Researchers analyze potentially hazardous dental drill debris under composite fillings

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While dental drills, or burs, are used extensively in dentistry to mechanically prepare tooth structures for fillings, little is known about the bur debris left behind in the teeth and whether it poses potential health risks to patients.

Imaging analyses have revealed dental bur fragments of different sizes in different locations on the floor of the prepared surface of the teeth and under the filling, which places them in direct contact with the tubules and fluid within dentin. The fragments are made of tungsten carbide-cobalt, which is bio-incompatible.

"Further studies need to investigate if or to what extent the small amount of bio-incompatible debris constitutes a biohazard to patients," said Dr. Assem Hedayat, lead author of the Journal of Synchrotron Radiation article.

More information: Assem Hedayat et al. Synchrotron-radiation-based X-ray micro-computed tomography reveals dental bur debris under dental composite restorations, *Journal of Synchrotron Radiation* (2016). DOI: 10.1107/S1600577516002198

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