Oral hygiene

Oral hygiene is a set of measures to prevent the development of Oral cavity diseases such as dental caries, gingivitis, periodontitis and to cure or stop diseases that have already developed. The most important thing is prevention, which aims to:

- prevent damage to the hard tissues of the teeth, i.e. prevent the development of Dental caries;
- prevent inflammation of periodontal tissues (gingivitis, periodontitis);
- maintain the result of the therapy on both hard and soft dental tissues.

Types of oral hygiene

There are two types of oral hygiene - professional and individual:

- **Professional oral hygiene** - performed by a dental hygienist;
- **individual oral hygiene** - personal oral hygiene performed by each of us during the day.

Both are closely linked, one is dependent on the other. Today we have a range of aids on the market from different manufacturers to help us achieve perfect oral health. One of the main tasks of the dental hygienist is to help select the appropriate aids with a targeted focus and with regard to the oral condition and to train in their correct use.

Oral hygiene aids and appliances

Mechanical means

Manual Toothbrushes

They are an essential tool for oral hygiene. Replacing the toothbrush is recommended after 3 months of use, a poorly chosen toothbrush has a reduced cleaning ability and can lead to periodontal damage. The principles for toothbrush design are:

- length of the functional part (head) 25 mm - adults, 15 mm - children;
- number of adult fibers 1600, recommended length 11 mm (today span 10-12 mm), arranged in 40 bundles in 3-4 rows;
- holes in the brush body spaced 2 mm apart;
- fiber diameter 0.15-0.28 mm;
- different hardness of the brush (the smaller the diameter, the softer);
- at the same time, principally plastic fibres - most nylon (strong and elastic for a longer period of time), the ends should be rounded;
- the handle of the brush should form a straight line with the head.

Innovations are: colour indicator fading after a certain period of use, double-length fibres, different arrangements of fibres, handles with one or more bends, handles with adjustable bending,...

Electric Toothbrushes

- sonic or oscillating;
- interchangeable, different sized and shaped heads;
- sonic are more suitable for their principle of operation, which is based on the action of the energy of the agitated suspension of water, toothpaste and saliva;
- do not have higher efficiency compared to manual ones.
- *Indications*: advantageous for handicapped patients, less skilled persons, people with low caries and healthy periodontal disease.

Single-strand (solo, single) toothbrush

- on the head 1 bundle of different length, soft, rounded fibres;
- can completely replace the classic toothbrush, each tooth can be treated individually and therefore the cleaning is very precise;
- Suitable for cleaning distal surfaces of the last teeth, loose interdental surfaces, significantly exposed dental cusps and furcations, fixed orthodontic appliances, orthodontic anomalies and the interstices of prosthetic bridges.

Dental floss

Dental Floss

- made of nylon or polytetrafluoroethylene;
- waxed - recommended for beginners, it passes better between crowded teeth;
- unwaxed - recommended for more experienced, higher wiping ability;

- recommended to use daily before bedtime after brushing your teeth, during the day to remove food debris from between the teeth;
- either in a package (for 1 use, cut about 45 cm) or cut in length for 1 use. Also as filament stretched in a holder - flossers, flosspicks;
- *Application technique*: "spiral" or "loop".
- *Indication*: cleaning of interdental spaces, recommended for patients with narrow interdental spaces.
- *Contraindications*: acute gingivitis, relative - lack of manual dexterity, improper use leading to gingival injury, time consuming.

Dental floss in holder

Interdental brushes

- removal of plaque in wide interdental spaces, furcations, orthodontic appliances;
- by shape: cylindrical and conical;
- by core: metal or nylon coated (implant care);
- according to the number of working surfaces: single-sided or double-sided;
- according to the material of the handle: metal or plastic.
- *Indications*: removal of plaque from open interdental spaces, furcations, orthodontic appliances.
- *Contraindications*: interdental space filled with papilla, insufficient manual dexterity of the patient.

Dental flossing

Dental irrigators

- mouthwash, which helps remove food debris, does not remove plaque.
- *Indication*: hygiene aid especially in teeth treated with fixed bridges or fixed orthodontic appliance.
- *Contraindications*: danger of bacteremia.

