

professional intervention is crucial, based also on retrospective observational studies (Sanz et al., 2015).

Intervention: Supragingival dental biofilm control (by the patient)

Are oral hygiene instructions important? How should they be performed?

Expert consensus-based recommendation (4.3)
We recommend repeated individually tailored instructions in mechanical oral hygiene, including interdental cleaning, in order to control inflammation and avoid potential damage for patients in periodontal SPC.
Supporting literature (Slot et al., 2020)
Grade of recommendation Grade A – ↑↑
Strength of consensus Unanimous consensus (0% of the group abstained due to potential CoI)

Background

Intervention. All surfaces exposed to the formation of intraoral biofilm have to be cleaned mechanically. Some of them will not be reached by toothbrushes even under optimized conditions. Interproximal cleaning, therefore, is essential in order to maintain interproximal gingival health, in particular for secondary prevention. It may be achieved using different devices, primarily interdental brushes (IDB, which are not single-tufted brushes), rubber/elastomeric cleaning sticks, wood sticks, oral irrigators and floss. However, all devices have the potential of side-effects and their use has to be monitored not only with respect to efficacy but also with respect to early signs of trauma (e.g. onset of non-carious cervical lesions).

Available evidence. Due to the scarcity of studies that met the inclusion criteria for each of the oral hygiene devices and the low certainty of the resultant evidence, no strong “evidence based” conclusion can be drawn concerning any specific oral hygiene device for patient self-care in periodontal maintenance. The evidence that emerged from the search provided 16 papers reporting on 13 CCTs/RCTs, which included 17 comparisons. The differences of powered versus manual toothbrushes were evaluated in 5 comparisons, an interdental device was used as an adjunct to toothbrushing in 5 comparisons and 7 comparisons evaluated two different interdental devices. In total, the studies evaluated 607 patients.

Risk of bias. Study quality assessment identified 1 study at low risk of bias and 10 studies at high risk and two of an unclear risk of bias.

Consistency. The summary of findings table shows that the body of evidence is rather consistent.

Clinical relevance and effect size. Variable, depending on the comparisons established.

Balance of benefit and harm. The adverse events were not evaluated. There is a moderate risk of trauma due to the use of interdental cleaning devices, when not used properly. Therefore, individual instruction and adoption to the individual situation by professionals are crucial. In any case the benefits outweigh the risks by far.

Economic considerations. A manual toothbrush is less expensive than a power toothbrush.

Interdental brushes and oral irrigators are more expensive than dental floss, wood sticks and rubber and silicon interdental bristle cleaners.

Patient preferences. No data on patient preference arrives from the current review.

Applicability. The guideline can be applied to patients attending a periodontal maintenance program. There is an abundance of mechanical oral hygiene products available

How should we choose an appropriate design of manual, powered toothbrushes and interdental cleaning devices?

Expert consensus-based recommendation (4.4)

We recommend taking into account patients' needs and preferences when choosing a toothbrush design, and when choosing an interdental brush design.

Supporting literature (Slot et al., 2020)

Grade of recommendation Grade A – ↑↑

Strength of consensus Strong consensus (6.9% of the group abstained due to potential CoI)

Background

Intervention. See previous section.

Available evidence. Scarcity or a lack of evidence does not necessarily imply that products may not be effective. Dental care professionals in clinical practice should tailor the best oral hygiene devices and methods according to patients' skill levels and preferences because patient acceptance is crucial for sustained long-term use (Steenackers, Vijt, Leroy, De Vree, & De Boever, 2001).

Clinical evidence indicates that the efficacy of interdental brushes depends on the relation between the size of the brush and the size and shape of the interdental space. Interdental spaces underlay a

high variety regarding size and morphology and interdental brushes have to be selected specific to the individual interdental space. The number of devices has to be limited to a certain number with respect to the ability of the patient to cope with this diversity. To reach this goals compromises have to be found to achieve the individual optimum.

Should we recommend a powered or a manual toothbrush?

Evidence-based recommendation (4.5)
The use of a powered toothbrush may be considered as an alternative to manual tooth brushing for periodontal maintenance patients.
<i>Supporting literature</i> (Slot et al., 2020)
<i>Quality of evidence:</i> 5 RCTs (216 patients) with high risk of bias
<i>Grade of recommendation</i> Grade 0 - ↔
<i>Strength of consensus</i> Strong consensus (22.5% of the group abstained due to potential CoI)

Background

Intervention. See previous sections.

