**MEDLINE Search Strategy**

# MEDLINE Search Strategy

*Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R)*

1. Retinopathy of Prematurity/

2. exp Ophthalmoscopy/

3. retinopath\*.tw.

4. retrolental fibroplasia?.tw.

5. ophthalmoscop\*.tw.

6. (scleral adj (depress\* or indent\*)).tw.

7. 1 or 2 or 3 or 4 or 5 or 6

8. exp Infant, Newborn/

9. ((prematur\* or pre-matur\* or preterm\* or pre-term\*) adj2 (infant\* or newborn? or baby or babies or neonat\* or neo-nat\* or child\*)).tw.

10. (premie? or preemie?).tw.

11. (low adj2 (birthweight? or birth weight?)).tw.

12. (small adj2 gestation\* age).tw.

13. 8 or 9 or 10 or 11 or 12

14. exp Pain/

15. Pain Management/

16. Pain Measurement/

17. exp Analgesia/

18. exp Analgesics/

19. Anesthetics, Local/

20. pain\*.tw.

21. analgesia.tw.

22. analgesic?.tw.

23. (local\* adj2 anesthetic?).tw.

24. comfort\*.tw.

25. discomfort\*.tw.

26. stress\*.tw.

27. sooth\*.tw.

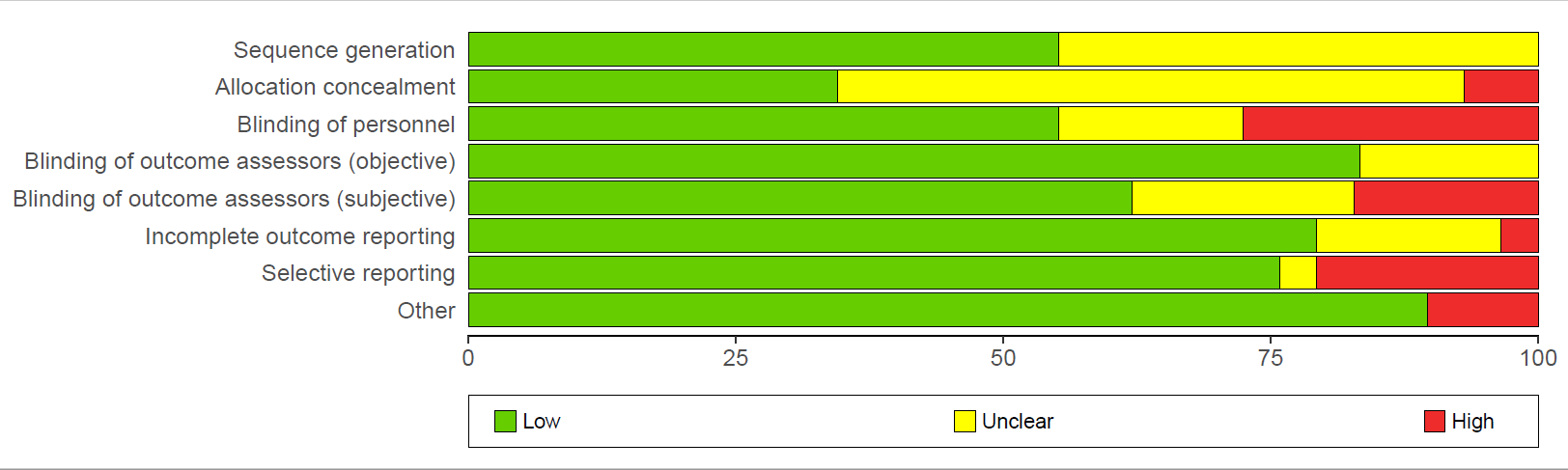
28. (pacify\* or pacifie\*).tw.

