



Ora**Lactin**

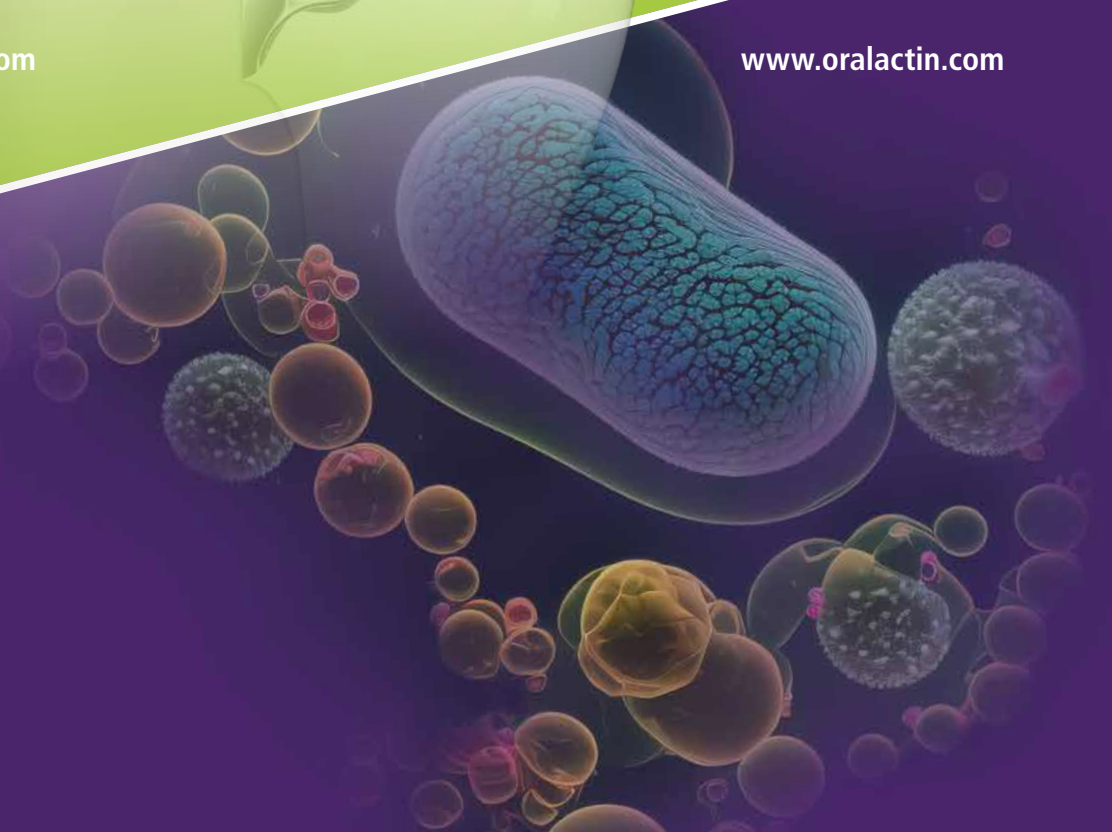
Probiotics
Pre- and Postbiotics

Scientific studies



www.apacare.com

www.oralactin.com



ApaCare

Preventive highly effective combination of liquid tooth enamel and fluoride.

ApaCare combines the advantages of fluoride and hydroxyapatite.

The medical hydroxyapatite (liquid tooth enamel) and the sodium fluoride contained in the ApaCare products complement each other and together extend the preventive effect.

An additional "brushing up" of hydroxyapatite during regular ApaCare dental care can reinforce the proven fluoride prevention. Together with the calcium fluoride layer, a hydroxyapatite protective shell forms on the tooth surface. This buffers acids, supports the regression of initial caries and whitespot discolouration, smoothes and whitens the teeth (hydroxyapatite is a natural whitener).

ApaCare also reduces (hyper-) sensitivity and protects against erosion. The liquid enamel (medical hydroxyapatite) contained in ApaCare closes open dentinal tubules on the tooth and on exposed tooth necks. ApaCare Repair in particular can very effectively reduce sensitivities, such as painful hot/cold or sweet/sour sensitivities. ApaCare also protects against tooth erosion, e.g. from acidic drinks or food.



OraLactin

Probiotics

Pre- and Postbiotics

OraLactin

Daily health brushing

OraLactin stabilises and regenerates the oral microbiome.

Daily health brushing:

With the new OraLactin toothpaste with liquid tooth enamel, fluoride and pre- and postbiotics.

Prebiotics strengthen the healthy oral flora bacteria as "selective nutrients for the good ones".

Postbiotics (inactivated bacteria or bioactive communication substances) regulate pathogens and promote the gradual overgrowth of "healthy bacteria".

As a daily supplement to normal tooth brushing:

Rinse with the pre- and postbiotic OraLactin mouthwash.

Or as a cure:

30 days of probiotic OraLactin sachets or lozenges with living health-promoting bacteria. In preparation, accompanying or after dental treatments or prophylaxis sessions (e.g. in case of high caries or periodontitis risk or bad breath). An OraLactin cure can be repeated several times a year.



ApaCare Remineralising Toothpaste

2 to 3 times daily.



ApaCare Remineralising Toothpaste

Liquid enamel smoothes, protects and brightens teeth.

ApaCare Toothpaste contains sodium fluoride (1450 ppm F⁻) **and** liquid tooth enamel (medical hydroxyapatite).

This highly active mineral is deposited on or in the surface during daily tooth brushing. Fluoride and medical hydroxyapatite complement each other. For adults and children, especially suitable for those with a high caries susceptibility, sensitive teeth and after acidic meals (RDA approx. 50).

Tube of 75 ml

Art.-Nr. 1001619

OraLactin

Probiotics

Pre- and Postbiotics

OraLactin Toothpaste with pre- and postbiotic

2 to 3 times daily.



OraLactin Toothpaste

For daily stabilisation and restoration of healthy oral flora.

OraLactin toothpaste contains sodium fluoride (1450 ppm F⁻) and medical hydroxyapatite (liquid tooth enamel). Natural prebiotic substrates specifically promote the growth of healthy oral bacteria.

