

**SUPPLEMENTAL MATERIAL**

**Supplemental Table I.** Studies that were identified in structured searches but were excluded, and criteria for exclusion.

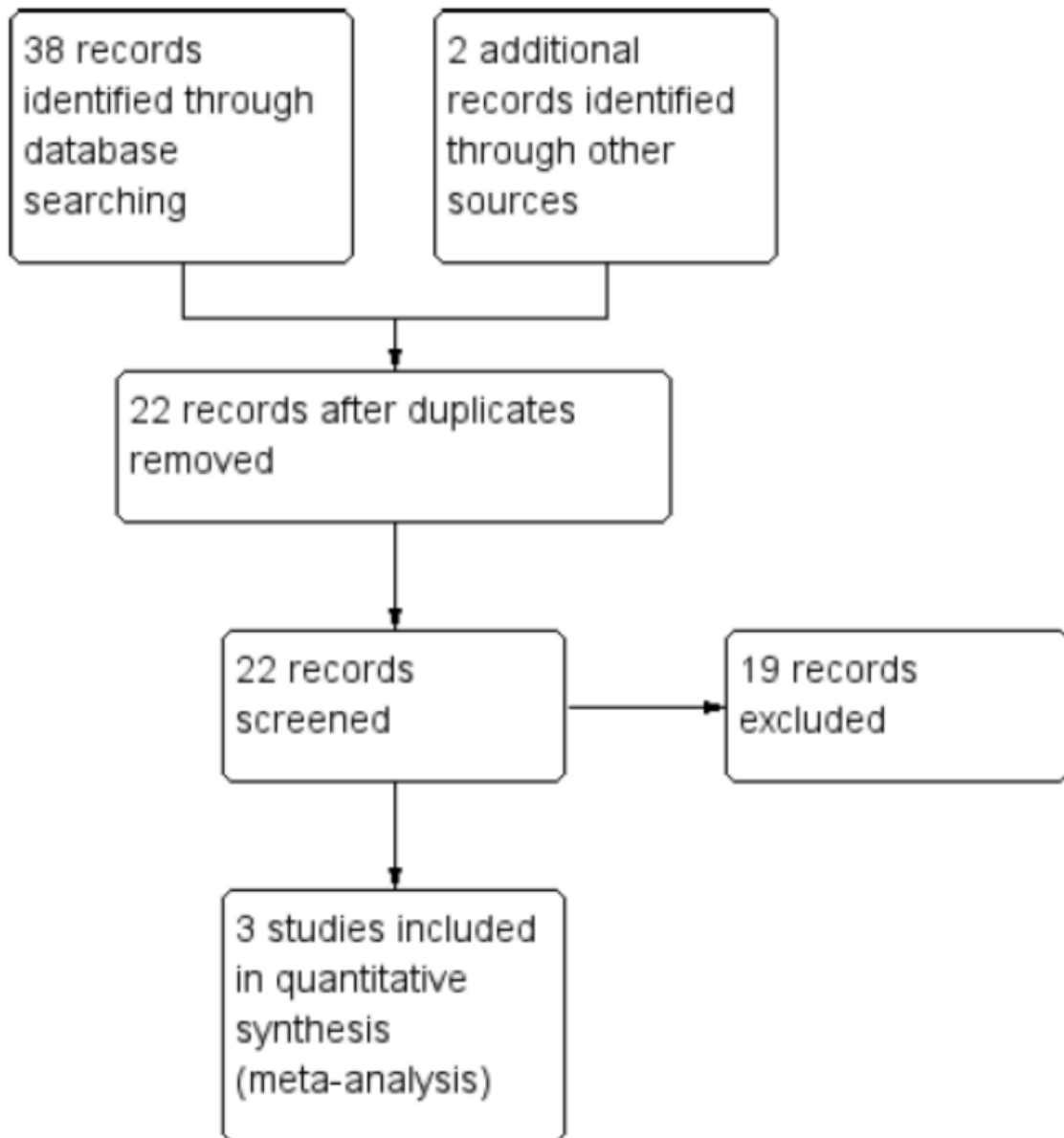
Study Reference	Reason for Exclusion
Archer 2013 <sup>1</sup>	• Non-RCT
Bulow 2008 <sup>2</sup>	• Non-PES study
Burnett 2005 <sup>3</sup>	• Non-PES study
	• Non-RCT
	• Non-stroke
Byung-Mo 2010 <sup>4</sup>	• Non-RCT
Clark 2009 <sup>5</sup>	• Non-RCT
	• Systematic review
Heijnen 2012 <sup>6</sup>	• Non-PES study
	• Non-stroke
Jayasekeran 2011 <sup>7</sup>	• Non-RCT
	• Non-stroke
Lim 2009 <sup>8</sup>	• Non-PES study
Long 2013 <sup>9</sup>	• Non-PES study
	• Non-stroke
Ludlow <sup>10</sup>	• Non-RCT
Michou 2014 <sup>11</sup>	• Non-RCT
	• Chronic stroke
Restivo 2013 <sup>12</sup>	• Non-stroke
Restivo 2014 <sup>13</sup>	• Non-stroke
	• Not PES
Suntrup 2013 <sup>14</sup>	• Non-RCT
Rofes 2013 <sup>15</sup>	• Non-RCT
Rogus-Pulia 2013 <sup>16</sup>	• Non-RCT
	• Review
Speyer 2010 <sup>17</sup>	• Non-RCT
	• Systematic review
STEPS 2015	• Ongoing RCT
<a href="http://www.phagenesis.com/clinical/STEPS-study">http://www.phagenesis.com/clinical/STEPS-study</a>	
Tan 2013 <sup>18</sup>	• Not an PES RCT
	• Multiple aetiologies

