Males | 3–79 | 3 (2012–2013) | 1223 | 31.07 | 0.20 (0.16–0.25) | <LOD | 0.19[E] (0.080–0.30) | 1.9[E] (0.51–3.3) | 4.0 (2.7–5.3) |
| Females | 3–79 | 2 (2009–2011) | 1258 | 24.01 | 0.18 (0.15–0.22) | <LOD | 0.11 (<LOD–0.14) | 1.1[E] (0.66–1.6) | 2.5[E] (0.89–4.1) |
| Females | 3–79 | 3 (2012–2013) | 1249 | 38.19 | 0.14 (0.10–0.19) | <LOD | 0.099 (<LOD–0.12) | F | 3.3[E] (1.4–5.2) |
| Total | 3–5 | 2 (2009–2011) | 507 | 20.32 | 0.15 (0.13–0.17) | <LOD | 0.12 (0.094–0.14) | 0.40 (0.29–0.52) | 0.64[E] (0.40–0.88) |
| Total | 3–5 | 3 (2012–2013) | 491 | 28.51 | 0.11 (0.10–0.12) | <LOD | 0.099 (0.096–0.10) | 0.32 (0.26–0.37) | 0.51[E] (0.30–0.72) |
| Total | 6–11 | 2 (2009–2011) | 511 | 25.24 | 0.14 (0.11–0.17) | <LOD | 0.099 (0.083–0.12) | 0.38 (0.28–0.49) | 0.58[E] (0.33–0.82) |
| Total | 6–11 | 3 (2012–2013) | 491 | 38.90 | 0.099 (0.084–0.12) | <LOD | 0.099 (0.092–0.11) | 0.31 (0.23–0.39) | 0.41 (0.35–0.47) |
| Total | 12–19 | 2 (2009–2011) | 506 | 18.97 | 0.17 (0.15–0.20) | <LOD | 0.13 (0.094–0.16) | 0.62 (0.45–0.79) | 1.1[E] (0.53–1.6) |
| Total | 12–19 | 3 (2012–2013) | 497 | 32.19 | 0.14 (0.11–0.19) | <LOD | 0.10[E] (<LOD–0.15) | F | 2.3[E] (0.74–4.0) |
| Total | 20–39 | 2 (2009–2011) | 355 | 19.44 | 0.21 (0.17–0.27) | <LOD | 0.12 (<LOD–0.16) | 1.4 (1.1–1.8) | 3.0[E] (1.5–4.5) |
| Total | 20–39 | 3 (2012–2013) | 345 | 35.07 | 0.20[E] (0.14–0.30) | <LOD | 0.17[E] (<LOD–0.29) | F | 3.3[E] (1.4–5.3) |
| Total | 40–59 | 2 (2009–2011) | 359 | 25.91 | 0.24 (0.18–0.30) | <LOD | 0.13[E] (<LOD–0.20) | 2.9[E] (1.1–4.7) | 5.2[E] (3.2–7.3) |
| Total | 40–59 | 3 (2012–2013) | 306 | 35.62 | 0.20[E] (0.14–0.30) | <LOD | 0.17[E] (<LOD–0.29) | F | 3.4[E] (1.8–5.0) |
| Total | 60–79 | 2 (2009–2011) | 287 | 23.69 | 0.19 (0.15–0.23) | <LOD | 0.12 (0.094–0.15) | 1.1[E] (0.57–1.7) | 3.4[E] (1.3–5.4) |
| Total | 60–79 | 3 (2012–2013) | 342 | 39.77 | 0.14 (0.11–0.18) | <LOD | 0.093 (0.087–0.099) | F | 5.1[E] (2.0–8.3) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