Available evidence. Based on the evidence from the systematic reviews underlying this guideline, toothbrushing is effective in reducing levels of dental plaque (Van der Weijden & Slot, 2015).

Toothbrushes vary in size, design, and the length, hardness, and arrangement of the bristles. Some manufacturers have claimed superiority in modifications such as bristle placement, length, and stiffness. Powered toothbrushes with various mechanical motions and features are available. The evidence that emerged from the search provided 8 papers describing 5 CCT/RCT comparisons. In total the studies evaluated 216 patients. The quality of the evidence for the statement was assessed according to GRADE.

Risk of bias. Study quality assessment showed that all studies at high risk of bias.

Consistency. The summary of findings table shows that the body of evidence is rather consistent.

Clinical relevance and effect size. No differences could be found. The statistically established clinical evidence was calculated for one study and showed no clinically relevant effect size.

Balance of benefit and harm. The adverse events were not evaluated.

Economic considerations. A manual toothbrush is less expensive than a power toothbrush.

Patient preferences. No data on patient preference arrives from the current review.

Applicability. The guideline can be applied to patients attending a periodontal maintenance program. There is an abundance of toothbrushes available.

How should interdental cleaning be performed?

Evidence-based recommendation (4.6)
If anatomically possible, we recommend that tooth brushing should be supplemented by the use of interdental brushes.
<i>Supporting literature</i> (Slot et al., 2020)
<i>Quality of evidence:</i> 7 comparisons from 4 RCTs (290 patients) with low to unclear risk of bias
<i>Grade of recommendation</i> Grade A – ↑↑
<i>Strength of consensus</i> Unanimous consensus (5.4% of the group abstained due to potential CoI)

Background

Intervention. See previous sections.

Available evidence. The underlying systematic review (Slot et al., 2020) found evidence for a significantly better cleaning effect of interdental cleaning devices as adjuncts to tooth brushing alone, and a significantly better cleaning effect of interdental brushes than of flossing. Both the descriptive analysis and the NMA indicate that IDBs are the first choice for periodontal maintenance patients. Seven comparisons from 4 RCTs (290 patients) were identified.

Risk of bias. Low to unclear.

Consistency. High.

Clinical relevance and effect size. Considered as clinically relevant.

Balance of benefit and harm. There is a moderate risk of trauma due to the use of interdental brushes, when not used properly. Therefore, individual instruction and adaptation to the individual situation by professionals are crucial. In any case the benefits outweigh the risks by far.

Economic considerations. Not considered.

Patient preferences. There is clinical evidence supporting that patients with open interdental spaces prefer the use of interdental brushes over the use of dental floss.

Applicability. The guideline can be applied since appropriate quantities and varieties of interdental brushes are available on the European market.

What is the value of dental flossing for interdental cleaning in periodontal maintenance patients?

Evidence-based recommendation (4.7)
We do not suggest flossing as the first choice for interdental cleaning in periodontal maintenance patients.
Supporting literature (Slot et al., 2020)
Quality of evidence 6 comparisons from 4 RCTs (162 patients) with unclear to high risk of bias
Grade of recommendation Grade B – ↓
Strength of consensus Consensus (5.6% of the group abstained due to potential CoI)

Background

Intervention. See previous sections.

Available evidence. The underlying systematic review (Slot et al., 2020) found evidence for a significantly better cleaning effect of interdental brushes than of flossing. Both the descriptive analysis and the NMA indicate that IDBs are the first choice for periodontal maintenance patients.

Six comparisons from 4 RCTs (162 patients) were identified.

Risk of bias. High to unclear.

Consistency. High.

Clinical relevance and effect size. Considered as clinically relevant.

Balance of benefit and harm. There is a moderate risk of trauma due to the use of interdental brushes or flossing, when not used properly. Therefore, individual instruction and adaptation to the individual situation by professionals are crucial.

Economic considerations. Not considered.

Patient preferences. There is clinical evidence supporting that patients with open interdental spaces prefer the use of interdental brushes over the use of dental floss.

Applicability. The guideline can be applied since appropriate quantities and varieties of interdental brushes are available on the European market.

What is the value of other interdental devices for interdental cleaning in periodontal maintenance patients?