29. 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28

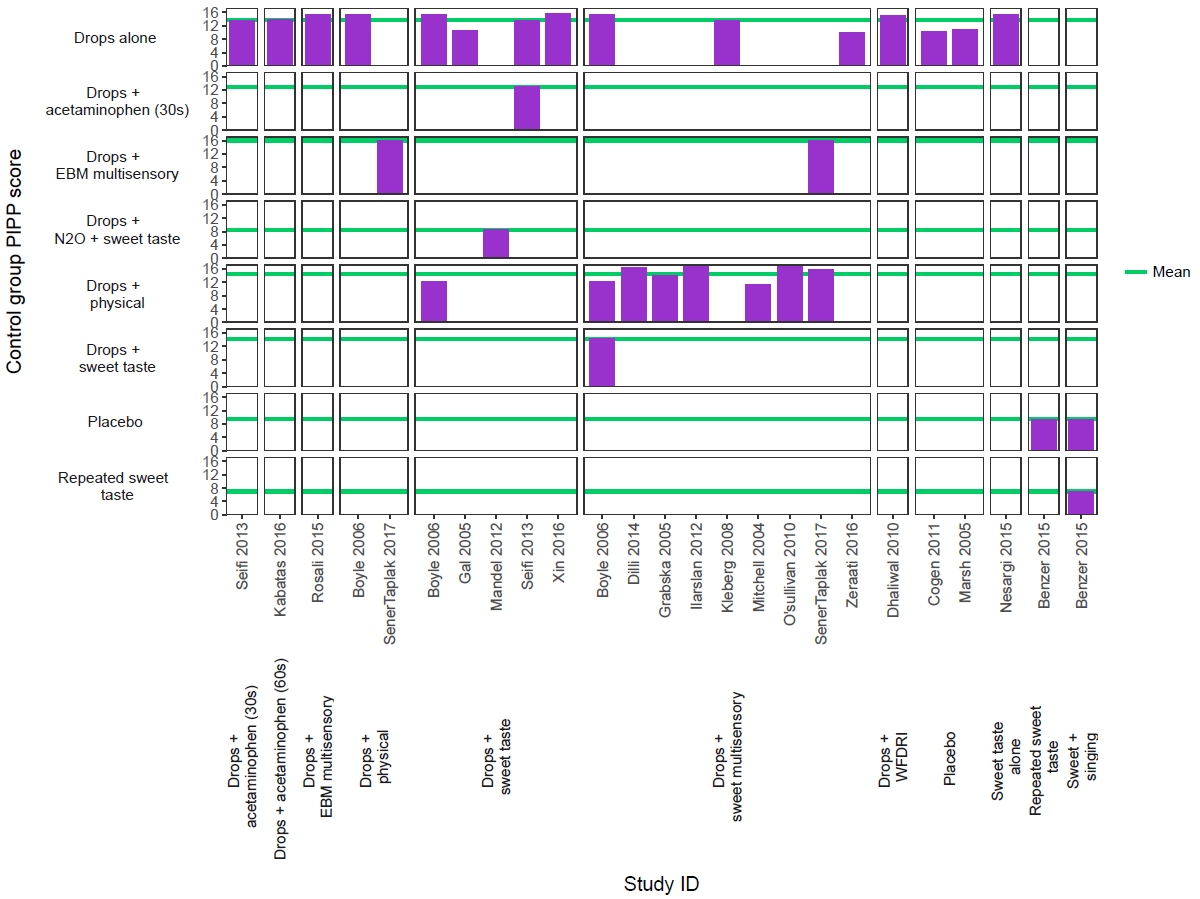
30. 7 and 13 and 29

|  |  |  |
| --- | --- | --- |
| **Supplementary table 1.** Intervention lumping | | |
| **Intervention** | **Group** | **Rationale/Description** |
| *No anesthetic eye drops* |  |  |
| Non-nutritive sucking | Physical | Mechanism of action through distraction |
| Placebo | Placebo | - |
| Sweet taste alone | Sweet taste alone | Sucrose and glucose combined, similar mechanism |
| Repeated sweet taste |  |  |
| sweet.sing |  | sweet sing |
| *Anesthetic eye drops* | | |
| Alone | Eye drops alone | - |
| No speculum | Eye drops + no speculum | Speculum thought to be major painful component of intervention |
| Sweet taste | Eye drops + sweet | Sucrose + glucose combined, similar mechanism |
| WFDRI | Eye drops + WFDRI | Camera does not require scleral depression and can be done more rapidly |
| Feeding one hour prior | Eye drops + diet one hour | Infants fed one hour before procedure |
| Feeding two hours prior | Eye drops + diet two hours | Infants fed two hours before procedure |
| Non-nutritive sucking | Eye drops + physical | Mechanism of action through distraction |
| Sweet + nitrous oxide | Eye drops + sweet + N2O | Sweet taste combined with additional pharmacological intervention |
| Acetaminophen 30 minutes prior to procedure | Eye drops + acetaminophen 30 minutes | Time of onset of acetaminophen in neonates approximately 60 minutes |
| Acetaminophen 60 minutes prior to procedure | Eye drops + acetaminophen 60 minutes |
| Sensorial saturation | Eye drops + sweet multisensory | Combines sweet taste, non-nutritive sucking, swaddling, touch, voice, and familiar odour |
| NIDCAP | Eye drops + sweet multisensory | Combines sweet taste, non-nutritive sucking, swaddling, touch, and voice |
| Cup-fed expressed breast milk | Eye drops + ebm multisensory | Cup feeding provides olfactory and gustatory stimulation |
| Expressed breast milk + non-nutritive sucking | Eye drops + ebm multisensory | Combines gustatory and physical stimulation |

