The influence of chewing gum on dental plaque removal, wettability of the tooth surface and the substantivity of antimicrobial agents in chewing gum

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The objective of the study is to investigate the effect of chewing gum with and without magnolia extract on the composition of dental plaque and saliva. In addition the influence of chewing gum on the wettability of the tooth surface will be studied…

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON37873

Source
ToetsingOnline

Brief title
Effect of chewing gum on dental plaque composition

Condition

- Other condition

Synonym
biofilm, dental plaque

Health condition

het betreft geen directe aandoening er wordt naar tandplaque gekeken.

Research involving

Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: chewing gum, dental plaque composition, magnolia extract, wettability of tooth surface

Outcome measures

Primary outcome

The primary study parameter is the percenatge live and dead bacteria isolated

form chewing gum with and without magnolia extract and the composition of the

oral microflora in dental plaque and saliva.

Secondary outcome

the secundairy outcome is the wettability of the toothsurface after use of

various chewing gums and the cleaniness feeling of the toothsurface.

Study description

Background summary

It is generally accepted that dental plaque is related to caries and periodontitis. The cariogenicity of dental plaque is dependent on the bacterial species in the plaque, the food which is taken and the saliva flow. Adhesion of these cariogenic bacteria to the tooth surface is very important for the cariogenic effect. There is a relation between the consumption of carbohydrate rich food and caries, but also the frequency of taking food plays an important role. Saliva has a protecting role for the tooth surface against the produced acids and depends on the amount of saliva and the quality. Saliva removes the acids and the buffer capacity takes care that the pH goes back to neutral. Chewing gum has a stimulating effect on the saliva flow. These days a lot of components as antimicrobial plant extracts are added to chewing gum and have an anticariogenic action.

Magnolia Berk extract inhibits the growth of Streptococcus mutans, Streptococcus sobrinus, Porphyromonas gingivalis, Fusobacterium nucleatum. Another very important characteristic of antimicrobials is that they can adhere to soft and hard tissues and dental plaque in the oral cavity for sometime. Subsequently they start releasing to saliva and dental plaque and therewith extend there action for a longer time, which is called substantivity. Toothpaste and mouthrinses are the vehicles for antimicrobials distribution in the oral cavity. Since tooth brushing is a difficult task for a lot of people for which the importance is under estimated we believe it is a good idea to search for an alternative vehicle to distribute antimicrobials to the oral cavity as e.g. chewing gum.

Study objective

The objective of the study is to investigate the effect of chewing gum with and without magnolia extract on the composition of dental plaque and saliva. In addition the influence of chewing gum on the wettability of the tooth surface will be studied.

Study design

It is a double blind study, the researchers and volunteers do not know the type of chewing gum.

Study burden and risks

The burden for the volunteers is that they cannot brush their teeth early in the morning on the survey day, during the study period they need to chew three times a day two pieces of chewing gum for 10 min. There are no predictable risks in this study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

-at least 16 original teeth need to be still available
-volunteers need to be healthy

Exclusion criteria

- if they have used antibiotics in the three months before the investigation started
- if they have been used a mouthrinse in the month before the investigation started or during the study

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Placebo
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	02-04-2012
Enrollment:	10
Type:	Actual

Ethics review

Approved WMO Date:	07-03-2012
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO Date:	12-09-2012
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

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
CCMO	NL38434.042.11