Expert consensus-based recommendation (4.8)

In interdental areas not reachable by toothbrushes, we **suggest** supplementing tooth brushing with the use of other interdental cleaning devices in periodontal maintenance patients.

Supporting literature (Slot et al., 2020)

Grade of recommendation Grade B – ↑

Strength of consensus Consensus (4.1% of the group abstained due to potential CoI)

Background

Intervention. Other interdental cleaning devices include rubber/elastomeric cleaning sticks, wood sticks, an oral irrigator, or dental floss. Although there are very small and fine interdental brushes available on the market, it must be realized that not all interdental spaces are readily accessible with interdental brushes.

Available evidence. The underlying systematic review (Slot et al., 2020) identified three RCTs assessing the use of an adjunctive oral irrigator. Two out of three studies demonstrated a significant effect of the irrigator on measures of gingival inflammation, but not on plaque scores.

Rubber/elastomeric cleaning sticks are a relatively newly developed instruments with an increasing market share. There is only little evidence available on gingivitis patients that these devices are effective in reducing inflammation with no difference to interdental brushes (Abouassi et al., 2014; Hennequin-Hoenderdos, van der Sluijs, van der Weijden, & Slot, 2018).

Risk of bias. High.

Consistency. Not evaluated.

Clinical relevance and effect size. Considered as moderate.

Balance of benefit and harm. Up to now no adverse effects have been reported

Economic considerations. Not considered.

Patient preferences. Rubber/elastomeric cleaning sticks are highly accepted by patients as are oral irrigators

Applicability. The guideline can be applied since appropriate quantities and varieties of interdental cleaning devices are available on the European market.

What additional strategies in motivation are useful?

Expert consensus-based recommendation (4.9)

We recommend utilizing the “First Step of Therapy” section of this guideline.

Supporting literature (Carra et al., 2020)

Strength of consensus Strong consensus (0% of the group abstained due to potential CoI)

Background

Background information and the discussion of additional factors can be found in the section dealing with patients in active periodontal therapy (first step of therapy).

Intervention: Adjunctive therapies for gingival inflammation

What is the value of adjunctive antiseptics/chemotherapeutic agents for the management of gingival inflammation?

Expert consensus-based recommendation (4.10)

The basis of the management of gingival inflammation is self-performed mechanical removal of biofilm. Adjunctive measures, including antiseptic, **may be considered** in specific cases, as part of a personalized treatment approach.

Supporting literature (Figuro, Roldan, et al., 2019)

Grade of recommendation Grade 0 - ↔

Strength of consensus Consensus (11.8% of the group abstained due to potential CoI)

Background

Intervention. In order to control gingival inflammation during periodontal maintenance, the adjunctive use of some agents has been proposed. These agents are mainly antiseptics agents, and can be delivered as dentifrices, as mouth rinses or both.

Available evidence. A systematic review (Figuro, Roldan, et al., 2019) was conducted, aiming to identify RCTs of, at least, 6 months of follow up, in treated periodontitis patients or in gingivitis patients, in which antiseptics, prebiotics, probiotics, anti-inflammatory agents, antioxidant micronutrients were used as adjuncts to mechanical supragingival biofilm control. For antiseptic agents, the impact in the primary outcome, changes in gingival indices (analysed in 52 studies with 72 comparisons, including 5376 test and 3693 control patients), was statistically significant ($p < 0.001$) and the additional reduction, expressed as standardized weighted mean difference (S-WMD), was -1.3 (95% CI [-1.489; -1.047]), with significant heterogeneity ($p < 0.001$). In treated

periodontitis patients, analysed in 13 studies with 16 comparisons, including 1125 test and 838 control patients, the impact was statistically significant ($p < 0.001$) and the additional reduction, expressed as S-WMD, was -1.564 (95% CI [-2.197; -0.931]), with significant heterogeneity ($p < 0.001$). No conclusions could be made for other, non-antiseptic, agents, since only one study was identified. Longer-term studies in treated periodontitis patients are also relevant to assess periodontal stability. In the systematic review (Figuro, Roldan, et al., 2019), four long-term studies (1.5-3 years) were identified, and no significant impact was observed for gingival indices. However, a 3-year study demonstrated significant benefits in terms of frequency of deep periodontal pockets and in the number of sites that exhibited additional attachment and bone loss (Rosling et al., 1997).

Risk of bias. The great majority of these studies were industry-funded and there was a high risk of bias both within and across studies.