*S*-Phenylmercapturic acid (*S*-PMA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2515 | 22.10 | 0.20 (0.17–0.24) | <LOD | 0.19 (0.12–0.26) | 1.2[E] (0.62–1.8) | 3.1 (2.0–4.2) |
| Total | 3–79 | 3 (2012–2013) | 2471 | 34.67 | 0.18 (0.15–0.22) | <LOD | 0.14 (0.11–0.16) | 1.4[E] (0.86–2.0) | 2.9 (1.9–4.0) |
| Males | 3–79 | 2 (2009–2011) | 1263 | 20.21 | 0.19 (0.16–0.23) | <LOD | 0.13[E] (<LOD–0.20) | 1.8[E] (0.84–2.8) | 3.0[E] (1.0–5.0) |
| Males | 3–79 | 3 (2012–2013) | 1223 | 31.07 | 0.17 (0.14–0.21) | <LOD | 0.12 (0.089–0.16) | 1.4 (0.94–1.9) | 2.2[E] (1.2–3.3) |
| Females | 3–79 | 2 (2009–2011) | 1252 | 24.01 | 0.20 (0.16–0.26) | <LOD | 0.19 (0.14–0.24) | 0.91[E] (0.57–1.2) | 3.1[E] (1.1–5.2) |
| Females | 3–79 | 3 (2012–2013) | 1248 | 38.19 | 0.18 (0.14–0.24) | <LOD | 0.14 (0.12–0.16) | F | 3.4[E] (1.7–5.1) |
| Total | 3–5 | 2 (2009–2011) | 506 | 20.32 | 0.26 (0.23–0.29) | <LOD | 0.29 (0.19–0.39) | 0.69 (0.56–0.82) | 0.91 (0.71–1.1) |
| Total | 3–5 | 3 (2012–2013) | 490 | 28.51 | 0.22 (0.20–0.24) | <LOD | 0.20 (0.16–0.24) | 0.52 (0.39–0.65) | 0.79[E] (0.50–1.1) |
| Total | 6–11 | 2 (2009–2011) | 509 | 25.24 | 0.15 (0.13–0.19) | <LOD | 0.17[E] (<LOD–0.28) | 0.46 (0.31–0.61) | 0.60 (0.40–0.80) |
| Total | 6–11 | 3 (2012–2013) | 491 | 38.90 | 0.13 (0.11–0.15) | <LOD | 0.13 (0.10–0.15) | 0.32 (0.27–0.37) | 0.41 (0.36–0.45) |
| Total | 12–19 | 2 (2009–2011) | 504 | 18.97 | 0.13 (0.11–0.15) | <LOD | 0.10 (0.091–0.11) | 0.50 (0.34–0.66) | 0.78[E] (0.50–1.1) |
| Total | 12–19 | 3 (2012–2013) | 497 | 32.19 | 0.11 (0.087–0.14) | <LOD | 0.092 (<LOD–0.11) | F | 1.3[E] (0.59–2.0) |
| Total | 20–39 | 2 (2009–2011) | 353 | 19.44 | 0.19 (0.14–0.25) | <LOD | F | 1.6[E] (0.59–2.6) | 2.9[E] (1.7–4.1) |
| Total | 20–39 | 3 (2012–2013) | 345 | 35.07 | 0.15 (0.11–0.21) | <LOD | 0.12 (0.081–0.16) | 1.1[E] (0.43–1.8) | 1.7[E] (0.86–2.6) |
| Total | 40–59 | 2 (2009–2011) | 357 | 25.91 | 0.23 (0.17–0.31) | <LOD | 0.19 (0.13–0.24) | F | 4.2[E] (1.5–7.0) |
| Total | 40–59 | 3 (2012–2013) | 306 | 35.62 | 0.24 (0.17–0.34) | <LOD | 0.17 (0.12–0.23) | 2.0[E] (0.60–3.5) | 3.5[E] (1.8–5.3) |
| Total | 60–79 | 2 (2009–2011) | 286 | 23.69 | 0.21 (0.17–0.27) | <LOD | 0.19 (0.15–0.23) | 1.2[E] (0.55–1.9) | 2.9[E] (1.3–4.5) |
| Total | 60–79 | 3 (2012–2013) | 342 | 39.77 | 0.17 (0.13–0.23) | <LOD | 0.12 (0.080–0.16) | 2.1[E] (0.64–3.5) | 3.5[E] (2.2–4.9) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## *trans,trans*-Muconic acid (*t,t*-MA)

*trans,trans*-Muconic acid (*t,t*-MA) — Geometric means and selected percentiles of urine concentrations (µg/L) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2523 | 0.20 | 64 (57–71) | 15 (12–19) | 59 (52–66) | 330 (260–390) | 500 (330–680) |
| Total | 3–79 | 3 (2012–2013) | 2492 | 0 | 56 (47–67) | 14 (11–16) | 53 (41–65) | 250 (160–340) | 400 (290–510) |
| Males | 3–79 | 2 (2009–2011) | 1267 | 0.24 | 68 (58–81) | 19 (13–25) | 66 (54–78) | 340 (260–420) | 480 (330–630) |
| Males | 3–79 | 3 (2012–2013) | 1231 | 0 | 64 (53–78) | 17 (14–20) | 59 (45–73) | 260[E] (140–380) | 400[E] (140–650) |
| Females | 3–79 | 2 (2009–2011) | 1256 | 0.16 | 59 (51–70) | 13 (9.2–17) | 56 (47–64) | 320 (220–420) | 610[E] (330–890) |
| Females | 3–79 | 3 (2012–2013) | 1261 | 0 | 49 (41–60) | 11 (7.2–14) | 46 (34–59) | 230[E] (120–340) | 430 (290–580) |
| Total | 3–5 | 2 (2009–2011) | 506 | 0.40 | 75 (63–90) | 20 (15–24) | 68 (52–83) | 380[E] (220–540) | 670 (510–840) |
| Total | 3–5 | 3 (2012–2013) | 489 | 0 | 65 (57–75) | 14 (12–17) | 51 (41–61) | 440 (390–490) | 730[E] (440–1000) |
| Total | 6–11 | 2 (2009–2011) | 511 | 0.20 | 71 (57–87) | 17 (13–21) | 63 (41–85) | 380[E] (240–510) | 540 (360–720) |
| Total | 6–11 | 3 (2012–2013) | 496 | 0 | 61 (49–75) | 12 (7.3–16) | 55 (39–71) | 330[E] (200–470) | 740[E] (220–1300) |
| Total | 12–19 | 2 (2009–2011) | 506 | 0 | 75 (61–92) | 15[E] (8.4–21) | 66 (47–85) | 380 (290–480) | 560 (440–680) |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 65 (48–88) | 13 (8.3–18) | 61 (45–77) | 360[E] (220–510) | 670[E] (350–1000) |
| Total | 20–39 | 2 (2009–2011) | 355 | 0.56 | 62 (48–81) | 13[E] (6.3–19) | 70 (54–86) | 310[E] (120–510) | 610[E] (300–910) |
| Total | 20–39 | 3 (2012–2013) | 347 | 0 | 66 (46–95) | 15[E] (9.0–22) | 66[E] (40–92) | 270[E] (140–400) | 380[E] (160–590) |
| Total | 40–59 | 2 (2009–2011) | 359 | 0 | 65 (54–80) | 17 (14–20) | 57 (41–73) | 310[E] (170–460) | 470[E] (200–750) |
| Total | 40–59 | 3 (2012–2013) | 307 | 0 | 50 (39–65) | 15[E] (8.4–21) | 47 (32–61) | 160[E] (73–240) | 360[E] (130–590) |
| Total | 60–79 | 2 (2009–2011) | 286 | 0 | 54 (43–67) | 14[E] (7.6–21) | 52 (37–67) | 240[E] (120–370) | 400 (300–500) |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 50 (40–62) | 10[E] (4.5–16) | 44 (34–55) | 260[E] (70–460) | 550[E] (170–930) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