Postbiotic additives such as inactivated bacteria or bioactive communication substances support the regulation and regeneration of a balanced healthy oral flora. For everyone and all age groups from 6 years of age.

Tube of 75 ml

Art.-Nr. 1001621

ApaCare Polish tooth polishing paste

1 to 2 times a week.



ApaCare Polish tooth polishing paste

Liquid enamel makes teeth sparkling white.

Teeth should be polished to a high gloss 1 to 2 times a week with ApaCare Polish tooth polishing paste. In addition to fluoride (1450 ppm F⁻) and medical hydroxyapatite, the polishing paste contains special cleaning agents with high cleaning power (RDA approx. 180).

Especially recommended for coffee, tea, red wine and nicotine deposits.

Tube of 25 ml

Art.-Nr. 1001244

ApaCare Repair tooth repair paste

After brushing teeth.



ApaCare Repair tooth repair paste

Repair/Desensitising/Whitening Paste

ApaCare Repair is highly enriched with medical hydroxyapatite. ApaCare Repair Intensive Repair is applied after brushing the teeth and simply applied with the finger or toothbrush. ApaCare Repair is particularly effective in combination with the ApaCare Repair dental splint.

The liquid enamel coats the teeth with a lasting protective layer that can be left on overnight, for example. The teeth are whitened, highly polished and impregnated to repel bacteria and plaque. Sensitivities are quickly and lastingly reduced, incipient caries, pores and roughness are repaired and the regression of whitespot discoloration is supported. ApaCare Repair contains no abrasives.

Tube of 30 ml

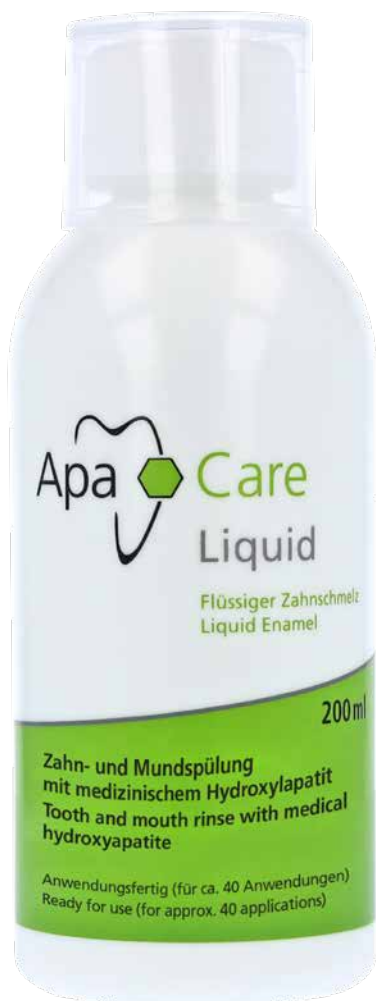
Art.-Nr. 1001620

ApaCare Repair dental splint (one-piece)

Art.-Nr. 1001129

ApaCare Liquid Tooth and mouth balm with liquid enamel

2 times daily, 20 s.



ApaCare Liquid

Tooth and Mouth Balm with Liquid Enamel

Tooth and mouth balm with medical hydroxyapatite. When rinsing, the hydroxyapatite minerals are deposited on the teeth, in interdental spaces, in cracks and defects. The teeth become pleasantly smooth and shiny. ApaCare Liquid supports the prevention of periodontitis and caries.

ApaCare Liquid with liquid tooth enamel contains gentle essential oils.

Bottle of 200 ml

Art.-Nr. 1001402

OraLactin

Probiotics

Pre- and Postbiotics

OraLactin

Pre- & postbiotic mouthwash

2 times daily, 20 s.

NEW



OraLactin Pre- & postbiotic mouthwash

Pleasantly mild, tasty mouth mouthwash with fluoride (250 ppm F⁻).

The prebiotic substrates promote the development of health-promoting oral bacteria.

Postbiotics (Lactobacillus plantarum Heal 19 - inactivated) and bioactive communication substances support the stabilisation, regulation and regeneration of a healthy oral flora.

OraLactin mouthwash contains potassium nitrate to promote nitrate-reducing and blood pressure-regulating bacteria.

In addition, L-arginine to protect against sensitivities.

The hyaluronic acid contained supports the moisture regulation of the oral mucosa, soothes inflammation and accelerates intraoral wound healing.

Bottle of 200 ml

Art.-Nr. 1001403

ApaCare Sonic Professional Sonic Toothbrush

Innovative sonic and 3D brush technology.



ApaCare Sonic

Professional Sonic Toothbrush.
Innovative sonic and 3D brush technology.

Rechargeable toothbrush with 35,000 vibrations/min.

- ✓ Highly effective cleaning, polishing and whitening of teeth, gums, implants, braces and dentures with 5 innovative programmes: **Clean / White / Polish / GumCare / Sensitive**
- ✓ Replaceable 3D sensitive brush (safe and gentle).
- ✓ Improves dental and oral health, helps prevent gingivitis.
- ✓ 30s interval timer, signals change of brushing area.
- ✓ 2 min intelligent timer function. Switches off automatically.
- ✓ Beautifully shaped handpiece, easy to clean.
- ✓ USB charger

Package of 1 piece. (Scope of delivery: 1x handpiece, 2x brush attachments with protective cover, 1x charging station with USB cable).

Art.-Nr. 1002020

3D Sensitive Brush Heads (gentle and safe)

Pack of 2 interchangeable brush heads.

Art.-Nr. 1002022

NEW Inter Polish Brushes (Mono brushes)

For the interdental spaces and for removing dental tartar in combination with ApaCare Polish.

Pack of 2 interchangeable brush heads.

Art.-Nr. 1002023

NEW Travel case

Practical travel case for the ApaCare Sonic Toothbrush. With two spare brush holders.

1x Sonic travel case without contents.

Art.-Nr. 1002021

ApaCare Gum

Anti-Caries Chewing Gum

2 to 3 times a day 2 chewing gums.



Sweetened
with **100%**
Xylitol.