Consistency. Highly consistent across studies, 72 comparisons were included in the primary analysis.

Clinical relevance and effect size. Considered as clinically relevant.

Balance of benefit and harm. At least 31 studies assessed adverse events and PROMs and staining was the only relevant finding. Recent studies are suggesting the mouth rinses with chlorhexidine may increase blood pressure.

Economic considerations. The issue has not been addressed. For dentifrices, it may not be relevant, since a dentifrice has to be used combined with mechanical tooth brushing; for mouth rinse, the extra cost should be taken into consideration. It should also be noted that the evidence base contains studies using products that may no longer be available.

Patient preferences. Both dentifrices and mouth rinses are widely accepted by the population.

Applicability. Demonstrated with studies testing large groups from the general population. The adjunctive use of some agents has been proposed in those subjects who are not able to effectively remove supragingival biofilms by the sole use of mechanical procedures, but there is no direct evidence to support this statement.

Should adjunctive chemotherapeutics be recommended for patients in supportive periodontal care?

Evidence-based recommendation/statement (4.11)

- A. The use of adjunctive antiseptics **may be considered** in periodontitis patients in supportive periodontal care in helping to control gingival inflammation, in specific cases.
- B. We **do not know** if other adjunctive agents (such as probiotics, prebiotics, anti-inflammatory agents, antioxidant micronutrients) are effective in controlling gingival inflammation in patients in supportive periodontal care.

Supporting literature (Figuro, Roldan, et al., 2019)

Quality of evidence 73 RCTs with, at least, 6-month follow up

A. Grade of recommendation Grade 0 - ↔

There is a need to define the term of use (e.g. 6 months?)

Adverse effects should be taken into account.

B. Grade of recommendation Grade 0 – Statement: unclear, additional research needed

Strength of consensus Consensus (6.9% of the group abstained due to potential CoI)

Background

Intervention. In order to control gingival inflammation during supportive periodontal care, the adjunctive use of some agents has been proposed. These agents are mainly antiseptics but some other agents, such as probiotics, prebiotics, anti-inflammatory agents and antioxidant micronutrients, can be found in the literature. These products are mainly delivered as dentifrices or mouth rinses.

Available evidence. See also previous section. The adjunctive use of antiseptic agents has been proposed in those subjects who are not able to effectively remove supragingival biofilms by the sole use of mechanical procedures. Actually, the recommendations of the XI European Workshop in Periodontology (2014) highlighted that (Chapple et al., 2015): “For the treatment of gingivitis and where improvements in plaque control are required, adjunctive use of anti-plaque chemical agents may be considered. In this scenario, mouth rinses may offer greater efficacy but require an additional action to the mechanical oral hygiene regime”. Recommending adjunctive antiseptics, to mechanical supragingival biofilm control, in a specific patient group, instead in the general population, is plausible, but there is no supporting evidence to defend it. Most studies assessing the adjunctive benefits of antiseptic formulations have been performed in general populations, with statistically significant benefits in plaque and gingival indices (Serrano, Escribano, Roldan, Martin, & Herrera, 2015). Therefore, different factors may be considered when deciding whether to recommend the use of an adjunctive agent to control gingival inflammation in patients in

supportive periodontal care. It is noted that all patients need to use a toothbrush with a fluoride toothpaste. However, in those subjects who are not able to effectively control supragingival biofilms and/or gingival inflammation by the sole use of mechanical procedures, a decision is then made whether or not to utilise a toothpaste and/or a mouth rinse that contains a specific active agent (in addition to fluoride). This decision would follow a personalized approach to patient care, and would need to consider two aspects:

- Local factors: consider levels of gingival inflammation related to plaque level, accessibility for cleaning, anatomical factors, etc.
- General factors: consider systemic factors, general health status, frailty, limited dexterity..., some of which may be more relevant in elderly patients.

The most frequent delivery format for antiseptic agents are dentifrices and mouth rinses, or even they can be delivered in both, simultaneously. The obvious benefit of dentifrice delivery is that no other delivery format is needed, and a dentifrice is going to be used anyway. Mouth rinse delivery offers a better distribution around the mouth (Serrano et al., 2015) and better pharmacokinetic properties (Cummins & Creeth, 1992). Some evidence suggests that the adjunctive use of mouth rinses may provide better outcomes than that of dentifrices. However, the evidence is conflictive and significant differences were only observed for the secondary outcome (Figuro, Roldan, et al., 2019). In addition, direct comparisons between similar agents/formulations, delivered either as dentifrice or mouth rinse, are not available.

