UPERIO
LIÈGE Parodontologie · Chirurgie bucco-dentaire & implantaire

# LEEFSTIJL EN PARODONTITIS

Dr. Isabelle Laleman

# Immuunfitheid

Het vermogen van het immuunsysteem om het hoofd te bieden aan aanvallen van buitenaf.



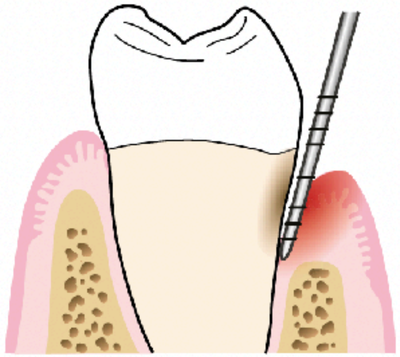
Pitzurra en Loos, 2020

## SYSTEMISCH

Leeftijd
Dieet en micronutriënten
Psychosociale situatie
(Epi)genetische blauwdruk
Kwaliteit van slaap
Systemische ziekte of situatie
Lichamelijke activiteit
Roken
Stress
Medicatie

Verlaagde immuun-fitheid met toegenomen ontstekingsactiviteit

- Abnormale reactie op biofilm
- Abnormaal signaal transductie
- Afwijkende immuuncel chemotaxis
- Hyperactiviteit ontstekingsreactie
- Afwijkende resolutie van ontsteking
- Afwijkende wondgenezing



Uitgroei van gramnegatieve, anaerobe pathogene species

Veranderingen in ecologie van subgingivale niche met uitgroei van pathobionten

Dysbiotische subgingivale microbioom

## LOKAAL

Stress
Roken

Pitzurra en Loos, 2020

# Roken

# Nederland anno 2021

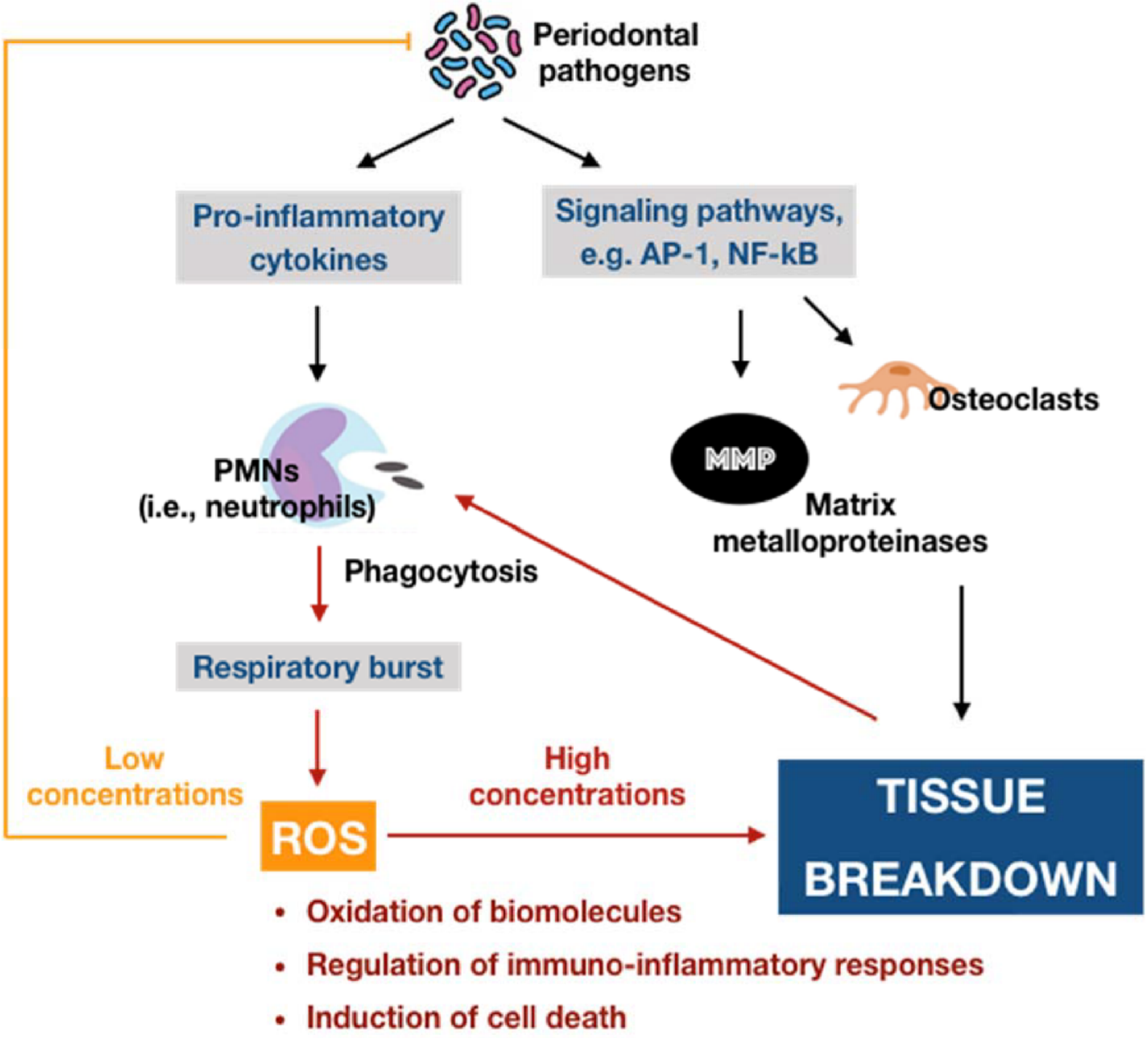
- 20,6% rookt
- 15,2% rookt dagelijks
- 2,7% rookt dagelijks >20 sigaretten/dag



https://www.vzinfo.nl/roken/leeftijd-en-geslacht-volwassenen

# Roken en het parodontium

- Verminderde vasculatuur van de parodontale weefsels
- Impact op oxidatieve stofwisseling: ROS
- Onderdrukt de aspecifieke (aangeboren) en de adaptieve (verworven)afweer
- Nadelige effecten op de fibroblast functie


Periodontal pathogens
Pro-inflammatory cytokines
Signaling pathways, e.g. AP-1, NF-kB
Osteoclasts
MMP
Matrix metalloproteinases
PMNs (i.e., neutrophils)
Phagocytosis
Respiratory burst
Low concentrations
High concentrations
ROS
TISSUE BREAKDOWN
• Oxidation of biomolecules
• Regulation of immuno-inflammatory responses
• Induction of cell death

Rokers hebben 85% meer kans op parodontitis.



Leite e.a., 2018


- 90% van de gestopte rokers roken terug na 1 jaar
- 4-30% van de parodontitispatiënten kan gemotiveerd worden tot stoppen

- Onvoldoende geweten
- Waarschijnlijk ook hogere kans op parodontitis




Figueredo et al., 2020

# Alcohol

# Nederland anno 2021

- 7% drinkt overmatig alcohol
- >21 glazen/week (m) en >14 glazen/week(v)
- 44% drinkt maximaal 1 glas/dag



https://www.vzinfo.nl/alcoholgebruik

# Alcohol en het parodontium

- Negatieve invloed op het immuunsysteem (o.a. verminderde neutrofielen functie)
- Invloed heling weke weefsels
- Toxisch effect parodontale weefsel => betere penetratie paropathogenen doorheen epitheel

Risico verhoogt met 0.4% per 1g alcohol/dag



Wang e.a., 2016

# STRESS

# STRESS

= factor die lichamelijke of mentale spanning veroorzaakt en een rol kan spelen bij het veroorzaken van ziekte

Niet stress per se, maar het **negatief omgaan met stress** beïnvloedt de parodontale gezondheid negatief.



Genco e.a., 1999

# Nederland anno 2020, psychische gezondheid

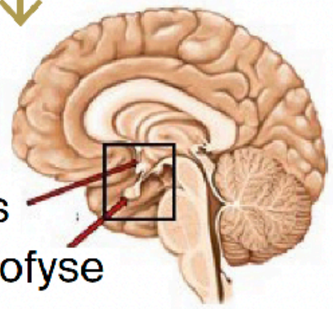
- 12% voelt zich psychisch ongezond
- Vrouwen > mannen
- Laagopgeleiden > hoogopgeleiden

# Psychologische stoornissen en parodontitis

- Activeren perifere fysiologische mechanismen
  => systemische ontstekingsniveaus ↗

- Indirecte effecten:
  ↘ mondhygiëne,
  ↗ roken,
  ↗ alcohol,
  ↘ slaap

STRESS




Hypothalamus
⊕ CRH

↓

Hypofyse
⊕ ACTH

↓

Bijnieren

↓

Cortisol
Catecholamines:
- adrenaline
- noradrenaline
- dopamine

→ Afwijkende ontstekingsreacties *(verlaagde immuun-fitheid)*

→ Invloed op ecologie van pockets: uitgroei van o.a. P. gingivalis

→ Aandrang tot roken

Parodontitis



Pitzurra en Loos, 2020

# Voeding

# Nederland anno 2021

- verschilt per voedingsmiddel



https://www.vzinfo.nl/voeding

# Hoge consumptie macronutriënten

- Koolhydraatrijke voeding ↗ risico op ontstekingen
- Dierlijke eiwitten ↗ risico op ontstekingen



Woelber e.a., 2016; Chapple e.a., 2017; Woelber e.a., 2019

# Tekorten aan micronutriënten

- Vitamine C
- Magnesium/calcium
- Antioxidant micronutriënten
- Docosahexaeenzuur (DHA, een omega-3 vetzuur)



Chapple e.a., 2017

# Beweging

# Nederland anno 2021

- 53,4% voldoet niet aan de Beweegrichtlijnen



https://www.vzinfo.nl/bewegen

# *Hoeveel* kan ik **bewegen** om **gezond** te blijven?

## *Jeugd* **4 tot 18 jaar**

**1 uur per dag**
*matig intensief bewegen*

Matig intensief is als je ademhaling sneller wordt.

