

عنوان مقاله:

Triple M” Effect: A Proposed Mechanism to Explain Increased Dental Amalgam Microleakage after Exposure to“
Radiofrequency Electromagnetic Radiation

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خلاصه مقاله:

A large body of evidence now indicates that the amount of mercury released from dental amalgam fillings can be significantly accelerated by exposure to radiofrequency electromagnetic fields (RF-EMFs) such as common mobile phones and magnetic resonance imaging (MRI). Studies performed on the increased microleakage of dental amalgam restorations after exposure to RF-EMFs have further supported these findings. Although the accelerated microleakage induced by RF-EMFs is clinically significant, the entire mechanisms of this phenomenon are not clearly understood. In this paper, we introduce “Triple M” effect, a new evidence-based theory which can explain the accelerated microleakage of dental amalgam fillings after exposure to different sources of electromagnetic radiation. Based on this theory, there are saliva-filled tiny spaces between amalgam and the tooth. Exposure of the oral cavity to RF-EMFs increases the energy of these small amounts of saliva. Due to the small mass of saliva in these tiny spaces, a small amount of energy will be required for heating. Moreover, reflection of the radiofrequency radiation on the inner walls of the tiny spaces causes interference which in turn produces some “hot spots” in these spaces. Finally, formation of gas bubbles in response to increased temperature and very rapid expansion of these bubbles will accelerate the microleakage of amalgam. Experiments that confirm the validity of this theory are discussed.

کلمات کلیدی:

Microleakage, Dental amalgam, Electromagnetic Fields, Triple M Effect

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