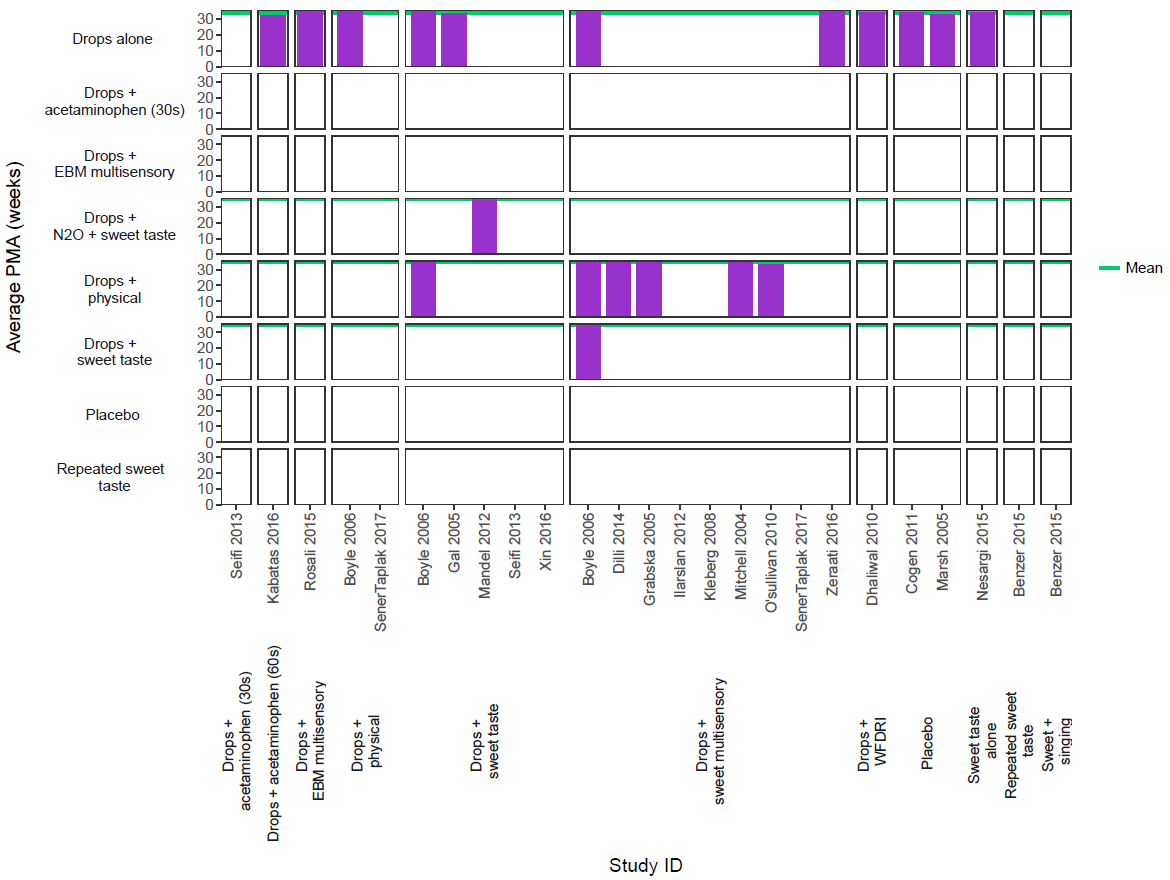
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary table 2.** Characteristics of studies | | | | | | | |
| Author and year | Design | Method | Speculum | Scleral depression | PMA (mean) | BW (mean) | Treatments |
| Boyle 2006 | Parallel | BIO | yes | yes | 34.9 | 1132.8 | drops vs drops + sweet vs NNS + drops vs sweet + nns + drops |
| Cogen 2011 | Parallel | BIO | yes | yes | 34 | 924 | no treatment vs drops |
| Costa 2013 | Parallel | BIO | yes | yes | 35.2 | 1260.9 | drops vs drops + sweet |
| Dhaliwal 2010 | Crossover | WFDRI | yes | no | 34.1 | 1208 | drops vs WFDRI + drops |
| Dilli 2014 | Parallel | BIO | yes | unclear | 35.4 | 1304 | drops + nns vs sweet + nns + drops |
| Gal 2005 | Crossover | BIO | yes | yes | 33.3 | NA | drops vs drops + sweet |
| Grabska 2005 | Parallel | BIO | yes | yes | 35.3 | 1880 | drops + nns vs sweet + nns + drops |
| Kabatas 2016 | Parallel | BIO | yes | unclear | 32.4 | 1130.3 | drops vs paracetamol + drops |
| Kleberg 2008 | Crossover | BIO or WFDRI | yes | yes in London | NA | NA | drops vs NIDCAP |
| Mandel 2012 | Parallel | BIO | yes | yes | 35.2 | 1025.4 | drops + sweet vs NO + sweet + drops |
| Marsh 2005 | Crossover | BIO | yes | yes | 33 | NA | no + treatment vs drops |
| Mehta 2010 | Crossover | BIO | yes | yes | NA | NA | nns vs NNS + drops |
| Mitchell 2004 | Parallel | BIO | yes | yes | 35.2 | 976 | drops + nns vs sweet + nns + drops |
| Nesargi 2015 | Parallel | BIO | yes | yes | 34.3 | 1167 | drops vs sweet |
| Olsson 2011 | Parallel | BIO | no | unclear | NA | 1126.5 | drops vs drops + sweet |
| O'sullivan 2010 | Parallel | BIO | yes | yes | 33.1 | 1140 | drops + nns vs sweet + nns + drops |
| Rosali 2015 | Parallel | BIO | yes | yes | 34.6 | 1356 | drops vs ebm + drops |
| Rush 2005 | Parallel | BIO | yes | unclear | NA | 1185.3 | drops vs sweet + nns + drops |
| Saunders 1993 | Parallel | BIO | yes | yes | 36 | 1093 | no treatment vs drops |
| Strube 2010 | Parallel | BIO | yes | yes | 35.8 | 1091.7 | 1hr + feed vs 2hr + feed |
| Manjunatha 2009 | Parallel | BIO | yes | yes | NA | NA | drops vs morphine + drops vs paracetamol + drops |
| Seifi 2013 | Parallel | BIO | yes | yes | NA | 987.1 | drops vs drops + sweet vs paracetamol + drops |
| Zeraati 2016 | Parallel | unclear | unclear | unclear | 35.5 | 1370.8 | drops vs sensorial + saturation |
| SenerTaplak 2017 | Parallel | BIO | yes | yes | NA | NA | drops + nns vs nns + ebm + drops vs nns + sweet + drops |
| Benzer 2015 | Parallel | unclear | unclear | unclear | NA | NA | plac vs sweet + rep vs sweet + single |
| Ilarslan 2012 | Parallel | unclear | yes | unclear | NA | NA | drops + nns vs nns + drops + sweet |
| Mehta 2005 | Crossover | bio and wfdri | yes | no | NA | NA | drops + bio + spec vs drops + bio + nospec vs drops + wfdri |
| Ucar 2014 | Parallel | unclear | unclear | unclear | 34.2 | 1280 | drops + nns vs drops + sweet vs sweet + nns + drops |
| Xin 2016 | Parallel | unclear | unclear | unclear | NA | NA | drops vs drops + sweet |



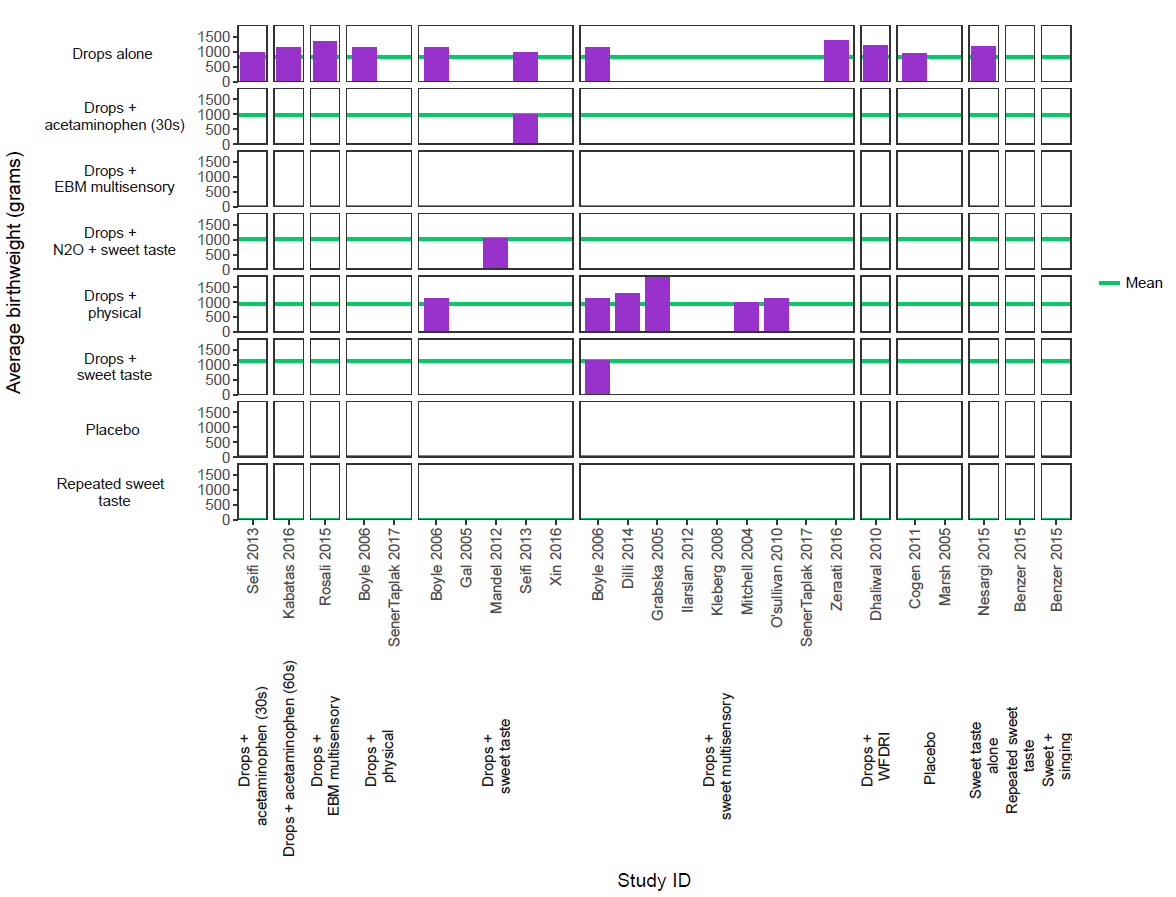
Supplementary figure 1. Risk of Bias of included studies



