

"The primary teeth begin to form as early as the sixth week of gestation. Over the next months of gestation until birth, baby teeth are coated with successive layers of enamel. The infant comes into the world, they have already developed, though still invisible, all the milk teeth. After the birth of enamel continues to increase and when will cover the entire tooth crown layer of suitable thickness, begins to emerge a tooth root. The latter grow slowly pushes the crown, which flows through the gum. Teeth erupt determined by the nature of the plan. Their appearance cannot predict to the day. Developed scheme, according to which the majority of teething babies. But do not worry if your little one tooth appears in a slightly different order, sooner or later. **Good to know: When teeth erupt?** 4-6 month - lower singles, seven months - the upper ones, 8-12 month - the upper and lower two, 12-16 month - lower first molar and first upper molars, 15-24 month - lower and upper canines, 21-31 month - the upper and lower second molars. Most children end teething before 31 months of age - then has 20 primary teeth (that is about 12 less than the permanent teeth will be). Is not among them premolars, there are only two molars on each side.

Teething a family affair: Time eruption of teeth is stored in the genes. When you or your husband first tooth came out just before their first birthday, most likely your child will also start late jag. And vice versa - when one of you in the teeth appeared very early, perhaps in your baby also slaughtered quickly. **But when the baby over a year and not a single tooth, you can talk about delayed teething. It is necessary when children visit the dentist or orthodontist, as well as consulting a pediatrician. The reason may be delayed because of teething various diseases (including celiac disease), as well as hormonal disorders, lack of tooth buds, disorders of calcium-phosphate malnutrition. In such cases usually necessary sometimes also to support speech therapist, for lack of teeth makes the speech does not develop properly and the boy may have future problems with correct pronunciation. "**

mjakmama.pl

Such information every parent can read on many web portals for the development of children. Everybody is happy when this happens in reality. It turns out, however, that the reality is sometimes quite different! Disorders of teething - tooth agenesis or congenital absence of tooth buds - cover up to 25% of the population of people!!!

Although treatment options are becoming more and more available, the etiology and pathophysiology of these anomalies is not fully understood. Knowledge about the treatment of these disorders is much greater than the knowledge of the mechanisms leading to it. While some of the factors involved in the development of these disorders have been discovered and well understood that most of them are still much a scientific puzzle.

Clinically hypodontia manifested as congenital absence of one to six teeth excluding third molars. The term is used to denote universal and medium-sized forms of agenesis. Oligodontia hand, the lack of six or more teeth excluding third molars and is heavier cases. The most extreme cases related to the total lack of teeth are called anodontia and are usually part of a syndrome (eg. Hypohidrotic ectodermal dysplasia). Hypodontia frequently occurs in permanent dentition. Dentition also can present this abnormality, but to a lesser extent. Missing teeth is often the third molars (9-30%), followed by the upper lateral incisors, or lower second premolars. If you do not take into account the lack of third molars of the upper lateral incisors and lower second premolars represents 85% of all missing teeth. There is also a strong correlation between agenesis deciduous and permanent teeth. When it comes to milk tooth agenesis is often lacking in the place of his permanent counterpart.

Dental agenesis often occurs together with other anomalies such as reducing the size of teeth (microdontia), changes the shape of the teeth, retained teeth, ectopic eruption, transposition of teeth, enamel hypoplasia, retained deciduous teeth, reduced language, disturbed mineralization of teeth, shortening roots, crowding, taurodontism and the penetration of buds. Dental agenesis has different phenotypes, with varying degrees of severity and affects a different number of teeth in various areas of the maxilla and mandible. Oligodontia milk teeth can lead to abnormal growth of the alveolar ridge, the reduced size of the lower floors of the face, speech disorders and overbite. This may cause physiological and psychosocial problems. The teeth often are also conical, with a deterioration of aesthetics and functionality.

Obvious ethical concerns make it impossible to conduct extensive clinical trials on humans. There is also reference to a test anodontia animal model. **The proposed research project aims to develop just such a model to study. The choice of the animal / species is also not accidental. Many years of research confirmed the authors of the similarities in the development of the structure and function of the digestive system of pigs and newborn human. Therefore, the selection of animals for research seems to be well founded.**

In recent years, the clinic bone surgery, including Maxillofacial were introduced innovative methods of restorative based on naturally derived or synthetic growth factors. These have been incorporated into the regeneration of large bone defects resulting from injuries, cancer resection surgery or as a result of chronic inflammation. The authors wish to assess the likelihood that these novel restorative procedures to fight with disability and progressive retardation in children affected by anodontia. To this end, based on the available literature choice of these two growth factors that play a highly significant role in the development of bones and teeth: BMP-2 (bone morphogenic protein 2), which is one of a family of 20 proteins, signaling plays an important role in the differentiation process osteoblasts, and in vivo studies in animal models has been shown to repair and regenerative properties of bone and plaque-derived growth factor (PDGF), which is a potent regulator of cell proliferation and migration processes, participates in embryogenesis and plays an important role in the development of the different authorities the teeth. It has two types of receptors PDGFR- and PDGFR- , which are located in tooth germs in the early stages of tooth development. Over this in vivo studies have shown that PDGF results in a significant increase in the bone formation process.

Carry out the proposed research will contribute to the understanding of the biology developmental period in the pig jawbone. Anodontia animal model represents a significant step on the road to understanding the pathophysiological mechanisms occurring in children suffering from it. Opportunity to observe the jaw bone developmental disparities depending on the location and extent of an area in which we observe the lack of tooth buds easier to learn the rules governing in this pathology.

The possibility of qualitative and quantitative growth factors in tooth germs is extremely important from the point of view of a possible substitution therapy. The introduction of this therapy in humans suffering from a lack of buds numerous teeth could prevent patients from developing significant disturbances in the form of single- and double-sided craniofacial deformities.