Tongue scrapers

- on its own or as part of a toothbrush;
- used to remove plaque from the surface of the tongue;
- in normal cases, it is not necessary to use a scraper as the coating is physiological.

interdental toothbrush

Chemical agents

The chemical requirements are:

- increase the resistance of hard dental tissues;
- prevent plaque formation;
- dispose of already formed plaque;
- facilitate mechanical plaque removal;
- reduce the harmfulness of plaque;
- may not have unwanted side effects.

Roztoky

Chlorhexidine - digluconate

(designation CX or CHX)

- the most effective antiseptic against plaque, the only substance capable of replacing mechanical brushing;
- high affinity for the cell walls of microorganisms, depending on the concentration used, it is bacteriostatic or bactericidal;
- in 0.2% or 0.12% concentration for mouth rinses;
  - weaker concentration twice a day - prevents plaque formation, dissolves newly formed plaque, reduction of mature plaque;
  - stronger concentration 2 times a day - almost completely suppresses plaque formation.
- *Side effects*: with prolonged use - stains teeth and back of tongue brown, causes taste disturbances, persistent bitter taste sensation, sometimes painful desquamation of gingiva.
- *Indication*: short-term solution of 0.2% or 0.12% when it is impossible to clean teeth (immobile patient, condition after stoma surgery, ulcerative gingivitis, increased caries).
- *Contraindications*: absolute - long-term use, relative - side effects.

Toothpastes

It serves to facilitate mechanical plaque removal, a carrier of therapeutic agents.

Its components are:

- abrasives 15-55% (calcium carbonate and phosphate, aluminium and its compounds, sodium chloride, methacrylates,...);

- facultative ingredients (fluorides, minerals, metal ions, plant extracts, essential oils, enzymes, humectants, tensides, non-cariogenic sweeteners, antimicrobials (antiseptics, chlorhexidine, triclosan, sanguinarine, herbal extracts, vitamin A), antiphlogistics, astringency,...);
- Cosmetic toothpastes contain 1000-1500 ppm fluoride, while therapeutic toothpastes contain 1800-2500 ppm fluoride.

Dental powders

- similar composition to toothpastes (usually without optional additives);
- they exceed the abrasive effect of the traps by 30-80 times, therefore they are not recommended.

Gels

- application with a toothbrush;
- contains fluoride or chlorhexidine.

Mouthwash

Mouthwashes contain medicines or other substances depending on the purpose of use. They are of different composition:

- antimicrobial (quaternary ammonium compounds, phenolic derivatives,...);
- fluoride (fluoride in concentrations of 0.44-0.5%);
- astringent (metal and plant astringency);
- deodorants (usually contain a combination of antimicrobials and deodorants);
- cosmetic (contain cleaning agents, deodorizing ingredients and flavor).

Hygiene requirements for dental hygiene products

The requirements for dental hygiene products derive from general product safety requirements aimed at preventing harm to the consumer under normal or reasonably foreseeable conditions of use *(e.g. the design of cordless electric toothbrushes must avoid the risk of electric shock during connection of the charging adapter).* From a practical point of view, however, the safety of *mouthwashes* and *toothpastes*, or powders, gels, etc., is a much more important issue.

Mouthwashes and toothpastes are substances or mixtures of substances intended to come into contact with the teeth and oral mucous membranes for the purpose of cleaning, perfuming, changing the appearance, protecting or maintaining the condition of the teeth and oral mucous membranes and thus fully meet the definition of *cosmetic product*. The safety requirement for cosmetic products relates in particular to the possible toxicological profile of the chemicals from which the product is made.

> Every cosmetic product must undergo a safety assessment before it is placed on the market, and manufacturers and distributors are obliged to keep the information dossier on this assessment for 10 years after the last batch of cosmetic product is placed on the market. Cosmetic products, including mouthwashes and toothpastes, must not contain substances which are intended for therapeutic purposes only (unless they are explicitly therapeutic preparations) or highly toxic substances. The same prohibition also applies to substances that have carcinogenic or mutagenic properties or are characterised by toxic effects in relation to reproduction (so-called CMR substances). The use of nanomaterials must ensure a high level of protection of human health unless there is sufficient scientific information on the full safety of such material. A similar principle also applies to the material used to construct other plastic devices such as toothbrushes, dental floss, etc., as contact with saliva may, under certain circumstances, lead to the release of certain components into the oral cavity and thus to unwanted exposure of humans to non-safe chemicals.
> The availability of **consumer information is important:'** Consumer information is provided on the packaging of the product and is based on the mandatory safety assessment of the product. The packaging must include, inter alia, information on the manufacturer or distributor in order to obtain further toxicological information, in particular in the event of serious and very serious adverse reactions, the composition of the product, the date of minimum durability, the expiry date from the first opening of the packaging of the product. It is also prohibited to use texts, symbols or other signs which attribute to the preparations properties or functions other than those which they actually have. Reasonable caution is advised when purchasing low-quality products and aids from unscrupulous sellers and also, for example, when purchasing through suspicious websites [1]