**3x per week**
*spier- en botversterkende activiteiten*

Zoals volleybal, dansen, buiten spelen en fietsen.

## *Volwassenen* **en ouderen**

**2,5 uur per week**
*matig intensief bewegen*

Verspreid het bewegen over meerdere dagen.

**2x per week**
*spier- en botversterkende activiteiten*

Voor ouderen in combinatie met balansoefeningen.

# Bewegen en parodontitis

- Fysieke activiteit gelinkt aan gereduceerde prevalentie van parodontitis
- Door anti-inflammatoire karakter fysieke activiteit (?)



Ferreira e.a., 2019

# SLAAP

# Nederland anno 2020

- Ruim 1/5 Nederlanders heeft problemen met slapen



https://www.vzinfo.nl/slapen/totale-bevolking

# SLAPEN EN PARODONTITIS

- Slaapstoornissen leiden tot verhoogd risico op tandvleesontsteking
- Korte slaapduur (<5u) is geassocieerd met ernstige parodontitis



Carra e.a., 2017;


# LEEFSTIJLVERANDERINGEN

# LEEFSTIJLVERANDERINGEN

- Als mondzorgprofessional moeten we aandacht hebben voor leefstijl
- Patiënt zelf motiveren
- Patiënt doorverwijzen

# Stoppen met roken

- Pakjaren
- Nicotine afhankelijkheid

# Fagerström test for nicotine dependence as an indicator in tobacco-related studies in periodontology.

Salhi L, Seidel L, Albert A, Lambert F. J Periodontol. 2021 Feb;92(2):298-305. doi: 10.1002/JPER.20-0019. Epub 2020 Aug 16. PMID: 33480446.

## FAGERSTRÖMTEST

| Vragen | Antwoorden | Punten |
|---|---|---|
| Hoelang na het wakker worden steekt u uw eerste sigaret op? | Minder dan 5 minuten | ☐ 3 |
| | 6 - 30 minuten | ☐ 2 |
| | 31 - 60 minuten | ☐ 1 |
| | Na 60 minuten | ☐ 0 |
| Hoeveel sigaretten rookt u per dag? | 31 of meer | ☐ 3 |
| | 21 - 31 | ☐ 2 |
| | 11 - 20 | ☐ 1 |
| | Minder dan 10 | ☐ 0 |
| Vindt u het moeilijk om niet te roken op plaatsen waar dit verboden is? (bioscoop, bibliotheek, trein etc.)? | Ja | ☐ 1 |
| | Neen | ☐ 0 |
| Welke sigaret mist u het hardst? | De eerste 's morgens | ☐ 1 |
| | Gelijk welke andere | ☐ 0 |
| Rookt u meer de eerste uren 's morgens dan gedurende de rest van de dag? | Ja | ☐ 1 |
| | Neen | ☐ 0 |
| Rookt u ook wanneer u ziek bent en het grootste deel van de dag in bed doorbrengt? | Ja | ☐ 1 |
| | Neen | ☐ 0 |
| | Totaal: | |

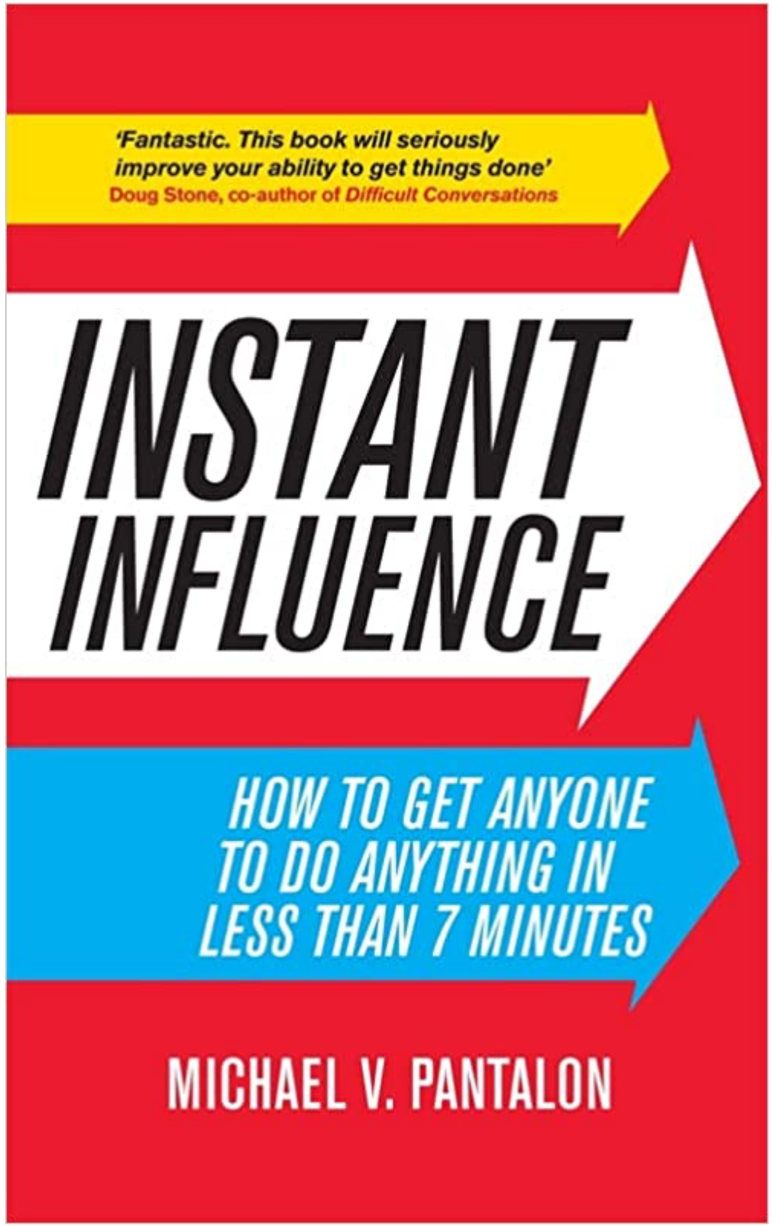
**Nicotineafhankelijkheidsgraad**: score **0 - 2**: zeer licht; **3 - 4**: licht; **5**: middelmatig; **6 - 7**: ernstig; **8 - 10**: zeer ernstig.

Stempel apotheek

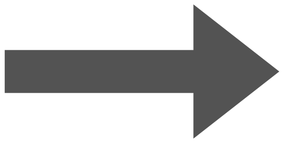
***Deze informatie wordt je aangeboden door je apotheker!***

# Stoppen met roken-argumenten

- “Stoppen met roken is echt belangrijk voor jou. Je zal je gezonder voelen, langer leven, …”
- “Het begin is moeilijk, maar daarna zul je je zo veel beter voelen.”
- “Waarom maak je geen afspraak bij een tabacoloog, dat heeft al heel veel van mijn patiënten geholpen.”


'Fantastic. This book will seriously improve your ability to get things done'
Doug Stone, co-author of Difficult Conversations
INSTANT INFLUENCE
HOW TO GET ANYONE TO DO ANYTHING IN LESS THAN 7 MINUTES
MICHAEL V. PANTALON

Tell-and-sell approach



Intrinsieke motivatie

# De 3 basisprincipes

1. Niemand hoeft absoluut iets te doen. De keuze is altijd aan jou.

2. Iedereen heeft al genoeg motivatie.

3. Focussen op een klein beetje motivatie werkt veel beter dan vragen naar weerstand.

1. Waarom wil je veranderen?

2. Hoe klaar ben je om te veranderen op een schaal van 1 tot 10?

3. Waarom heb je geen lager nummer gekozen?

4. Stel je voor dat je bent veranderd, wat zouden de positieve resultaten zijn?

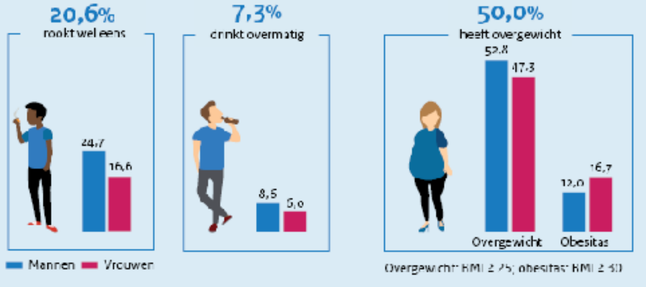
5. Waarom zijn deze resultaten belangrijk voor jou?

