

Factors Influencing the Choice of Dentifrices for Healthy Geriatric Dentition: An Overview for Dental Clinicians

Maheswaran T¹, Muthuvignesh J², Ramesh V³, Vishnuvardhan⁴, Shiamala J⁵, Vennila K^{6*}

¹Professor, Department of Oral Pathology, Adhiparasakthi Dental College and Hospital, Tamil Nadu, India

²Professor, Department of Prosthodontics, Adhiparasakthi Dental College and Hospital, Tamil Nadu, India

³Associate Professor, Department of Pediatric and Preventive Dentistry, Adhiparasakthi Dental College and Hospital, Tamil Nadu, India

⁴Assistant Professor, Department of Prosthodontics, KSR Institute of Dental Science and Research, Tamil Nadu, India

⁵Consultant Prosthodontist, Oral Safe Dental Clinic, Puducherry, India

⁶Professor, Department of Periodontics, Vivekanandha Dental College for Women, Tamil Nadu, India

Abstract: The geriatric population presents unique oral health challenges necessitating tailored dentifrice selection. Aging dentition exhibits increased susceptibility to root caries, dentine hypersensitivity, xerostomia, and periodontal complications. Optimal dentifrice formulations for elderly individuals should address fluoride concentration requirements, abrasivity considerations, antimicrobial properties, and formulation characteristics that accommodate age-related physiological changes. Evidence-based selection of dentifrices can significantly enhance preventive care outcomes and preserve oral function in the elderly.

Keywords: Dentifrices, Toothpaste, Root Caries, Oral Hygiene, Geriatric Dentition.

Review Paper

***Corresponding Author:**

Vennila K

Professor, Department of Periodontics, Vivekanandha Dental College for Women, Tamil Nadu, India

How to cite this paper:

Maheswaran T *et al* (2026). Factors Influencing the Choice of Dentifrices for Healthy Geriatric Dentition: An Overview for Dental Clinicians. *Middle East Res J. Dent.* 6(1): 10-12.

Article History:

| Submit: 30.12.2025 |

| Accepted: 02.02.2026 |

| Published: 05.02.2026 |

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INTRODUCTION

Demographic shifts indicate that older adults represent a rapidly expanding segment of dental patients. Aging individuals increasingly retain natural dentition compared to previous generations, yet face elevated risks for specific oral pathologies including root surface caries and gingival recession [1]. The selection of appropriate dentifrices for geriatric patients requires comprehensive understanding of age-related oral changes and evidence supporting therapeutic formulations [2]. Clinicians must consider multiple factors when recommending dentifrices to optimize preventive outcomes while minimizing potential adverse effects in this vulnerable population [3]. Therefore, this review provides concise summary of these factors influencing the choice of dentifrices for geriatric population with apparently healthy dentition.

Fluoride Concentration and Root Caries Management

Root caries constitutes a significant concern in elderly populations due to gingival recession exposing vulnerable cementum and dentin surfaces. High-fluoride dentifrices containing concentrations exceeding 1,500

parts per million demonstrate enhanced caries prevention in geriatric patients compared to conventional formulations [1]. Non-invasive treatment utilizing dentifrices with 5,000 parts per million fluoride proves more effective than standard dentifrices in both preventing and arresting root carious lesions in community-dwelling elderly individuals [2]. Fluoridated dentifrices containing 1,100 parts per million sodium fluoride produce statistically significant reductions of 67 percent in root surface caries incidence among adults aged 54 and older during one-year studies [3]. Higher fluoride concentrations facilitate remineralization of root surfaces more effectively than enamel remineralization [4].

Dentine Hypersensitivity Management

Age-related gingival recession frequently results in exposed dentine surfaces causing thermal and tactile sensitivity. Formulations containing stannous compounds, potassium salts combined with stannous agents, or arginine demonstrate efficacy in reducing dentine hypersensitivity when applied twice daily [5]. Dentifrices combining potassium nitrate with stannous fluoride and sodium fluoride exhibit significantly

superior desensitizing effects compared to conventional fluoride dentifrices or commercially available alternatives [6]. Clinical evidence demonstrates sustained relief persisting through 12-hour intervals following application.

Antimicrobial Agents for Biofilm Control

Elderly patients often exhibit compromised manual dexterity affecting mechanical plaque removal effectiveness. Dentifrices incorporating triclosan combined with copolymer demonstrate evidence-based efficacy in reducing dental biofilm, gingivitis, periodontitis, calculus accumulation, and halitosis [7]. Triclosan-copolymer formulations produce sustained reductions of 88 to 96 percent in oral anaerobic bacteria persisting for 12 hours following brushing [8]. Stabilized stannous fluoride formulations demonstrate superior efficacy in reducing gingivitis and gingival bleeding compared to triclosan-copolymer alternatives [9].

Abrasivity Considerations

Aging dentition exhibits increased vulnerability to abrasive wear due to reduced enamel thickness and exposed dentin. Lower abrasivity formulations demonstrate minimal cytotoxicity and reduced surface loss, rendering them more suitable for elderly populations compared to highly abrasive alternatives [10]. Lower abrasive dentifrice slurries effectively reduce toothbrushing abrasion on both enamel and root dentin surfaces, with remineralization enhancing protective effects [11]. Relative dentin abrasivity values should constitute one variable among multiple considerations when providing recommendations to prevent dental wear [12].

Xerostomia and Formulation Considerations

Medication-induced xerostomia affects substantial proportions of elderly individuals. Systematic reviews demonstrate medication-induced dry mouth constitutes a prevalent adverse effect in older populations [13]. Formulations avoiding sodium lauryl sulfate and incorporating moisturizing agents may provide enhanced comfort for xerostomic patients.

CONCLUSION

Evidence-based dentifrice selection for geriatric patients requires balancing multiple therapeutic objectives including root caries prevention through high-fluoride formulations, dentine hypersensitivity management, antimicrobial biofilm control, appropriate abrasivity levels, and xerostomia accommodation. Clinicians should individualize recommendations based on patient-specific risk profiles, manual dexterity limitations, medication regimens, and existing oral pathology to optimize preventive outcomes and maintain oral health quality in aging populations.

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