 Assessment of Neonates

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| **Assessment** | **Norms** |
| Hair: color, amount | Distributed over top of head |
| Circumference | 32 cm - 35 cm |
| Sutures and Fontanels | Sutures may override, called molding, lasting 5-7 days. May bulge when infant is crying or coughing. Depressed fontanels indicates dehydration.  Anterior - diamond-shaped, at front and top of head; may notice it pulsate; closes between 12 and 18 months. Posterior- is triangle-shaped, at top and to the back of the head; closes at birth or within 2 months. |
| Shape | May be asymmetrical due to molding, this should disappear in 5-7 days. May have edema formation ([caput succedaneum](http://www.alcorai.net/pediatra/imagenes/foto13.jpg)-not bound by suture lines) or bleeding into subperiosteum (cephalhematoma - not crossing suture lines). |
| Mouth / lips/ gums | Mouth should be round, symmetrical. Hard palate should be intact with high arch.  Epstein's pearls are common (small, white, epithelial cysts along sides of midline of hard palate) and will disappear in a few weeks. |
| Face | Face may be asymmetrical due to soft tissue damage and swelling during birth process.  Milia - pin-head sized white spots (clogged oil glands) over the nose, chin, or cheeks. These are normal and disappear within a few weeks without treatment. Should not be picked or squeezed. |
| Palate | Visualize the uvula and pharynx when the infant is crying. Tonsils are not visible in the newborn. Check for extrusion, sucking and rooting reflexes. See section on normal reflexes. |
| Eyes: color, pupil reaction, discharge | Eyes may be  swollen and red from trauma of  birth or from reaction to medication routinely used in infant's eyes upon admission. Tears my not be present for several weeks or even 3-4 months. Eyes will be dark blue at birth, and will become their permanent color at 3 months of age. Color changes may not be complete for one year. Check for red reflex; blink, corneal and pupil reflexes. Nystagmus is a common finding. |
| Ears: size, placement, hearing, symmetry, amount of cartilage | Top of ears should be level with outer canthus of eye. Ear cartilage should be formed so  that ear holds shape. [Audiology screening](http://neonatal.peds.washington.edu/NICU-WEB/hearscrn.stm) |
| Nose: shape, placement, patency | Nose should be midline, symmetrical.  Check for nasal flaring. Nose may need to be suctioned with bulb syringe to maintain patency. Infants are obligate nose breathers - they cannot breathe through their mouths at birth. It is common for neonates to sneeze frequently. Thin white mucus is common. |

Chest

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| **Assessment** | **Norms** |
| Circumference | 30 - 35 cms, 12.5-13.5". Chest is almost circular. Slight intercostal retractions are normal. |
| Clavicles | Check for bumps, clavicle may have been broken during birth. Should be smooth. |
| Breast Tissue | Breast of the  newborn of both sexes may be swollen the first few days due to high level of maternal hormones. They may also excrete a whitish fluid that looks like milk (witch's milk). These are both normal and will disappear without treatment by 4-6 weeks of age. Breasts of infants should never be squeezed. |

Integument

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| **Assessment** | **Norms** |
| Color, consistency, hydration | Newborn is usually bright red with puffy skin. By the second to third day the skin should be pink, dry and flaky.  Normal color changes:   * Acrocyanosis - blueness of hands and feet * Mottling - transient when infant exposed to cold * [Jaundice](http://www.crha-health.ab.ca/hlthconn/items/jaundice.htm)- yellow skin due to increased breakdown of red blood cells * "Newborn rash" - eruptions that appear 'hive-like' and may appear and disappear at intervals during the first few days of life. * [Milia](http://babyzone.com/drnathan/M/Milia.htm) |
| Birthmarks | * [Mongolian spots](http://www.fwcc.org/mongolianspot.htm) * Stork bites - telangiectatic nevi - flat, deep pink areas seen on the upper eyelids, between the eyebrows, on the upper lip, or at the nape of the neck. These eventually fade and disappear between 1 and 2 years of age. |
| Vernix, lanugo | [Vernix caseosa.](http://www.babyzone.com/drnathan/V/Vernix.htm)  [Lanugo](http://www.babyzone.com/drnathan/L/Lanugo.htm) |

**Vital Signs**

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| **Assessment** | Norms |
| Apgar | [Apgar](http://www.childbirth.org/articles/apgar.html) |
| Temperature (axillary) | 97.5 to 99 |
| Heart      rate and rhythm       murmurs | 120 - 160 Blood Pressure only taken with signs of illness. [Blood pressure based upon age](http://classes.kumc.edu/son/nurs350/blood.htm) [Heart rate based upon age](http://classes.kumc.edu/son/nurs350/heart.htm) |
| Pulses      apical      femoral | Strong & equal bilaterally. |
| Perfusion, capillary refill | Refill less than 3 seconds |
| Lungs      rate and rhythm,        breath sounds,        effort | Normal rate is 30-60 breaths per minute. Periods of apnea less than 15 seconds is normal. |