Supplementary figure 2. Pain reactivity control group PIPP



Supplementary figure 3. Pain reactivity avg pma



Supplementary figure 4. Pain reactivity average birthweight



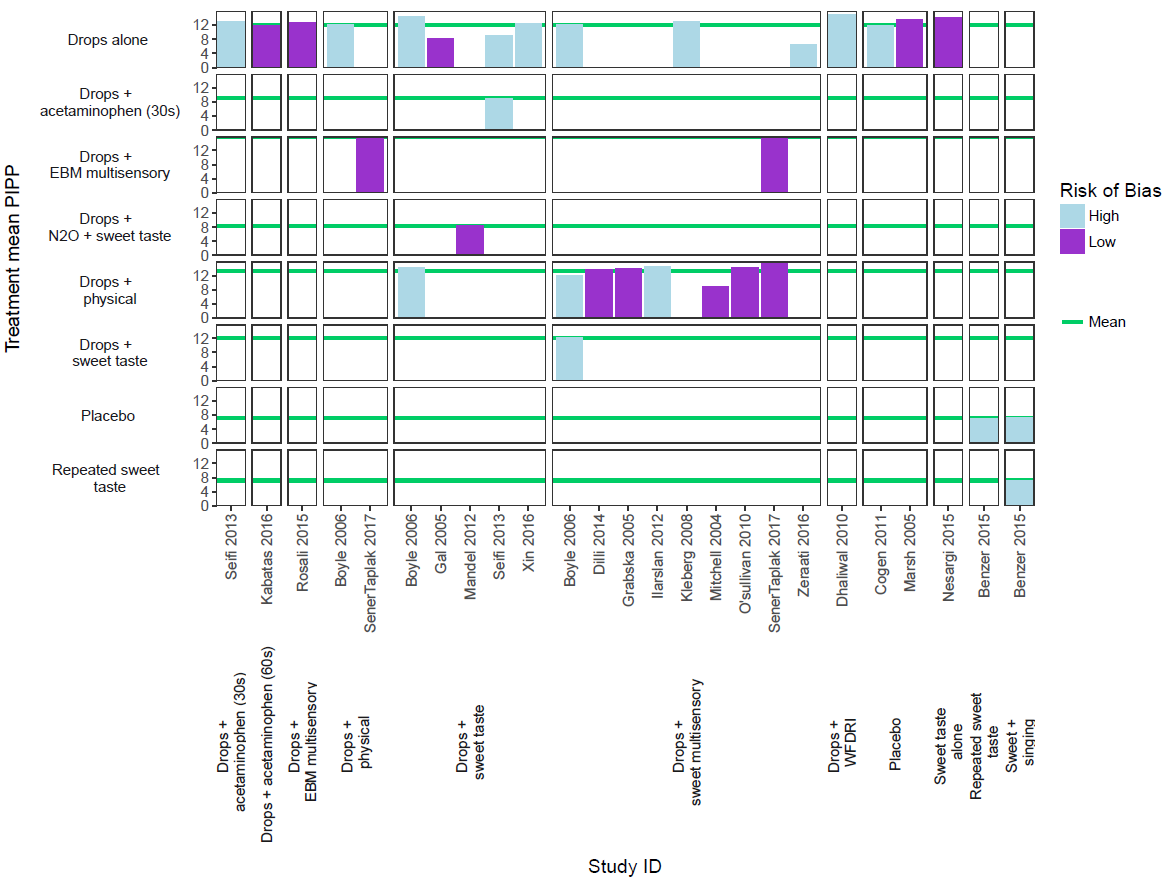
Supplementary figure 5. Pain reactivity imputed mean