Teeth cleaning techniques

Requirements: maximum efficiency and easy to learn:

- a total of 6 proven methods of tooth cleaning - they differ in their effect on the periodontium → when indicating whether the periodontium is healthy or diseased

Have a system - for example:

- "right-handers" start at the top right, proceed systematically along the dental arch and end at the bottom right, "left-handers" start at the top left and end at the bottom left;
- clean the buccal (vestibular) surfaces first, then the oral side;
- do not neglect the distal surfaces of the last teeth;
- at the end sometimes recommended to clean the surface of the tongue.

Healthy periodontium

The Fone Method (Fones Circular Method)

- from the buccal (vestibular) side, both dental arches are cleaned simultaneously in a circular motion;
- on the oral side, with the mouth open, clean first the upper and then the lower dental arches with appropriately reduced circular movements;
- occlusal plates are cleaned by horizontal movements.
- *Indications*: children, patients preferring a simple and easy to learn method.
- *Contraindications*: relative risk of wedge defects.

Vertical Combined Method

("roll and sweep" method, "red to white", wiping technique)

- applying the brush fibers at a 45-30° angle to the long axis of the tooth on the attached gingiva;
- sliding to occlusion (incision) while rotating the long axis of the brush (+30 to -30);
- applying little pressure, repeat the motion 5-6 times for each segment covered by the brush head;
- the head of the toothbrush is moved by 1 tooth and the procedure is repeated;
- oral side - same procedure;
- occlude the platform by horizontal movements.
- *Indication*: teeth with anatomically normal gingiva.
- *Contraindications*: loss of tissues in the interdental space, too strongly developed margo gingivae.

Modified Stillman method

- applying the brush fibers at a 45° angle to the attached gingiva;
- performing small vibratory movements, vertically across the free and further along the tooth surface;
- occlude the platform by horizontal movements.
- *Indication*: healthy (or diseased) periodontal disease.
- *Contraindications*: none.

Diseased periodontium

These are "massage methods" that provide a gingival massage in addition to cleaning.

The Charters Method

- applying the brush fibers at a 45° angle to the occlusion, moving them toward the gingiva;
- fibers get between the teeth without hurting the gingiva;
- light pressure is applied to make small vibrating movements;
- on the oral side, each interdental space must be cleaned individually;
- clean each segment with 2-3 movements, take a short break and repeat the whole procedure in the same place;
- occlude the platform by horizontal movements.
- *Indications*: periodontitis, including the postoperative period.
- *Contraindications*: considerable time consuming.

Intrasulcular method according to Bass

- the brush filaments are applied at a 45° angle to the tooth surface, the filaments press flat against the buccal surfaces of the teeth, penetrate the gingival sulcus, and reach the interdental spaces;
- light pressure small vibrating movements 10 times for each segment;
- on the oral side for lateral teeth the same procedure is followed, for frontal teeth the long axis of the toothbrush is oriented vertically;
- occlude the platform by horizontal movements.
- *Indication*: periodontitis.
- *Contraindications*: difficulty, time demanding.

Circular Cleaning Method

- a combination of horizontal movements with some elements of the previous method, instead of stationary vibrations, small rings of 2-4 cm in diameter are described by the brush head under slight pressure in the axis of the fibres.
- *Indication*: periodontitis.
- *Contraindications*: difficulty and time requirements.

Links

Related articles

- Dental plaque

- Electric toothbrush
- Teeth cleaning
- Dental hygiene
- Hygiene and prevention in dentistry
- Primary prevention in dentistry
- Toothpastes
- Prevention of dental caries
- Teeth cleaning techniques

References

1. The official board of the Ministry of Health of the Czech Republic publishes dangerous products, including various cosmetic products, not including toothpaste.

External links

- Denticio - Hygiena a prevence v zubním lékařství (http://denticioclinic.cz/?p=140)

Source

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- prepared questions from lectures