Cochrane Neonatal

Evidence in practice:

Feeding strategies and methods

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Cochrane Neonatal received unrestricted grant support to update reviews on feeding preterm infants from the Gerber Foundation

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

Disclosure

Roger F. Soll, M.D. is the Vice President of the Vermont Oxford Network and the Coordinating Editor of Cochrane Neonatal

No other relevant financial issues to disclose

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

To develop an understanding of the strengths and weaknesses of evidence provided by systematic reviews and meta-analyses to inform our practice of neonatal-perinatal medicine.

Today's focus will be on optimizing feeding strategies and methods.

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American Academy of Pediatrics
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Goal of Nutrition for Preterm Infants

Most neonatologists have accepted the recommendation of the American Academy of Pediatrics that growth of the postnatal preterm infant, both their anthropometric indices and body composition, should be the same as the normal fetus of the same gestational age growing in its mother's uterus.

In reality, this proves to be a challenge……

American Academy of Pediatrics Committee on Nutrition: Nutritional needs of low-birth-weight infants. Pediatrics. 1985;76:976–986.

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

Reports from NICUs across the world demonstrate that we have considerable room for improvement.

The growth of nearly all preterm infants during their hospitalization in intensive care, especially those at the earliest gestational ages, lag far behind fetal growth curves in the third trimester.

In the Vermont Oxford Network database, 31% of VLBW infants have extreme growth failure, defined as being less than the 3rd percentile on the Fenton Growth Chart at discharge.

However, this failure in sustaining adequate growth varies greatly between centers (1st quartile 20%, 3rd quartile 40%).

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

Variation in practice

A great deal of variation is seen in feeding practices worldwide. (Klingenberg and colleagues. Arch Dis Child 2012).

For example, in infants 25 to 27 weeks GA, 100% of units in Scandinavia routinely initiate feeds in the first 24 hours of life, whereas only 15% of units in Australia report routine use.

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

What are the downstream effects of undernutrition and growth failure?

Numerous studies have shown that failure to meet the preterm infant's nutritional goals at critical stages of development produces serious problems for the preterm infant, including:

- short stature,
- growth failure,
- abnormalities of brain growth and development.

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

What are the current gaps in caregiver knowledge and practice regarding early enteral nutrition for preterm infants?

We have identified three key areas of gaps in preterm infant nutrition knowledge and practice for the proposed project:

(1) types of feeding,
(2) optimizing nutritional content of feeds, and
(3) feeding strategies and methods.

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So….

What do we **know** from trials of feeding strategies and methods?

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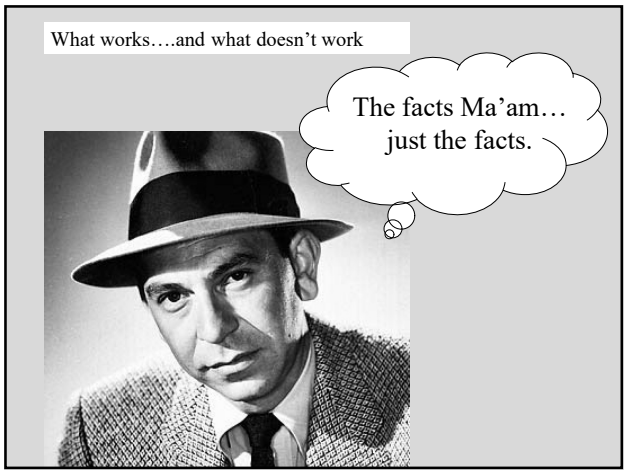

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

- Introduction of enteral feeding
- Promoting enteral feeding
- Methods of enteral feeding
- Enteral feeding strategy

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Introduction of enteral feeding

- **Early trophic feeding versus enteral fasting for very preterm or very low birth weight infants**: 9 trials in which a total of 754 infants

Morgan and colleagues. Cochrane Database of Systematic Reviews 2013, Issue 3. Art. No.: CD000504. DOI: 10.1002/14651858.CD000504.pub4.