ApaCare Gum Anti-Caries Chewing Gum

Anti-caries chewing gum with important enamel minerals.

The sugar-free ApaCare anti-caries chewing gums contain xylitol, a tasty, naturally occurring sugar substitute (also called birch sugar), which helps to reduce caries-causing bacteria in the oral cavity. Together with the enamel minerals calcium and phosphate contained in ApaCare, the remineralisation and repair of damaged enamel is sustainably promoted.

- ✓ Prevents tooth decay by up to 100%¹
- ✓ Can help repair damaged tooth enamel (initial caries)
- ✓ Supports a balanced oral flora, does not adhere

Art.-Nr. 1100001

- **Single pack** (blister of 12 dragées)
- **6-week cure pack** (24 blisters)

Recommendation:

Children 3 years and older: 3 x daily 1 ApaCare Gum chewing gums.¹

Adolescents (12 years and older) / Adults:

3 x daily 2 ApaCare Gum chewing gums.²

¹) If used regularly in sufficient quantity and in conjunction with good oral hygiene.

²) May have a laxative effect if consumed in excess.

OraLactin Sachets Probiotic

1 time daily after meal.



Oral Probiotic

Dental care cosmetic to support caries and periodontitis prophylaxis

For oral use, ideal as a 30-day "cure" in preparation for, during or after dental caries and periodontitis treatment. The tasty, refreshing powder protects against caries and periodontitis with its high-quality probiotic ingredients, restores the balance of healthy oral flora and strengthens the natural defence mechanisms in the mouth. OraLactin further protects against bad breath and supports the reduction of plaque and gingivitis.

Recommendation:

OraLactin is suitable for all age groups (from the age of 3). Dissolve contents on the tongue 1 time daily (or dissolve in a little cold water and rinse intensively).

Each sachet contains at least 1 billion living probiotic microorganisms from three different strains that can favourably influence the bacterial colonisation of the teeth, gums, tongue and oral mucosa.

Lactobacillus helveticus Rosell® -52 (R0052),
Lactobacillus rhamnosus Rosell® -11 (R0011),
Bifidobacterium longum Rosell® -175 (R0175)

30 Sachets (30 x 1g)

Art.-Nr. 1100020

OraLactin

Probiotics

Pre- and Postbiotics

OraLactin Chewing Pastilles Probiotic

1 time daily after meal.



Oral Probiotic

Food supplement with vitamin C and probiotic lactic acid bacteria.

Chewing pastilles for a natural oral flora.

For all those who prefer to suck dental and oral health. One pastille contains at least 1.25 billion living lactic acid bacteria.

Lactobacillus helveticus Rosell® -52 (R0052),
Lactobacillus rhamnosus Rosell® -11 (R0011),
Bifidobacterium longum Rosell® -175 (R0175).

In addition, each pastille contains 12 mg of vitamin C, which corresponds to 15 % of the recommended daily intake (nutrient reference values) for adults according to the Food Information Regulation. Vitamin C contributes to a normal function of the immune system.

Recommendation:

Let 1 chewing pastille melt in the mouth 1 time daily. Do not exceed this recommended daily intake.

30 chewing pastilles (30 x 1g)

Art.-Nr. 1100021

ApaCare Professional

Polishing paste for professional tooth cleaning:
SPT, PTC, periodontitis therapy, after fillings etc.



ApaCare Professional

One-phase polishing paste for professional tooth cleaning in the dental office based on medical hydroxyapatite; contains sodium fluoride.

Universal tooth cleaning and polishing paste with high cleaning power and innovative perlite cleaning particles. Initial RDA: 150, reduces during polishing. High PCR (Pellice Cleaning Ratio) of 130.

Discolourations and plaque are removed efficiently. The tooth surfaces feel particularly smooth and very pleasant for the patient after polishing. Cumdente ApaCare Professional is enriched with medical hydroxyapatite, which is deposited on the tooth surface during the polishing process and closes sensitive dentinal tubules. ApaCare Professional polishing paste contains sodium fluoride and does not contain preservatives.

Especially recommended after periodontal therapy as well as SPT and PTC.

Tube of 75 ml

Art.-Nr. 1000932

ApaCare Tooth Varnish

For sensitive tooth necks and for professional remineralisation.



ApaCare mineralising tooth varnish

For use on sensitive tooth necks and for remineralisation of initial caries and hypomineralisation (MIH).

Natural, mineralising dental varnish with 20 % medical hydroxyapatite (liquid tooth enamel), shellac-based, self-curing.

After curing, a durable, protective, biocompatible varnish layer is formed.

ApaCare Tooth Varnish (in dental office use)
Vial of 5 ml.

Art.-Nr. 1040100

ApaCare Tooth Varnish brush bottle (for home use)
Vial of 5 ml.

Art.-Nr. 1040200

ApaPearls Enamel Powder

Universal supra- and subgingival fine abrasive powder based on calcium carbonate particles and fine medical hydroxyapatite.



Apa Pearls

ApaPearls Blasting Powder

Removes biofilm, plaque and discolouration; seals and remineralises.

The new ApaPearls blasting powder consists of rounded calcium carbonate particles (Pearls) coated with fine medical hydroxyapatite (synthetic tooth enamel).

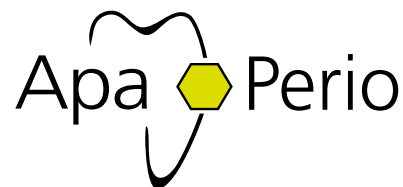
With a very small particle size of 45 µm, tooth and root surfaces can be gently cleaned and supplied with important minerals at the same time. Microdefects are sealed, sensitivities are reduced. Due to the porous structure of the enamel particles, they disintegrate when they hit the tooth and root surfaces and form a protective layer. Periodontal healing and regeneration are supported.

Bottle of 250 g

Art.-Nr. 1001417

ApaPerio Prophylaxis Powder

Highly efficient, gentle blasting powder for subgingival application / implant cleaning.