*trans,trans*-Muconic acid (*t,t*-MA) (creatinine adjusted) — Geometric means and selected percentiles of urine concentrations (µg/g creatinine) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011) and cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 2513 | 0.20 | 63 (58–70) | 19 (16–21) | 54 (48–60) | 280 (230–340) | 450 (370–520) |
| Total | 3–79 | 3 (2012–2013) | 2491 | 0 | 58 (51–66) | 19 (17–21) | 51 (43–58) | 220 (160–280) | 390 (270–510) |
| Males | 3–79 | 2 (2009–2011) | 1263 | 0.24 | 59 (50–69) | 17 (15–19) | 52 (40–63) | 230 (150–320) | 380 (280–480) |
| Males | 3–79 | 3 (2012–2013) | 1231 | 0 | 54 (48–60) | 19 (16–21) | 51 (44–57) | 160[E] (97–210) | 290[E] (110–470) |
| Females | 3–79 | 2 (2009–2011) | 1250 | 0.16 | 69 (61–77) | 20 (17–23) | 55 (48–63) | 320 (240–400) | 490 (320–650) |
| Females | 3–79 | 3 (2012–2013) | 1260 | 0 | 63 (54–74) | 19 (16–22) | 51 (39–62) | 270 (190–340) | 460 (300–630) |
| Total | 3–5 | 2 (2009–2011) | 505 | 0.40 | 130 (110–160) | 36 (31–41) | 110 (87–130) | 590 (420–750) | 990[E] (580–1400) |
| Total | 3–5 | 3 (2012–2013) | 488 | 0 | 130 (110–150) | 34 (31–37) | 87 (70–100) | 910 (650–1200) | 1500[E] (810–2100) |
| Total | 6–11 | 2 (2009–2011) | 509 | 0.20 | 82 (68–99) | 24 (20–28) | 69 (52–87) | 380 (290–470) | 490 (360–620) |
| Total | 6–11 | 3 (2012–2013) | 496 | 0 | 78 (65–93) | 21 (18–23) | 65 (55–75) | 380[E] (220–530) | 720[E] (260–1200) |
| Total | 12–19 | 2 (2009–2011) | 504 | 0 | 57 (48–69) | 18 (15–20) | 43 (29–57) | 320 (230–410) | 410 (340–490) |
| Total | 12–19 | 3 (2012–2013) | 506 | 0 | 49 (40–61) | 15 (13–17) | 38 (27–49) | 230[E] (140–310) | 450 (290–600) |
| Total | 20–39 | 2 (2009–2011) | 353 | 0.56 | 55 (46–66) | 16 (14–19) | 48 (36–60) | 270[E] (120–420) | 430 (300–570) |
| Total | 20–39 | 3 (2012–2013) | 347 | 0 | 50 (38–66) | 16 (10–21) | 46[E] (22–70) | 160 (120–200) | 240[E] (90–390) |
| Total | 40–59 | 2 (2009–2011) | 357 | 0 | 66 (53–82) | 19 (14–23) | 54 (37–71) | 270 (200–340) | F |
| Total | 40–59 | 3 (2012–2013) | 307 | 0 | 59 (47–75) | 22 (19–24) | 54 (41–66) | 190[E] (95–280) | 290[E] (120–450) |
| Total | 60–79 | 2 (2009–2011) | 285 | 0 | 63 (54–73) | 20 (18–23) | 55 (44–65) | 220[E] (120–330) | 400[E] (210–590) |
| Total | 60–79 | 3 (2012–2013) | 347 | 0 | 57 (48–70) | 20 (18–23) | 43 (32–53) | F | 490[E] (220–760) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# ETHYLBENZENE

Ethylbenzene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2441 | 17.90 | 0.026 (0.020–0.033) | <LOD | 0.025 (0.017–0.033) | 0.084 (0.070–0.098) | 0.12 (0.095–0.15) |
| Males | 12–79 | 3 (2012–2013) | 1212 | 17.49 | 0.028 (0.022–0.034) | <LOD | 0.026 (0.018–0.034) | 0.088 (0.063–0.11) | 0.14 (0.096–0.18) |
| Females | 12–79 | 3 (2012–2013) | 1229 | 18.31 | 0.025 (0.018–0.033) | <LOD | 0.025 (0.016–0.033) | 0.080 (0.057–0.10) | 0.11 (0.076–0.14) |
| Total | 12–19 | 3 (2012–2013) | 731 | 19.84 | 0.020 (0.016–0.027) | <LOD | 0.021 (0.015–0.027) | 0.064 (0.044–0.084) | 0.081 (0.056–0.11) |
| Total | 20–39 | 3 (2012–2013) | 532 | 17.29 | 0.026 (0.019–0.035) | <LOD | 0.026[E] (0.012–0.041) | 0.077[E] (0.040–0.11) | 0.12[E] (0.058–0.17) |
| Total | 40–59 | 3 (2012–2013) | 591 | 14.89 | 0.029 (0.024–0.037) | <LOD | 0.027 (0.020–0.034) | 0.10 (0.082–0.12) | 0.14 (0.10–0.18) |
| Total | 60–79 | 3 (2012–2013) | 587 | 19.08 | 0.025 (0.019–0.032) | <LOD | 0.024 (0.016–0.032) | 0.079 (0.064–0.094) | 0.12[E] (0.062–0.17) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# STYRENE

