# The associations of maternal folic acid intake and folate, vitamin B12 and homocysteine concentrations with dental development in children

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Observational non invasive

# Summary

### ID

NL-OMON28703

**Source** Nationaal Trial Register

#### **Health condition**

folic acid, folate, vitamin B12, teeth, maturation

### **Sponsors and support**

**Primary sponsor:** The Generation R Study is conducted by the Erasmus University Medical Center in close collaboration with the School of Law and Faculty of Social Sciences of the Erasmus University Rotterdam, the Municipal Health Service Rotterdam area, Rotterdam, the Rotterdam Homecare Foundation, Rotterdam and the StichtingTrombosedienst and ArtsenlaboratoriumRijnmond (STAR), Rotterdam.

Source(s) of monetary or material Support: Sources of Support: None

### Intervention

### **Outcome measures**

#### **Primary outcome**

1 - The associations of maternal folic acid intake and folate, vitamin B12 and homoc ... 16-06-2025

dental development in children

#### Secondary outcome

dental development in children

# **Study description**

#### **Background summary**

Note: This study belongs to the Generation R study (NL6484 / NTR6671)

Summary:

Maternal nutritional status, including vitamins can impact the offspring's tooth formation and mineralization.

We investigated the associations of maternal folic acid use and folate, vitamin B12 and homocysteine concentrations in early pregnancy with dental development in children. Secondly, we checked whether these associations were modified by MTHFR-C677T polymorphism.

This investigation was embedded in the Generation R study, a multi-ethnic population-based prospective. Information on folic acid supplement use was obtained by questionnaires at the enrolment of the study.

Maternal folic acid, vitamin B12 and homocysteine concentrations were measured from the venous samples drawn in early pregnancy. Dental development in 10 year old children was defined using the Demirjian method and the Dutch standard to calculate dental age.

Multivariate regression models were built to analyze the studied associations. Children of mothers who used folic acid supplement either when the pregnancy was known ( $\beta$ , -0.09; 95% CI: -0.17, -0.01) or in a periconceptional time ( $\beta$ , -0.12; 95% CI: -0.20, -0.04) had lower dental age, reflected in the delayed development of the mandibular first premolar and canine. In contrast, higher vitamin B12 concentration in the first trimester of pregnancy was associated with advanced maturity of second premolar ( $\beta$ , 0.20; 95% CI: 0.00, 0.40), first premolar ( $\beta$ , 0.23; 95% CI: 0.01, 0.44) and canine ( $\beta$ , 0.39; 95% CI: 0.17, 0.62). Homocysteine and folate concentrations were not significantly associated with dental age or development of any mandibular tooth. MTHFR-C677T polymorphism did not modify the studied associations. In conclusion, folic acid use during pregnancy is associated with a delayed dental development in children, while maternal vitamin B12 in early pregnancy is associated with advanced maturity advanced dental development.

#### **Study objective**

We investigated the associations of maternal folic acid use and folate, vitamin B12 and homocysteine concentrations in early pregnancy with dental development in children. Secondly, we checked whether these associations were modified by MTHFR-C677T polymorphism.

#### Study design

one time point, cross sectional

#### Intervention

observational study, no intervention applicable

# Contacts

#### Public

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# **Eligibility criteria**

### **Inclusion criteria**

Mothers with available information on folic acid use and folate , vitamin B12 or homocysteine concentrations; Singleton life born children; Children participating in 9 years follow up measurements

3 - The associations of maternal folic acid intake and folate, vitamin B12 and homoc  $\dots$  16-06-2025

# **Exclusion criteria**

twin births, children who did not attend follow up visits at the age of 9 years, excluded children without OPG available or bad image

# Study design

### Design

Study type:	Observational non invasive
Intervention model:	Crossover
Allocation:	Non controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

### Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	01-03-2017
Enrollment:	3728
Туре:	Actual

### **IPD** sharing statement

Plan to share IPD: Undecided

# **Ethics review**

Positive opinion	
Date:	16-06-2017
Application type:	First submission

# **Study registrations**

# Followed up by the following (possibly more current) registration

No registrations found.

# Other (possibly less up-to-date) registrations in this register

No registrations found.

## In other registers

Register	ID
NTR-new	NL6418
NTR-old	NTR6594
Other	- : MEC-2012-165

# **Study results**