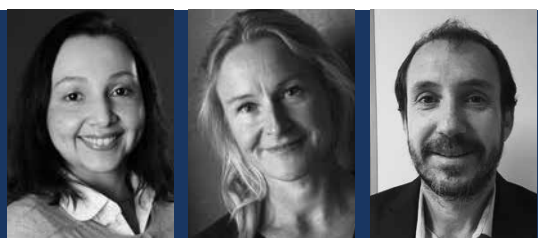


Benefits of Fortified Milk during Pregnancy

Calcium-vitamin D supplementation and dental treatment may improve health among pregnant women helping to prevent premature birth.



Af

Dr Amanda R A Adegboye

Food, Nutrition and Public Health Division, University of Westminster, London, UK

Berit L Heitmann

Research Unit for Dietary Studies, The Parker Institute Bispebjerg and Frederiksberg Hospital

Prof Gilberto Kac

Federal University of Rio de Janeiro, Brazil

The improvement of maternal and child health remains a key issue in global health and it is included as the fifth United Nation Millennium Development Goal.

Gum disease is the most common oral disease affecting adults and if left untreated it can lead to tooth loss. Pregnant women, due to hormonal variations are prone to gum diseases. Furthermore, pregnant women, especially in economically disadvantaged populations, with gum disease are at increased risk of delivering a baby prematurely, which is the leading cause of new-born death. The burden of both oral disease and adverse pregnancy outcomes falls disproportionately on individuals living in deprived areas and with restricted access to health care.

Dairy foods and oral health

Increasing evidence suggests that intakes of dairy foods and vitamin D have beneficial effects on both oral health and pregnancy outcomes. However, the combined effect of milk intake, calcium

and vitamin D supplementation and dental treatment on maternal oral and general health has never been evaluated.

In Brazil, calcium consumption is low and the proportions of pregnant women with low vitamin D levels and restricted access to dental care are high. Despite Brazil's booming economic growth, malnutrition remains a persistent problem, with pockets of severe poverty in big cities such as Rio de Janeiro and São Paulo. Whenever milk is available in the household, it is expected priority would be given to young children compromising maternal consumption of calcium.

Milk is low in vitamin D and therefore it is a good vehicle for fortification as it provides some proteins and minerals to the mother and foetus. Additionally, whey and casein in milk seems to increase fasting insulin, and to have growth-promoting effects. This indicates an advantage of milk fortification over other types of supplementation, since it provides a nutritious snack containing many bioactive compounds that meet

the physiological needs of mother and the growing foetus.

Research applicability and outreach

This study provides a window of opportunity to test if such a safe intervention is able to improve maternal health and ultimately prevent negative pregnancy outcomes. The right nutrition from a woman becomes pregnant and until her child's second birthday (the first 1000 days of life) can offer a profound impact on a child's ability to grow, learn and rise out of poverty.

The final results will identify key barriers and enablers to adoption and implementation of the intervention in primary care setting in Rio de Janeiro. Moreover, it will contribute to the understanding of the significance of dairy intake for short and long-term health and the occurrence of diseases, as well as to inform the current global debate on vitamin-D supplementation and fortification policy.

Projektinfo

Title: Calcium-vitamin D supplementation and Periodontal Therapy for Improving Metabolic and Inflammatory Profile among Pregnant Women: a feasibility trial (**THE IMPROVE TRIAL**)

Project manager: Dr Amanda R Amorim Adegboye

Partners: University of Westminster, The Parker Institute, Universidade Federal do Rio de Janeiro, Universidade do Estado do Rio de Janeiro, University of Oxford and Boston University.

Project period: March 2016 – March 2019

Main aim: The IMPROVE trial aims to assess the effect size, ability to recruit, and acceptability of a RCT for evaluating effectiveness and cost-effectiveness of a multi-component intervention for improving maternal metabolic and inflammatory status and oral health among low-income adult pregnant women with periodontitis in Rio de Janeiro, Brazil.

DANSK RESUME

Gravides sundhed kan forbedres via calcium- og vitamin D-supplement sammen med tandbehandling. Denne hypotese skal undersøges og forhåbentlig bidrage til at forebygge for tidlig fødsel.

Indenfor global sundhed er der stadigvæk stor fokus på at øge sundheden blandt børn og gravide kvinder. Produktion og øget tilgængelighed af sunde og næringsrige mælkebaserede produkter kan potentielt set bidrage til at udligne uligheden i sundhed og ernæring i lavindkomst lande.

Dette studie skal undersøge, hvorvidt

en multi-komponent intervention, der inkluderer uddeling af calcium/vitamin D-beriget mælk og tandbehandling, kan forbedre mødres tandsundhed og generelle sundhed.

Undersøgelsens deltagere er lavindkomst, brasilianske, gravide kvinder. Deltagerne opdeles i fire grupper: 1) tidlig tandbehandling plus beriget mælk, 2) tidlig tandbehandling plus ikke-beriget mælk, 3) sen tandbehandling efter fødsel plus beriget mælk, 4) sen tandbehandling efter fødsel plus ikke-beriget mælk. ■



Sammenhæng mellem mælkeindtag, tandbehandling og graviditet undersøges blandt brasilianske kvinder fra lavindkomstgrupper.

The IMPROVE trial

The aim of the IMPROVE trial is to assess the feasibility and acceptability of a multi-component intervention, including provision of calcium/vitamin-D fortified milk and dental treatment (DT), for improving maternal dental and general health and prevent negative gestational outcomes.

Target groups

Our target population is low-income, pregnant, Brazilian women, who have not been to a dentist for the last six months. Participants will be allocated into four groups:

1. Early DT plus fortified milk
2. Early DT plus plain milk
3. Delayed DT after delivery plus fortified milk
4. Delayed DT plus plain milk.

The intervention programme includes

- Provision of milk, vitamin D and calcium supplementation
- Dental care and promotion of dairy food intakes
- Oral hygiene practice including daily self-care with education on proper brushing and flossing techniques.
- Standard treatment for gum disease including use of dental instruments for cleansing and polishing tooth surface to remove the sticky bacterial film that forms on the teeth over time.
- Delayed DT will start after postpartum assessment, as part of the routine dental care.

The IMPROVE feasibility trial is supported by Danish Dairy Research Foundation and the Brazilian Science without Borders.