- **Delayed introduction of progressive enteral feeds to prevent necrotising enterocolitis in very low birth weight infants:** 14 trials in which a total of 1551 infants

Young and colleagues. Cochrane Database of Systematic Reviews 2014, Issue 12. Art. No.: CD001970. DOI: 10.1002/14651858.CD001970.pub5.

- **Early full enteral feeding for preterm or low birth weight infants:** 6 trials involving 526 infants

Walsh V and colleagues. Early full enteral feeding for preterm or low birth weight infants. Cochrane Database of Systematic Reviews 2020, Issue 12. Art. No.: CD013542. DOI: 10.1002/14651858.CD013542.pub2.

- **Slow advancement of enteral feed volumes to prevent necrotising enterocolitis in very low birth weight infants:** 14 trials involving 4033 infants

Oddie and colleagues. Slow advancement of enteral feed volumes to prevent necrotising enterocolitis in very low birth weight infants. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD001241. DOI: 10.1002/14651858.CD001241.pub8.

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Introduction of enteral feeding

Rationale:

The introduction of enteral feeds for very preterm (< 32 weeks' gestation) or very low birth weight (< 1500 grams) infants is often delayed due to concern that early introduction may not be tolerated and may increase the risk of necrotizing enterocolitis.

Observational studies suggest that conservative feeding regimens, including slowly advancing enteral feed volumes, reduce the risk of NEC.

However, it is unclear whether prolonged enteral fasting may diminish the functional adaptation of the immature gastrointestinal tract and delay establishment of full enteral feeding.

The slower feed advancement may also be associated with infectious morbidities secondary to prolonged exposure to parenteral nutrition.

Trophic feeding is a unique approach to early enteral feeds, giving infants very small volumes of milk to promote intestinal maturation, may enhance feeding tolerance and decrease the time taken to reach full enteral feeding independently of parenteral nutrition.

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Introduction of enteral feeding

What exactly is the intervention?

Intervention	Definition
Early trophic feeding	Early trophic feeding (milk volumes up to 24 ml/kg/day introduced before 96 hours postnatal age and continued until at least one week after birth) versus a comparable period of enteral fasting
Delayed introduction of progressive enteral feeds	Delayed (four or more days after birth) versus earlier introduction of progressive enteral feeds
Early full enteral feeding	Early full feeding (60 mL/kg to 80 mL/kg on day one after birth) with minimal enteral feeding (typically 20 mL/kg on day one) supplemented with intravenous fluids. Feed volumes were advanced daily as tolerated by 20 mL/kg to 30 mL/kg body weight to a target steady-state volume of 150 mL/kg to 180 mL/kg/day.
Slow advancement of enteral feed volumes	Trials typically defined slow advancement as daily increments of 15 to 24 mL/kg, and faster advancement as daily increments of 30 to 40 mL/kg).

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Introduction of enteral feeding

Effect on necrotizing enterocolitis

Intervention	Studies	Infants	Results
Early trophic feeding	9 studies	748 infants	RR 1.07 (95% CI 0.67 to 1.70)
Delayed introduction of progressive enteral feeds	13 studies	1507 infants	RR 0.81 (95% CI 0.58 to 1.14)
Early full enteral feeding	6 studies	522 infants	RR 0.98 (95% CI 0.38 to 2.54)
Slow advancement of enteral feed volumes	14 studies	4026 infants	RR 1.06 (95% CI 0.83 to 1.37)

No evidence of effect on necrotizing enterocolitis

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Introduction of enteral feeding

Effect on mortality

Intervention	Studies	Infants	Results
Early trophic feeding	8 studies	558 infants	RR 0.66 (95% CI 0.41 to 1.07)
Delayed introduction of progressive enteral feeds	12 studies	1399 infants	RR 0.97 (95% CI 0.70 to 1.36)
Early full enteral feeding	6 studies	522 infants	RR 0.78 (95% CI 0.36 to 1.70)
Slow advancement of enteral feed volumes	13 studies	3860 infants	RR 1.13 (95% CI 0.91 to 1.39)