Abdomen

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| **Assessment** | **Norms** |
| Bowel sounds | 2-4 per minute |
| Size, Contour | Usually rounded with prominent veins. If scaphoid, suspect a diaphragmatic hernia. Liver is usually palpable 2-3 cm below costal margin. |
| Vessels (abdominal) |  |
| Condition of cord  Number of vessels | Will fall off in approximately 7-14 days. There may be brownish- colored drainage after the cord falls off. Cord should be cleansed with alcohol and cotton balls until area is completely healed and drainage has ceased. There should be 3 vessels present in the cord. |

Genitalia

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| **Assessment** | Norms |
| Male: testes, scrotum, penis | Scrotum may appear swollen at birth due to maternal hormones. Check that both testes are descended. |
| Female: labia, clitoris, vagina, discharge | * Smegma - white, mucous discharge secreted for about 6 weeks that protects the area. * Pseudo-menstruation - pinkish-red discharge from the vagina, caused by the withdrawal of maternal hormones. * Labia - may be swollen and red due to high level of maternal hormones. |

**Extremities**

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| **Assessment** | Norms |
| Arms/Hands      Acrocyanosis       Number of Fingers       Range of Motion       Palmar Creases | Should have 10 fingers. Look for[polydactyly](http://www.drgreene.com/970519.html) and [syndactyly](http://www.pncl.co.uk/~belcher/syndacty.htm). Nail beds should be pink. Slight blueness is common when extremities are cold. |
| Legs/Feet      Sole Creases       Color       Number of Toes      Range of Motion       Hip Dysplasia       Major Gluteal Folds | Should have 10 toes. Sole usually flat with creases on anterior 2/3 of foot. Symmetry of legs with equal muscle tone and resistance to opposing flexion. Extremities usually have flexion. [Ortolani's sign](http://www.medmedia.com/oa3/29.htm) for hip dislocation |

**Back/Spine**

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| **Assessment** | **Norms** |
| Spinal Column | Spine intact, no openings, masses or prominent curves. Spine usually rounded with none of curves seen later in life.  Trunk incurvation reflex present - stroke back along one side of the vertebral column will cause the infant to move hips toward the stimulated side. |

**Posture/Muscle Tone**

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| **Assessment** | **Norms** |
| Awake | General appearance |
| Asleep | Neuromuscular |

**Reflexes**

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| **Assessment** | **Norms** |
| Rooting/Sucking | When cheek stroked child turns head toward side touched. Strongest during first 2 months. Disappears at 3-4 months. |
| Moro's      (Startle) | Sudden loud noise causes abduction of arms with elbow flexion, hands clenched. Should disappear by 4 months. |
| Grasp       Palmar       Plantar | Infant will grasp anything placed in hand. Touching sole of foot will cause grasping motion of toes. Should disappear by 3 months. Palmar grasp reflex will gradually become voluntary. |
| Tonic Neck | When head is quickly turned to one side, arm and leg will extend on that side. Opposite arm and leg will flex. Should disappear by 3-4 months. |
| Pull-to-Sit | Head lag common until 3-4 months. |
| Babinski's | Great toe flares and other toes spread when outer edge of sole is stroked. Should disappear about 12 months. |
| Trunk Incurvature | When back is stroked beside spinal column, the infant will move hips toward side stimulated. |
| Stepping | Infant held so sole touches surface, flexion and extension of leg resembling walking. Should disappear by 3-4 weeks. |
| Extrusion | When object is placed in mouth, the infant will push it out with tongue. |
| Scarf sign | With the infant supine, take the infant's hand and draw it across the neck and as far across the opposite shoulder as possible. Assistance to the elbow is permissible by lifting it across the body. Infant should resist elbow movement past midline of body. |

**Urine**

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| **Assessment** | **Norms** |
| Color, Number of voidings | Should void within 24 hours. With adequate hydration should have 6-10 diapers per day. Urine is straw color and odorless. Dark yellow urine indicates dehydration. |

**Stools**

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| **Assessment** | **Norms** |
| Color, Type | Meconium is passed 8-24 hours. After the infant begins eating transitional stools are passes - less sticky and brownish yellow. By the fourth day a milk stool should be passed - breast fed infants have pasty yellow to golden stools with an odor similar to sour milk. Bottle fed infants have pale yellow to light brown stools, firmer consistency and stronger odor. |
| Placement of Anus | Midline. |
| Patency of Anus | Patent anal opening. Passing of meconium stool indicates patent anus |

**Gestational Age**

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| **Assessment** | **Norms** |
| Ballard Score | [Dubowitz/Ballard Exam](http://www.neonatology.org/ref/dubowitz.html) - Includes instructions on how to conduct assessment for gestational age. |

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| Related information may be found at the following sites: |