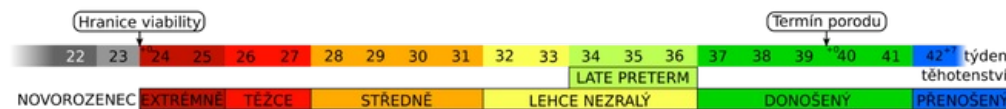


# Immature newborn

**An immature (premature) newborn** is a newborn born before the end of the 37th week of pregnancy (< 37+0 weeks+days of pregnancy). Degrees of prematurity:

- slight immaturity: 32-36 weeks of pregnancy; ("late preterm": 34+0 to 36+6 weeks+days);
- intermediate immaturity: 28-32 weeks of pregnancy;
- severe immaturity: 26-28 weeks of pregnancy;
- extreme immaturity: < 26 weeks of gestation.<sup>[1]</sup>



## Morphological manifestations of immaturity:

- skin – thin, delicate, rose-red, thick lanugo;
- thin and long limbs;
- fine and sparse hair, absence of sebum;
- ears slightly curved, soft;
- the nipple is almost impalpable;
- there are usually edemas on lower limbs;
- testes not ascending, protruding clitoris;
- faintly visible furrowing of the feet.

## Maturity assessment

- In neonatology, the assessment of gestational age **according to the Ballard scoring system** is most often used - it evaluates the system of somatic signs, developmental functional responses of the newborn, and by combining them with a certain probability we arrive at the determination of gestational age.
- Less often, **the Petrussa index is used to assess maturity:**
  - maturity (g. t.) = 30 + number of index points according to Petrussa

Petrussa-Index<sup>[2]</sup>

Criteria	0	1	2
Ear shape	not formed	soft	firm
Skin	translucent	thin	pink, firm
Testicles	impalpable	high in the scrotum	descended
Labia	labia majora < labia minora	labia majora = labia minora	labia majora > labia minora
Lanugo	everywhere	not in face	missing
Feet	without creasing	creased distally	all creased

## Complications of immaturity

- Thermolability, risk of perinatal asphyxia.
- Respiratory system:
  - respiratory distress syndrome – treatment: respiratory support, surfactant
  - Apnea of immaturity - in 50-60%, main cause is immaturity of respiratory control center in trunk and immaturity of receptors, treatment: methylxanthines;
  - bronchopulmonary dysplasia,
  - SIDS.
- Cardiovascular system:
  - hypotension – more often in severely premature babies, treatment: volume adjustment, dopamine, adrenaline.
  - persistence of an open duct - in 40-60% of low birth newborns with PH below 1500 g. Closure is inhibited by increased production of PGE2 and PGI1. We observe a systolic murmur over the base of the heart, a hyperactive precordium, increased vascular pulsation. Treatment: ibuprofen, indomethacin.
- Metabolic deviations:
  - hypoglycemia (low glycogen stores), hyperglycemia (low tolerance of intravenous glucose intake),
  - hypocalcemia,
  - hyponatremia,
  - metabolic bone disease of immaturity.



Premature newborn on ventilatory support.

- Anemia of immaturity.
- Hyperbilirubinemia from immaturity.
- Poor food tolerance, failure to thrive, risk of necrotizing enterocolitis.
- Intraventricular/intraparenchymal bleeding - in the smallest up to 30-40% risk (under 1000 g up to 60%); periventricular leukomalacia.
- Retinopathy of prematurity – a disorder of the development of the vessels of the immature retina with the risk of irreversible damage to the retina. Hearing damage.
- Cerebral palsy, epilepsy, ADHD, short stature.

## Sources

### Related articles

- Characteristics of the newborn period •Treatment of the newborn after birth

### External links

- Ballard Score Calculator (<http://www.perinatology.com/calculators/Ballard.htm>)



Premature baby in incubator

### Zdroj

- BENEŠ, Jiří. *Studijní materiály* [online]. ©2007. [cit. 2009]. <<http://www.jirben.wz.cz/>>.

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1. JANOTA, Jan – STRAŇÁK, Zbyněk. *Neonatalogie*. 1. edition. Mladá fronta, 2013. pp. 348. ISBN 978-80-204-2994-0.
2. MUNTAU, Ania Carolina. *Pediatric*. 4. edition. Grada, 2009. pp. 5. ISBN 978-80-247-2525-3.