No evidence of effect on mortality

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Introduction of enteral feeding

Effect on invasive infection

Intervention	Studies	Infants	Results
Early trophic feeding	3 studies	237 infants	RR 1.06 (95% CI 0.72 to 1.56)
Delayed introduction of progressive enteral feeds	7 studies	872 infants	RR 1.44 (95% CI 1.15 to 1.80)*
Early full enteral feeding	4 studies	359 infants	RR 0.72 (95% CI 0.36 to 1.46)
Slow advancement of enteral feed volumes	11 studies	3583 infants	RR 1.14 (95% CI 0.99 to 1.31)*

**Increased risk of infection with delayed introduction and slow advancement of feeds?*

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Introduction of enteral feeding

Effect on length of hospital stay (days)

Intervention	Studies	Infants	Results
Early trophic feeding	4 studies	341 infants	MD -3.9 days (95% CI -11.5 to 3.8 days)*
Delayed introduction of progressive enteral feeds	4 studies	368 infants	MD 4.6 days (95% CI 1.5 to 7.6 days)*
Early full enteral feeding	5 studies	436 infants	(MD -3.1 days (95% CI -4.1 to -2.0 days)*
Slow advancement of enteral feed volumes			Variable (2 studies no difference, 2 studies report longer duration of hospital stay among infants in the slow advancement group)

**Decreased duration of hospitalization?*

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Introduction of enteral feeding

Early trophic feeding versus enteral fasting for very preterm or very low birth weight infants

- Early trophic feeding had no evidence of effect on days to reach full enteral feeds, days to regain birth weight or length of hospital stay

Delayed introduction of progressive enteral feeds to prevent necrotizing enterocolitis in very low birth weight infants

- Delayed introduction of progressive enteral feeds ***increased length of hospital stay***. No reported effect on growth.

Early full enteral feeding for preterm or low birth weight infants

- Early full enteral feeding ***decreased days to regain birth weight and length of hospital stay***. Uncertain effect on feed intolerance and long term growth.

Slow advancement of enteral feed volumes to prevent necrotizing enterocolitis in very low birth weight infants

- Slow feed advancement ***delayed establishment of full enteral nutrition*** by between about one and five days and took longer time to regain birth weight. Uncertain effect on feed intolerance.

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

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Promoting enteral feeding

- **Avoidance of bottles during the establishment of breast feeds in preterm infants:** 7 trials with 1152 preterm infants

Allen and colleagues. Cochrane Database of Systematic Reviews 2021, Issue 10. Art. No.: CD005252. DOI: 10.1002/14651858.CD005252.pub4

- **Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants:** 21 trials involving 1186 infants

Foster and colleagues. Cochrane Database of Systematic Reviews 2016, Issue 10. Art. No.: CD001071. DOI: 10.1002/14651858.CD001071.pub3.

- **Oral stimulation for promoting oral feeding in preterm infants:** 28 trials involving 1831 infants

Greene and colleagues. Oral stimulation for promoting oral feeding in preterm infants. Cochrane Database of Systematic Reviews 2016, Issue 9. Art. No.: CD009720. DOI: 10.1002/14651858.CD009720.pub2.

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Introduction of enteral feeding

Rationale

Avoidance of bottles during the establishment of breast feeds in preterm infants

Preterm infants often start milk feeds by gavage tube. As they mature, sucking feeds are gradually introduced. Women with preterm infants may not always be in hospital to breastfeed their baby and need an alternative approach to feeding. Most commonly, milk (expressed breast milk or formula) is given by bottle. Whether using bottles during establishment of breastfeeds is detrimental to breastfeeding success is a topic of ongoing debate.

Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants

Sucking on a pacifier (non-nutritive sucking) during gavage feeding may encourage the development of sucking behavior and improve digestion of the feeding

Oral stimulation for promoting oral feeding in preterm infants

A range of oral stimulation interventions may help infants to develop sucking and oromotor co-ordination, promoting earlier oral feeding and earlier hospital discharge.

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Introduction of enteral feeding

What exactly is the intervention?

Intervention	Definition
Avoidance of bottles during the establishment of breast feeds in preterm infants	Avoidance of bottle feeds during establishment of breastfeeding included studies used a cup feeding strategy (n=5), a tube feeding strategy (n=1) and a novel teat when supplements to breastfeeds were needed (n=1).
Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants	Sucking on a pacifier (non-nutritive sucking) during gavage feeding
Oral stimulation for promoting oral feeding in preterm infants	A range of oral stimulation interventions may help infants to develop sucking and oromotor co-ordination, promoting earlier oral feeding and earlier hospital discharge
• Oral stimulation compared with standard care	Comparison: standard care
• Oral stimulation compared with non-oral intervention	Comparison: non-oral intervention (e.g. body stroking protocols or gavage adjustment protocols)

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Promoting enteral feeding

Effect on full breastfeeding at discharge

Intervention	Studies	Infants	Results
Avoidance of bottles during the establishment of breast feeds in preterm infants	6 studies	1074 infants	RR 1.47 (95% CI 1.19 to 1.80)*
Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants	1 studies	303 infants	RR 1.08 (95% CI 0.88 to 1.33)
Oral stimulation for promoting oral feeding in preterm infants			
• Oral stimulation compared with standard care	1 studies	59 infants	RR 1.83 (95% CI 0.96 to 3.48)
• Oral stimulation compared with non-oral intervention	3 studies	301 infants	RR 1.03 (95% CI 0.86 to 1.23)

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Avoidance of bottles during the establishment of breastfeeds in preterm infants.

Outcome	Studies	Infants	Relative risk (RR)
Full breastfeeding			
• At discharge home	6 studies	1074 infants	RR 1.47 (95% CI 1.19 to 1.80)
• Three months post discharge	4 studies	986 infants	RR 1.56 (95% CI 1.37 to 1.78)
• Six months post discharge	3 studies	887 infants	RR 1.64 (95% CI 1.14 to 2.36)
Any breastfeeding			
• At discharge home	6 studies	1138 infants	RR 1.11 (95% CI 1.06 to 1.16)
• Three months post discharge	5 studies	1063 infants	RR 1.31 (95% CI 1.01 to 1.71)
• Six months post discharge	3 studies	886 infants	RR 1.25 (95% CI 1.10 to 1.41)

There were no harms including length of hospital stay
(MD 2.25 days, 95% CI −3.36 to 7.86 days; 4 studies, 1004 infants

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Promoting enteral feeding

Effect on weight gain

Intervention	Studies	Infants	Results
Avoidance of bottles during the establishment of breast feeds in preterm infants			Variably reported No proven effect
Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants	5 studies	221 infants	Mean weight gain (g/day) in the intervention group was 4.1 higher (95% CI 2.9 to 5.2 higher)
Oral stimulation for promoting oral feeding in preterm infants			
• Oral stimulation compared with standard care			Not reported
• Oral stimulation compared with non-oral intervention			Not reported

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Promoting enteral feeding

Effect on length of hospital stay (days)

Intervention	Studies	Infants	Results
Avoidance of bottles during the establishment of breast feeds in preterm infants	4 studies	1004 infants	Mean length of hospital stay was 2.3 days higher (95% CI -3.4 lower to 7.9 days higher)
Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants	12 studies	825 infants	Mean length of hospital stay in the intervention group was 6.8 days lower (95% CI 7.6 lower to 5.9 days lower)*
Oral stimulation for promoting oral feeding in preterm infants			
• Oral stimulation compared with standard care	5 studies	249 infants	Mean length of hospital stay in the intervention group was 4.3 days lower (95% CI 6.0 lower to 2.7 days lower)*
• Oral stimulation compared with non-oral intervention	10 studies	591 infants	Mean length of hospital stay in the intervention group was 6.1 days lower (95% CI 8.6 lower to 3.7 days lower)*