The decision to select a specific toothpaste or a mouth rinse should be also based on a combination of factors:

- Patient preferences: including cost, taste...
- Unwanted effects: staining, burning sensation during use...
- Potential negative impacts on beneficial aspects of the oral microbiome highlighted in recent evidence (e.g. impact on nitric oxide pathway)
- Depending on the specific agent already selected, a decision must be made regarding their frequency and duration of use.

Which antiseptic is the most effective in dentifrices?

Evidence-based recommendation (4.12)

If an antiseptic dentifrice formulation is going to be adjunctively used, we **suggest** products

containing chlorhexidine, triclosan-copolymer and stannous fluoride-sodium hexametaphosphate for the control of gingival inflammation, in periodontitis patients in supportive periodontal care.
Supporting literature (Escribano et al., 2016; Figuero, Herrera, et al., 2019; Figuero, Roldan, et al., 2019; Serrano et al., 2015)
Quality of evidence 29 RCTs with, at least, 6-month follow up
Grade of recommendation Grade B - ↑
Strength of consensus Consensus (17.4% of the group abstained due to potential CoI)

Background

Intervention. In order to control gingival inflammation during supportive periodontal care, the adjunctive use of some agents has been proposed. These products can be delivered as dentifrices.

Available evidence. In the systematic review (Figuero, Roldan, et al., 2019), the adjunctive use of 14 different dentifrice formulations were evaluated for controlling gingival inflammation, with a clear heterogeneity in the number of available studies for each product. The magnitude of effect in gingival indices changes, in formulations with more than one study available, was headed by stannous fluoride with sodium hexametaphosphate (n=2, S-WMD=-1.503), followed by triclosan and copolymer (n=18, S-WMD=-1.313), and chlorhexidine (n=2, S-WMD=-1.278, not statistically significant), although comparing the formulations was not a specific objective of the review. Effects on plaque levels were best with chlorhexidine at high concentrations (n=3, S-WMD=-1.512) and triclosan and copolymer (n=23, S-WMD=-1.164). In a previously published network meta-analyses, chlorhexidine and triclosan and copolymer were the most effective agents for plaque reduction, but no clear differences were observed for gingival index control (Escribano et al., 2016; Figuero, Herrera, et al., 2019).

Additional factors have been discussed in the overall evaluation of adjunctive agents.

Which antiseptic is the most effective in mouth rinses?

Evidence-based recommendation (4.13)
If an antiseptic mouth rinse formulation is going to be adjunctively used, we suggest products containing chlorhexidine, essential oils and cetylpyridinium chloride for the control of gingival inflammation, in periodontitis patients in supportive periodontal care.

Supporting literature (Escribano et al., 2016; Figuero, Herrera, et al., 2019; Figuero, Roldan, et al., 2019; Serrano et al., 2015)
Quality of evidence CoE class I – 24 RCTs with, at least, 6-month follow up
Grade of recommendation Grade B - ↑
Strength of consensus Consensus (17.9% of the group abstained due to potential CoI)

Background

Intervention. In order to control gingival inflammation during supportive periodontal care, the adjunctive use of some agents has been proposed. These products can be delivered as mouth rinses.

Available evidence. In the systematic review (Figuero, Roldan, et al., 2019), the adjunctive use of 11 different mouth rinse formulations were evaluated for controlling gingival inflammation, with a clear heterogeneity in the number of available studies for each product. The magnitude of effect in gingival indices changes, in formulations with more than one study available, ranged from S-WMD=-2.248 (essential oils, n=10), to S-WMD=-1.499 (cetylpyridinium chloride, n=5), and to S-WMD=-1.144 (chlorhexidine at high concentrations, n=5), although comparing the formulations was not a specific objective of the review. In a previously published network meta-analyses (a statistical technique which allows the integration of data from direct and indirect comparisons, namely treatments compared among trials through a common comparator treatment), chlorhexidine and essential oil mouth rinses were ranked as the most efficacious agents in terms of changes in plaque and gingival indices (Escribano et al., 2016; Figuero, Herrera, et al., 2019). Additional factors have been discussed in the overall evaluation of adjunctive agents.