PES: Pharyngeal electrical stimulation; RCT: randomised controlled trial

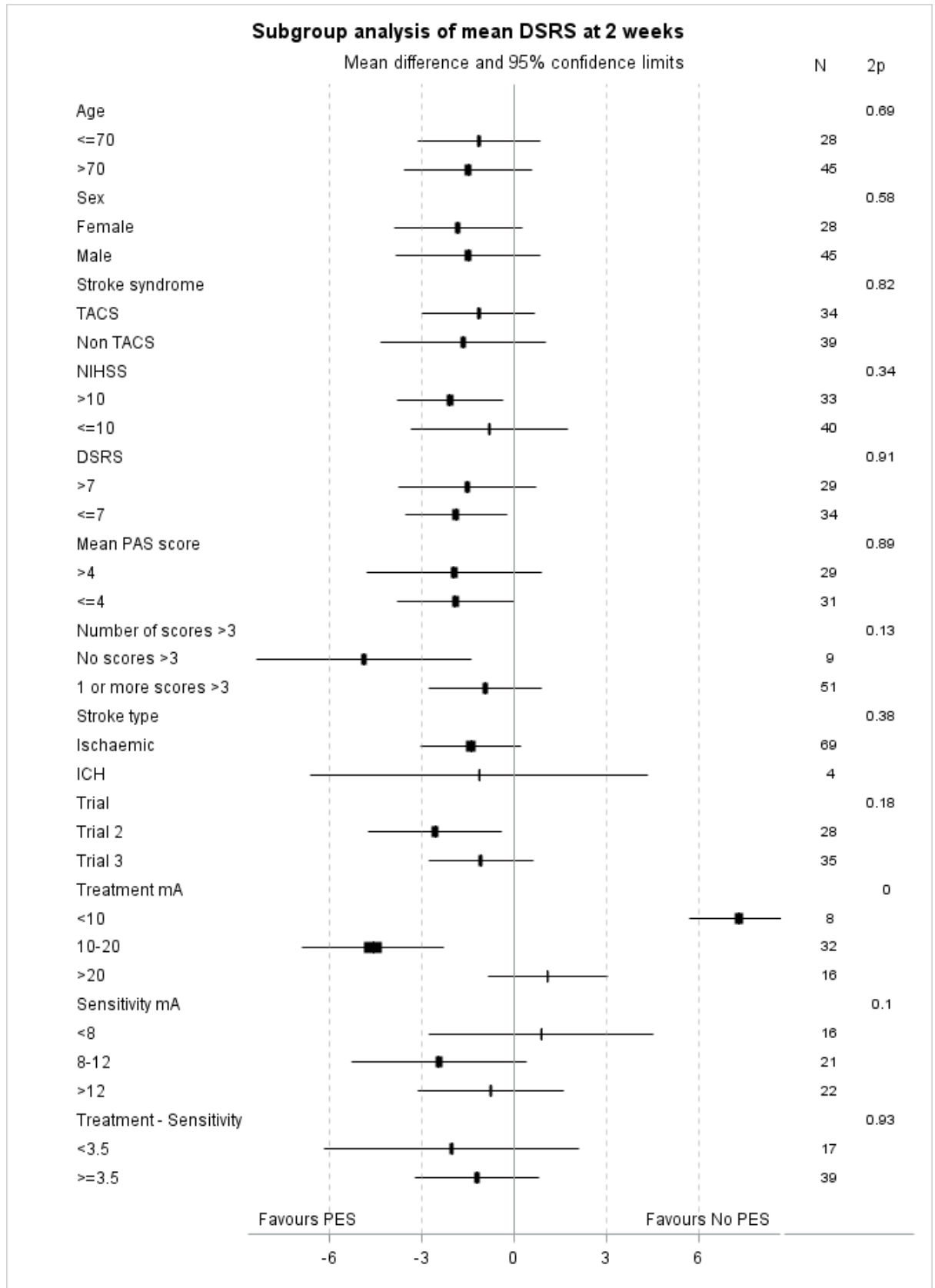
**Supplemental Table II.** Mean penetration aspiration score (PAS) and dysphagia severity rating scale (DSRS) before and after treatment in the active and sham groups in the 3 trials. Patients with both baseline and 2 week mean PAS are included. Comparison by t test.