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Promoting enteral feeding

Effect on necrotizing enterocolitis

Intervention	Studies	Infants	Results
Avoidance of bottles during the establishment of breast feeds in preterm infants			Not reported
Non-nutritive sucking for increasing physiologic stability and nutrition in preterm infants			Not reported
Oral stimulation for promoting oral feeding in preterm infants			
• Oral stimulation compared with standard care			Not reported
• Oral stimulation compared with non-oral intervention			Not reported

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

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Methods of enteral feeding

- Transpyloric versus gastric tube feeding for preterm infants: 9 trials involving 359 infants

Watson J, McGuire W. Transpyloric versus gastric tube feeding for preterm infants. Cochrane Database Syst Rev. 2013 Feb 28;2013(2):CD003487. doi: 10.1002/14651858.CD003487.pub3

- Continuous nasogastric milk feeding versus intermittent bolus milk feeding for preterm infants less than 1500 grams: 9 trials involving 919 infants

Sadrudin Premji S, Chessell L, Stewart F. Cochrane Database of Systematic Reviews 2021, Issue 6. Art. No.: CD001819. DOI: 10.1002/14651858.CD001819.pub2.

- Push versus gravity for intermittent bolus gavage tube feeding of preterm and low birth weight infants: 1 cross-over trial involving 31 infants

Dawson and colleagues. Push versus gravity for intermittent bolus gavage tube feeding of preterm and low birth weight infants. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD005249. DOI: 10.1002/14651858.CD005249.pub3

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Methods of enteral feeding

Rationale

Transpyloric versus gastric tube feeding

In preterm infants enteral feeding is usually commenced via a tube inserted into the stomach (a nasogastric/ orogastric tube). Transpyloric tube feeds, where the tube passes beyond the pylorus into the upper small intestine (usually the jejunum) is an alternative means of delivering enteral milk.

Continuous nasogastric milk feeding versus intermittent bolus milk feeding

Milk feedings can be given via nasogastric tube either intermittently, typically over 10 to 20 minutes every two or three hours, or continuously, using an infusion pump. Although the theoretical benefits and risks of each method have been proposed, their effects on clinically important outcomes remain uncertain.

Push versus gravity

Many small, sick, and preterm infants are unable to co-ordinate sucking, swallowing, and breathing, and therefore require gavage feeding. In gavage feeding, milk feeds are delivered through a tube passed via the nose or the mouth into the stomach. Intermittent bolus milk feeds may be administered by a syringe to gently push milk into the infant's stomach (push feed). Alternatively, milk can be poured into a syringe attached to the tube and allowed to drip in by gravity (gravity feed).

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Methods of enteral feeding

What exactly is the intervention?

Intervention	Definition
Transpyloric versus gastric tube feeding	Transpyloric versus gastric tube feeding
Continuous nasogastric milk feeding versus intermittent bolus milk feeding	Continuous versus intermittent bolus nasogastric milk feeding
Push versus gravity for intermittent bolus gavage tube feeding	Push versus gravity intermittent gavage tube feeding

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Methods of enteral feeding

Effect on necrotizing enterocolitis

Intervention	Studies	Infants	Results
Transpyloric versus gastric tube feeding	7 studies	298 infants	RR 0.63 (95% CI 0.26 to 1.53)
Continuous nasogastric milk feeding versus intermittent bolus milk feeding	4 studies	372 infants	RR 1.19 (95% CI 0.67 to 2.11)
Push versus gravity for intermittent bolus gavage tube feeding			Not reported

Effect on gastrointestinal disturbance

Intervention	Studies	Infants	Results
Transpyloric versus gastric tube feeding	7 studies	297 infants	RR 1.48 (95% CI 1.05 to 2.09)* RD 0.09 (95% CI 0.02 to 0.17)