Styrene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2063 | 7.61 | 0.043[E] (0.029–0.062) | F | 0.043 (0.030–0.055) | 0.12 (0.076–0.16) | 0.17[E] (0.10–0.23) |
| Males | 12–79 | 3 (2012–2013) | 1036 | 6.95 | 0.043[E] (0.029–0.064) | F | 0.045 (0.033–0.057) | 0.12 (0.079–0.15) | 0.17[E] (0.099–0.24) |
| Females | 12–79 | 3 (2012–2013) | 1027 | 8.28 | 0.042[E] (0.028–0.061) | F | 0.041 (0.028–0.055) | 0.11[E] (0.062–0.17) | 0.16[E] (0.092–0.23) |
| Total | 12–19 | 3 (2012–2013) | 626 | 8.47 | 0.037[E] (0.024–0.057) | F | 0.040 (0.029–0.052) | 0.094[E] (0.029–0.16) | 0.15[E] (0.063–0.24) |
| Total | 20–39 | 3 (2012–2013) | 435 | 7.36 | 0.043[E] (0.029–0.065) | <LOD | 0.043[E] (0.024–0.061) | 0.12[E] (0.055–0.18) | 0.18[E] (0.10–0.26) |
| Total | 40–59 | 3 (2012–2013) | 493 | 5.68 | 0.045[E] (0.031–0.066) | 0.016[E] (<LOD–0.026) | 0.044 (0.032–0.056) | 0.13 (0.090–0.16) | 0.18[E] (0.11–0.25) |
| Total | 60–79 | 3 (2012–2013) | 509 | 8.64 | 0.041[E] (0.027–0.063) | F | 0.044 (0.029–0.058) | 0.11 (0.069–0.15) | 0.14[E] (0.049–0.24) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# TETRACHLOROETHYLENE (PERCHLOROETHYLENE)

Tetrachloroethylene (Perchloroethylene) — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2453 | 60.82 | – | <LOD | <LOD | 0.10 (0.067–0.14) | 0.17[E] (0.10–0.23) |
| Males | 12–79 | 3 (2012–2013) | 1228 | 58.96 | – | <LOD | <LOD | 0.13 (0.086–0.17) | 0.19 (0.13–0.25) |
| Females | 12–79 | 3 (2012–2013) | 1225 | 62.69 | – | <LOD | <LOD | 0.096[E] (0.060–0.13) | 0.13[E] (0.039–0.22) |
| Total | 12–19 | 3 (2012–2013) | 739 | 60.76 | – | <LOD | <LOD | F | F |
| Total | 20–39 | 3 (2012–2013) | 543 | 60.04 | – | <LOD | <LOD | 0.093[E] (0.052–0.13) | 0.15[E] (0.080–0.23) |
| Total | 40–59 | 3 (2012–2013) | 587 | 65.08 | – | <LOD | <LOD | 0.10[E] (0.058–0.14) | 0.13 (0.089–0.17) |
| Total | 60–79 | 3 (2012–2013) | 584 | 57.36 | – | <LOD | <LOD | 0.16[E] (0.062–0.25) | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# TOLUENE

Toluene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2449 | 0.69 | 0.096 (0.083–0.11) | 0.036 (0.030–0.042) | 0.079 (0.067–0.090) | 0.39 (0.32–0.46) | 0.58 (0.46–0.71) |
| Mal[E]s | 12–79 | 3 (2012–2013) | 1224 | 0.65 | 0.098 (0.081–0.12) | 0.034 (0.025–0.043) | 0.081 (0.066–0.095) | 0.42 (0.33–0.51) | 0.59 (0.42–0.77) |
| F[E]mal[E]s | 12–79 | 3 (2012–2013) | 1225 | 0.73 | 0.093 (0.081–0.11) | 0.037 (0.034–0.041) | 0.077 (0.064–0.089) | 0.35 (0.24–0.46) | 0.55[E] (0.34–0.76) |
| Total | 12–19 | 3 (2012–2013) | 732 | 0.55 | 0.074 (0.066–0.083) | 0.034 (0.026–0.042) | 0.070 (0.058–0.082) | 0.19 (0.14–0.24) | 0.26 (0.19–0.32) |
| Total | 20–39 | 3 (2012–2013) | 533 | 0.94 | 0.089 (0.069–0.11) | 0.036 (0.028–0.045) | 0.074 (0.050–0.098) | 0.29[E] (0.16–0.43) | 0.42[E] (0.23–0.61) |
| Total | 40–59 | 3 (2012–2013) | 594 | 0.51 | 0.12 (0.10–0.14) | 0.041 (0.033–0.049) | 0.085 (0.071–0.10) | 0.58 (0.38–0.79) | 0.86 (0.64–1.1) |
| Total | 60–79 | 3 (2012–2013) | 590 | 0.85 | 0.086 (0.070–0.11) | 0.031 (0.024–0.039) | 0.080 (0.065–0.096) | 0.31 (0.22–0.40) | 0.46 (0.39–0.53) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# TRICHLOROETHYLENE

Trichloroethylene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2474 | 99.51 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 12–79 | 3 (2012–2013) | 1240 | 99.35 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 12–79 | 3 (2012–2013) | 1234 | 99.68 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 746 | 99.73 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 543 | 99.63 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 594 | 99.33 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 591 | 99.32 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

# TRIHALOMETHANES

## Bromodichloromethane

Bromodichloromethane — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2499 | 98.88 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 12–79 | 3 (2012–2013) | 1245 | 98.96 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 12–79 | 3 (2012–2013) | 1254 | 98.80 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 744 | 98.12 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 556 | 98.92 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 595 | 99.66 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 604 | 99.01 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

## Dibromochloromethane

Dibromochloromethane — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2527 | 97.07 | – | <LOD | <LOD | <LOD | <LOD |
| Males | 12–79 | 3 (2012–2013) | 1263 | 96.52 | – | <LOD | <LOD | <LOD | <LOD |
| Females | 12–79 | 3 (2012–2013) | 1264 | 97.63 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 12–19 | 3 (2012–2013) | 757 | 96.83 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 557 | 97.13 | – | <LOD | <LOD | <LOD | 0.015[E] (<LOD–0.023) |
| Total | 40–59 | 3 (2012–2013) | 604 | 98.01 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 60–79 | 3 (2012–2013) | 609 | 96.39 | – | <LOD | <LOD | <LOD | <LOD |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

