**Evidence Table 2d. Change in asthma medication use: hyperventilation reduction breathing techniques versus nonhyperventilation reduction breathing techniques**

| **Study** | **Reliever medication outcome (unit)** | **Follow-up** | **Group** | **N random-ized** | **Follow-up N** | **Baseline mean (SD)** | **Mean change (SD) from baseline** | **p-value for difference between groups at followup** | **Standardized Effect Size Hedges’ d (95% CI)** | **Controller and additional medication outcomes** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bowler 199850,73,88 | Daily adjusted beta2-agonist dose, median (mcg) | 13w | IG1 (BBT) | 19 | 18 | 943 (NR)† | -904 (NR)† | **0.002\*** | Insufficient data to calculate | NSD between groups and little change in either group in absolute median daily inhaled steroid doses 13w; no group differences in prednisone use at 8m. |
| IG2 (abdominal breathing) | 20 | 19 | 843 (NR)† | -57 (NR)† |
| Cooper 200352 | Beta2-agonist use, median (puffs/d) | 26w | IG1 (BBT) | 30 | 23 | 2 (0, 4)† | -2 (-4, 0)† | **0.005 (for difference across all three groups)\*** | Insufficient data to calculate | NSD between all three groups and little change in any group in median number of days taking increased ICS dose or median number of prednisolone courses per subject at 26w. percent reduction in inhaled steroids (n=39). |
| IG2 (yoga breathing device) | 30 | 24 | 2 (0, 4)† | 0 (-2, 0)† |
| Cowie 200853 | None | 26w | IG1 (BBT) | 65 | 56 | NA | NA | NA | NA | **IG1 showed greater reduction in ICS use (p=0.02), and greater likelihood of discontinuing LABA (p=0.005).\*** |
| IG2 (physiotherapy) | 64 | 63 | NA | NA |
| Slader 200658 | Reliever use (puffs/d) | 12w | IG1 (BBT) | 28 | 28 | 2.9 (2.2) | **-1.4 (1.3)\*** | 0.17 | 0.36(-0.16, 0.89) | Similar pattern of results for number of reliever free days and ICS use: both group improve, no group differences at 12 or 28w. ICS use reduced by 50 percent in both groups at 28w. |
| IG2 (controlled breathing) | 29 | 29 | 3.1 (2.3) | **-1.9 (1.4)\*** |
| 28w | IG1 | 28 | 23 | 2.9 (2.2) | **-1.8 (1.3)\*** | 0.99 | -0.02(-0.59, 0.55) |
| IG2 | 29 | 25 | 3.1 (2.3) | **-1.8 (1.5)\*** |

\*Statistically significant change from baseline or between groups (p<0.05)

†Median or median change from baseline (IQR)

‡Number of participants (%)

Abbreviations: BBT: Buteyko breathing technique; CG: control group; d: day(s); CI: confidence interval; ICS: inhaled corticosteroids; IG: intervention group; IQR: inter-quartile range; LABA: long-acting beta2-agonist; m: month(s); mcg: microgram(s); NA: not applicable; NR: not reported; SD: standard deviation; w: week(s)