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Methods of enteral feeding

Effect on mortality

Intervention	Studies	Infants	Results
Transpyloric versus gastric tube feeding	6 studies	245 infants	RR 2.46 (95% CI 1.36 to 4.46)* RD 0.16 (95% CI 0.07 to 0.26)
Continuous nasogastric milk feeding versus intermittent bolus milk feeding			Not reported
Push versus gravity for intermittent bolus gavage tube feeding			Not reported

**Note: The increased mortality associated with transpyloric feeding may be due to selective allocation of the less mature and sicker infants to transpyloric feeding in the trial that contribute most weight to the meta-analysis*

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Methods of enteral feeding

Effect on growth

Intervention	Studies	Infants	Results
Transpyloric versus gastric tube feeding	4 studies	93 infants	Mean weight gain (g/week) in the intervention group was 5.5 lower (95% CI 26.9 lower to 15.9 higher)
Continuous nasogastric milk feeding versus intermittent bolus milk feeding	5 studies	433 infants	Standardized MD 0.09 higher (95% CI 0.27 lower to 0.46 higher)
Push versus gravity for intermittent bolus gavage tube feeding			Not reported

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Feeding strategies and methods: Evidence from Cochrane systematic reviews

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Enteral feeding strategy

- High versus standard volume enteral feeds to promote growth in preterm or low birth weight infants: 3 trials involving 347 infants

Abiramalatha T, Thomas N, Thanigainathan S. High versus standard volume enteral feeds to promote growth in preterm or low birth weight infants. Cochrane Database of Systematic Reviews 2021, Issue 3. Art. No.: CD012413. DOI: 10.1002/14651858.CD012413.pub2.

- Responsive versus scheduled feeding for preterm infants: 9 trials involving 593 infants

Watson J, McGuire W. Responsive versus scheduled feeding for preterm infants. Cochrane Database of Systematic Reviews 2016, Issue 8. Art. No.: CD005255. DOI: 10.1002/14651858.CD005255.pub5.

- Short versus long feeding interval for bolus feedings in very preterm infants: 4 trials involving 417 infants

Ibrahim NR, Van Rostenberghe H, Ho JJ, Nasir A. Short versus long feeding interval for bolus feedings in very preterm infants. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD012322. DOI: 10.1002/14651858.CD012322.

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Enteral feeding strategy

Rationale

High versus standard volume enteral feeds
Human milk is the best enteral nutrition for preterm infants.

However, human milk, given at standard recommended volumes, is not adequate to meet the protein, energy, and other nutrient requirements of preterm or low birth weight infants. One strategy that may be used to address the potential nutrient deficits is to give a higher volume of enteral feeds. High volume feeds may improve nutrient accretion and growth, and in turn may improve neurodevelopmental outcomes. However, there are concerns that high volume feeds may cause feed intolerance, necrotizing enterocolitis, or complications related to fluid overload such as patent ductus arteriosus and chronic lung disease.

Responsive versus scheduled feeding
Feeding preterm infants in response to their hunger and satiation cues (responsive, cue-based, or infant-led feeding) rather than at scheduled intervals might enhance infants' and parents' experience and satisfaction, help in the establishment of independent oral feeding, increase nutrient intake and growth rates, and allow earlier hospital discharge.

Short versus long feeding interval
There is presently no certainty about the ideal feeding intervals for preterm infants. Shorter feeding intervals of, for example, two hours, have the theoretical advantage of allowing smaller volumes of milk. This may have the potential to reduce the incidence and severity of gastro-esophageal reflux. Longer feeding intervals have the theoretical advantage of allowing more gastric emptying between two feeds. This potentially provides periods of rest (and thus less hyperemia) for an immature digestive tract.

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Enteral feeding strategy

What exactly is the intervention?