## Tribromomethane (Bromoform)

Tribromomethane (Bromoform) — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2496 | 94.79 | – | <LOD | <LOD | <LOD | 0.010[E] (<LOD–0.015) |
| Males | 12–79 | 3 (2012–2013) | 1244 | 95.02 | – | <LOD | <LOD | <LOD | 0.012[E] (<LOD–0.016) |
| Females | 12–79 | 3 (2012–2013) | 1252 | 94.57 | – | <LOD | <LOD | <LOD | <LOD[E] (<LOD–0.013) |
| Total | 12–19 | 3 (2012–2013) | 744 | 94.49 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 20–39 | 3 (2012–2013) | 554 | 94.40 | – | <LOD | <LOD | <LOD | <LOD |
| Total | 40–59 | 3 (2012–2013) | 595 | 96.47 | – | <LOD | <LOD | <LOD | 0.011[E] (<LOD–0.016) |
| Total | 60–79 | 3 (2012–2013) | 603 | 93.86 | – | <LOD | <LOD | <LOD | F |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

## Trichloromethane (Chloroform)

Trichloromethane (Chloroform) — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2527 | 77.44 | – | <LOD | <LOD | 0.021 (0.016–0.026) | 0.029 (0.019–0.038) |
| Males | 12–79 | 3 (2012–2013) | 1263 | 77.51 | – | <LOD | <LOD | 0.021 (0.015–0.027) | 0.035[E] (0.018–0.052) |
| Females | 12–79 | 3 (2012–2013) | 1264 | 77.37 | – | <LOD | <LOD | 0.021 (0.016–0.027) | 0.028 (0.019–0.037) |
| Total | 12–19 | 3 (2012–2013) | 757 | 77.81 | – | <LOD | <LOD | 0.020[E] (<LOD–0.028) | 0.031[E] (<LOD–0.049) |
| Total | 20–39 | 3 (2012–2013) | 557 | 76.48 | – | <LOD | <LOD | 0.023 (0.016–0.029) | 0.036[E] (0.015–0.058) |
| Total | 40–59 | 3 (2012–2013) | 604 | 78.81 | – | <LOD | <LOD | 0.019 (<LOD–0.025) | 0.027 (0.019–0.036) |
| Total | 60–79 | 3 (2012–2013) | 609 | 76.52 | – | <LOD | <LOD | 0.020[E] (<LOD–0.027) | 0.028[E] (<LOD–0.041) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

# XYLENES

## *m*-Xylene & *p*-Xylene

*m*-Xylene & *p*-xylene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2326 | 14.53 | 0.062 (0.050–0.079) | <LOD | 0.063 (0.047–0.080) | 0.20 (0.14–0.26) | 0.30 (0.20–0.39) |
| Males | 12–79 | 3 (2012–2013) | 1172 | 13.31 | 0.065 (0.051–0.082) | <LOD | 0.062 (0.045–0.080) | 0.21 (0.15–0.28) | 0.34[E] (0.19–0.49) |
| Females | 12–79 | 3 (2012–2013) | 1154 | 15.77 | 0.060 (0.047–0.078) | <LOD | 0.064 (0.046–0.082) | 0.19 (0.12–0.26) | 0.27 (0.18–0.36) |
| Total | 12–19 | 3 (2012–2013) | 701 | 16.83 | 0.049 (0.037–0.065) | <LOD | 0.055 (0.039–0.071) | 0.14[E] (0.086–0.19) | 0.18 (0.14–0.23) |
| Total | 20–39 | 3 (2012–2013) | 500 | 14.00 | 0.058 (0.045–0.074) | <LOD | 0.057[E] (0.026–0.088) | 0.16 (0.11–0.22) | 0.25 (0.17–0.32) |
| Total | 40–59 | 3 (2012–2013) | 559 | 11.99 | 0.074 (0.056–0.096) | <LOD | 0.068 (0.052–0.084) | 0.28[E] (0.17–0.39) | 0.42 (0.29–0.54) |
| Total | 60–79 | 3 (2012–2013) | 566 | 14.66 | 0.060 (0.045–0.079) | <LOD | 0.061 (0.043–0.078) | 0.18 (0.15–0.21) | 0.25[E] (0.12–0.37) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

## *o*-Xylene

*o*-Xylene — Geometric means and selected percentiles of whole blood concentrations (µg/L) for the Canadian population aged 12–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | %<LOD[a] | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|---|
| Total | 12–79 | 3 (2012–2013) | 2336 | 41.05 | – | <LOD | 0.022[E] (0.010–0.034) | 0.087 (0.061–0.11) | 0.11 (0.083–0.14) |
| Males | 12–79 | 3 (2012–2013) | 1164 | 40.55 | – | <LOD | 0.022[E] (0.0097–0.033) | 0.088 (0.061–0.11) | 0.12 (0.075–0.16) |
| Females | 12–79 | 3 (2012–2013) | 1172 | 41.55 | – | <LOD | 0.022[E] (0.011–0.034) | 0.081 (0.052–0.11) | 0.11 (0.082–0.14) |
| Total | 12–19 | 3 (2012–2013) | 692 | 43.93 | – | <LOD | F | 0.057 (0.041–0.072) | 0.075 (0.053–0.098) |
| Total | 20–39 | 3 (2012–2013) | 515 | 42.14 | – | <LOD | 0.020[E] (0.0095–0.030) | 0.077[E] (0.036–0.12) | 0.11[E] (0.053–0.17) |
| Total | 40–59 | 3 (2012–2013) | 565 | 38.94 | 0.022[E] (0.014–0.034) | <LOD | 0.029[E] (0.012–0.045) | 0.099 (0.075–0.12) | 0.13 (0.095–0.17) |
| Total | 60–79 | 3 (2012–2013) | 564 | 38.65 | 0.016[E] (0.010–0.023) | <LOD | 0.016[E] (<LOD–0.027) | 0.076 (0.055–0.098) | 0.10[E] (0.030–0.17) |

a If >40% of samples were below the LOD, the percentile distribution is reported but means were not calculated.