6. Wat is de volgende stap, als er al iets is?

# Conclusie

# Hoe gezond is de leefstijl van Nederlandse volwassenen (18+)?

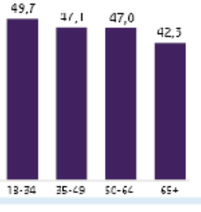
In 2021 zijn er meer mannen dan vrouwen die roken, overmatig alcohol drinken of overgewicht hebben. Vrouwen hebben juist vaker ernstig overgewicht (obesitas).




Bijna de helft van de volwassenen voldoet aan de Beweegrichtlijnen (2021)

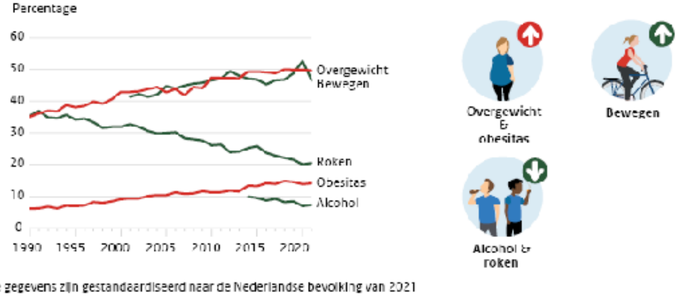
**46,6%**
voldoet aan Beweegrichtlijnen

18-34-jarigen bewegen het meest (%)




## Trends zijn verschillend

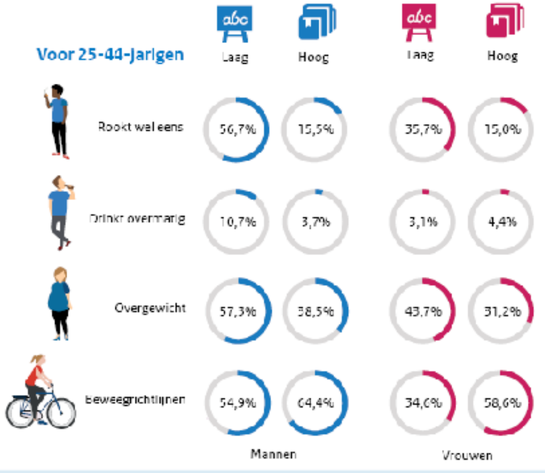
Het percentage volwassenen dat rookt en overmatig alcohol drinkt daalt, maar het percentage met (ernstig) overgewicht neemt toe. Volwassenen bewegen steeds meer.




De gegevens zijn gestandaardiseerd naar de Nederlandse bevolking van 2021

## Verschillen tussen laag- en hoogopgeleiden zijn groot 2020

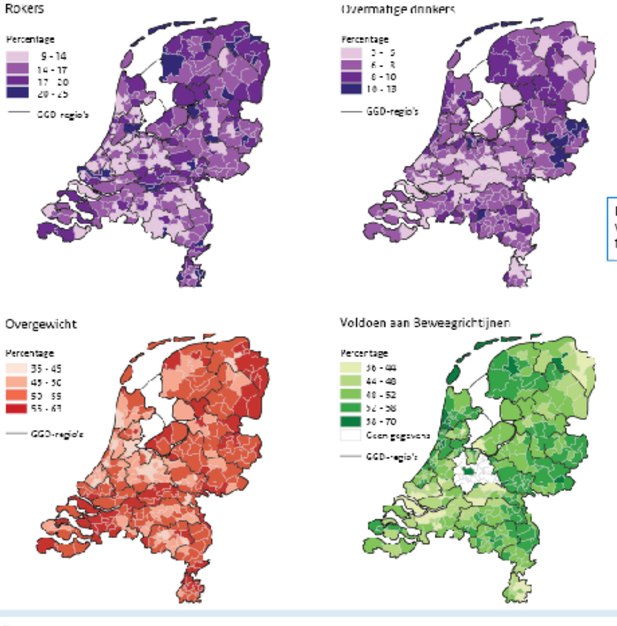
Hoogopgeleiden leven gezonder. Laagopgeleiden roken vaker, hebben vaker overgewicht en bewegen minder




De verschillen in de percentages overmatige drinkers naar opleiding zijn niet statistisch significant.

## Ook regionaal zijn er grote verschillen in leefstijl per gemeente 2020

Voor 18 jaar en ouder




Het regionale patroon verschilt sterk per leefstijl-factor.

**Bronnen**
Gezondheidenquête/Leefstijlmonitor CBS i.s.m. RIVM en Trimbos-instituut; Gezondheidsmonitor Volwassenen en Ouderen 2020 GGD'en, CBS en RIVM

**Meer informatie**
Deze infographic maakt deel uit van VZinfo.nl, een website van het RIVM.
Publicatiedatum: 25-05-2020, geactualiseerd juli 2022

- Leefstijl beïnvloedt de immuunfitheid
- Leefstijlfactoren met elkaar verweven
- Mondzorgprofessionals kunnen patiënten ondersteunen bij gezonde leefstijlkeuzes
- Autonomie van de patiënt in deze keuzes centraal

# De genoemde leefstijlfactoren

- Hogere kans op parodontitis
- ↗ ernst parodontitis
- Snellere progressie
- Slechter behandelresultaat

# 6 GEWOONTEN VOOR EEN GOEDE (MOND) GEZONDHEID

1. Vervang bewerkte voedingsmiddelen door *echt* voedsel
2. Vervang zoete snacks door fruit, noten en zaden
3. Focus op regelmatige dagelijkse beweging/activiteit in plaats van enkel op sport
4. Ontwikkel een avondroutine
5. Breng tijd door met de mensen om wie je geeft en die een gezonde leefstijl ondersteunen
6. Stop met roken, inclusief e-sigaretten & minimaliseer alcohol

# Maar

- Kwaliteit van aangehaalde studies vaak beperkt
- Sterkte van de aanbevelingen: laag

# (Antibiotica en) probiotica

Dr. Isabelle Laleman

# THE EFP S3 CLINICAL PRACTICE GUIDELINES

| | |
|---|---|
| STEP 1 | Guiding **behaviour change** by motivating the patient to undertake successful removal of supragingival dental biofilm and risk factor control. |
| STEP 2 | **Cause-related therapy** aimed at controlling (reducing/eliminating) the subgingival biofilm and calculus (subgingival instrumentation). |
| STEP 3 | **Treating those areas of the dentition non-responding** adequately to the second step of therapy (repeated subgingival instrumentation, access flap/ resective/regenerative surgery). |
| STEP 4 | **Maintaining periodontal stability** in all treated periodontitis patients combining preventive and therapeutic interventions (as defined in the first and second steps of therapy). |

Sanz e.a., 2020

# THE EFP S3 CLINICAL PRACTICE GUIDELINES

**R2.16 | Does adjunctive systemically administered antibiotics improve the clinical outcome of subgingival instrumentation?**

| Evidence-based recommendation (2.16) |
|---|
| A Due to concerns about patient's health and the impact of systemic antibiotic use to public health, its routine use as adjunct to subgingival debridement in patients with periodontitis is **not recommended**.<br>B The adjunctive use of specific systemic antibiotics **may be considered** for specific patient categories (e.g. generalized periodontitis Stage III in young adults). |
| ***Supporting literature*** Teughels et al. (2020) |
| ***Quality of evidence*** RCTs (*n* = 28) with a double-blind, placebo-controlled, parallel design. Risk of bias was low for 20 of the studies, while seven studies had a high risk. PPD reduction at 6 months; MET + AMOX: *n* = 8, 867 patients. PPD reduction at 12 months; MET + AMOX: *n* = 7, 764 patients, MET: *n* = 2, 259 patients. |
| A ***Grade of recommendation*** Grade A—↓↓<br>B ***Grade of recommendation*** Grade 0—↔ |
| A ***Strength of consensus*** Consensus (0% of the group abstained due to potential CoI)<br>B ***Strength of consensus*** Consensus (0% of the group abstained due to potential CoI) |

Sanz e.a., 2020

# Adjunctive effect of systemic antimicrobials in periodontitis therapy: A systematic review and meta-analysis

Wim Teughels[1] | Magda Feres[2] | Valerie Oud[1] | Conchita Martín[3] | Paula Matesanz[4] | David Herrera[4]

[1]Department of Oral Health Sciences, KU Leuven & Dentistry (Periodontology), University Hospitals Leuven, Leuven, Belgium

[2]Department of Periodontology, Dental Research Division, Guarulhos University, Guarulhos, Brazil

[3]BIOCRAN (Craniofacial Biology) Research Group, University Complutense, Madrid, Spain

[4]ETEP (Etiology and Therapy of Periodontal Diseases) Research Group, University Complutense, Madrid, Spain

**Correspondence**
Wim Teughels, Department of Oral Health Sciences, KU Leuven & UZ Leuven, Kapucijnenvoer 33, 3000 Leuven, Belgium.
Email: Wim.Teughels@kuleuven.be

## Abstract

**Aim:** To answer the following PICOS questions: in patients with periodontitis, which is the efficacy of adjunctive systemic antimicrobials, in comparison with subgingival debridement plus a placebo, in terms of probing pocket depth (PPD) reduction, in randomized clinical trials with at least 6 months of follow-up?

**Material and Methods:** A systematic search was conducted: 34 articles (28 studies) were included. Data on clinical outcome variables changes were pooled and analysed using weighted mean differences (WMDs), 95% confidence intervals (CI) and prediction intervals (PIs), in case of significant heterogeneity.