ApaPerio Blasting Powder

- low abrasiveness
- optimal particle size distribution
- high cleaning effect
- good polishing effect

ApaPerio is a newly developed, improved blasting powder based on tagatose (average particle size 15 µm) comparable to glycine, which can be used in the sub- and supragingival area for cleaning teeth, tooth roots and sensitive implant/abutment surfaces/dental restoration margins. ApaPerio has an excellent cleaning performance and improved polishing effect, which allows it to be used in a minimum amount of time. Sensitive tooth, root and implant surfaces as well as denture margins are optimally protected.

The special monosaccharide tagatose is excellently tolerated, non-hygroscopic and shows excellent spray behaviour. The powder does not cake in the blasting unit.

Tagatose has a pleasant sweet taste and, unlike glycine, does not have a sensitising effect.

Tagatose is not cariogenic and is also suitable for diabetics.

Bottle of 120 g

Art.-Nr. 1001405

OraLactin

Probiotics

Pre- and Postbiotics

OraLactin Professional Pre- & Postbiotic Gel



OraLactin Professional Microbiome Regeneration

For regeneration of the natural microbiome in gingival pockets, on the tongue and on all oral mucous membranes

- Apply after supra- and subgingival tooth or implant cleaning
- promotes the growth of healthy oral bacteria, inhibits pathogens and regulates a healthy oral microbiome
- supports anti-inflammatory action
- Allow to act briefly, spit out any excess

5 syringes (3 ml each)

Art.-Nr. 1001630

ApaCare Scientific studies

Remineralisation / Caries Repair

Charité University Hospital Berlin: ApaCare remineralises enamel and dentine better than amine fluoride toothpaste

Ref.: Tschoppe P1, Zandim DL, Martus P, Kielbassa AM: Enamel and dentine remineralization by nano-hydroxyapatite toothpastes. J Dent. 39, 430-437 (2011).

Study design:

In a study conducted at Charité University Hospital Berlin, toothpastes containing nano-hydroxyapatite were compared with an amine fluoride toothpaste. Demineralised bovine tooth specimens were deposited in artificial saliva (according to ISO 11609) for 2 and 5 weeks, and they were brushed twice daily with each toothpaste for 5 seconds (total contact time twice 120 s / d).

Results:

Under these conditions, both nano-hydroxyapatite (ApaCare Repair) and zinc-carbonate nano-hydroxyapatite showed a significantly higher mineralisation with regard to dentine, compared to the amine fluoride toothpaste.
For enamel, nano-hydroxyapatite (ApaCare Repair) shows significantly higher mineralisation compared to amine fluoride.

Hydroxyapatite suspensions speed up remineralisation (→ ApaCare Repair Intensive Repair)

Ref.: Okashi T, Kani T, Isozaki A, Nishida A, Shintani H, Tokumoto T, Ishizu E, Kuwahara Y, Kani, M: Remineralization of artificial caries lesions by Hydroxyapatite. I Dent Health 41, 214–223 (1991).

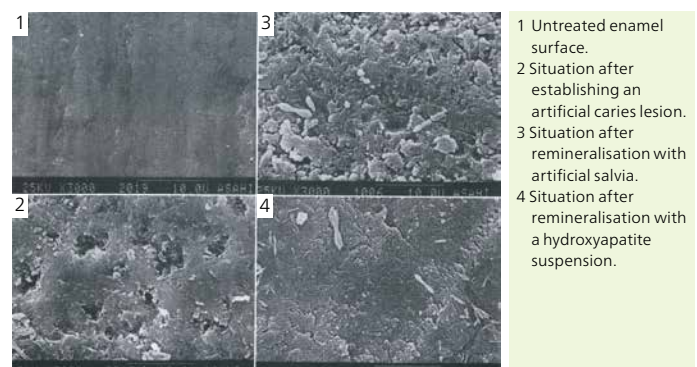
Study design:

Light microscope (polarized light microscopy), scanning electron microscope, x-ray (contact micro radiography) and microsensor study of artificial caries lesions on enamel before and after treatment with artificial saliva and a hydroxyapatite suspension.

Results:

Remineralisation of the enamel surface (A) and the subsurface areas (B) was increased by application of an aqueous hydroxyapatite suspension.

Scanning electron microscope analysis of the examined enamel samples



- 1 Untreated enamel surface.
- 2 Situation after establishing an artificial caries lesion.
- 3 Situation after remineralisation with artificial saliva.
- 4 Situation after remineralisation with a hydroxyapatite suspension.

ApaCare remineralizes more strongly and significantly reduces roughness compared to a fluoride toothpaste

Ref.: Mielczarek et.al, The effect of nano-hydroxyapatite toothpaste on enamel surface remineralization. An in vitro study, American Journal of Dentistry 27, 287-290 (2014).

Study design:

90 human teeth are embedded into acrylic and polished. They are divided into two test groups and one control group. The microhardness is determined by the Vickers method, while the surface roughness is determined by means of a profilometer. The samples are demineralised to simulate tooth decay. Then half of the sample is covered with a paint and treated with either the two toothpastes or a placebo in a 3-week cycle.

Results:

The study hints at the added advantages of nano hydroxyapatite when used as an additive in fluoride toothpaste. Compared to a standard fluoride toothpaste, ApaCare leads to a greater increase in microhardness and a statistically significant decrease in roughness. We can conclude from these results that there is an additive effect of nano hydroxyapatite when used with fluoride. These observations support the assumption that nano hydroxyapatite can be incorporated directly into a carious lesion.