E Use data with caution.

F Data is too unreliable to be published.

# Appendix A: Limits of Detection

Laboratory analyses of environmental chemicals and creatinine were performed at analytical laboratories within Health Canada, l'Institut national de santé publique du Québec (INSPQ), and the ALS Laboratory Group. Laboratories developed standardized operating procedures for the analytical methods used to measure environmental chemicals or their metabolites in biological samples. The limit of detection (LOD) is defined as the lowest concentration of the analyte whose analytical response is measured to be greater than the noise level with 99% confidence and evaluated using USEPA methodology (USEPA, 2015).[a]

| | Cycle 1 | Cycle 2 | Cycle 3 |
|---|---|---|---|
| **Metals and Trace Elements in Blood** | | | |
| Cadmium | 0.04 µg/L | 0.04 µg/L | 0.08 µg/L |
| Lead | 0.02 µg/dL | 0.1 µg/dL | 0.2 µg/dL |
| Methylmercury | — | — | 0.2 µg/L[b] |
| Total mercury | 0.1 µg/L | 0.1 µg/L | 0.4 µg/L |
| **Metals and Trace Elements in Urine** | | | |
| Arsenate | — | 0.8 µg/L[c,d] | 0.8 µg/L[c] |
| Arsenite | — | 0.8 µg/L[c,d] | 0.8 µg/L[c] |
| Arsenocholine | — | — | 0.8 µg/L[c] |
| Arsenocholine and arsenobetaine | — | 0.8 µg/L[c,d] | 0.8 µg/L[c] |
| Dimethylarsinic acid | — | 0.8 µg/L[c,d] | 0.8 µg/L[c] |
| Monomethylarsonic acid | — | 0.8 µg/L[c,d] | 0.8 µg/L[c] |
| Fluoride | — | 20 µg/L | 10 µg/L |
| Inorganic mercury | 0.1 µg/L | — | 0.2 µg/L |
| **Benzene Metabolites in Urine** | | | |
| *S*-Phenylmercapturic acid | — | 0.08 µg/L | 0.08 µg/L |
| *trans,trans*-Muconic acid | — | 0.8 µg/L | 0.6 µg/L |
| **Environmental Phenols** | | | |
| Bisphenol A | 0.2 µg/L | 0.2 µg/L | 0.2 µg/L |
| Triclosan | — | 3 µg/L | 5 µg/L |
| **Nicotine Metabolite** | | | |
| Cotinine | 1 µg/L | 1 µg/L | 1 µg/L |
| **Volatile Organic Compounds in Blood** | | | |
| Benzene | — | — | 0.007 µg/L |
| Bromodichloromethane | — | — | 0.01 µg/L |
| Dibromochloromethane | — | — | 0.007 µg/L |
| Ethylbenzene | — | — | 0.01 µg/L |
| *m*-Xylene and *p*-xylene | — | — | 0.02 µg/L |
| *o*-Xylene | — | — | 0.009 µg/L |
| Styrene | — | — | 0.01 µg/L |
| Tetrachloroethylene (Perchloroethylene) | — | — | 0.02 µg/L |
| Toluene | — | — | 0.01 µg/L |
| Tribromomethane (Bromoform) | — | — | 0.01 µg/L |
| Trichloroethylene | — | — | 0.03 µg/L |
| Trichloromethane (Chloroform) | — | — | 0.01 µg/L |
| **Acrylamide** | | | |
| Acrylamide haemoglobin adduct | — | — | 10 pmol/g haemoglobin |
| Glycidamide haemoglobin adduct | — | — | 20 pmol/g haemoglobin |

| | Cycle 1 | Cycle 2 | Cycle 3 |
|---|---|---|---|
| **Polycyclic Aromatic Hydrocarbon Metabolites** | | | |
| **Benzo[*a*]pyrene Metabolite** | | | |
| 3-Hydroxybenzo[*a*]pyrene | — | 0.002 µg/L | 0.003 µg/L |
| **Chrysene Metabolites** | | | |
| 2-Hydroxychrysene | — | 0.004 µg/L | 0.005 µg/L |
| 3-Hydroxychrysene | — | 0.003 µg/L | 0.003 µg/L |
| 4-Hydroxychrysene | — | 0.003 µg/L | 0.002 µg/L |
| 6-Hydroxychrysene | — | 0.006 µg/L | 0.002 µg/L |
| **Fluoranthene Metabolite** | | | |
| 3-Hydroxyfluoranthene | — | 0.008 µg/L | 0.008 µg/L |
| **Fluorene Metabolites** | | | |
| 2-Hydroxyfluorene | — | 0.003 µg/L | 0.006 µg/L |
| 3-Hydroxyfluorene | — | 0.001 µg/L | 0.002 µg/L |
| 9-Hydroxyfluorene | — | 0.003 µg/L | 0.004 µg/L |
| **Naphthalene Metabolites** | | | |
| 1-Hydroxynapththalene | — | 0.1 µg/L | 0.02 µg/L |
| 2-Hydroxynapththalene | — | 0.05 µg/L | 0.03 µg/L |
| **Phenanthrene Metabolites** | | | |
| 1-Hydroxyphenanthrene | — | 0.005 µg/L | 0.002 µg/L |
| 2-Hydroxyphenanthrene | — | 0.003 µg/L | 0.002 µg/L |
| 3-Hydroxyphenanthrene | — | 0.003 µg/L | 0.002 µg/L |
| 4-Hydroxyphenanthrene | — | 0.001 µg/L | 0.003 µg/L |
| 9-Hydroxyphenanthrene | — | 0.004 µg/L | 0.004 µg/L |
| **Pyrene Metabolite** | | | |
| 1-Hydroxypyrene | — | 0.002 µg/L | 0.003 µg/L |
| **Adjustment Factor** | | | |
| Urinary creatinine | 3 mg/dL | 4 mg/dL | 5 mg/dL |

a US EPA 2015. Definition and procedure for the determination of the method detection limit - Revision 1.11, Federal Regulation 40 CFR 136 Appendix B. United States Environmental Protection Agency, Washington, DC.