Intervention: Supragingival dental biofilm control (professional)

What is the value of professional mechanical plaque removal (PMPR) as part of SPC?

Expert consensus-based recommendation (4.14)

We **suggest** performing routine professional mechanical plaque removal (PMPR) to limit the rate of tooth loss and provide periodontal stability/improvement, as part of a supportive periodontal care program.

Supporting literature (Trombelli et al., 2015)

Grade of recommendation Grade B - ↑
Strength of consensus Strong consensus (1.4% of the group abstained due to potential CoI)

Background

Intervention. Professional mechanical plaque removal (PMPR) administered on a routine basis (i.e., at specific, pre-determined intervals) as an integral part of supportive periodontal care has been shown to result in low rates of tooth loss and limited attachment level changes in both the short and long-term in patients treated for periodontitis (Heasman, McCracken, & Steen, 2002; Trombelli et al., 2015). In most of the studies, PMPR in SPC was often combined with other procedures (e.g., reinforcement of oral hygiene instruction, additional active treatment at sites showing disease recurrence), thus making it difficult to isolate information on the magnitude of the mere effect of PMPR on tooth survival and stability of periodontal parameters (Trombelli et al., 2015).

Available evidence. This issue has not been directly addressed in the systematic reviews prepared for this Workshop; however, ample evidence is available to support this statement. It has been demonstrated that professional mechanical plaque removal (PMPR), performed at defined intervals, together with the other interventions of supportive periodontal care may result in lower rates of tooth loss and attachment level changes. In a systematic review (Trombelli et al., 2015), presented at the 2014 European Workshop, a weighted mean yearly rate of tooth loss of 0.15 and 0.09 for follow-up of 5 years or 12–14 years, respectively, was reported; the correspondent figures for mean clinical attachment loss lower than 1 mm at follow-up ranging from 5 to 12 years.

Information from this review, and also from other systematic reviews, collectively support that patients with a history of treated periodontitis can maintain their dentition with limited variations in periodontal parameters when regularly complying with a SPC regimen based on routine PMPR (Sanz et al., 2015).

Risk of bias. The methodological quality was assessed with a specifically designed scale for the evaluation of non-randomized observational studies, with a quality level ranging from 3 to 7, in a 9-point scale, with 9 representing the highest quality (lowest risk of bias).

Consistency. Although no meta-analysis was possible, the primary outcome (tooth loss) was reported in 12 studies, showing no or low incidence. Clinical attachment level (CAL) changes were reported in 10 studies, which consistently showed limited modifications in CAL, frequently as a slight CAL loss.

Clinical relevance and effect size. A weighted mean yearly rate of tooth loss of 0.15 for follow-up of 5 years, and 0.09 for follow-up of 12–14 years, can be considered as relevant.

Balance of benefit and harm. PROMs were not reported in the included studies.

Economic considerations. Ethics and legal aspects are not relevant for this intervention; economic aspects have not been frequently addressed. In a study in a private practice in Norway, it was demonstrated that regular maintenance was associated with less tooth loss than not regular maintenance, with follow ups of 16-26 years; the yearly cost of maintaining a tooth was estimated in 20.2 euro (Fardal & Grytten, 2014).

Patient preferences. Demonstrated with compliance in long-term studies.

Applicability. Demonstrated with studies testing large groups from the general population.

Should alternative methods be used for professional mechanical plaque removal (PMPR) in supportive periodontal care?

Evidence-based recommendation (4.15)
We suggest not to replace conventional professional mechanical plaque removal (PMPR) with the use of alternative methods (Er:YAG laser treatment) in supportive periodontal care.
<i>Supporting literature</i> (Trombelli et al., 2020)
<i>Quality of evidence</i> 1 RCT
<i>Grade of recommendation</i> Grade B – ↓
<i>Strength of consensus</i> Strong consensus (1.4% of the group abstained due to potential CoI)

Background

Intervention. The systematic review (Trombelli et al., 2015) was retrieving available RCTs on any given alternative intervention to conventional PMPR (the latter including supragingival and/or subgingival removal of plaque, calculus and debris performed with manual and/or powered instruments) in the maintenance of periodontitis patients with a follow-up of at least 1 year following the first administration of intervention/control treatment.

Available evidence. In the systematic review (Trombelli et al., 2020), only one RCT was identified, assessing Er:YAG laser as an alternative method to conventional PMPR. No statistically significant differences were found (Krohn-Dale, Boe, Enersen, & Leknes, 2012).

