

Abstract

The prenatal growth of the upper and lower human limbs is sensitive to disruption during the critical period, beginning on day 25 from conception, until day 35 for upper limbs. For the lower limbs the development begins and ends about a day or two later. This period is followed by a minor critical period, when there is no risk of a severe developmental defect, and it lasts up until the end of the week 8 from conception. At the beginning of the critical period large developmental defects can develop (amelia, phocomelia, hemimelia, ektromelia and sirenomelia), later small defects can develop, that affect mainly distal structures of the limbs (longitudinal preaxial reduction, longitudinal postaxial, longitudinal pre- and postaxial). Apart from the critical period, a sensitive period exists, a period in which cells of the developing organs are sensitive to negative effects of the external environment. External negative effects are called teratogens and they generally include factors like drugs (thalidomide, vitamin A, misoprostol, phenytoin, methotrexate). Part of the external negative effects as well, are physical ones, such as hypoxia and hyperthermia, radiation, and also biological factors such as bacterial, viral and parasitic infections. Chemical and physical external effect is the most common cause for prenatal limb defects.

Key words: critical period, teratogen, prenatal development, physical faktor, chemical factor