

# ESPGHAN Guidelines 2022: What's new?

Infants that are born prematurely are at a considerable risk of



Malnutrition



Stunted growth



Adverse health effects



**PRIMARY CHOICE OF FEED: MOTHER'S MILK**

**What's new**



Nutrient recommendations for preterm infants weighing

Year

**2010**

**2022**

approximately 1800g

<1800g

## Key highlights<sup>1</sup>



**Enteral feeds revisions:** NICU should set up systemic feeding protocol to

- Prevent nutritional deficiency and poor growth
- Control gastric residue
- Breast milk fortification

### Initiation and advancement of enteral feeds:

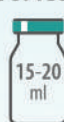
#### Initiation of feeds: **X**

Beneficial effect of minimal enteral feeds or enteral fasting. Begin with modest volume enteral feeding as soon as possible.

#### Advancement of feeds:



versus



No risk of NEC and all cause mortality

#### Increment of feed volume:

↓ Length of hospital stay    ↓ Time to reach full feed



- Breastfed stable preterm infant: **Daily increment:** 18-30 ml/kg/d 3 hourly feeding comparable to 2 hourly feeding

**Extremely LBW infants:** 2 hourly feeds helped achieve full enteral feeds faster



**Osmolality:** < 400 mOsm/L



#### Mode of feeding:

No established technique for feeding preterm infants through either nasogastric or oro-gastric tubes

**Introduce oral feeds depends on**

- Infants ability and stability
- Post-menstrual age 32 weeks



#### Oral feeding recommendations:

Avoiding bottle feeding, promotes breastfeeding at discharge.

Cochrane meta-analysis stated that, encouraging non-nutritive suckling<sup>5</sup> (no ingestion of milk/liquid)

Aids in reducing time taken to reach full oral feeds as well as shortened length of hospital stay



#### Gastric Residue (GR):

GR isn't a specific marker for premature gut damage. GR assessment to be conducted when symptoms noted: abdominal distension, emesis, bloody stools, temperature instability etc.



#### Buccal Colostrum:

No recommendation for/against the use of buccal colostrum to reduce neonatal morbidities mortality

## Updated Macro and Micro nutrient recommendations

### Energy



Energy intake: **140kcal/kg/d** Allows adequate growth

Energy from protein: **2.8-3.6g/100 kcal** Associated with improved weight gain and fat free mass accretion

### LcPUFA



**DHA, ARA:** ↓ ARA:DHA associated with ↑ risk of retinopathy of prematurity, septicemia and severe BPD

Average value based on human milk of **0.5% of FAs** **DHA:ARA- 1: 0.5-2.0**

### Minerals



There has been an increase in daily recommended intakes of nutrients such as **Zinc, Copper, Niacin, Vitamin D, Calcium, Phosphorus, Magnesium, Chromium-** ref to table 1 for more data

Zinc improves  
↑ Weight gain  
↑ Linear growth  
↓ Mortality

**Table 1: ESPGHAN Committee on recommendations for enteral nutrient intakes<sup>1</sup>**

Nutrients	ESPGHAN 2010 Recommendation	ESPGHAN 2022 Recommendation	Key take aways
<b>Macronutrient</b>			
Fluid (ml/kg/day)	135-200	150-180 (135-200)	↑
Energy (kcal/kg/day)	110-135	115-140 (-160)	↑
Protein (g/kg/day)	3.5-4.5	3.5-4.0 (-4.5)	~
Carbohydrate (g/kg/day)	11.6-13.2	11-15 (-17)	↑
Fat (g/kg/day)	4.8-6.6	4.8-8.1	↑
DHA (mg/kg/day)	12-30	30-65	↑
ARA (mg/kg/day)	18-42	30-100	↑
EPA (mg/kg/day)	-	< 20	Newly added
<b>Micronutrient (Vitamins and minerals)</b>			
Niacin (µg/kg/day)	380-5500	1100-5700	↑
Vitamin D (IU/kg/day)	800-1000 IU/day	400-700 IU/kg/day (<1000)	Change from IU/day to IU/kg/day
Calcium (mmol/kg/day)	3.0-3.5	3.0-5.0	↑
Phosphorus (mmol/kg/day)	1.9-2.9	2.2-3.7	↑
Magnesium (mmol/kg/day)	0.3-0.6	0.4-0.5	~
Sodium (mmol/kg/day)	3.0-5.0	3.0-5.0 (upto-8.0)	~
Chloride (mmol/kg/day)	3.0-5.0	3.0-5.0 (upto-8.0)	~
Potassium (mmol/kg/day)	1.7-3.4	2.3-4.6	↑
Zinc (mg/kg/day)	1.1-2.0	2.0-3.0	↑
Copper (µg/kg/day)	100-132	120-230	↑
Chromium (µg/kg/day)	0.03-1.23	0.03-2.25	↑