Nano hydroxyapatite inhibits new caries (➔ ApaCare ApaCare Repair Intensive Repair, ApaCare Liquid)

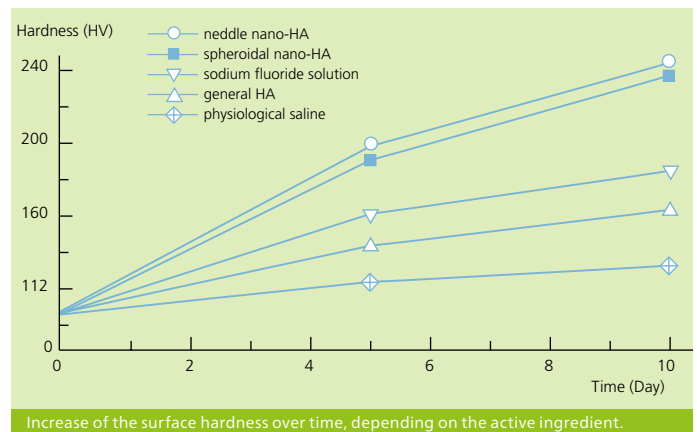
Ref.: Kuilong L, Xiangcai M, Jiuxing Z, Xingyi L, Xingyi L, Meiling Z: Inhibitory Effect of Synthetic Nano-Hydroxyapatite on Dental Caries. Key Engineering Materials 336–338, 1538–1541 (2007).

Study design:

Demineralised teeth were dipped in suspensions of needle-shaped and spherical nano hydroxyapatite, and the increase in hardness (Vickers hardness) was measured against physiological saline solution, fluoride solution, and a suspension of crystalline hydroxyapatite.

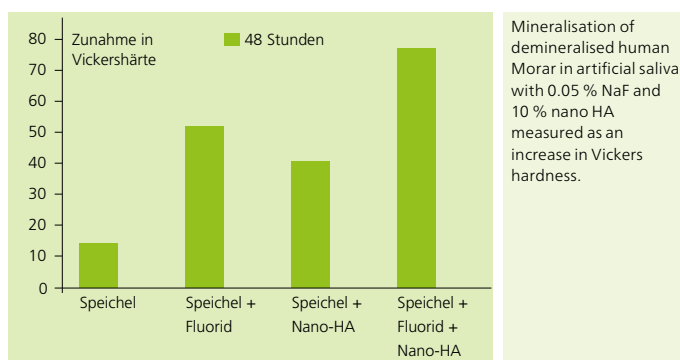
Results:

Nano hydroxyapatite causes strong remineralisation of affected dental enamel.



Combined Effects of Nano-Hydroxyapatite and NaF on Remineralisation of Early Caries Lesion (➔ ApaCare remineralising toothpaste)

Ref.: Kim MY, Kwon HK, Choi CH, Kim BI: Combined Effects of Nanohydroxyapatite and NaF on Remineralisation of Early Caries Lesions. Key Engineering Materials 330–332, 1347–1350 (2007).



Ref.: M. Y. Kim et. al., Key Engineering Materials 330–332, 1347–1350 (2007).

Study design:

It is known that fluorides in mouthwashes can significantly accelerate the mineralisation of the tooth substance. In contrast, nano hydroxyapatite acts directly on the tooth substance and leads to an increase in mineral intake. The aim of this study is to determine the extent to which mineralisation effects are comparable to this and whether a combination of fluoride and hydroxyapatite can lead to an additional effect.

Results:

Both fluorides (combined with saliva) and nano hydroxyapatite (also without saliva) lead to a measurable increase in surface hardness, thereby causing remineralisation. The combination of fluoride with nano hydroxyapatite leads to a clear, synergistic increase in mineral intake.

	Group	N	Baseline (48 hours demin)		Remineralization (24 hours)		Remineralization (48 hours)	
			Mean	SD	Mean	SD	Mean	SD
D.W.	D.W.	6	36.3 ± 6.9	a	42.0 ± 2.7	a	49.9 ± 4.5	a
	1% nano-HA	6	35.4 ± 5.8	a	47.7 ± 8.0	a	50.8 ± 6.27	a
	5% nano-HA	6	35.9 ± 7.3	a	63.3 ± 5.7	b	68.7 ± 4.0	b
	10% nano-HA	6	36.3 ± 6.7	a	71.1 ± 7.9	bc	76.5 ± 6.7	bc
NaF	NaF	6	36.1 ± 7.1	a		c	88.3 ± 5.3	c
	1% nano-HA	6	34.9 ± 5.8	a	76.7 ± 7.7	c	90.3 ± 11.25	c
	5% nano-HA	6	35.7 ± 8.2	a	79.0 ± 6.1	c	92.0 ± 6.1	c
	10% nano-HA	6	36.3 ± 6.6	a	100.3 ± 13.1	d	113.4 ± 9.3	d

Values are reported as the Mean ± Standard deviation. D.W. = Distilled Water. Concentrations of all NaF are 0.05%. a, b, c, d The same letter indicates no significant difference at $\alpha=0.05$ according to the Duncan's studentized range test.

Table 1. VHN values of the nano-HA using the simple immersion model

Reduction of caries

Hydroxyapatite tooth paste reduces children's caries incidence

(➔ ApaCare Remineralising toothpaste)

Ref.: Kani T, Kani M, Isozaki A, Shintani H, Ohashi T, Tokumoto T: Effect to apatite-containing dentifrices on dental caries in school children. J Dent Health 39, 104-109 (1989).

Study design:

Randomised study with 181 children (92 boys, 89 girls) from different Japanese schools over a period of 3 years. After lunch the children brushed their teeth under supervision with a toothpaste containing 5% hydroxyapatite and a control group with a paste without hydroxyapatite. Yearly controls of the DMFT index were diagnosed as well as the caries incidence on newly erupted teeth.