Economic considerations. Cost-benefit or cost-effective analyses are missing and may be very relevant when considering this specific treatment option. The same is true for PROMs.

Should adjunctive methods be used for professional mechanical plaque removal (PMPR) in supportive periodontal care?

Evidence-based recommendation (4.16)
We suggest not to use adjunctive methods (sub-antimicrobial dose doxycycline, photodynamic therapy) to professional mechanical plaque removal (PMPR) in supportive periodontal care.
<i>Supporting literature</i> (Trombelli et al., 2020)
<i>Quality of evidence</i> 2 RCTs
<i>Grade of recommendation</i> Grade B – ↓
<i>Strength of consensus</i> Strong consensus (2.7% of the group abstained due to potential CoI)

Background

Intervention. The systematic review (Trombelli et al., 2015) was retrieving available RCTs on any given additional intervention to conventional PMPR (the latter including supragingival and/or subgingival removal of plaque, calculus and debris performed with manual and/or powered instruments) in the maintenance of periodontitis patients with a follow-up of at least 1 year following the first administration of intervention/control treatment.

Available evidence. In the systematic review (Trombelli et al., 2020), two RCTs were identified, one testing sub-antimicrobial dose (20 mg b.i.d.) of doxycycline (Reinhardt et al., 2007), another evaluating photodynamic therapy (PDT) with a 0.01% methylene blue as photosensitizer and a diode laser (wavelength of 660 nm) (Carvalho et al., 2015). No statistically significant differences were observed in any study, although CAL gain was more relevant with adjunctive PDT (1.54 mm) in comparison with conventional PMPR alone (0.96 mm). The systematic review presented at this Workshop provided information, based on meta-analysis, of the possible effects of the alternative/adjunctive methods mentioned, with no significant difference for the primary outcome (CAL changes), after 12-month follow up, amounting -0.233 mm (95% CI [-1.065; 0.598; p=0.351), favouring the control groups.

Economic considerations. For the adjunctive use of SDD, adverse effects and cost-benefit ratio have to be considered. For the adjunctive use of PDT, a previous systematic review (Xue et al., 2017), which included 11 RCTs, found better results for PDT, but only after 3 months, with 0.13 mm of additional impact in PPD reduction. No increase in adverse events were reported. Cost-

benefit or cost-effective analyses are missing and may be very relevant when considering this specific treatment option.

Intervention: Risk factor control

What is the value of risk factor control in SPC?

Expert consensus-based recommendation (4.17)
We recommend risk factor control interventions in periodontitis patients in supportive periodontal care.
<i>Supporting literature</i> (Ramseier et al., 2020)
<i>Grade of recommendation</i> Grade A – ↑↑
<i>Strength of consensus</i> Strong consensus (0% of the group abstained due to potential CoI)

Background

Intervention. Periodontitis patients benefit from additional risk factor control interventions to improve the maintenance of periodontal stability. Interventions include patient education which be staged and adapted according to individual needs ranging from single brief advice to patient referral for advanced counselling and pharmacotherapy. Smoking and diabetes are two of the main risk factors for periodontitis, and they are currently included in the grading of periodontitis (Papapanou et al., 2018). Controlling these risk factors, therefore, would be critical for treatment response and for long-term stability. In addition, other relevant factors, part a healthy life-style counselling, are considered, including dietary counselling, physical exercise or weight loss. These interventions, together with those for tobacco cessation and diabetes control, are not direct responsibility of oral health professionals, and they may want to refer the patients to other health professionals. However, the direct/indirect role of oral health professionals in these interventions should be emphasized.

Available evidence. In the systematic review (Ramseier et al., 2020), the authors have identified 13 relevant guidelines for interventions for smoking cessation, diabetes control, physical exercise (activity), change of diet, carbohydrate (dietary sugar reduction) and weight loss. In addition, 25 clinical studies were found that assess the impact of (some of) these interventions in gingivitis/periodontitis patients. However, only some of them included patients in supportive periodontal care.

Additional factors have been discussed in the evaluation of risk factor control in patients in active periodontal therapy.

What is the role of tobacco smoking cessation interventions in SPC?