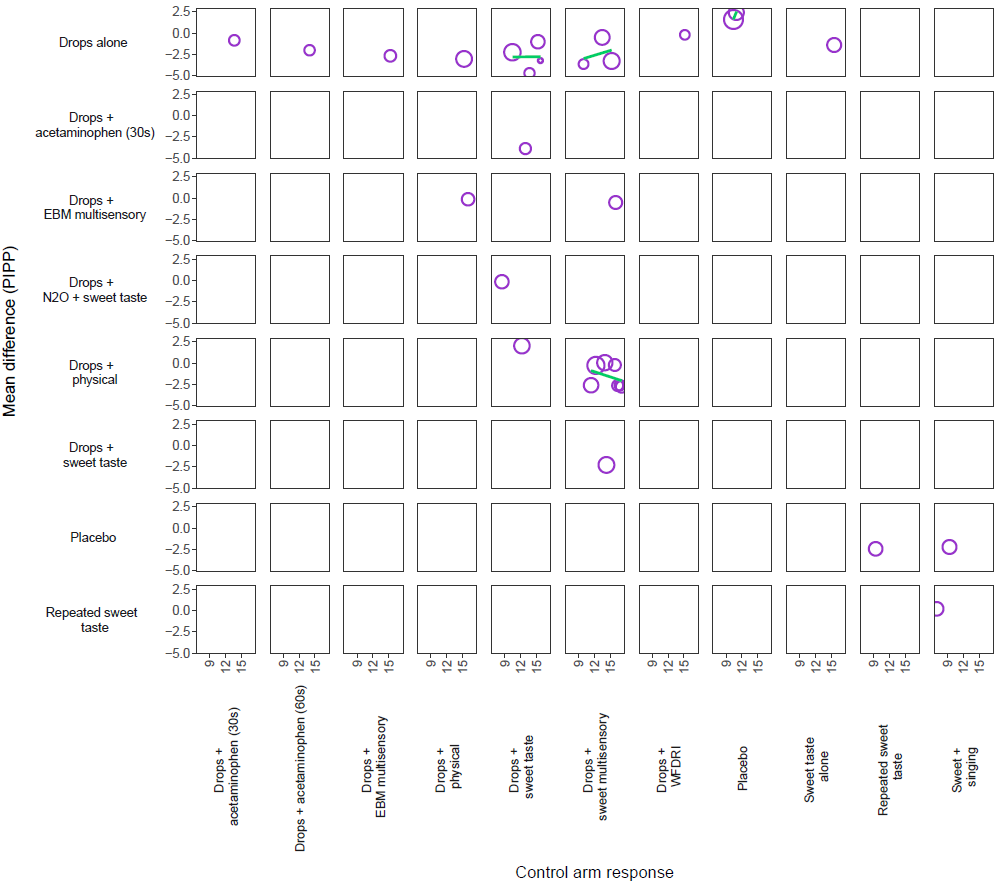
Supplementary figure 6. Pain reactivity trial design



Supplementary figure 7. Pain reactivity scaled scores



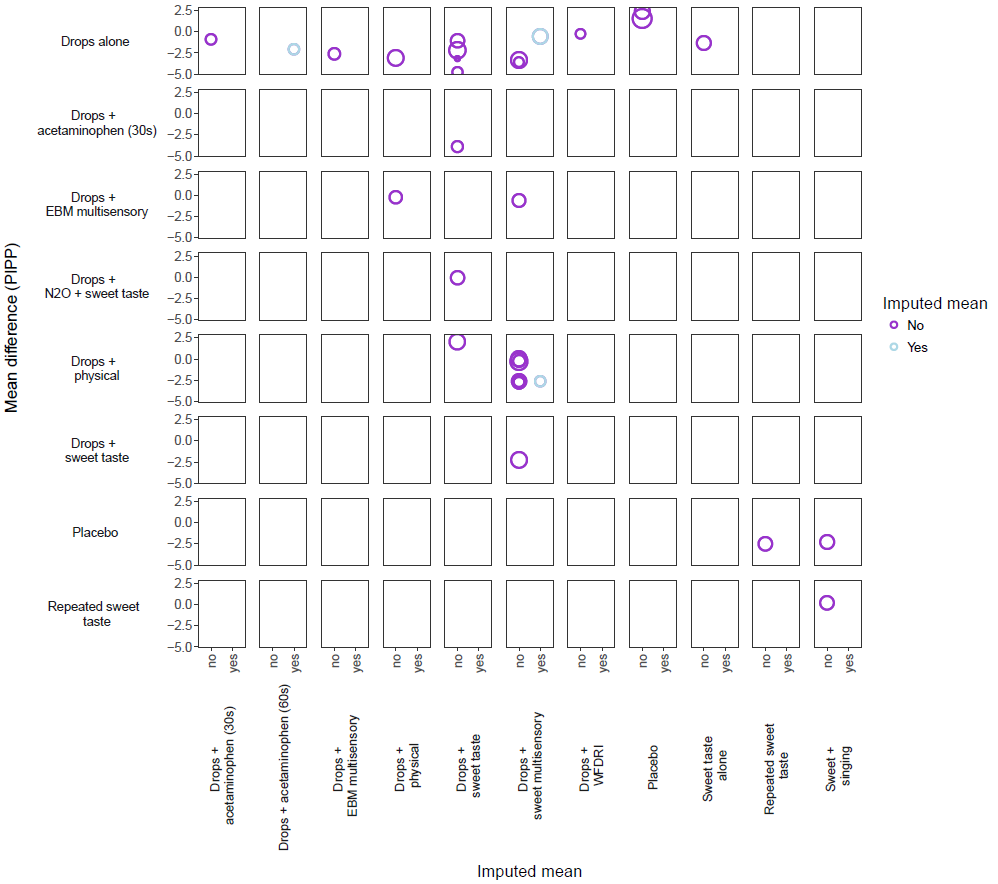
Supplementary figure 8. Pain reactivity risk of bias