**Results:** For PPD, statistically significant benefits ($p < .001$) were observed in short-term studies (WMD = 0.448, 95% CI [0.324; 0.573], PI [−0.10 to 0.99]) and long-term studies (WMD = 0.485, 95% CI [0.322; 0.648], PI [−0.11 to 1.08]). Additionally, statistically significant benefits were also found for clinical attachment level, bleeding on probing, pocket closure and frequency of residual pockets. The best outcomes were observed for the combination of amoxicillin plus metronidazole, followed by metronidazole alone and azithromycin. Adverse events were more frequently reported in groups using systemic antimicrobials.

**Conclusions:** The adjunctive use of systemic antimicrobials in periodontal therapy results in statistically significant benefits in clinical outcomes, with more frequent adverse events in test groups using systemic antimicrobials.

KEYWORDS

meta-analysis, scaling and root planing, systematic review, systemic antimicrobials

# THE EFP S3 CLINICAL PRACTICE GUIDELINES

**R2.15 | Do adjunctive locally administered antibiotics improve the clinical outcome of subgingival instrumentation?**

| **Evidence-based recommendation (2.15)** |
| --- |
| Specific locally administered sustained-release antibiotics as an adjunct to subgingival instrumentation in patients with periodontitis **may be considered**. |
| ***Supporting literature*** Herrera et al. (2020) |
| ***Quality of evidence*** PPD reduction (6–9 months): Atridox *n* = 2, 19/19 patients; Ligosan: *n* = 3, 232/236 patients; Arestin: *n* = 6, 564/567 patients. High risk of bias and heterogeneity in the majority of studies. |
| ***Grade of recommendation*** Grade 0—↔ |
| ***Strength of consensus*** Consensus (7.8% of the group abstained due to potential CoI) |



Sanz e.a., 2020

# THE EFP S3 CLINICAL PRACTICE GUIDELINES

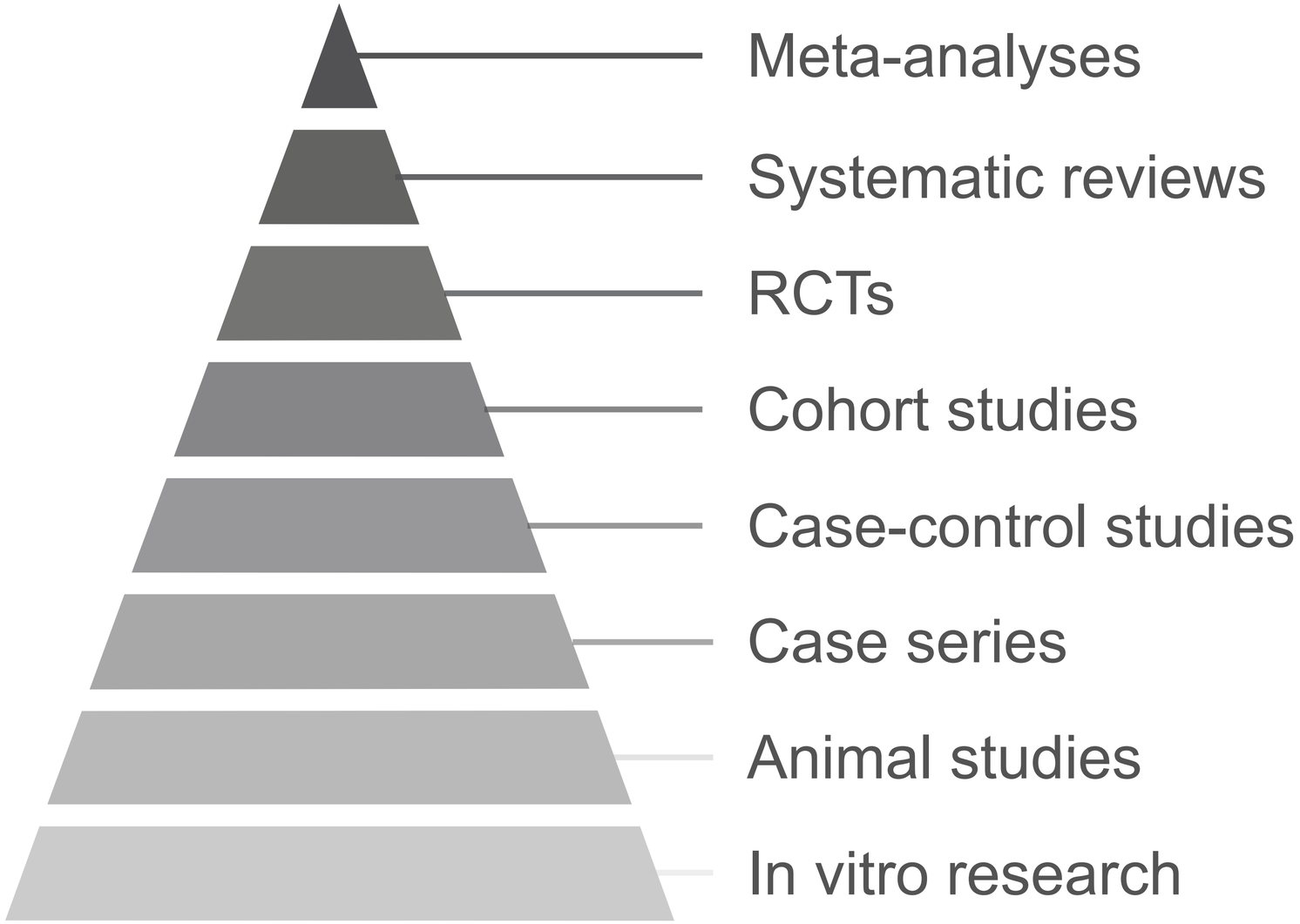
**R2.7 | Does the adjunctive use of probiotics improve the clinical outcome of subgingival instrumentation?**

| Evidence-based recommendation (2.7) |
| --- |
| We **suggest not to use** probiotics as an adjunct to subgingival instrumentation |
| ***Supporting literature*** Donos et al. (2019) |
| ***Quality of evidence*** Five placebo controlled RCTs (*n* = 176) testing preparations containing *L. ramnosus* SP1, *L. reuteri* or the combination of *S. oralis* KJ3, *S. uberis* KJ2 and *S. rattus* JH145. |
| ***Grade of recommendation*** Grade B−↓ |
| ***Strength of consensus*** Consensus (0% of the group abstained due to potential CoI) |

Sanz e.a., 2020

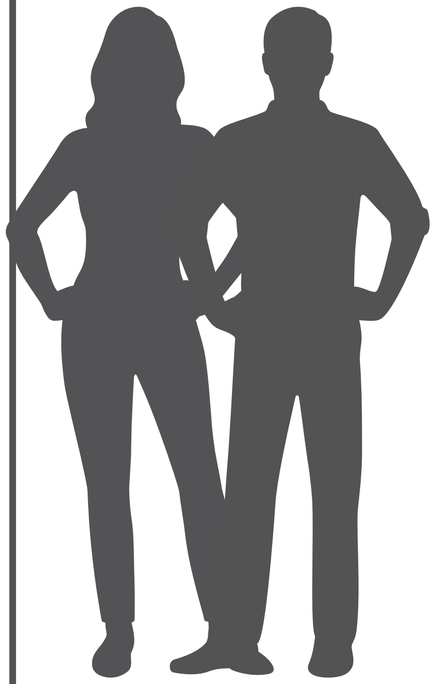
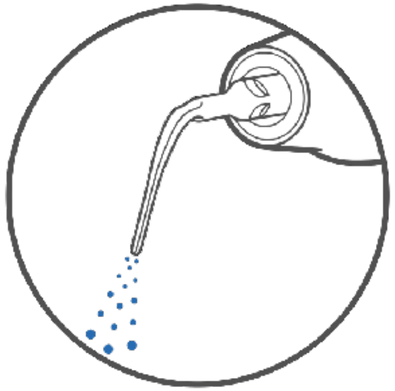
# The adjunctive use of host modulators in non-surgical periodontal therapy. A systematic review of randomized, placebo-controlled clinical studies.

Donos N, Calciolari E, Brusselaers N, Goldoni M, Bostanci N, Belibasakis GN. J Clin Periodontol. 2020 Jul;47 Suppl 22:199-238. doi: 10.1111/jcpe.13232. PMID: 31834951.



# The adjunctive use of host modulators in non-surgical periodontal therapy. A systematic review of randomized, placebo-controlled clinical studies.

Donos N, Calciolari E, Brusselaers N, Goldoni M, Bostanci N, Belibasakis GN. J Clin Periodontol. 2020 Jul;47 Suppl 22:199-238. doi: 10.1111/jcpe.13232. PMID: 31834951.

| P | I | C | O |
|---|---|---|---|
|  |  +  |  |  |
| Periodontitis patients | Probiotic | Placebo | PPD Reduction |

**The adjunctive use of host modulators in non-surgical periodontal therapy. A systematic review of randomized, placebo-controlled clinical studies.**

Donos N, Calciolari E, Brusselaers N, Goldoni M, Bostanci N, Belibasakis GN. J Clin Periodontol. 2020 Jul;47 Suppl 22:199-238. doi: 10.1111/jcpe.13232. PMID: 31834951.