Evidence-based recommendation (4.18)
We recommend tobacco smoking cessation interventions to be implemented in periodontitis patients in supportive periodontal care.
Supporting literature (Ramseier et al., 2020)
Quality of evidence 6 prospective studies with, at least, 6-month follow up
Grade of recommendation Grade A – ↑↑
Strength of consensus Strong consensus (0% of the group abstained due to potential CoI)

Background

Background information and the discussion of additional factors can be found in the section dealing with patients in active periodontal therapy.

What is the role of promotion of diabetes control interventions in SPC?

Expert consensus-based recommendation (4.19)
We suggest promotion of diabetes control interventions in patients in maintenance therapy.
Supporting literature (Ramseier et al., 2020)
Grade of recommendation Grade B – ↑
Strength of consensus Consensus (0% of the group abstained due to potential CoI)

Background

Intervention. Periodontitis patients may benefit from the promotion of diabetes control interventions to improve the maintenance of periodontal stability. The promotion may consist of patient education including brief dietary counselling and possibly patient referral for glycaemic control.

Available evidence. In the systematic review (Ramseier et al., 2020), none of the identified studies was performed in patients in supportive periodontal care. Indirect evidence (see section on active periodontal therapy), suggest that diabetes control interventions ought to be implemented in supportive periodontal care patients.

Background information and the discussion of additional factors can be found in the section dealing with patients in active periodontal therapy.

What is the role of physical exercise (activity), dietary counselling, or lifestyle modifications aiming at weight loss in SPC?

Evidence-based recommendation/Statement (4.20)
We do not know if physical exercise (activity), dietary counselling, or lifestyle modifications aiming at weight loss, are relevant in supportive periodontal care.
Supporting literature (Ramseier et al., 2020)
Grade of recommendation Grade 0 – Statement: unclear, additional research needed
Strength of consensus Strong consensus (0% of the group abstained due to potential CoI)

Background

Intervention. Overall evidence from the medical literature suggests that the promotion of physical exercise (activity) interventions may improve both treatment and long-term management of non-communicable diseases. In periodontitis patients, the promotion may consist of patient education specifically target to the patients' age and general health.

Available evidence. In the systematic review (Ramseier et al., 2020), none of the identified studies was performed in patients in supportive periodontal care.

Background information and the discussion of additional factors can be found in the section dealing with patients in active periodontal therapy.

Accepted Article

References

Table 1a. Guideline panel.

Scientific society/organisation	Delegate(s)
European Federation of Periodontology	Organising Committee, Working Group Chairs (in alphabetic order): Tord Berglundh, Iain Chapple, David Herrera, Søren Jepsen, Moritz Kepschull, Mariano Sanz, Anton Sculean, Maurizio Tonetti
	Methodologists: Ina Kopp, Paul Brocklehurst, Jan Wennström
	Clinical Experts: Anne Merete Aass, Mario Aimetti, Bahar Eren Kuru, Georgios Belibasakis, Juan Blanco, Nagihan Bostanci, Darko Bozic, Philippe Bouchard, Nurcan Buduneli, Francesco Cairo, Elena Calciolari, Maria Clotilde Carra, Pierpaolo Cortellini, Jan Cosyn, Francesco D’Aiuto, Bettina Dannewitz, Monique Danser, Korkud Demirel, Jan Derks, Massimo de Sanctis, Thomas Dietrich, Christof Dörfer, Henrik Dommisch, Nikos Donos, Peter Eickholz, Elena Figuera, William Giannobile, Moshe Goldstein, Filippo Graziani, Bruno Loos, Ian Needleman, Thomas Kocher, Eija Kononen, Nicklaus Lang, France Lambert, Paulo Melo, Rodrigo López, Pernilla Lundberg, Eli Machtei, Phoebus Madianos, Conchita Martín, Paula Matesanz, Jörg Meyle, Ana Molina, Eduardo Montero, José Nart, Luigi Nibali, Panos Papapanou, Andrea Pilloni, David Polak, Ioannis Polyzois, Philip Preshaw, Marc Quirynen, Christoph Ramseier, Stefan Renvert, Giovanni Salvi, Ignacio Sanz-Sánchez, Lior Shapira, Dagmar Else Slot, Andreas Stavropoulos, Xavier Struillou, Jean Suvan, Wim Teughels, Cristiano Tomasi, Leonardo Trombelli, Fridus van der Weijden, Clemens Walter, Nicola West, Gernot Wimmer
Scientific Societies	
European Society for Endodontology	Lise Lotte Kirkevang