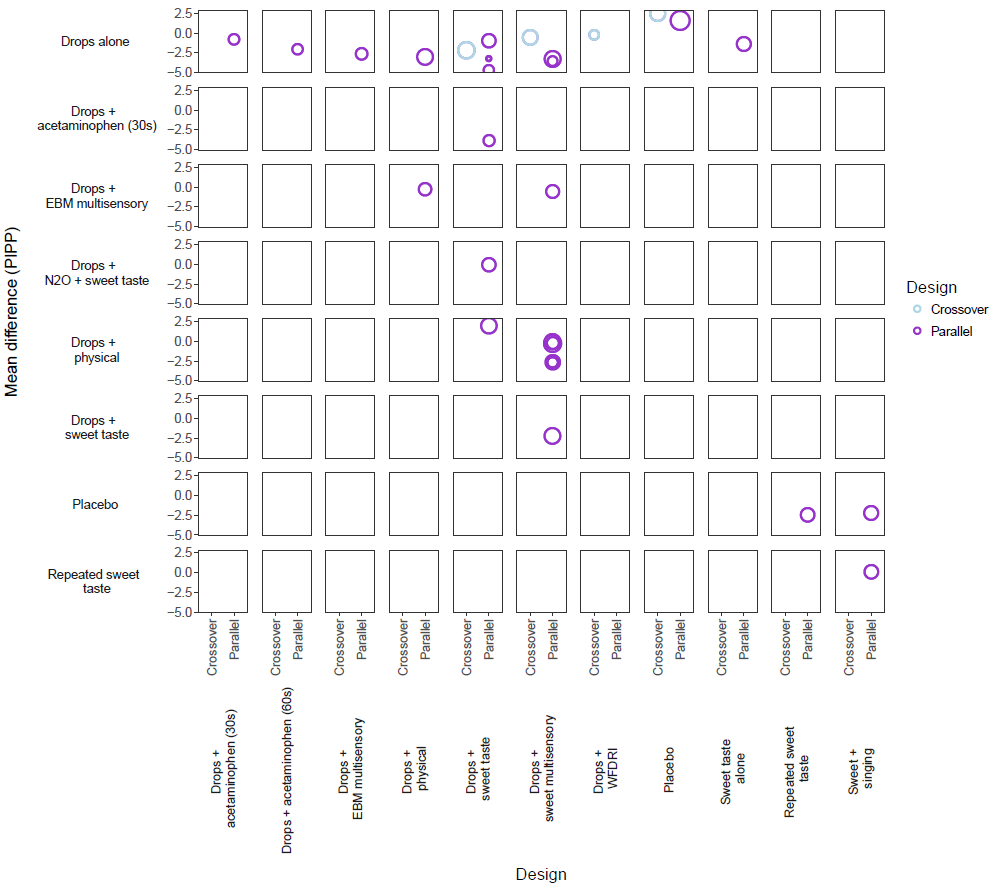
Supplementary figure 9. Trends control arm response



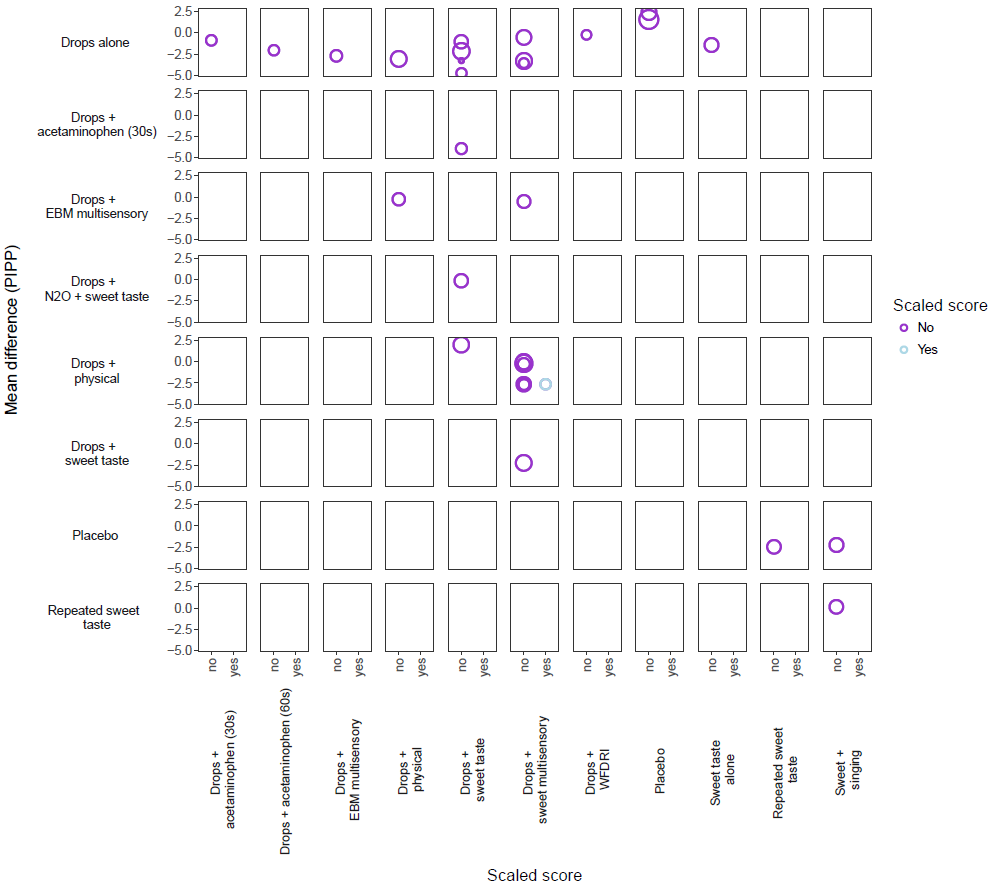
Supplementary figure 10. PIPP reactivity trends vs birthweight