Inclusion criteria

- RCT's
- Follow-up of 6 months
- ≥10 patients/group

Meta-analysis if ≥5 studies were found

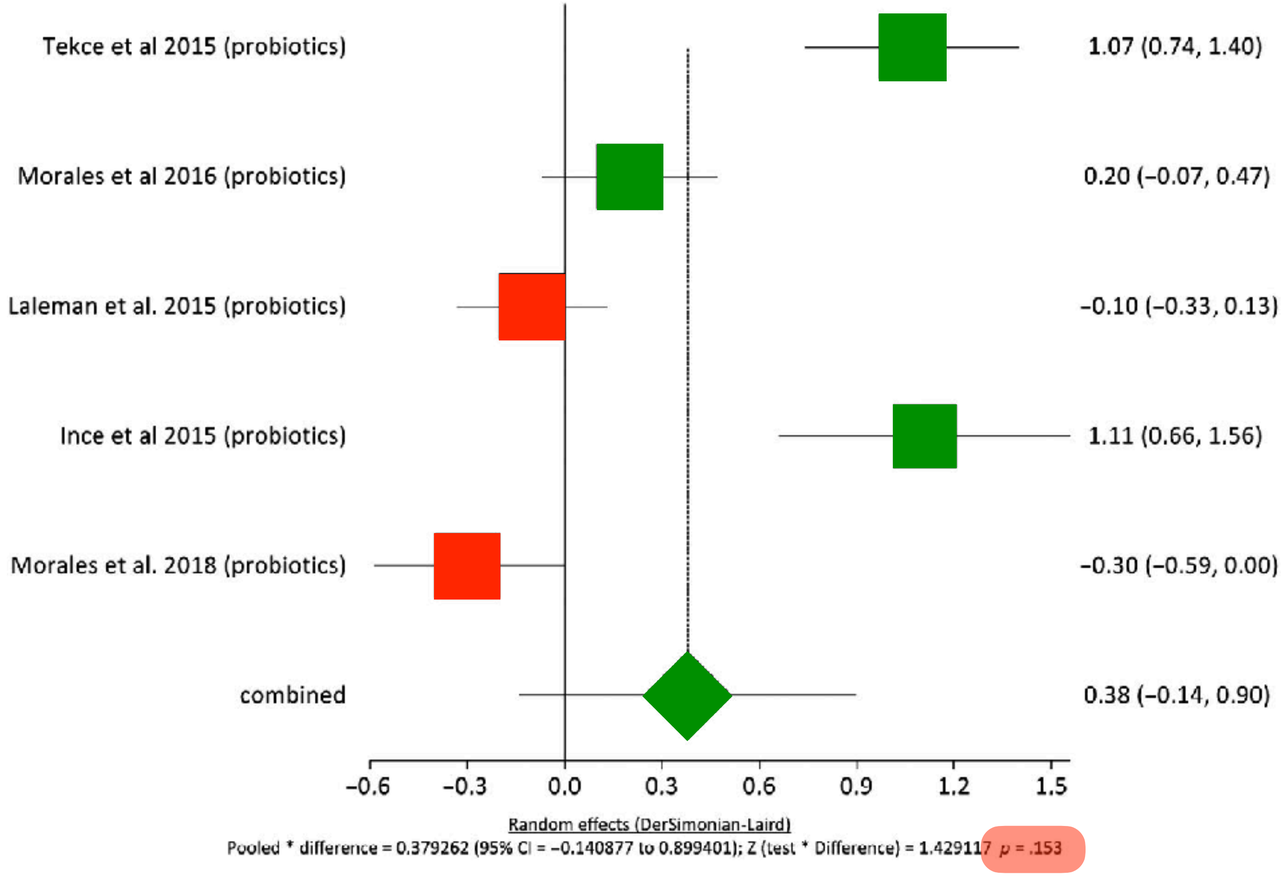
## The adjunctive use of host modulators in non-surgical periodontal therapy. A systematic review of randomized, placebo-controlled clinical studies.

Donos N, Calciolari E, Brusselaers N, Goldoni M, Bostanci N, Belibasakis GN. J Clin Periodontol. 2020 Jul;47 Suppl 22:199-238. doi: 10.1111/jcpe.13232. PMID: 31834951.

| | | |
|---|---|---|
| **Ince et al. (2015)** | *L. reuteri* Prodentis | Lozenge 2x/d, 3wks |
| **Tekce et al. (2015)** | *L. reuteri* Prodentis | Lozenge 2x/d, 3 wks |
| **Laleman et al. (2015)** | *S. oralis* KJ3, *S. uberis* KJ2 & *S. rattus* JH145 | Lozenge 2x/d, 3 mo |
| **Morales et al. (2016)** | *L. Rhamnosus* SP1 | Sachet 1x/d, 3 mo |
| **Morales et al. (2018)** | *L. Rhamnosus* SP1 | Sachet 1x/3mo |

# The adjunctive use of host modulators in non-surgical periodontal therapy. A systematic review of randomized, placebo-controlled clinical studies.

Donos N, Calciolari E, Brusselaers N, Goldoni M, Bostanci N, Belibasakis GN. J Clin Periodontol. 2020 Jul;47 Suppl 22:199-238. doi: 10.1111/jcpe.13232. PMID: 31834951.

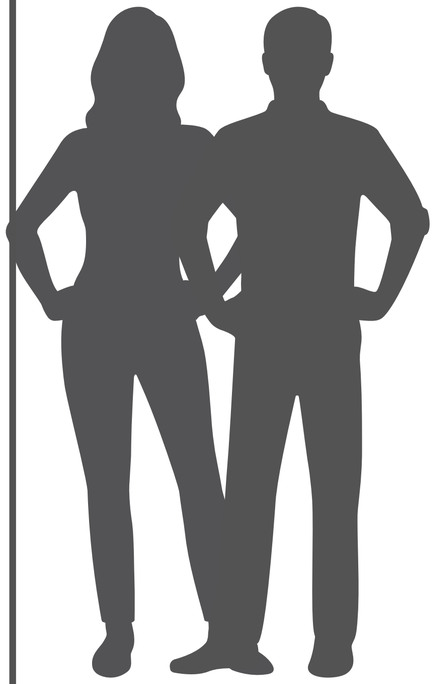
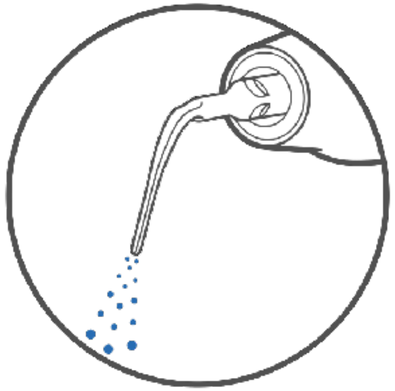


*Limosilactobacillus reuteri* ATCC PTA 5289 & DSM 17938

*L. reuteri* Prodentis

# Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis.

Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O.
J Clin Periodontol. 2016 Jun;43(6):520-30.

| P | I | C | O |
|---|---|---|---|
|  |  +  |  |  |
| Chronic periodontitis | Probiotic | Placebo | Clinical influence |

## Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis.

Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O.
J Clin Periodontol. 2016 Jun;43(6):520-30.

All included studies examined *L. reuteri* Prodentis

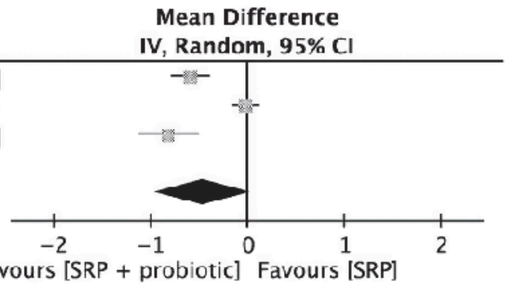
Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis.

Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O.
J Clin Periodontol. 2016 Jun;43(6):520-30.

# Overall PPD reduction at short-term

| Study or Subgroup | SRP + probiotic Mean | SD | Total | SRP Mean | SD | Total | Weight | Mean Difference IV, Random, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Tekce et al. 2015 | −1.44 | 0.33 | 20 | −0.85 | 0.32 | 20 | 33.9% | −0.59 [−0.79, −0.39] |
| Teughels et al. 2013 | −1.41 | 0.25 | 15 | −1.39 | 0.15 | 15 | 34.8% | −0.02 [−0.17, 0.13] |
| Vivekananda et al. 2010 | −1.31 | 0.49 | 15 | −0.49 | 0.39 | 15 | 31.2% | −0.82 [−1.14, −0.50] |
| **Total (95% CI)** | | | **50** | | | **50** | **100.0%** | **−0.46 [−0.95, 0.02]** |

Heterogeneity: Tau² = 0.17; Chi² = 32.12, df = 2 (P < 0.00001); I² = 94%
Test for overall effect: Z = 1.86 (P = 0.06)




Versus Antibiotics

**-0.448 [-0.324; -0.573]**

(Teughels et al. 2020)

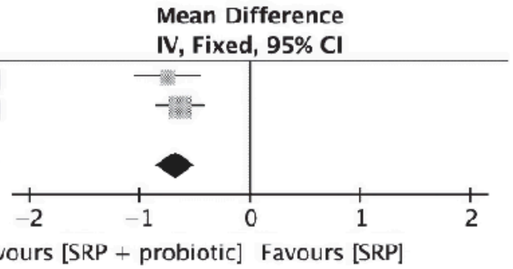
# Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis.

Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O.
J Clin Periodontol. 2016 Jun;43(6):520-30.

## Deep pocket(≥7mm) reduction at short-term

| Study or Subgroup | SRP + probiotic Mean | SD | Total | SRP Mean | SD | Total | Weight | Mean Difference IV, Fixed, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Tekce et al. 2015 | −2.63 | 0.35 | 20 | −1.88 | 0.59 | 20 | 35.6% | −0.75 [−1.05, −0.45] |
| Teughels et al. 2013 | −2.88 | 0.35 | 15 | −2.25 | 0.27 | 15 | 64.4% | −0.63 [−0.85, −0.41] |
| **Total (95% CI)** | | | **35** | | | **35** | **100.0%** | **−0.67 [−0.85, −0.49]** |

Heterogeneity: $Chi^2 = 0.39$, df = 1 (P = 0.53); $I^2 = 0\%$
Test for overall effect: Z = 7.35 (P < 0.00001)




## Versus Antibiotics

**-0.969 [-0.755; -1.183]**

(Teughels et al. 2020)

Clinical efficacy of probiotics as an adjunctive therapy to non-surgical periodontal treatment of chronic periodontitis: a systematic review and meta-analysis.

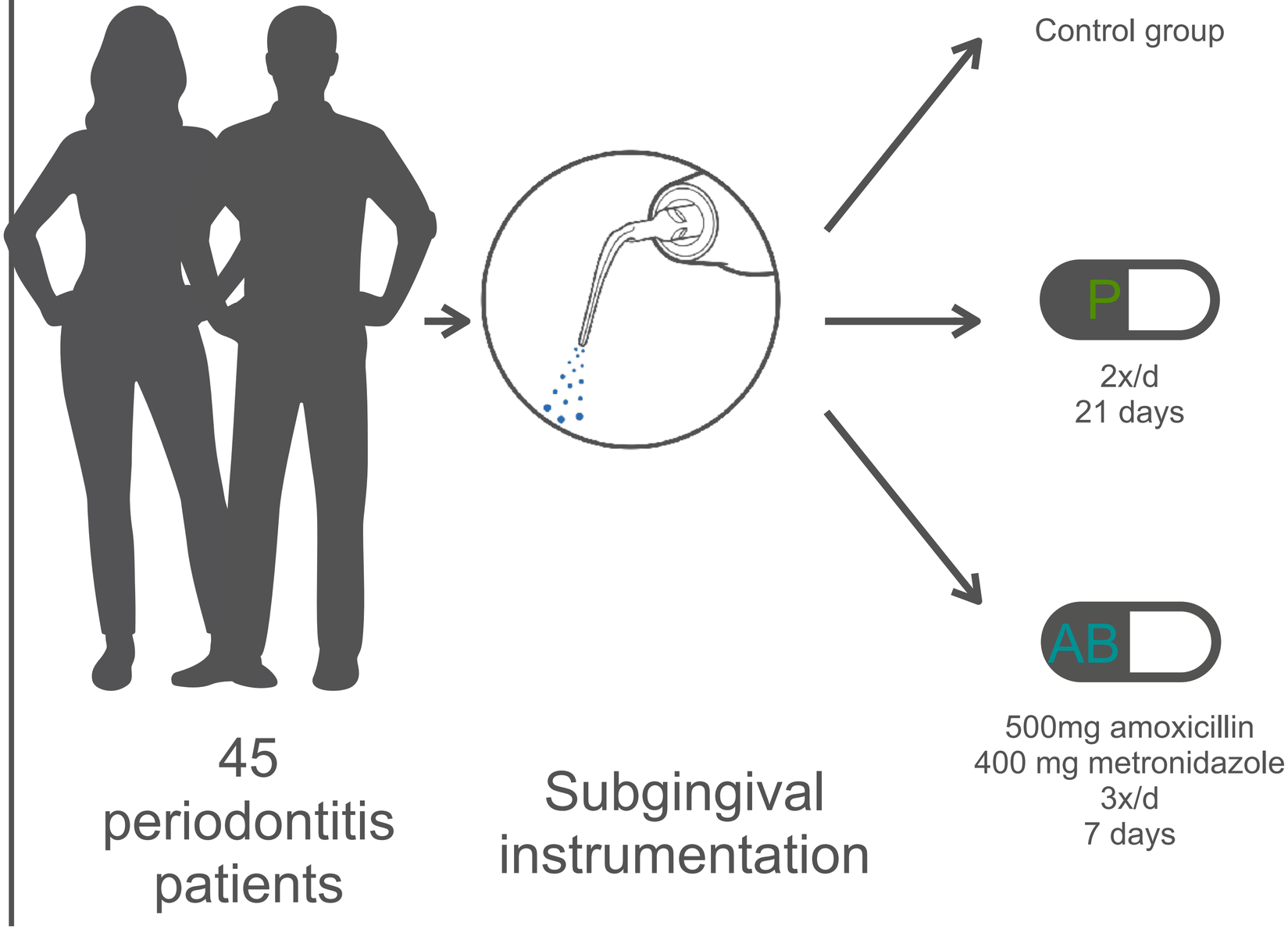
Martin-Cabezas R, Davideau JL, Tenenbaum H, Huck O.
J Clin Periodontol. 2016 Jun;43(6):520-30.

# Patients in need for surgery

| | Prodentis | Control |
|---|---|---|
| Teughels ea, 2013 | 67%* | 87% |
| Tekçe ea, 2015 | 80%* | 100% |

* statistically significant intergroup difference ($p < 0.05$)

# Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.




Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

# Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.

Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

## Pocket probing depth (mm)

| | Prodentis | Antibiotic |
|---|---|---|
| BL | 3.86 ± 0.69 | 3.66 ± 0.42 |
| 30 days | 3.27 ± 0.51 | 2.91 ± 0.41 |
| 90 days | 3.13 ± 0.45 | 2.79 ± 0.50 |

* statistically significant intergroup difference ($p < 0.05$)

Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.

Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

# Pocket probing depth (mm)

| | Prodentis | Antibiotic | Control |
|---|---|---|---|
| BL | 3.86 ± 0.69 | 3.66 ± 0.42 | 3.76 ± 0.46 |
| 30 days | 3.27 ± 0.51 | 2.91 ± 0.41 | 3.15 ± 0.28 |
| 90 days | 3.13 ± 0.45 | 2.79 ± 0.50 | 3.03 ± 0.27 |

* statistically significant intergroup difference ($p < 0.05$)

## Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.

Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

# Pocket probing depth (mm)

| | Prodentis | Antibiotic | Control |
|---|---|---|---|
| BL | 3.86 ± 0.69 | 3.66 ± 0.42 | 3.76 ± 0.46 |
| 30 days | 3.27 ± 0.51 | 2.91 ± 0.41 | 3.15 ± 0.28 |
| 90 days | 3.13 ± 0.45 | 2.79 ± 0.50 | 3.03 ± 0.27 |

* statistically significant intergroup difference ($p < 0.05$)

Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.

Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

# Adverse effects

| | Prodentis | Antibiotic | Control |
|---|---|---|---|
| Headache | 0% | 60% | 0% |
| Stomachache | 0% | 7% | 0% |
| Nausea/vomiting | 0% | 27% | 0% |
| Metallic taste | 0% | 33% | 0% |
| Diarrhea/abdomial pain | 0% | 27% | 0% |
| Sleepiness | 0% | 20% | 0% |

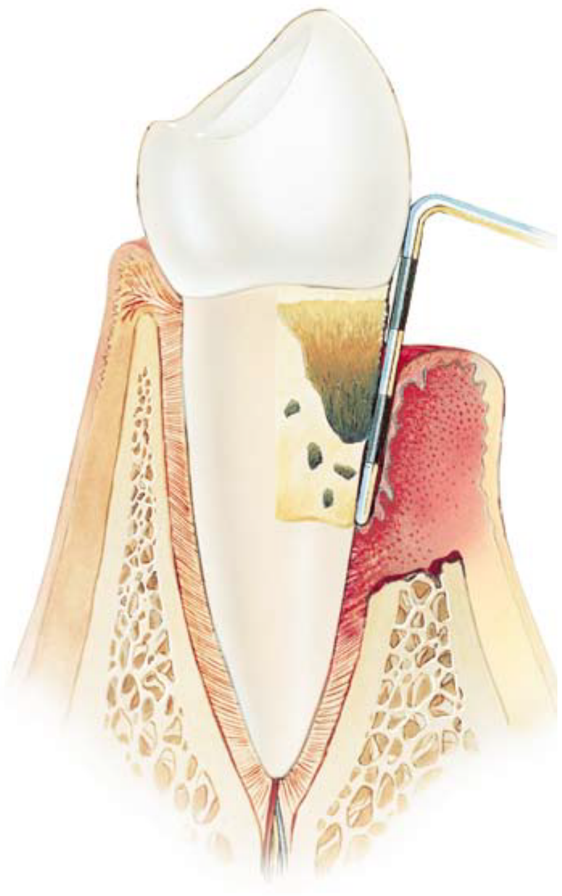
**Effect of systemic antibiotic and probiotic therapies as adjuvant treatments of subgingival instrumentation for periodontitis: a randomized controlled clinical study.**

Ramos TCS, Boas MLV, Nunes CMM, Ferreira CL, Pannuti CM, Santamaria MP, Jardini MAN. J Appl Oral Sci. 2022 Mar 23;30:e20210583. doi: 10.1590/1678-7757-2021-0583. PMID: 35319669.