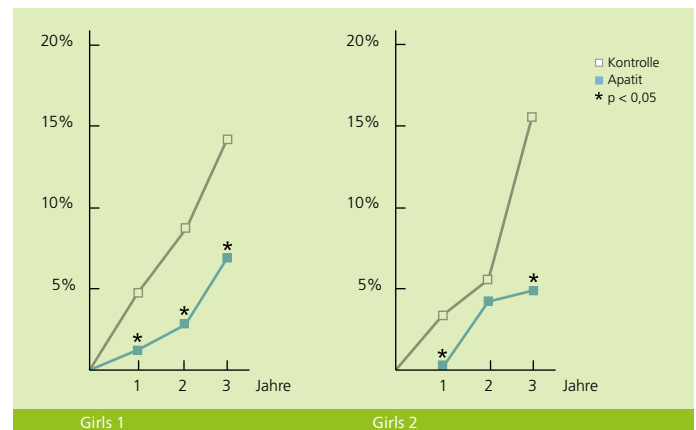
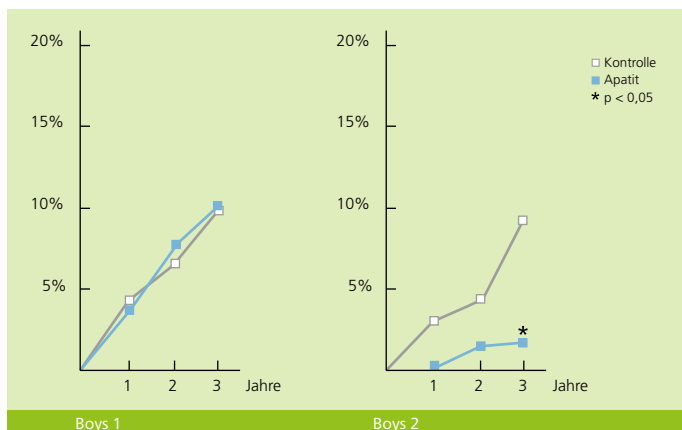
Results:

- The DMFT index was significantly deeper in the apatite group.
- The incidence for caries in newly erupted teeth was significantly lower compared to control.

Incidence of Caries (New DMFT rate)

1. Representing all healthy teeth at the start of the study.
2. Concerning all newly erupted teeth during study.

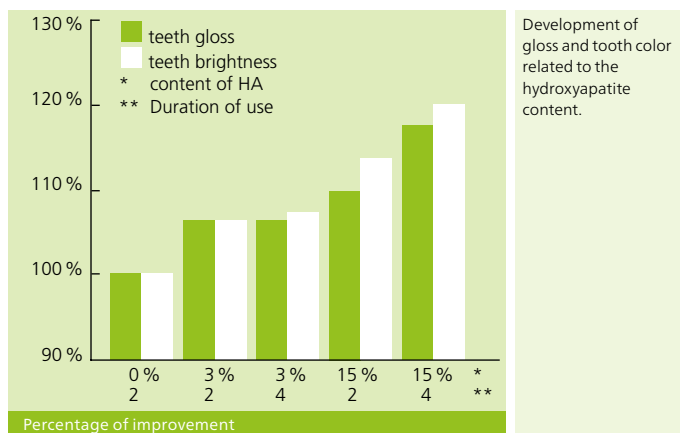
New-DMFT rate



Brightening the teeth and higher gloss

Hydroxyapatite in toothpaste leads to brightening and higher gloss (➔ ApaCare Toothpaste, ApaCare Repair Intensive Repair)

Ref.: Niwa M, Sato T, Li W, Aoki H: Polishing and Whitening Properties of Toothpaste, J Mater Sci, Mater Med 12, 277–81 (2001).



Study design 1 – Interactions with polishing properties:

The study was done with extracted teeth which were treated with toothpastes containing different amounts of hydroxyapatite (15 %, 3 % and 0 %) and special pastes (20 and 60 %). The pastes were mixed with water 1:1 dilution and the teeth were polished every 15 minutes over a 5 hour period.

Study design 2 – Influence on brightness and gloss:

12 Volunteers between 20 and 50 who had never used hydroxyapatite toothpaste before brushed their teeth for two weeks with a toothpaste without hydroxyapatite. The brightness and gloss were measured both before and after the two weeks.

This group was then separated in two groups, the first used a toothpaste containing 3 % and the other the same paste but with 15 %. After 2, 4 and 6 weeks the development of brightness and gloss was measured.

Results:

- The variation of the hydroxyapatite content did not influence the polishing properties.
- Toothpastes containing hydroxyapatite lead to increased gloss and brighter teeth.
- Interactions between polishing properties and brightening properties could not be found.

Sealing enamel

Hydroxyapatite seals bleached enamel (➔ ApaCare Repair Intensive Repair)

Ref.: Kawamata H, Nishio M, Fujita K, Ishizaki T, Hayman R, Ikemi T: Posterpresentation 82nd General Session & Exhibition of the IADR / March 2004.

Study design:

Cleaned samples of enamel from freshly extracted human teeth were sealed with nail varnish leaving a window and were treated with a bleaching cream containing 35 % hydrogen peroxide. After the bleaching a part of the samples were polished with a hydroxyapatite containing suspension for 20 seconds.

The surfaces were examined and compared with a scanning electron microscope with a colour penetration test.

Results:

- The „cleaned“ samples showed some signs from toothbrushing.
- The bleached surfaces were rougher than the nonbleached.
- The bleached samples treated with hydroxyapatite were smoother than without.
- The bleached as well as the hydroxyapatite treated samples showed some colour penetration whereas the penetration was deeper in the non hydroxyapatite treated group.

Delayed plaque formation and smoother surfaces

Hydroxyapatite suspensions lead to smoother teeth surfaces and reduce bacterial plaque formation (→ ApaCare Professional, ApaCare Polish)

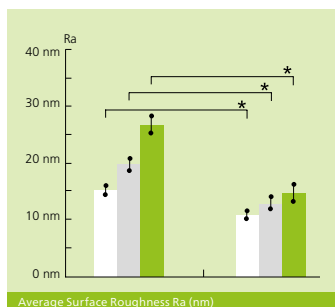
Ref: Nishio M, Kawamata H, Fujita K, Ishizaki T, Hayman R, Ikemi T: A new enamel restoring agent for use after PMTC. Posterpresentation 82nd General Session & Exhibition of the IADR / March 2004.

Study design:

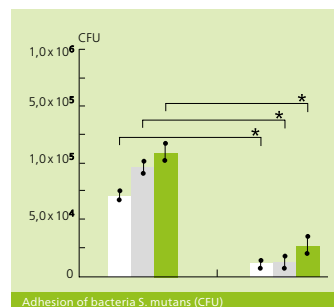
Under standardised conditions samples of enamel from freshly extracted human teeth were flat polished and treated with 3 polishing pastes with increasing RDA numbers (120/170/250) followed by remineralisation with a hydroxyapatite containing tooth cream. Examination of the surface was done by SEM (scanning electron microscope) for colonisation with streptococcus mutans bacteria.

