

Are more nickel ions released from NiTi wires after sterilisation?

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Abstract

BACKGROUND: Increased concentrations of nickel ions may be released into saliva from recycled NiTi archwires. **AIM:** To compare the nickel ion concentrations released from recycled NiTi wires after sterilisation by either dry heat or steam autoclave. **METHODS:** Eighty preformed NiTi wires were assigned to four equal groups. In Groups 1, 2 and 3 the archwires were used intra-orally for 4 weeks. The Group 4 archwires were not used. Group 1 archwires were sterilised by dry heat, the Group 2 archwires were sterilised by steam autoclave, the Group 3 archwires were not sterilised and the Group 4 archwires were as-received. A 2 cm length, cut from each archwire, was immersed in artificial saliva for 4 weeks and the nickel ion concentrations in the artificial saliva measured with an atomic absorption spectrophotometer. **RESULTS:** There were no significant differences in the nickel ion concentrations released into the artificial saliva by each group of archwires ($p = 0.467$). **CONCLUSION:** Sterilisation of used NiTi wires by either dry heat and steam autoclave does not affect the concentrations of nickel ions released into artificial saliva.

Reaxys Database Information

Indexed Keywords

EMTREE drug terms: dental alloy; ion; nickel; saliva substitute; titanium; titanium nickelide

EMTREE medical terms: article; atomic absorption spectrometry; chemistry; heat; human; instrument sterilization; methodology; orthodontic device; recycling; water vapor

MeSH: Dental Alloys; Equipment Reuse; Hot Temperature; Humans; Ions; Nickel; Orthodontic Wires; Saliva, Artificial; Spectrophotometry, Atomic; Steam; Sterilization; Titanium

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