# Drawbacks

- Control treatment not described (placebo?)
- Pockets were rather “shallow” to start with
- Subgingival instrumentation (1x1h)

# TREATMENT



Periodontitis

**Behaviour change:**
motivating patient for successful supragingival biofilm removal and risk factor control

**Cause-related therapy:**
for controlling the subgingival biofilm and calculus trough subgingival instrumentation

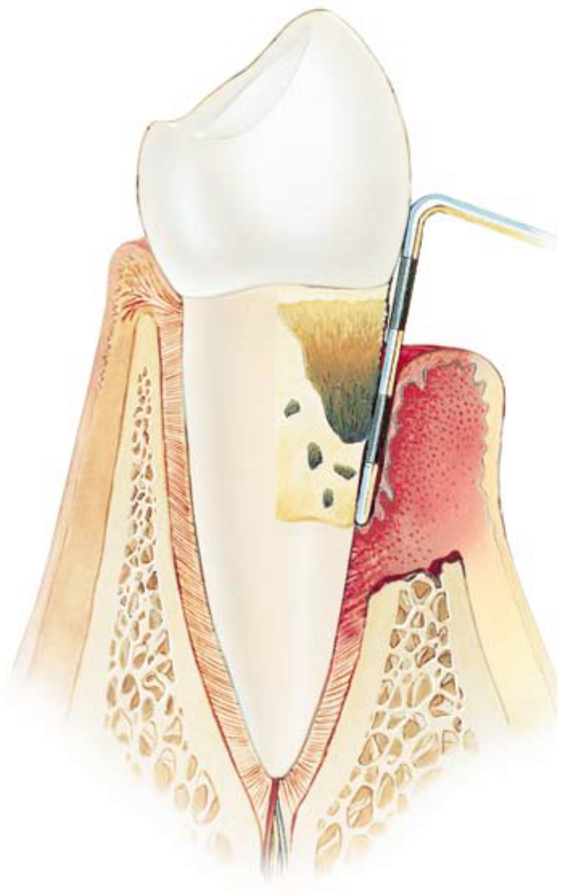
Treating those areas of the dentition **non-responding** adequately to the second step of therapy

**Supportive periodontal care:** periodontal stability in all treated patients combining preventive and therapeutic interventions



Sanz et al. 2020, OralB treatment guide

# TREATMENT



Periodontitis

**Behaviour change:**
motivating patient for successful supragingival biofilm removal and risk factor control

**Cause-related therapy:**
for controlling the subgingival biofilm and calculus trough subgingival instrumentation

Treating those areas of the dentition **non-responding** adequately to the second step of therapy

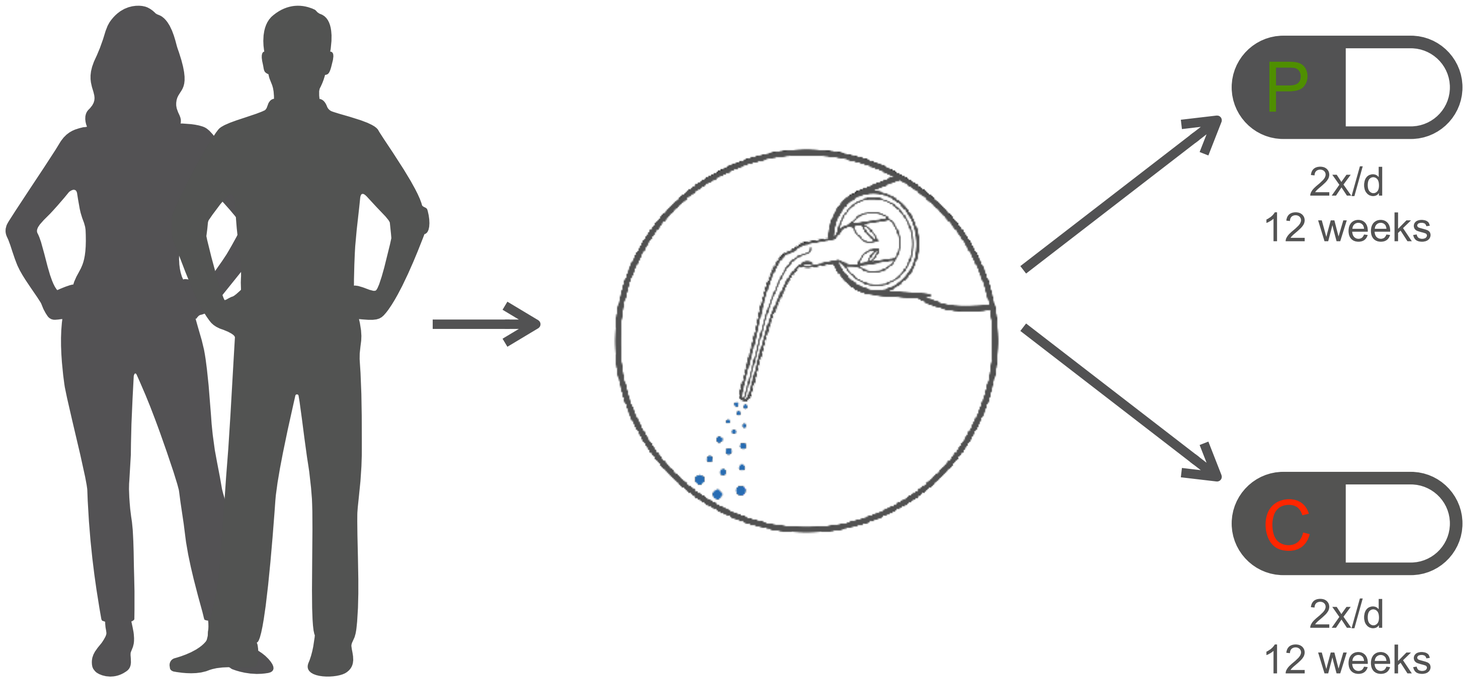
**Supportive periodontal care:** periodontal stability in all treated patients combining preventive and therapeutic interventions



Sanz et al. 2020, OralB treatment guide

# A dual-strain *Lactobacilli reuteri* probiotic improves the treatment of residual pockets: A randomized controlled clinical trial.

Laleman I, Pauwels M, Quirynen M, Teughels W.
J Clin Periodontol. 2020 Jan;47(1):43-53




44 patients  Re-instrumentation  Lozenges

A dual-strain *Lactobacilli reuteri* probiotic improves the treatment of residual pockets: A randomized controlled clinical trial.

Laleman I, Pauwels M, Quirynen M, Teughels W.
J Clin Periodontol. 2020 Jan;47(1):43-53

# Pocket probing depth

| | Prodentis | Control |
|---|---|---|
| BL | 3.1 ± 0.3 mm | 3.3 ± 0.4 mm |
| 12 wks | 2.7 ± 0.2 mm | 2.8 ± 0.4 mm |
| 24 wks | 2.6 ± 0.3 mm* | 2.9 ± 0.4 mm |

* statistically significant intergroup difference ($p < 0.05$)

A dual-strain *Lactobacilli reuteri* probiotic improves the treatment of residual pockets: A randomized controlled clinical trial.

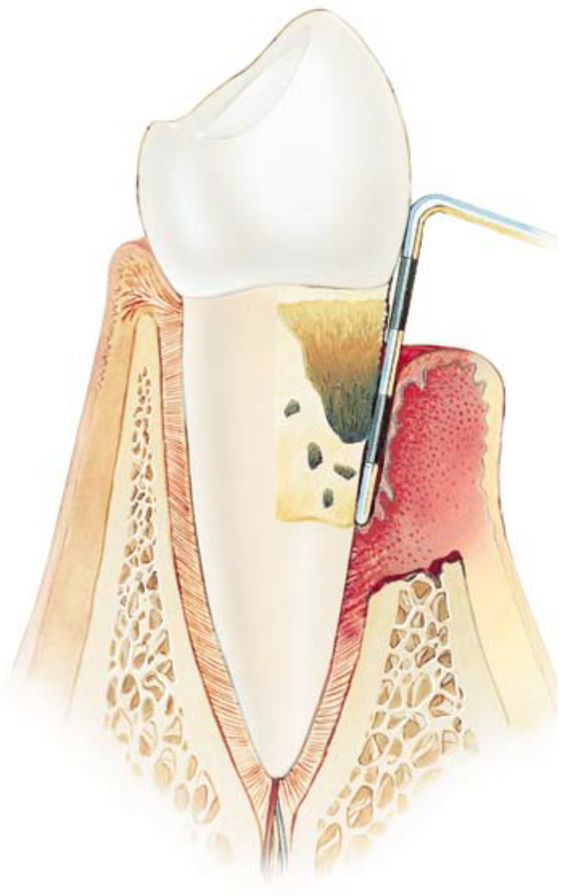
Laleman I, Pauwels M, Quirynen M, Teughels W.
J Clin Periodontol. 2020 Jan;47(1):43-53