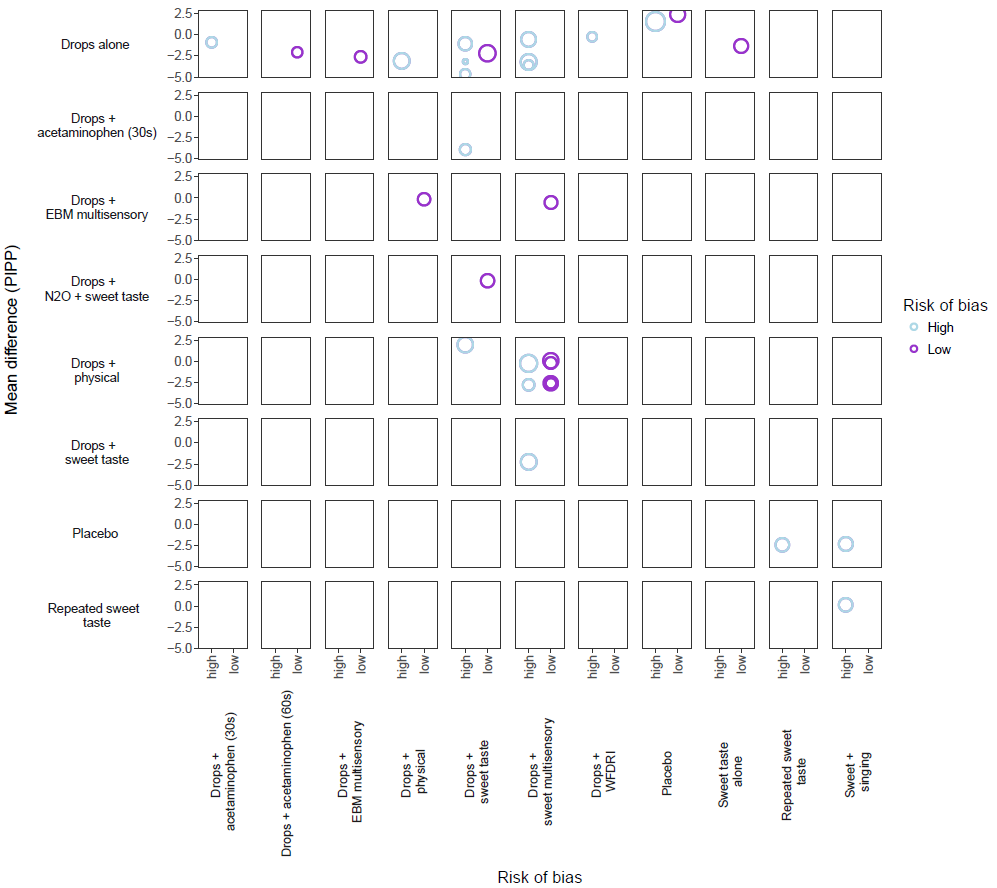
Supplementary figure 11. PIPP reactivity trends vs imputed mean



Supplementary figure 12. PIPP Reactivity trends by design



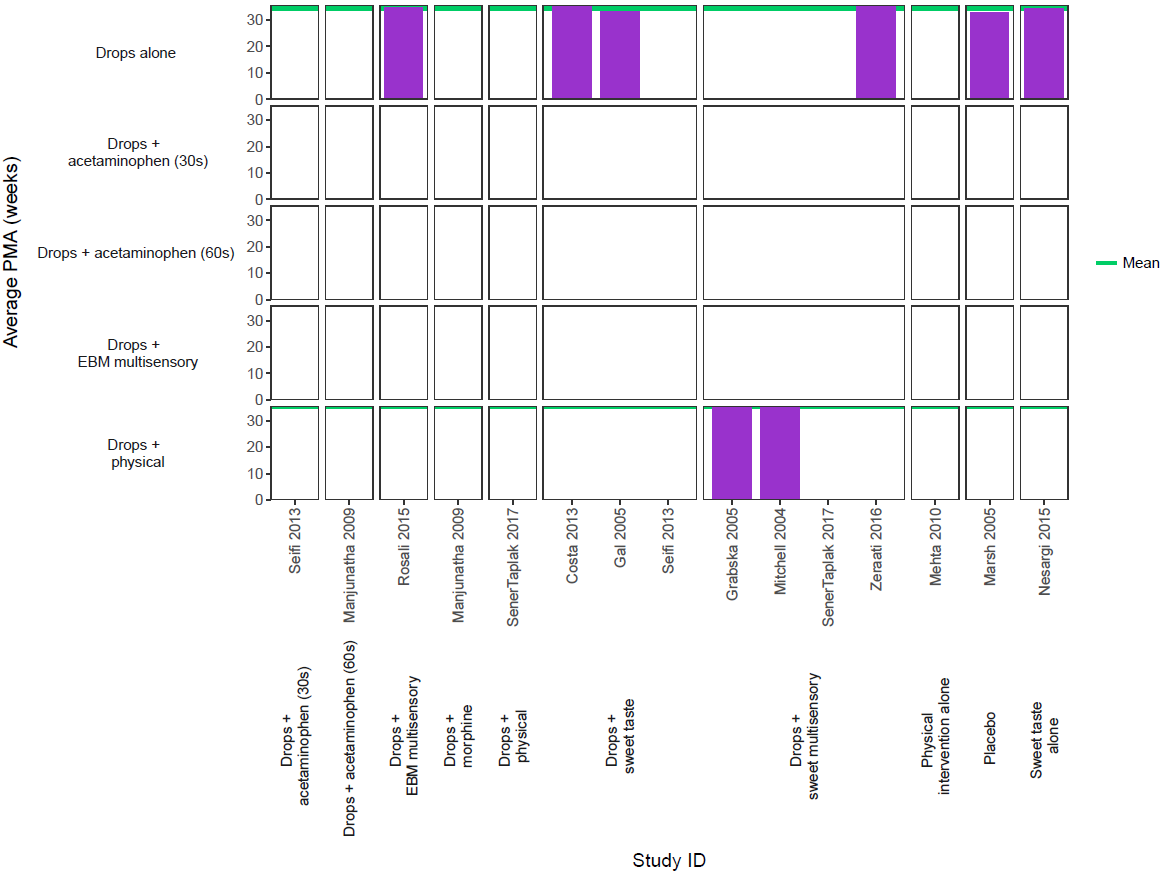
Supplementary figure 13. PIPP reactivity trends by scaled score