b Reported as µg Hg/L

c Reported as µg As/L

d In the *Second Report on Human Biomonitoring of Environmental Chemicals in Canada*, all speciated arsenic was reported as µg of arsenic species per litre (e.g. µg arsenate/L). For this reason, the values presented in this report may differ from those in the *Second Report*.

# Appendix B: Conversion Factors

Units of measurement are important. Results are reported here using standard units; however, units can be converted using the conversion factors presented below for comparison of data with other data sets.

| Unit | Abbreviation | Value |
|---|---|---|
| litre | L | — |
| decilitre | dL | $10^{-1}$ L |
| millilitre | mL | $10^{-3}$ L |
| microlitre | µL | $10^{-6}$ L |
| gram | g | — |
| milligram | mg | $10^{-3}$ g |
| microgram | µg | $10^{-6}$ g |
| nanogram | ng | $10^{-9}$ g |
| picogram | pg | $10^{-12}$ g |

Data can be converted from µg/L to µmol/L using the molecular weight (MW) of the chemical using the formula:

Y µmol/L = X µg/L x conversion factor (CF), where the CF is equivalent to 1/MW.

| | MW (g/mol) | CF (µg/L → µmol/L) |
|---|---|---|
| **Metals and Trace Elements** | | |
| Arsenate | — | 0.01335[a] |
| Arsenite | — | 0.01335[a] |
| Arsenocholine | — | 0.01335[a] |
| Arsenocholine and arsenobetaine | — | 0.01335[a] |
| Dimethylarsinic acid | — | 0.01335[a] |
| Monomethylarsonic acid | — | 0.01335[a] |
| Cadmium | 112.41 | 0.00896 |
| Fluoride | 19.00 | 0.05263 |
| Lead | 207.20 | 0.04826[b] |
| Methylmercury | — | 0.00499[c] |
| Mercury | 200.59 | 0.00499 |
| **Benzene Metabolites** | | |
| *trans,trans*-Muconic acid | 142.11 | 0.00704 |
| *S*-Phenylmercapturic acid | 239.29 | 0.00418 |
| **Environmental Phenols** | | |
| Bisphenol A | 228.29 | 0.00438 |
| Triclosan | 289.54 | 0.00345 |
| **Nicotine Metabolite** | | |
| Cotinine | 176.22 | 0.00567 |

| | MW (g/mol) | CF (µg/L → µmol/L) |
|---|---|---|
| **Volatile Organic Compounds** | | |
| Benzene | 78.11 | 0.01280 |
| Bromodichloromethane | 163.83 | 0.00610 |
| Dibromochloromethane | 208.28 | 0.00480 |
| Ethylbenzene | 106.17 | 0.00942 |
| *m*-Xylene and *p*-xylene | 106.17 | 0.00942 |
| *o*-Xylene | 106.17 | 0.00942 |
| Styrene | 104.15 | 0.00960 |
| Tetrachloroethylene (Perchloroethylene) | 165.83 | 0.00603 |
| Toluene | 92.14 | 0.01085 |
| Tribromomethane (Bromoform) | 252.73 | 0.00396 |
| Trichloroethylene | 131.39 | 0.00761 |
| Trichloromethane (Chloroform) | 119.38 | 0.00838 |
| **Acrylamide** | | |
| Acrylamide haemoglobin adduct | — | NA[d] |
| Glycidamide haemoglobin adduct | — | NA[d] |
| **Polycyclic Aromatic Hydrocarbon Metabolites** | | |
| **Benzo[*a*]pyrene Metabolite** | | |
| 3-Hydroxybenzo[*a*]pyrene | 268.31 | 0.00373 |
| **Chrysene Metabolites** | | |
| 2-Hydroxychrysene | 244.29 | 0.00409 |
| 3-Hydroxychrysene | 244.29 | 0.00409 |
| 4-Hydroxychrysene | 244.29 | 0.00409 |
| 6-Hydroxychrysene | 244.29 | 0.00409 |
| **Fluoranthene Metabolite** | | |
| 3-Hydroxyfluoranthene | 218.25 | 0.00458 |
| **Fluorene Metabolites** | | |
| 2-Hydroxyfluorene | 182.22 | 0.00549 |
| 3-Hydroxyfluorene | 182.22 | 0.00549 |
| 9-Hydroxyfluorene | 182.22 | 0.00549 |
| **Naphthalene Metabolites** | | |
| 1-Hydroxynaphthalene | 144.17 | 0.00694 |
| 2-Hydroxynaphthalene | 144.17 | 0.00694 |
| **Phenanthrene Metabolites** | | |
| 1-Hydroxyphenanthrene | 194.23 | 0.00515 |
| 2-Hydroxyphenanthrene | 194.23 | 0.00515 |
| 3-Hydroxyphenanthrene | 194.23 | 0.00515 |
| 4-Hydroxyphenanthrene | 194.23 | 0.00515 |
| 9-Hydroxyphenanthrene | 194.23 | 0.00515 |
| **Pyrene Metabolite** | | |
| 1-Hydroxypyrene | 218.25 | 0.00458 |
| **Adjustment Factor** | | |
| Creatinine | 113.12 | 88.4[e] |

a For converting arsenic species from µg As/L to µmol As/L

b For converting Pb from µg/dL to µmol/L

c For converting methylmercury from µg Hg/L to µmol Hg/L

d Not applicable

e For converting creatinine from mg/dL to µmol/L

# Appendix C: Creatinine

Creatinine — Geometric means and selected percentiles of urine concentrations (mg/dL) for the Canadian population aged 6–79 years by age group, Canadian Health Measures Survey cycle 1 (2007–2009).