# Pocket closure

| | Prodentis | Control |
|---|---|---|
| 12 wks | 64 ± 13%* | 56 ± 20% |
| 24 wks | 67 ± 18%* | 54 ± 17% |

* statistically significant intergroup difference ($p < 0.05$)

# TREATMENT



Periodontitis

**Behaviour change:**
motivating patient for successful supragingival biofilm removal and risk factor control

**Cause-related therapy**:
for controlling the subgingival biofilm and calculus trough subgingival instrumentation

Treating those areas of the dentition **non-responding** adequately to the second step of therapy

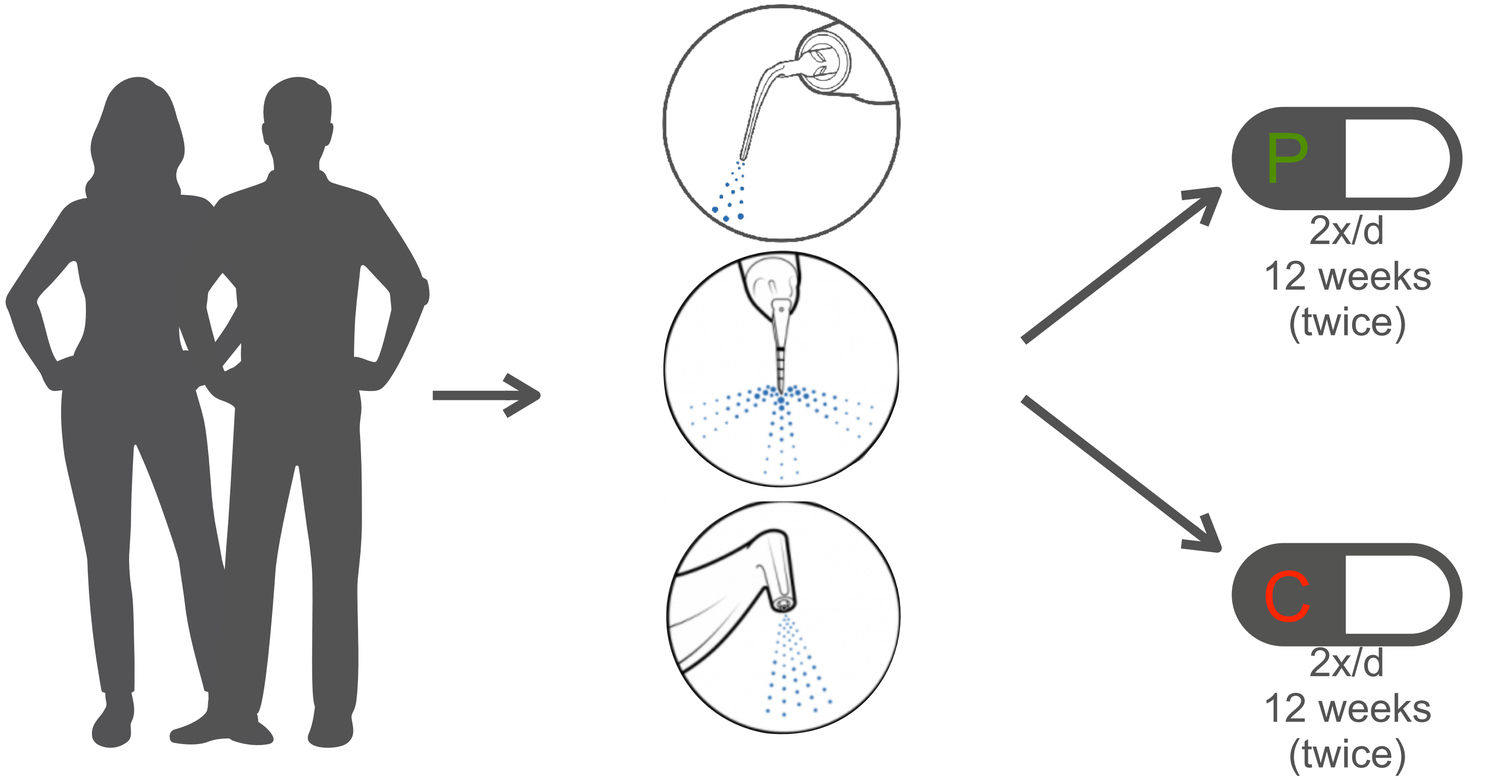
**Supportive periodontal care:** periodontal stability in all treated patients combining preventive and therapeutic interventions



Sanz et al. 2020, OralB treatment guide

# Clinical efficacy of *Lactobacillus reuteri*-containing lozenges in the supportive therapy of generalized periodontitis stage III and IV, grade C: 1-year results of a double-blind randomized placebo-controlled pilot study.

Grusovin MG, Bossini S, Calza S, Cappa V, Garzetti G, Scotti E, Gherlone EF, Mensi M
Clin Oral Investig. 2020 Jun;24(6):2015-2024




20 patients

Guided Biofilm Therapy

Lozenges

Clinical efficacy of *Lactobacillus reuteri*-containing lozenges in the supportive therapy of generalized periodontitis stage III and IV, grade C: 1-year results of a double-blind randomized placebo-controlled pilot study.

Grusovin MG, Bossini S, Calza S, Cappa V, Garzetti G, Scotti E, Gherlone EF, Mensi M
Clin Oral Investig. 2020 Jun;24(6):2015-2024

# Pocket probing depth

| | Prodentis | Control |
|---|---|---|
| BL | 2,23 mm | 2,23 mm |
| 12 wks | 2,05 mm* | 2,15 mm |
| 1 yr | 1,76 mm* | 1,92 mm |

* statistically significant intergroup difference ($p < 0.05$)

# Is it safe?



https://s3-eu-west-1.amazonaws.com/fs.siteor.com/wellness/files/tobias_probiotics.jpg

# Populations potentially at risk

- Immunosuppressed (e.g. anti-rejection medication)
- Structural heart disease (e.g. valve abnormalities)
- Potential for translocation of probiotics across bowel wall (e.g. presence of active bowel leak)



Doron & Snydman, 2015

# Take home message



https://s3-eu-west-1.amazonaws.com/fs.siteor.com/wellness/files/tobias_probiotics.jpg

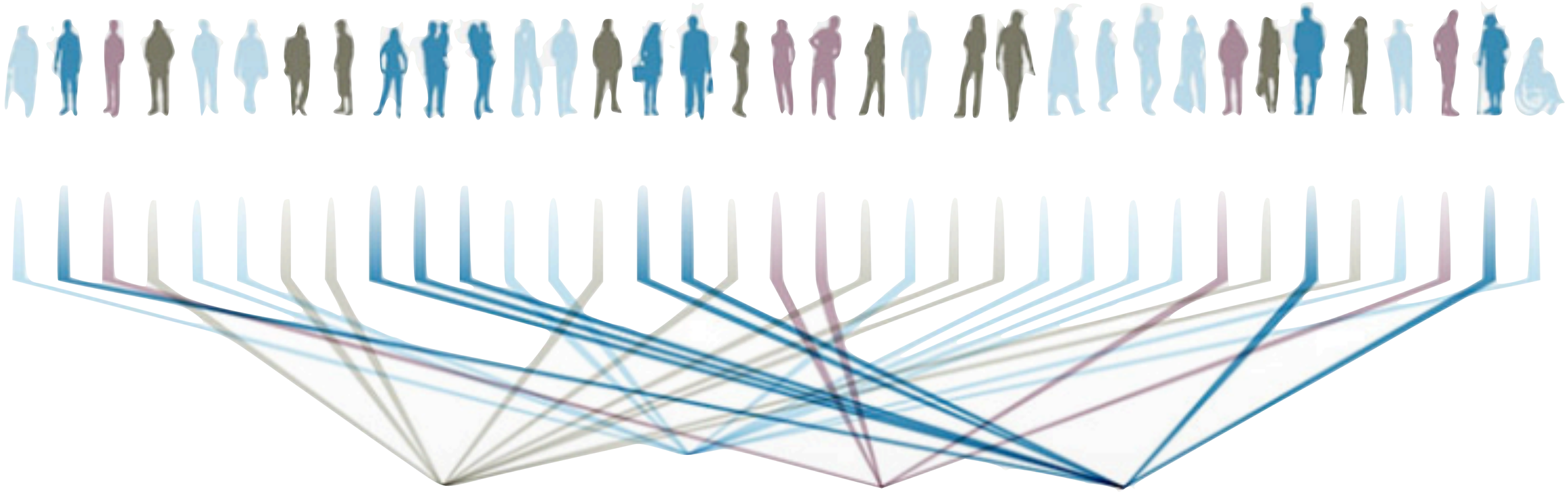
# TAKE HOME MESSAGE

- The results presented in this presentation are lozenges with $2x10^8$ CFU *L. reuteri* Prodentis
- NOT all probiotic strains/products have the same effect
- THUS the results of a specific strain/product can't be extrapolated to other strains/products

# Suggestions for clinical practice

- **2x/day**, morning & evening
- Preferably **30 minutes after** toothbrushing
- Don't forget **prophylaxis** and **oral hygiene instructions**

# Personalised Dentistry, the future:



Behaviour change & Instrumentation

Behaviour change & Instrumentation + AB

Behaviour change & Instrumentation + PB

Behaviour change & Instrumentation & Surgery