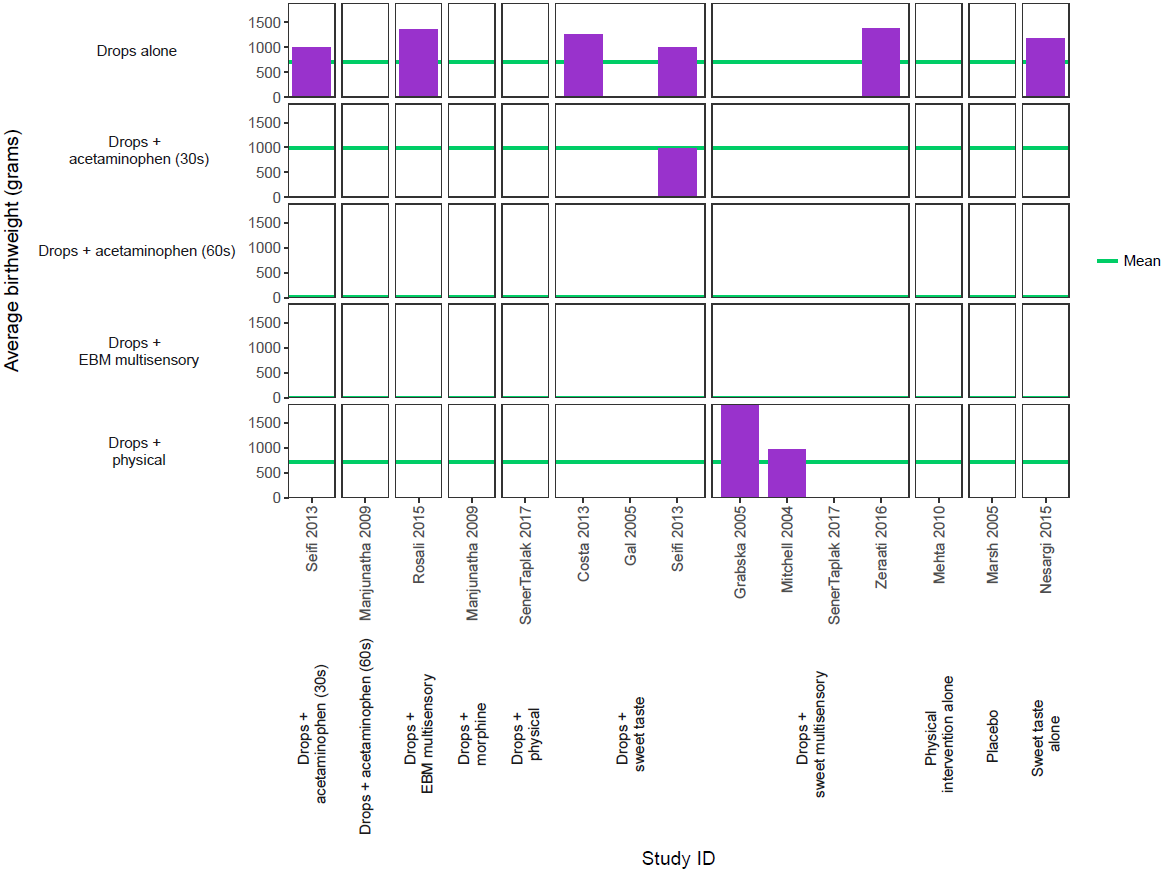
Supplementary figure 14. PIPP reactivity trends by risk of bias



Supplementary figure 15. PIPP recovery control group score



Supplementary figure 16. PIPP recovery average PMA



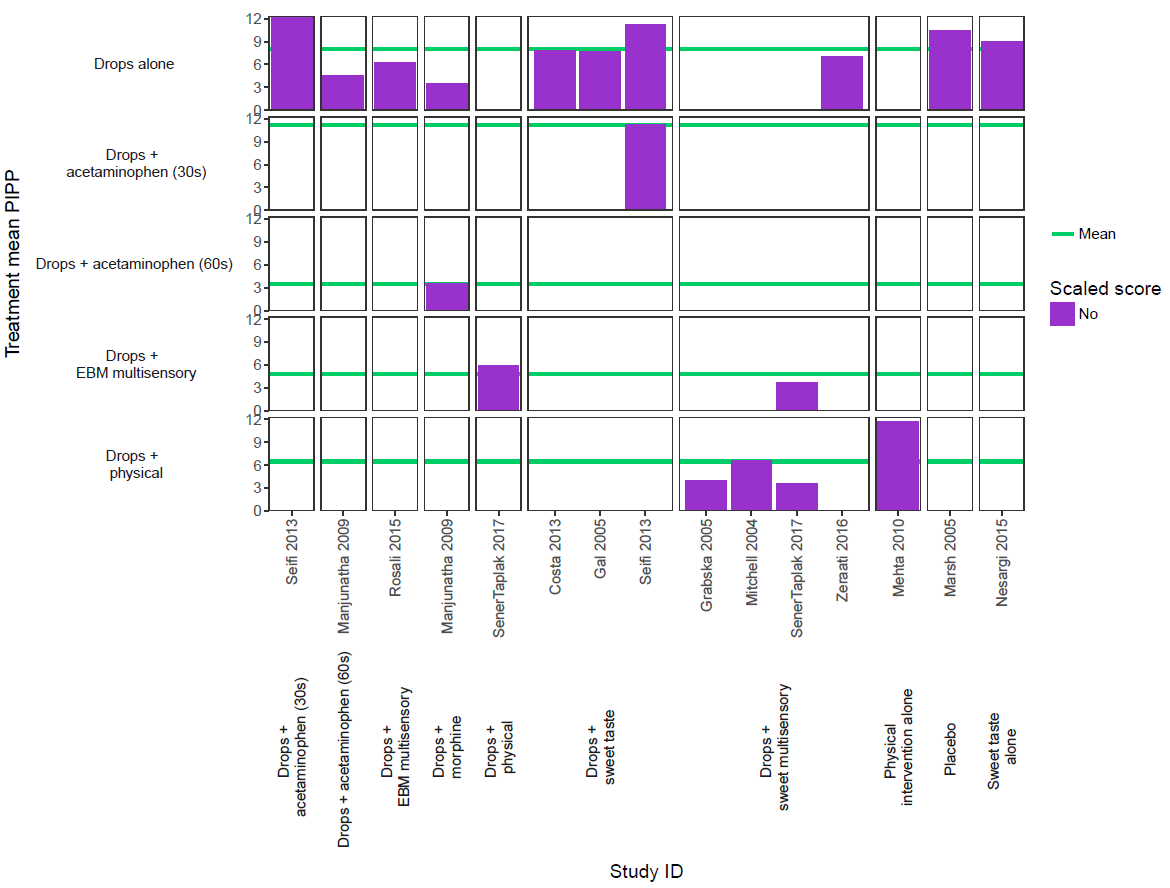
Supplementary figure 17. PIPP recovery average birthweight



Supplementary figure 18. PIPP recovery imputed mean



Supplementary figure 19. PIPP recovery study design



Supplementary figure 20. PIPP recovery scaled scores



Supplementary figure 21. PIPP recovery risk of bias