Timing	PAS			DSRS			
	Trial 1 19	Trial 2 19	Trial 3 20	Trial 1 19	Trial 2 19	Trial 3 20	
Active	Before	4.8	4.6	4.5	-	6.4	7.8
	After	3.7	3.2	2.6	-	2.5	4.4
	Difference	-1.0	-1.4	-1.9	-	-3.9	-3.4
Sham	Before	4.3	3.9	3.9	-	5.6	6.8
	After	4.8	3.8	4.3	-	4.8	5.0
	Difference	+0.5	-0.1	+0.4	-	-0.8	-1.8
Active-sham	Difference	-1.5	-1.3	-2.3	-	-3.0	-1.5
	p	0.017	0.061	0.22	-	0.11	0.11

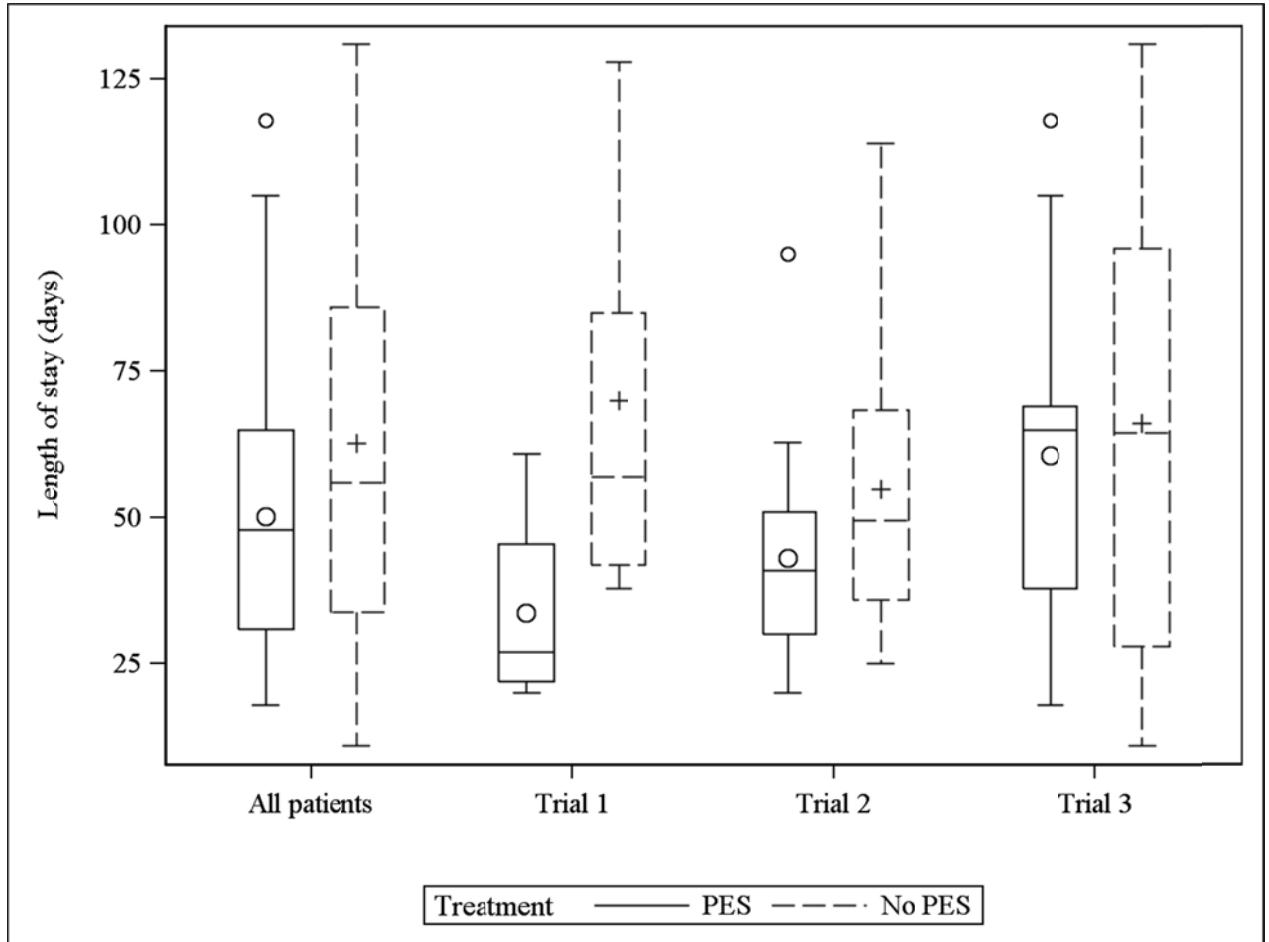
**Supplemental Figure I.** Flow diagram of search for trials



**Supplemental Figure II.** Dysphagia Severity Rating Scale, in subgroups (as for penetration aspiration score in Figure 2)



**Supplemental Figure III.** Box and whisker plot of length in stay in hospital after randomisation, by source trial. Comparison of PES versus no PES by multiple linear regression with adjustment, overall mean difference -16.2 (95% CI -36.2, 3.7;  $p=0.11$ ). Note: one patient randomised to sham PES with length of stay of 365 days excluded to make figure more clear.



## Supplemental References

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