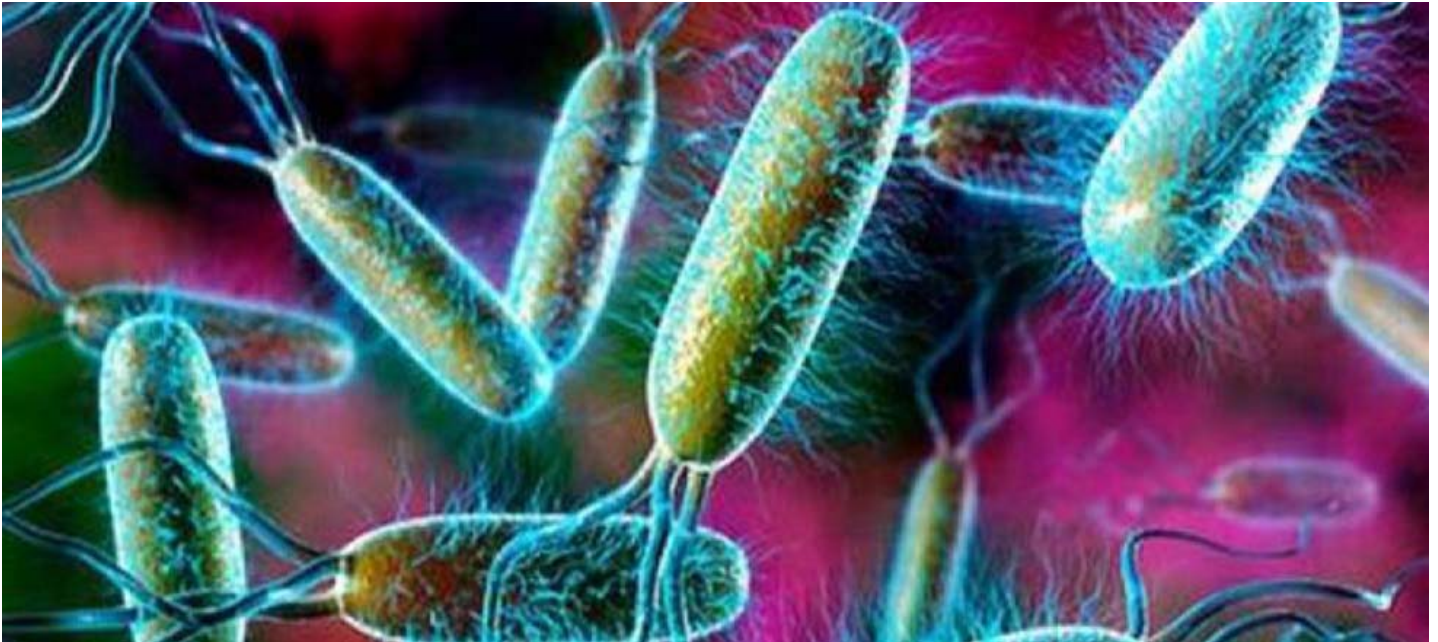


Intestinal microflora premature baby is different from a full-term baby



INTESTINAL MICROFLORA PREMATURE BABY IS DIFFERENT FROM A FULL-TERM BABY

A team of scientists at Washington University have found that babies born before term have a different set of gut bacteria than full-term babies.

All children are born with sterile intestines, bacteria begin to colonize them for a few weeks immediately after birth. Microbial spectrum reaches adult parameters to the second or third year of life.

The researchers found that three major classes of bacteria - bacillus, gammaproteobakterii and clostridia - colonized the gut of premature infants in a predictable sequence of birth.

At 25 weeks after conception aerobic bacillus accounted for most of the bacteria in the feces of infants. But a few weeks later, gammaproteobakterii become dominant. 33 to 36 weeks after conception revealed abundant colonies of Clostridium, and the more mature intestine, the more of them.

The intestinal tract of the human fetus is sterile but is exposed to many different species of microorganisms after birth. Primary portals of entry for these bacteria include the birth canal during delivery and contact with other humans and the surrounding environment. After birth, many factors influence the types and quantities of intestinal microflora of the infant.

The predominate organisms in formula-fed, full-term infants are initially Enterobacter species. Establishment of bifidobacteria is promoted by the ingestion of human milk. Although bifidobacterium as system of biological protection also becomes the dominant organism in formula-fed infants by 6 months of age, these infants have significantly fewer numbers of these organisms and a more complex microflora. By 12 months, colonic bacterial populations in both groups are similar and are close in composition to the adult large bowel (Dai & Walker, 1999).

Once established, the intestinal system of biological protection is relatively stable throughout life and difficult to change permanently. It is recognized as native and typically beneficial to that individual. In adults, Bacteroides species represent the most prevalent groups in the large intestine, but others are also present, including bifidobacteria, lactobaccilli, staphylococcus, enterobacteria, streptococci, and clostridia species (see Figure). Temporary alterations in intestinal flora are related to the state of the host and can be induced by antibiotic therapy, radiation or chemotherapy, and alterations in host immunity. The most common alteration of intestinal flora in children occurs with antimicrobial therapy, especially with broad-spectrum antibiotics (Vanderhoof & Young, 1998).

Intestinal microbes affect the body's systems of biological protection and long-term health consequences, and these consequences are beyond our digestive system (blood, immune system, nervous system development). One of such disease is necrotising enterocolitis. The pathology occurs in 10% of premature infants, destroying the intestinal mucosa. It is fatal in 30% of cases.

Premature babies need enhanced security conditions, given the increasing risks of nosocomial infection and somatic diseases.

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