Intervention	Definition
High versus standard volume enteral feeds to promote growth in preterm or low birth weight infants	In infants who were fed fortified human milk or preterm formula, high and standard volume feeds were defined as > 180 mL/kg/day and ≤ 180 mL/kg/day, respectively. In infants who were fed unfortified human milk or term formula, high and standard volume feeds were defined as > 200 mL/kg/day and ≤ 200 mL/kg/day, respectively
Responsive versus scheduled feeding for preterm infants	Policy of feeding preterm infants on a responsive basis versus feeding prescribed volumes at scheduled intervals
Short versus long feeding interval for bolus feedings in very preterm infants	Short (e.g. one or two hours) versus long (e.g. three or four hours) feeding intervals

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Enteral feeding strategy

Effect on growth

Intervention	Studies	Infants	Results
High versus standard volume enteral feeds (g/kg/day)			
• with fortified human milk or preterm formula	2 studies	271 infants	MD 2.6 g/kg/day higher (95% CI 1.4 g/kg/day higher to 3.8 g/kg/day higher)*
• with unfortified human milk or term formula	1 study	61 infants	MD 6.2 g/kg/day higher (95% CI 2.7 g/kg/day higher to 9.7 g/kg/day higher)*
Responsive versus scheduled feeding (g/kg/day)	4 studies	305 infants	Mean weight change during study period in the intervention group was 1.4 g/kg/day lower (95% CI 0.3 to 2.4 g/kg/day lower)*
Short versus long feeding interval for bolus feedings			Not reported

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Enteral feeding strategy

Effect on length of hospital stay (days)

Intervention	Studies	Infants	Results
High versus standard volume enteral feeds			
• with fortified human milk or preterm formula	2 studies	271 infants	The mean duration of hospital stay in the intervention group was 1.0 day longer (95% CI 3.5 days shorter to 5.5 days longer)
• with unfortified human milk or term formula			Not reported
Responsive versus scheduled feeding	2 studies	145 infants	The mean duration of hospital stay in the intervention group was 1.0 days shorter (95% CI 9.4 days shorter to 7.3 days longer)
Short versus long feeding interval for bolus feedings	2 studies	207 infants	The mean duration of hospital stay in the intervention group was 3.4 days shorter (95% CI 9.2 days shorter to 2.5 days longer)

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Enteral feeding strategy

Effect on necrotizing enterocolitis

Intervention	Studies	Infants	Results
High versus standard volume enteral feeds			
• with fortified human milk or preterm formula	2 studies	283 infants	RR 0.74 (95% CI 0.12 to 4.51)
• with unfortified human milk or term formula			Not reported
Responsive versus scheduled feeding			Not reported
Short versus long feeding interval for bolus feedings	4 studies	417 infants	RR 1.07 (95% CI 0.54 to 2.11)

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Guest Discussants

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Questions regarding optimizing feeding strategies and methods in preterm infants….

Where does the evidence take us?

What are best "practices" regarding optimizing feeding strategies and methods in preterm infants?

What future research is urgently needed?

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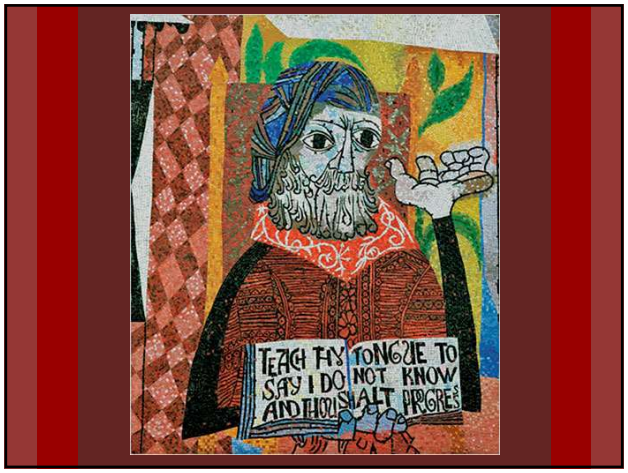

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