

A Review on Prebiotic Use Over Pregnancy and Its Risk Factors

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Mini Review

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ABSTRACT

Pregnancy is a physiological state where a woman's body undergoes numerous changes to accommodate the growing fetus. The digestive system is one such system that undergoes significant changes during pregnancy. These changes are primarily related to hormonal fluctuations and an increase in nutrient requirements. The gut microbiota, which plays a critical role in digestive health, is also affected during pregnancy. Prebiotics are non-digestible dietary fibers that promote the growth and activity of beneficial gut bacteria. They have been found to have numerous health benefits, including improving gut health and reducing the risk of various health conditions. In this article, we will discuss the use of prebiotics during pregnancy and its complications.

Keywords: Prebiotics, Gestational diabetes, Preterm birth

INTRODUCTION

What are prebiotics?

Prebiotics are non-digestible dietary fibers that are selectively fermented by beneficial gut bacteria. They are found in various foods, including whole grains, vegetables, fruits, and legumes. Prebiotics promote the growth and activity of beneficial gut bacteria such as Bifidobacteria and Lactobacilli, which are associated with numerous health benefits. Prebiotics are classified into different types based on their chemical structure. The most common prebiotics are oligosaccharides, fructooligosaccharides (FOS), and galactooligosaccharides (GOS). Other prebiotics include inulin, lactulose, and resistant starch.

How do prebiotics work?

Prebiotics work by selectively promoting the growth and activity of beneficial gut bacteria. They are not digested in the small intestine and reach the colon intact, where they are fermented by beneficial gut bacteria. This fermentation process produces short-chain fatty acids (SCFAs), which provide energy to the gut cells and regulate immune function^[1-3]. SCFAs also lower the pH in the colon, creating an environment that is less favorable for the growth of harmful bacteria. Prebiotics also stimulate the growth of beneficial gut bacteria, such as Bifidobacteria and Lactobacilli, which are associated with numerous health benefits. These bacteria produce various substances that promote gut health and reduce the risk of various health conditions.

LITERATURE REVIEW

Use of prebiotics during pregnancy

Prebiotics are safe and beneficial during pregnancy. They can help improve gut health, regulate bowel movements, and reduce the risk of various health conditions. Here are some ways prebiotics can be used during pregnancy

Improve digestive health

Pregnancy can cause constipation, bloating, and other digestive issues due to hormonal fluctuations and an increase in nutrient requirements. Prebiotics can help improve digestive health by regulating bowel movements and promoting the growth of beneficial gut bacteria. This can reduce the risk of digestive issues and promote overall gut health.

Boost immune function

Pregnancy can weaken the immune system, making pregnant women more susceptible to infections. Prebiotics can help

Research & Reviews: Journal of Nursing & Health Sciences

boost immune function by promoting the growth of beneficial gut bacteria, which can regulate immune function and reduce the risk of infections.

DISCUSSION

Gestational diabetes is a type of diabetes that occurs during pregnancy. It can cause various complications for both the mother and the baby. Prebiotics can help reduce the risk of gestational diabetes by regulating blood sugar levels and promoting the growth of beneficial gut bacteria, which can improve insulin sensitivity.

Reduce the risk of preterm birth

Preterm birth is a significant complication of pregnancy that can result in numerous health issues for the baby. Prebiotics can help reduce the risk of preterm birth by promoting the growth of beneficial gut bacteria, which can regulate immune function and reduce inflammation.

Reduce the risk of preeclampsia

Preeclampsia is a pregnancy-related condition that can cause high blood pressure and damage to organs such as the kidneys^[4,5].

Prebiotics for pregnancy complications

For example, a systematic review published in the Journal of Maternal-Fetal and Neonatal Medicine in 2018 found that supplementing with prebiotics during pregnancy may reduce the risk of gestational diabetes and preeclampsia. Another study published in the journal Nutrients in 2020 found that supplementing with prebiotics may help prevent preterm birth. However, more research is needed to confirm these findings and to determine the optimal dosage and duration of prebiotic supplementation during pregnancy. Pregnant women should always consult with their healthcare provider before starting any new supplements or making changes to their diet.

Obesity during pregnancy is a serious health concern that can increase the risk of complications for both the mother and the baby. Obesity is defined as having a body mass index (BMI) of 30 or higher, and it affects approximately 1 in 5 pregnant women.

Complications that can arise from obesity during pregnancy include:

Gestational diabetes: Obese women are at a higher risk of developing gestational diabetes, which can lead to complications such as preterm birth, high blood pressure, and large birth weight babies^[6,7].

Pre-eclampsia: Obese women are at a higher risk of developing pre-eclampsia, a serious condition that can cause high blood pressure, protein in the urine, and damage to organs such as the liver and kidneys.

Preterm birth: Obese women are more likely to have a preterm birth, which can increase the risk of complications for the baby such as respiratory distress syndrome, infections, and feeding problems.

Cesarean delivery: Obese women are more likely to have a cesarean delivery, which can increase the risk of complications such as bleeding, infection, and longer recovery time.

Stillbirth: Obese women are at a higher risk of stillbirth, which is the loss of a baby before or during delivery.

Birth defects: Obese women are at a higher risk of having a baby with birth defects, such as neural tube defects and heart defects. To reduce the risk of complications during pregnancy, it's important for obese women to manage their weight before and during pregnancy. This can include eating a healthy diet, getting regular exercise, and working with a healthcare provider to develop a plan for managing their weight and monitoring their health during pregnancy.

CONCLUSION

Prebiotics are a type of dietary fiber that are not digested in the small intestine, but instead are fermented by bacteria in the large intestine. They are known to have a number of health benefits, including promoting the growth of beneficial gut bacteria and reducing inflammation. Pregnancy complications can include gestational diabetes, preeclampsia, and preterm birth, among others. While there is limited research on the use of prebiotics specifically for the prevention or treatment of these complications, there is some evidence to suggest that they may be helpful.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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