

## **Artificial Intelligence in Dental Hygiene: A Futuristic Approach to Lifelong Smiles**

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**Background:** Artificial intelligence (AI) in computer science allows computers to mimic human behaviors. Its application has expanded into multiple areas, including dentistry, where it has potential to significantly impact future practice such as enhancing the accuracy and efficiency of detecting dental caries, changes in the periodontium, and oral cancers.

**Objective:** This literature review aims to investigate AI's ability and involvement in preventative oral healthcare.

**Methods:** A search of available literature was conducted using PubMed, CINAHL, and Embase with the following keywords: artificial intelligence, dental hygiene, oral cancer, caries, periodontal disease, detection, and diagnosis. Inclusion criteria was: English language, peer-reviewed publications within the last ten years. Exclusion criteria was: editorials, non-peer-reviewed articles, and those not relevant to preventative care.

**Results:** Nine articles met the inclusion criteria, highlighting AI's involvement in caries detection, radiography, changes in the periodontium, and oral cancer detection.

**Discussion:** AI has shown the ability to assist in the diagnosis of caries, analysis of complex radiographs, early detection of oral cancer. However, AI technology has limitations including confidentiality, accountability, and data security concerns and should therefore be used in conjunction with clinical judgement, not as a replacement.

**Conclusion:** Incorporating AI into dental hygiene care may offer numerous benefits. As AI's role in oral healthcare grows, professionals should understand its benefits and limitations. By integrating the power of technology to analyze subtle cues and patterns, early intervention and improved oral health outcomes are within reach. More research is required on this topic.