Results:

- Roughness of the sample increased with the increased RDA numbers.
- Treatment with a hydroxyapatite paste formed a surface roughness lower than before polishing.
- After polishing, the speed of colonisation with SM germs increased significantly, and could be reduced successfully with the hydroxyapatite suspension.



Average surface roughness (Ra) of enamel samples after manual polishing with polishing pastes with different RDA numbers (PMTc) and with a hydroxyapatite suspension (PRTC-5F).



Colonisation of enamel samples with S. mutans bacteria after manual polishing with polishing pastes with different RDA numbers (PMTc) and with a hydroxyapatite suspension (PRTC-5F).

OraLactin Scientific studies

Adjunct to mechanical therapy

Probiotic mouthwash as an adjunct to mechanical therapy in the treatment of stage II periodontitis: A randomized controlled clinical trial

Ref: Ranjith A, Nazimudeen B, Baiju KV
International Journal of Dental Hygiene, March 2022

Abstract

Objectives:

Dysbiosis of oral microbiome plays an integral role in periodontitis. Bacterial balance is an important aspect of host defence. Mechanical debridement alone is insufficient to manage many cases. Probiotics are a novel adjunctive strategy, but the beneficial effects of probiotics in the management of moderate periodontitis have not been evaluated before. The objective of the present study was to assess the efficacy of probiotic mouth rinse of *Lactobacillus acidophilus*, *Lactobacillus rhamnosus*, *Bifidobacterium longum* and *Saccharomyces boulardii* as an adjunct to mechanical debridement in grade II periodontitis. The study also evaluated change in salivary pH and IgA in both groups.

Methods

The study was registered under Clinical Trial Registry of India (CTRI NO: CTRI/2019/10/021630). 60 patients with stage II periodontitis were randomized into probiotic and placebo group (n = 30 in each group) after mechanical debridement. Patients were instructed to use mouth rinse twice a day for 30 days. Periodontal parameters (Plaque index, Gingival index, Pocket depth and clinical attachment level) were recorded at baseline, after 1 and 3 months. Salivary pH was tested using a pH metre and IgA using enzyme linked immunosorbent assay.

Results:

Significant improvement in all clinical parameters were noted in both the groups after 1 and 3 months. Intergroup comparison revealed significant difference in gingival index, probing depth and clinical attachment gain. Significant elevation of salivary IgA and pH was noticed in probiotic group in contrast to placebo group.

Conclusion:

The present study supports the use of probiotic mouthwash as an adjunct to mechanical therapy for the management of stage II periodontitis.

Effectiveness against streptococcus mutans

Effectiveness of probiotic, chlorhexidine and fluoride mouthwash against streptococcus mutans – randomized, single-blind, in vivo study

Ref: Jothika M., Vanajassun P. P., Someshwar B.
Journal of International Society of Preventive and Community Dentistry 5, 44–48 (2015).

Abstract

Aim:

To determine the short-term efficiency of probiotic, chlorhexidine, and fluoride mouthwashes on plaque *Streptococcus mutans* level at four periodic intervals.

Materials and Methods:

This was a single-blind, randomized control study in which each subject was tested with only one mouthwash regimen. Fifty-two healthy qualified adult patients were selected randomly for the study and were divided into the following groups: group 1 - 10 ml of distilled water, group 2 - 10 ml of 0.2% chlorhexidine mouth-wash, group 3 - 10 ml of 500 ppm F/400 ml sodium fluoride mouth-wash, and group 4 - 10 ml of probiotic mouthwash. Plaque samples were collected from the buccal surface of premolars and molars in the maxillary quadrant. Sampling procedure was carried out by a single examiner after 7 days, 14 days, and 30 days, respectively, after the use of the mouthwash. All the samples were subjected to microbiological analysis and statistically analyzed with one-way analysis of variance (ANOVA) and posthoc test.

Results:

One-way ANOVA comparison among groups 2, 3 and 4 showed no statistical significance, whereas group 1 showed statistically significant difference when compared with groups 2, 3 and 4 at 7th, 14th and 30th day.

Conclusion:

Chlorhexidine, sodium fluoride, and probiotic mouthwashes reduce plaque *S. mutans* levels. Probiotic mouthwash is effective and equivalent to chlorhexidine and sodium fluoride mouthwashes. Thus, probiotic mouthwash can also be considered as an effective oral hygiene regimen.

Probiotic mouthrinse on plaque and gingivitis

To evaluate the effect of probiotic mouthrinse on plaque and gingivitis among 15-16 year old school children of Mysore City, India – randomized controlled trial

Ref.: Purunaik S., Thippeswamy H. M., Chavan S. S. Global Journal of Medical Research 14 (2014).

Abstract

Introduction:

Probiotic concept of using beneficial bacteria has recently gained popularity in medical research. New methods such as probiotics has given a new dimension for both general and oral health.

Objectives

This study aimed to investigate the efficacy of a Probiotic mouthrinse in reducing plaque and gingivitis among schoolchildren aged 15-16 years.

Methods:

This was a randomized, controlled, double blind clinical trial. 90 subjects granting their parental informed consent and willing to participate completed the trial. The sample was randomized by computer generated table into Group A – 0.2% of chlorhexidine mouthrinse, Group B – Probiotic mouthrinse, Group C – Placebo mouthrinse. Products were masked as regards color. Intervention protocol consisted in supervised rinsing of 20 mL/day for 60 seconds twice daily for 14 days. Plaque and gingival indexes were used to assess the efficacy variables, measured at baseline and after intervention by calibrated examiner. Data were statistically analysed.

Results:

It was found that both Probiotic and chlorhexidine mouthrinses were able to significantly reduce plaque and gingival levels after 14 days ($p < 0.05$).

Conclusion:

probiotic mouthrinse showed significant reduction in plaque score and gingival level.

Effect of probiotic mouthrinse on dental plaque

Effect of probiotic mouthrinse on dental plaque accumulation: A randomized controlled trial

Ref.: Thakkar P. K., Imranulla M., Kumar P. G. N., Prashant G. M., Sakeenabi B., Sushanth V. H. Dentistry and Medical Research, 1 (2013).

