

S4 Table. Estimated unadjusted effect (β) and 95% confidence intervals (95%CI) in cognitive outcomes at baseline and their 12-month change in association to school and home exposure to road traffic noise (n = 2680 children, 9984 repeats).

| Road traffic noise indicators | Working memory (2-back numbers, d') | | | | Complex working memory (3-back numbers, d') | | | | Inattentiveness (Attention Network task, HRT -SE[ms]) | | | |
|--|--|-------------|----------------------------------|-------------|--|-------------|----------------------------------|-------------|--|-------------|----------------------------------|-------------|
| | Baseline β (95% CI) | p- value | 12-mo change β (95% CI) | p- value | Baseline β (95% CI) | p- value | 12-mo change β (95% CI) | p- value | Baseline β (95% CI) | p- value | 12-mo change β (95% CI) | p- value |
| <i><u>SCHOOL (MEASURED)</u></i> | | | | | | | | | | | | |
| <i>Average level (LAeq, per 5dB)</i> | | | | | | | | | | | | |
| Street | -6.68 (-11.13, -2.22) | 0.003 | -4.74 (-7.18, -2.30) | <0.001 | -4.70 (-8.11, -1.28) | 0.007 | -3.95 (-5.89, -2.02) | <0.001 | 6.08 (1.08, 11.08) | 0.017 | 2.22 (0.49, 3.95) | 0.012 |
| Playground | -7.60 (-13.59, -1.61) | 0.013 | -3.44 (-6.61, -0.26) | 0.034 | -5.37 (-9.88, -0.85) | 0.020 | -4.31 (-6.84, -1.78) | <0.001 | 7.70 (1.41, 13.99) | 0.016 | 2.10 (-0.13, 4.33) | 0.064 |
| Indoor | -7.74 (-13.93, -1.55) | 0.014 | -0.21 (-3.82, 3.40) | 0.910 | -4.07 (-8.90, 0.76) | 0.099 | -0.63 (-3.50, 2.23) | 0.664 | 9.79 (3.65, 15.94) | 0.002 | 1.40 (-1.13, 3.92) | 0.278 |
| Individual indoor | -1.28 (-5.72, 3.16) | 0.572 | -2.02 (-5.83, 1.78) | 0.298 | -0.81 (-4.37, 2.75) | 0.655 | -0.82 (-3.87, 2.24) | 0.600 | 1.74 (-1.08, 4.56) | 0.226 | 2.57 (0.13, 5.00) | 0.039 |
| <i>Intermittency ratio (per 10%)</i> | | | | | | | | | | | | |
| Street | 1.47 (-2.68, 5.61) | 0.488 | 0.73 (-1.32, 2.78) | 0.486 | 1.42 (-1.72, 4.56) | 0.375 | -0.63 (-2.25, 0.99) | 0.446 | -2.57 (-6.84, 1.71) | 0.240 | 0.28 (-1.18, 1.74) | 0.704 |
| Playground | -6.58 (-12.12, -1.04) | 0.020 | -2.29 (-5.22, 0.64) | 0.126 | -5.94 (-9.83, -2.06) | 0.003 | -3.34 (-5.66, -1.02) | 0.005 | 3.87 (-2.29, 10.02) | 0.218 | 3.76 (1.67, 5.84) | <0.001 |
| Indoor | -0.86 (-5.82, 4.09) | 0.733 | -2.19 (-4.65, 0.27) | 0.080 | -0.90 (-4.61, 2.82) | 0.637 | -2.76 (-4.70, -0.82) | 0.005 | 0.18 (-5.06, 5.41) | 0.947 | 3.09 (1.35, 4.83) | <0.001 |
| <i>Number of events (per 50)</i> | | | | | | | | | | | | |
| Street | -3.56 (-8.96, 1.83) | 0.195 | -4.27 (-7.06, -1.49) | 0.003 | -3.15 (-7.21, 0.91) | 0.128 | -3.93 (-6.14, -1.73) | <0.001 | 2.49 (-3.27, 8.24) | 0.398 | 2.24 (0.25, 4.23) | 0.027 |
| Playground | -7.35 (-13.54, -1.17) | 0.020 | -2.28 (-5.37, 0.81) | 0.147 | -6.33 (-10.70, -1.97) | 0.004 | -2.91 (-5.36, -0.46) | 0.020 | 4.30 (-2.76, 11.36) | 0.233 | 2.31 (0.12, 4.49) | 0.038 |
| Indoor | -1.85 (-7.46, 3.77) | 0.519 | -2.67 (-5.48, 0.14) | 0.062 | -1.87 (-6.07, 2.32) | 0.381 | -3.21 (-5.43, -1.00) | 0.005 | 1.96 (-3.97, 7.89) | 0.517 | 3.32 (1.32, 5.31) | 0.001 |
| <i><u>SCHOOL & HOME (MODELLED)</u></i> | | | | | | | | | | | | |
| <i>Average level (LAeq, per 5dB)</i> | | | | | | | | | | | | |
| School street, Lday ^a | -5.14 (-10.31, 0.03) | 0.051 | -6.45 (-9.22, -3.67) | <0.001 | -3.81 (-7.72, 0.10) | 0.056 | -4.99 (-7.18, -2.80) | <0.001 | 4.73 (-0.92, 10.39) | 0.101 | 3.08 (1.12, 5.04) | 0.002 |
| Home street, Lden ^b | 0.62 (-1.67, 2.91) | 0.597 | 1.77 (-0.43, 3.97) | 0.115 | 0.71 (-1.06, 2.48) | 0.431 | 0.67 (-1.07, 2.40) | 0.450 | 0.22 (-1.67, 2.10) | 0.821 | -0.82 (-2.37, 0.74) | 0.303 |

Unadjusted linear mixed models include age, corresponding noise indicator and age \times noise indicator to estimate the change. Child and school included as nested random effects. d': detectability: a higher value indicates better working memory, HRT-SE: Hit Reaction Time Standard Error: a higher value indicates greater inattentiveness. LAeq: A-weighted equivalent noise levels, Lday: LAeq for the day-time (7 a.m.-9 p.m.), Lden: LAeq for the 24h (Lden) with 5 dB and 10 dB penalties for the evening (9 p.m. to 11 p.m.) and night-time (11 p.m. to 7 a.m.), respectively. ^a n=34; ^b n=2346.