Recommended Use of Fluoride Toothpaste by Four Japanese Dental Academic Societies

January 1st, 2023

The Japanese Society for Oral Health
Japanese Society of Pediatric Dentistry
The Japanese Society of Conservative Dentistry
Japanese Society of Gerodontology

Dental caries in Japan remains a problematical and persistent disease. Success in combating caries in children's teeth is offset by the prevalence of caries in adults: one in three adults has untreated caries, and the number of elderly suffering from the disease, especially root caries, is increasing worryingly[1].

The best tool in the fight to prevent caries is fluoride, the safety and efficacy of which has been tested and confirmed over more than 75 years, and which is widely used in toothpastes. Over the last few years, research, nationally and internationally, has opened the possibility of new and practical applications of the use of fluoride, in the clinic, as well as in toothpastes and daily settings.

To keep up with the best research, the four leading Japanese dental academic societies specializing in caries prevention and treatment have jointly summarized the best recommendations for use of fluoride toothpaste throughout life in daily Japan.

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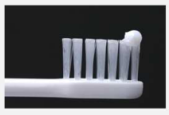
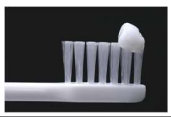
Age	How much to use (Photo shows a toothbrush of approx. 2 cm [2])	Fluoride density	Usage rules
From tooth eruption to age 2	A grain of rice （Approx.1-2mm） 	**1000 ppmF** （900-1000 ppmF in typical Japanese toothpaste)	・Brush teeth twice a day, including before bedtime. ・Use a very small amount of 1000 ppmF toothpaste. After brushing, a tissue may be used gently to wipe off remainig toothpaste ・Keep toothpaste out of the reach of children. ・Get professional advice on tooth brushing.
Age 3～5	Green pea （Approx.5mm） 	**1000 ppmF** （900-1000 ppmF in typical Japanese toothpaste)	・Brush teeth twice a day, including before bedtime. ・After brushing, lightly spit out toothpaste. If necessary, rinse, but only once with a small amount of water. ・If the child cannot put the proper amount on the tooth-brush, the parent or guardian should do it.
Age 6～ Adult・ Elderly	Whole of brush （Approx.1.5cm~2cm ） 	**1500 ppmF** （1400-1500 ppmF in typical Japanese toothpaste)	・Brush teeth twice a day, including before bedtime. ・After brushing, lightly spit out toothpaste. If necessary, rinse only once with a small amount of water. ・Patients with natural teeth should use fluoride toothpaste, even if they also have titanium dental materials.

＊When deciduous teeth begin to erupt, begin practicing oral care using gauze and cotton. When children become older, parents can help them by introducing toothbrushes.
＊Take extreme care that children do not accidentally eat the entire tube of toothpaste or swallow large quantities.
＊For adults in need of root surface caries prevention, 5000 ppmF toothpaste has been shown to inhibit caries. Such concentration is currently not commercially available in Japan, we are recommending that the government should approve it.
＊If the patient requires nursing care and has difficulty swallowing, there is a risk saliva or toothpaste may be aspirated during brushing. In that case, suction with absorbent material ex. gauze or an aspirator may also be used. If excess toothpaste obscures the sight of debris, remove it before brushing. The frequency of brushing should also be considered depending on the situation.
＊In Japan, where systemic applications, such as fluoridation of tap water are not available, a combination of fluoride rinses and applications, in addition to toothpaste, is important.
＊The width of the bristles on the toothbrush in Photo[2] is approx. 2 cm.

<Comments and recommendations>

We should use fluoride toothpaste after considering both advantages [3, 4] and disadvantages [5], as we should do for any pharmaceutical indication or healthcare intervention. Current international recommendations that take both into account include those of the World Dental Federation (FDI) [6, 7] and the World Health Organization (WHO) [8] for fluoride toothpaste, and we are following FDI and WHO guidelines adopted for the Japanese situation.

The higher the concentration of fluoride in toothpaste, the more effective it is in preventing dental caries. However, given the risks associated with swallowing, age-specific recommendations should be considered. For infants and children in the period of tooth formation, it is important to consider the balance between the risk of dental fluorosis [5] and the benefits of caries prevention [4, 9, 10] ; to toothpaste with benefits that overweight the risks is recommended. This recommendation follows the WHO report on the selection and use of essential medicines [8]

Above all, it is vital that toothpaste is stored and used carefully to prevent infants from accidentally eating or swallowing large amounts. Toothpaste manufacturers produce and sell toothpastes for infants and young children in tubes with a total volume that is safe to swallow; even so, it is prudent to ensure that children do not to ingest large quantities. Many commercially available toothpastes do not list the concentration of fluoride in the formulation, which is a big problem. The international standard for toothpaste (ISO 11609) requires that the type and concentration of fluoride be indicated on the container. In line with these international standards, Japanese companies should specify the fluoride concentration on their packets or tubes. Furthermore, Japanese companies are advised to produce 1450 ppmF toothpastes with child-friendly flavors.

The use of toothpaste containing a high concentration of 5000 ppmF fluoride is recommended for high-risk individuals although it not currently available in Japan. There is clear evidence that the progression of early active root surface caries can be arrested by the use of a 5000 ppmF toothpaste. Such a 5000 ppmF toothpaste is especially useful in cases of aggressive root surface caries in elderly patients, who have multiple root surfaces exposed to the oral cavity [11, 12]. For this reason, the use of a 5000 ppmF toothpaste is strongly recommended for arresting root surface caries in Japanese clinical practice guidelines[13]. In many developed countries, dentists can prescribe toothpaste containing 5000 ppmF, and a growing number of countries allow the sale of 5000 ppmF toothpaste without a prescription. In Japan, toothpastes with 5000 ppmF should urgently be approved by the government.

The use of fluoride toothpaste is particularly recommended for the prevention of dental caries, including root surface caries, in the elderly [3,14]. In Japan, because of concern about the damage that fluoride may cause to titanium implants, there is a product containing chlorhexidine but no fluoride marketed for implant patients. Although highly concentrated and acidic fluoride toothpastes may corrode titanium implants, low concentrations of neutral fluoride toothpastes do not cause such damage[15]. Therefore, fluoride toothpaste is recommended even for implant patients to prevent dental caries on natural teeth[15].

Internationally, the use of fluoride toothpaste for all people is recommended [6-8]. Following these proposals would bring Japan into line with globally accepted international standards.

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