Abstract

Introduction:

Dental caries and inflammatory periodontal diseases result from the accumulation of many different bacteria that form dental plaque, a naturally acquired bacterial biofilm that develops on the teeth. Periodontal diseases are one of the most prevalent oral diseases affecting more than 50% of Indian community.

Materials and Method:

A two months randomised controlled trial was conducted among ninety school children aged between 13 and 15 years, from a hostel located in Davangere city. The 90 study subjects who fulfilled inclusion and exclusion criteria were randomly divided into 3 groups namely Placebo, Chlorhexidine and Probiotic groups. Plaque scores were recorded at baseline (0 day), on 15th day (after 14 days of intervention) and 3 weeks (after discontinuation of intervention). Statistical analysis was done using one way ANOVA and paired 't' test and P value less than 0.05 was considered statistically significant.

Results:

There was no statistically significant difference between groups at baseline. On 15th day and after 3 weeks, plaque scores were significantly higher in placebo group compared to probiotic group. On 15th day and after 3 weeks, plaque scores were higher in chlorhexidine group compared to probiotic group but difference was not statistically significant.

Conclusion:

Probiotic mouth rinse was more effective for inhibition of dental plaque accumulation after 14 days of intervention and also after 3 weeks of discontinuation of intervention.

Reduction of mutans streptococcus

A comparative evaluation of probiotics on salivary mutans streptococci counts in Indian children

Ref: Jindal G., Pandey R. K., Agarwal J., Singh M. European Archives of Paediatric Dentistry 12 (2011).

Abstract

Objectives:

Probiotics and their effect on oral health have been a focus of numerous trails in recent times. No documented trails have been reported from developing countries such as India with its focus on probiotic use, especially in the paediatric population. The aim of this study is to evaluate the effect of probiotics on salivary mutans streptococci (MS) counts of children using the two commercially and widely available preparations and to explore their anti-caries potential.

Study Design:

A placebo controlled study was undertaken with 3 parallel arms comprising a total of 150 healthy children (7-14 years). The subjects were randomly divided into the groups (each comprising 50 children): Group A - placebo powder, Group B - a freeze dried powdered combination of Lactobacillus rhamnosus and Bifidobacterium species, Group C - a freeze dried powdered preparation of Bacillus coagulans. The subjects were instructed to mix the preparation in 20 ml of water and to follow a swish and swallow method for 14 days. Mutans streptococci colony counts per ml of saliva were performed on Mitis-Salivarius Bacitracin agar collected on the first day and 14 days post-intervention.

Results:

A statistically significant reduction ($p < 0.001$) in salivary mutans streptococci counts was recorded in both groups B and C after 14 days of probiotic ingestion.

Conclusion:

A cost-effective probiotic such as Bacillus coagulans might be a subject for further research for prevention of caries in children.

Effectiveness against streptococcus mutans

Clinical efficacy of probiotic mouthwash in the treatment of gingivitis patients in himachal population

Ref: Jindal V., Mahajan N., Goel A., Kaur R., Mahajan A., Malhotra P. T. Journal Of ICDRO 9, 41-44 (2017).

Abstract

This study was conducted to analyze the changes in gingival health in patients treated with probiotic containing mouth rinse. Thirty volunteers between 20 and 35 years were randomly divided into two groups. While one group was given placebo, the other was given probiotic mouth rinse for 14 days. The volunteers were instructed to swish the mouth rinse for 60 s twice a day. Intergroup comparison of the plaque scores (baseline 14 days) showed there was statistically significant difference in the mean plaque scores between the placebo group (0.14) ($P \leq 0.05$) and the test group (0.42) ($P \leq 0.05$) and a statistically significant difference in the mean gingival scores from baseline 14 days between the placebo group (0.9) ($P \leq 0.05$) and the test group (0.38) with ($P \leq 0.05$). Despite the short period for which the probiotics mouthwash was used by the patients, substantial improvement in gingival health of patients was observed in the study.

Probiotic mouthrinse compared to CHX

Comparative evaluation of the efficacy of probiotic, herbal and chlorhexidine mouthwash on gingival health: A randomized clinical trial

Ref.:Deshmukh M. A., Dodamani A. S., Karibasappa G., Khairnar M. R., Naik R. G., Jadhav H. C. Journal of Clinical and Diagnostic Research 11, 13-16 (2017).

Abstract

Introduction:

Due to inherent limitations of Chlorhexidine (CHX), search for an effective and potentially safe anti-plaque agent has led to emergence of alternative products.

Aim: The present study evaluated the comparative efficacy of probiotic, herbal and CHX mouthwashes on gingival health of healthy individuals.

Materials and Methods:

The present study was randomized parallel group controlled trial. A group of 45 healthy subjects in the age group of 18-21 years received complete supragingival scaling at baseline and study variables viz., Oral Hygiene Index – Simplified (OHI-S), Plaque Index (PI) and Gingival Index (GI) were recorded. Subjects were then randomly divided into three groups (15 in each group) and were randomly intervened with three different mouthwashes i.e., HiOra mouthwash, CHX mouthwash and Probiotic mouthwash. Variables were again recorded on the seventh and 14th day after use of mouthwashes and data obtained was subjected to statistical analysis.

Results:

There was no significant difference in the efficacy of CHX, HiOra regular and probiotic mouthwashes on plaque accumulation, gingival health and oral hygiene status.

Conclusion:

Herbal and probiotic mouthwashes can prove to be effective alternatives to CHX with minimal side effects.

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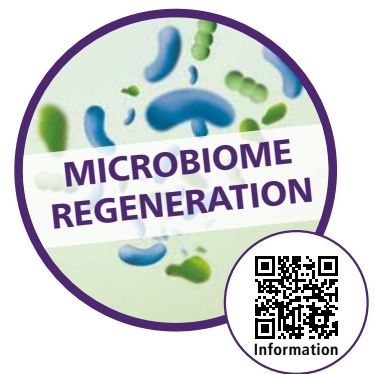
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