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BACKGROUND

Introduction: Preterm infants experience delays in oral feeding, impacting hospital stay. Our previous Cochrane review indicated that a range of oral stimulation interventions may help develop sucking co-ordination, promoting earlier oral feeding and hospital discharge. However quality of RCTs were poor and recommendations were made for researchers to improve methodology to address this.

AIMS

1. To update our 2016 Cochrane review
2. To indicate certainty of evidence for oral stimulation in preterm infants in NICU services.

METHODS: Database searches were conducted March 2022. Only RCTs were included. Primary outcomes of interest were time (days) to exclusive oral feeding, time spent in NICU, total hospital stay, and duration of parenteral nutrition. Two authors screened titles/abstracts. All authors contributed to data extraction and assessment of risk of bias. The GRADE system was used to rate certainty of evidence (Fig 2). Studies were divided into two comparison groups: group 1 intervention versus standard care, group 2 intervention versus other interventions. We performed meta-analysis using a fixed-effect model.



An example of one oral stimulation protocol by Lessen et al

RESULTS

Results: 28 RCTs were included (1831 participants), 18 provided data for meta-analyses (Fig 1). **Group 1:** Time to exclusive oral feeding (MD -4.07 days, 95% CI -4.81 to -3.32 days, $I^2 = 85\%$). Duration of hospitalisation (MD -4.33, 95% CI -5.97 to -2.68 days, $I^2 = 68\%$) Fig 3. Overall very low-certainty evidence due to serious risk of bias and inconsistency. **Group 2:** Time to exclusive oral feeding (MD -7.17, 95% CI -8.04 to -6.29 days, $I^2 = 80\%$). Duration of hospitalisation (MD -6.15, 95% CI -8.63 to -3.66 days, $I^2 = 0\%$) Fig 4. Duration (days) of parenteral nutrition (MD -2.85, 95% CI -6.13 to 0.42). Certainty of evidence ranged from low- very low due to serious risk of bias, inconsistency and imprecision.

Fig 1

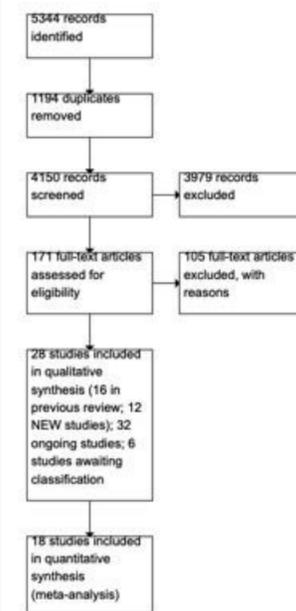


Fig 2

Study	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	All outcomes	Incomplete outcome data (attrition bias)	All outcomes	Selective reporting (reporting bias)	Other bias
Aguilar Rodriguez 2020	?	?	?	?	?	?	?	?	?
Arora 2018	?	?	?	?	?	?	?	?	?
Asadolahpour 2015	?	?	?	?	?	?	?	?	?
Bala 2016	?	?	?	?	?	?	?	?	?
Boiron 2007	?	?	?	?	?	?	?	?	?
Da Rosa Pereira 2018	?	?	?	?	?	?	?	?	?
Fucile 2002	?	?	?	?	?	?	?	?	?
Fucile 2010	?	?	?	?	?	?	?	?	?
Fucile 2012	?	?	?	?	?	?	?	?	?
Fucile 2018	?	?	?	?	?	?	?	?	?
Gaebler 1996	?	?	?	?	?	?	?	?	?
Ghomi 2019	?	?	?	?	?	?	?	?	?
Harding 2006	?	?	?	?	?	?	?	?	?
Harding 2014	?	?	?	?	?	?	?	?	?
Lessen 2011	?	?	?	?	?	?	?	?	?
Lessen Knoll 2019	?	?	?	?	?	?	?	?	?
Li 2020	?	?	?	?	?	?	?	?	?
Lyu 2014	?	?	?	?	?	?	?	?	?
Maheswari 2018	?	?	?	?	?	?	?	?	?
Mahmoodi 2019	?	?	?	?	?	?	?	?	?
Neiva 2006	?	?	?	?	?	?	?	?	?
Noori 2018	?	?	?	?	?	?	?	?	?
Pimenta 2008	?	?	?	?	?	?	?	?	?
Rocha 2007	?	?	?	?	?	?	?	?	?
Skaaning 2020	?	?	?	?	?	?	?	?	?
Thakkar 2018	?	?	?	?	?	?	?	?	?
Yunesian 2015	?	?	?	?	?	?	?	?	?
Zhang 2014	?	?	?	?	?	?	?	?	?

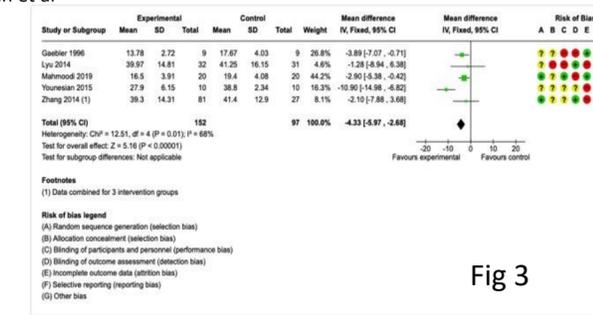


Fig 3

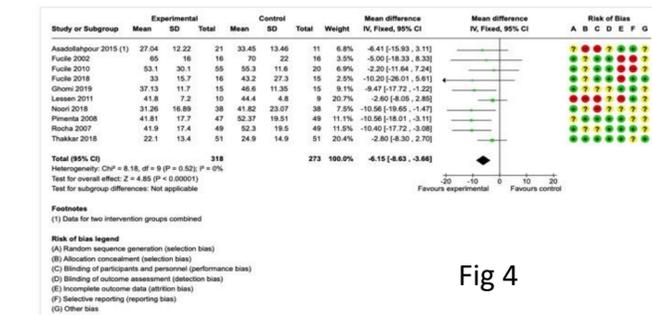


Fig 4

Conclusion

Conclusion: There remains uncertainty about the effects of oral stimulation on preterm infants. Evidence continues to be of low or of very low certainty due to poor study design. Researchers have not implemented previous methodological recommendations which would improve certainty of evidence. The feasibility of providing oral stimulation in for all potentially eligible premature infants at NMH has proven challenging for the new SLT service with many infants who meet the trial eligibility criteria not deemed safe/eligible for oral stimulation protocols by the NMH SLT. Many other less invasive supports are available to therapists working in NICU to promote oral feeding skills and these deserve further assessment for comparison in relation to the primary outcome measures of interest.