TITLE: Efficacy of vitamin D supplementation on COPD and asthma control:

a systematic review and meta-analysis

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**Fig. S1** Risk of bias assessed by the Cochrane assessment tool

*Fig. S2* Meta-analysis of VD supplementation on number of exacerbations of asthma

The total number is the number of patients multiplied by the month of observation.

**Abbreviations:** VD, vitamin D.

*Fig. S3* Meta-analysis of VD supplementation on FEV1/FVC change from baseline to end

**Abbreviations:** VD, vitamin D; COPD, chronic obstructive pulmonary disease.
**Fig. S4** Meta-analysis of VD supplementation on mMRC score change from baseline to end of COPD

| Study or Subgroup | VD Mean | SD | Total | placebo Mean | SD | Total | Mean Difference | IV, Fixed, 95% CI | Mean Difference | IV, Fixed, 95% CI |
|-------------------|---------|----|-------|--------------|----|-------|----------------|-------------------|----------------|----------------|
| Dastran 2014-6 days | -0.97   | 0.06 | 33    | -0.52        | 0.01 | 34    | 47.9% | -6.15 [9.55, 0.26] |
| Pournimand 2016-120 days | -1.27   | 0.78 | 30    | -1.07        | 0.76 | 32    | 62.1% | -0.27 [9.05, 9.11] |
| Total (95% CI) | 63      | 100% | -0.21 [0.49, 0.66] |

Heterogeneity: $I^2 = 0.15$, df = 1 ($P = 0.87$), $I^p = 0$

Test for overall effect: $Z = 1.59$ ($P = 0.11$)

Abbreviations: Mmrc, Modified Medical Research Council; VD, vitamin D; COPD, chronic obstructive pulmonary disease.

**Fig. S5** Meta-analysis of VD supplementation on SGRQ score change from baseline to end of COPD

| Study or Subgroup | VD Mean | SD | Total | placebo Mean | SD | Total | Mean Difference | IV, Random, 95% CI | Mean Difference | IV, Random, 95% CI |
|-------------------|---------|----|-------|--------------|----|-------|----------------|-------------------|----------------|----------------|
| Birkh 2014-6 month | 1.3     | 0.56 | 18    | -1           | 0.69 | 19    | 20.9% | 2.30 [1.61, 4.01] |
| Matteau 2015-12 months | -1.76   | 0.78 | 122   | -2.4         | 0.86 | 118   | 36.9% | 1.40 [0.63, 2.33] |
| Pournimand 2016-120 days | 0.86    | 2.08 | 30    | 2.09         | 2.10 | 22    | 42.4% | 4.67 [2.26, 6.09] |
| Total (95% CI) | 178     | 100% | 2.97 [0.51, 5.53] |

Heterogeneity: $I^2 = 3.30$, $df = 2$ ($P = 0.03$), $I^p = 72$

Test for overall effect: $Z = 2.07$ ($P = 0.02$)

Abbreviations: SGRQ, St George's Respiratory Questionnaire; VD, vitamin D; COPD, chronic obstructive pulmonary disease.

**Fig. S6** Meta-analysis of VD supplementation on ACT score change from baseline to end of asthma

| Study or Subgroup | VD Mean | SD | Total | placebo Mean | SD | Total | Mean Difference | IV, Random, 95% CI | Mean Difference | IV, Random, 95% CI |
|-------------------|---------|----|-------|--------------|----|-------|----------------|-------------------|----------------|----------------|
| Jol 2012-9 months | 2.33    | 3.76 | 112   | 2.03         | 3.91 | 108   | 45.7% | 0.59 [0.44, 1.14] |
| Kesely 2016-15 weeks | 1.33   | 4.65 | 17    | 2.03         | 3.90 | 22    | 15.1% | -1.59 [2.34, 1.34] |
| Tachtibko 2016-6 months | 1.44   | 2.44 | 52    | 0.27         | 0.27 | 34    | 42.2% | 1.46 [0.39, 2.41] |
| Total (95% CI) | 101     | 100% | 0.64 [0.48, 1.73] |

Heterogeneity: $I^2 = 97$, $df = 4$ ($P = 0.12$), $I^p = 59$

Test for overall effect: $Z = 1.14$ ($P = 0.25$)

Abbreviations: ACT, asthma control test; VD, vitamin D.

**Fig. S7** Meta-analysis of VD supplementation on length of hospital stay of COPD

| Study or Subgroup | VD Mean | SD | Total | placebo Mean | SD | Total | Mean Difference | IV, Fixed, 95% CI | Mean Difference | IV, Fixed, 95% CI |
|-------------------|---------|----|-------|--------------|----|-------|----------------|-------------------|----------------|----------------|
| Dastran 2014-6 days | 7.49    | 3.62 | 33    | 6.09         | 3.08 | 34    | 45.4% | -6.61 [2.24, 1.02] |
| Pournimand 2016-39 days | 7.37    | 3.69 | 30    | 6.05         | 3.46 | 32    | 50.0% | -0.66 [2.23, 0.93] |
| Total (95% CI) | 63    | 100% | -0.65 [1.73, 0.43] |

Heterogeneity: $I^2 = 0.61$, $df = 1$ ($P = 0.34$), $I^p = 9$

Test for overall effect: $Z = 1.18$ ($P = 0.24$)

Abbreviations: VD, vitamin D; COPD, chronic obstructive pulmonary disease.
**Fig. S8** Meta-analysis of VD supplementation on IL-5

Abbreviations: VD, vitamin D; COPD, chronic obstructive pulmonary disease.

**Fig. S9** Meta-analysis of VD supplementation on IgE of asthma

Abbreviations: VD, vitamin D.

**Fig. S10** Meta-analysis of VD supplementation on IL-6

Abbreviations: VD, vitamin D; COPD, chronic obstructive pulmonary disease.
The research of Ramos-Martinez didn’t include the character of VD baseline. 
Abbreviations: VD, vitamin D; COPD, chronic obstructive pulmonary disease.