| Group | Age (years) | Cycle | N | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|
| Total | 6–79 | 1 (2007–2009) | 5515 | 83 (78–89) | 27 (23–30) | 93 (86–99) | 210 (200–220) | 250 (240–260) |
| Males | 6–79 | 1 (2007–2009) | 2663 | 100 (97–110) | 36 (28–43) | 110 (100–110) | 230 (220–240) | 270 (250–280) |
| Females | 6–79 | 1 (2007–2009) | 2852 | 68 (62–74) | 22 (18–25) | 75 (66–84) | 180 (160–190) | 210 (200–230) |
| Total | 6–11 | 1 (2007–2009) | 1042 | 66 (60–72) | 24 (18–29) | 74 (67–81) | 140 (130–150) | 170 (160–180) |
| Total | 12–19 | 1 (2007–2009) | 992 | 120 (110–130) | 39 (30–47) | 130 (120–140) | 250 (230–280) | 300 (260–330) |
| Total | 20–39 | 1 (2007–2009) | 1172 | 90 (81–100) | 29 (22–36) | 99 (91–110) | 230 (210–240) | 280 (250–300) |
| Total | 40–59 | 1 (2007–2009) | 1221 | 78 (73–84) | 24 (19–28) | 86 (76–96) | 210 (190–230) | 240 (230–250) |
| Total | 60–79 | 1 (2007–2009) | 1088 | 72 (68–75) | 26 (22–31) | 81 (77–85) | 150 (140–160) | 190 (170–220) |

Creatinine — Geometric means and selected percentiles of urine concentrations (mg/dL) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 2 (2009–2011).

| Group | Age (years) | Cycle | N | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 2 (2009–2011) | 6299 | 100 (100–110) | 35 (33–38) | 110 (110–120) | 240 (230–260) | 280 (270–300) |
| Males | 3–79 | 2 (2009–2011) | 3031 | 120 (120–130) | 47 (42–53) | 130 (120–150) | 260 (240–280) | 310 (280–340) |
| Females | 3–79 | 2 (2009–2011) | 3268 | 89 (85–94) | 30 (27–32) | 100 (96–100) | 200 (180–230) | 250 (240–270) |
| Total | 3–5 | 2 (2009–2011) | 572 | 59 (55–63) | 26 (24–29) | 61 (55–67) | 110 (110–120) | 140 (110–160) |
| Total | 6–11 | 2 (2009–2011) | 1059 | 88 (83–94) | 37 (33–42) | 98 (94–100) | 170 (160–170) | 190 (170–210) |
| Total | 12–19 | 2 (2009–2011) | 1042 | 130 (120–150) | 52 (36–68) | 150 (140–160) | 270 (260–280) | 300 (270–340) |
| Total | 20–39 | 2 (2009–2011) | 1322 | 120 (110–130) | 37 (25–48) | 140 (130–160) | 260 (250–280) | 330 (270–380) |
| Total | 40–59 | 2 (2009–2011) | 1223 | 100 (96–110) | 33 (27–40) | 110 (100–120) | 240 (220–260) | 280 (260–310) |
| Total | 60–79 | 2 (2009–2011) | 1081 | 85 (80–89) | 32 (26–37) | 96 (90–100) | 180 (170–200) | 230 (210–260) |

Creatinine — Geometric means and selected percentiles of urine concentrations (mg/dL) for the Canadian population aged 3–79 years by age group, Canadian Health Measures Survey cycle 3 (2012–2013).

| Group | Age (years) | Cycle | N | G.M. (95% CI) | 10th (95% CI) | 50th (95% CI) | 90th (95% CI) | 95th (95% CI) |
|---|---|---|---|---|---|---|---|---|
| Total | 3–79 | 3 (2012–2013) | 5704 | 97 (93–100) | 33 (29–37) | 100 (100–110) | 240 (220–250) | 280 (250–300) |
| Males | 3–79 | 3 (2012–2013) | 2847 | 110 (110–120) | 40 (35–46) | 120 (110–130) | 260 (230–280) | 300 (260–340) |
| Females | 3–79 | 3 (2012–2013) | 2857 | 83 (76–90) | 26 (21–30) | 93 (81–110) | 210 (190–240) | 250 (220–270) |
| Total | 3–5 | 3 (2012–2013) | 521 | 51 (45–58) | 19 (14–24) | 58 (51–65) | 110 (99–110) | 120 (110–120) |
| Total | 6–11 | 3 (2012–2013) | 1013 | 84 (77–92) | 35 (28–42) | 93 (82–100) | 160 (150–180) | 200 (170–230) |
| Total | 12–19 | 3 (2012–2013) | 998 | 130 (120–150) | 52 (37–66) | 150 (140–160) | 280 (260–300) | 320 (290–360) |
| Total | 20–39 | 3 (2012–2013) | 1048 | 110 (98–120) | 36 (26–45) | 110 (97–130) | 270 (220–320) | 330 (290–380) |
| Total | 40–59 | 3 (2012–2013) | 1080 | 95 (86–110) | 34 (24–44) | 110 (98–110) | 220 (200–250) | 250 (230–280) |
| Total | 60–79 | 3 (2012–2013) | 1044 | 84 (76–91) | 26 (19–32) | 96 (89–100) | 190 (170–210) | 230 (210–240) |