

Literature

How clean do **sterile** implants have to be?

Analysis and clinical relevance of **factory-related** contaminations

Dr Dirk U. Duddeck, Germany

implants – international magazine of oral implantology 2/22

1. Davies JE. Mechanisms of endosseous integration. *Int J Prosthodont*. 1998;11(5):391-401.
2. Kieswetter K, Schwartz Z, Dean DD, Boyan BD. The role of implant surface characteristics in the healing of bone. *Crit Rev Oral Biol Med*. 1996;7(4):329-345.
3. Wahl G, Tuschewitzki G-J. Verunreinigungen auf Implantatoberflächen vor der Insertion. *Z Zahnärztl Implantol*. 1987;III:255-260.
4. Duddeck DU, Albrektsson T, Wennerberg A, Larsson C, Beuer F. On the Cleanliness of Different Oral Implant Systems: A Pilot Study. *J Clin Med*. 2019;8(9).
5. Mouhyi J, Dohan Ehrenfest DM, Albrektsson T. The peri-implantitis: implant surfaces, microstructure, and physicochemical aspects. *Clin Implant Dent Relat Res*. 2012;14(2):170-183.
6. Hallab NJ, Jacobs JJ. Biologic effects of implant debris. *Bull NYU Hosp Jt Dis*. 2009;67(2):182-188.
7. Matthews JB, Besong AA, Green TR, et al. Evaluation of the response of primary human peripheral blood mononuclear phagocytes to challenge with in vitro generated clinically relevant UHMWPE particles of known size and dose. *J Biomed Mater Res*. 2000;52(2):296-307.
8. Rader CP, Sterner T, Jakob F, Schutze N, Eulert J. Cytokine response of human macrophage-like cells after contact with polyethylene and pure titanium particles. *J Arthroplasty*. 1999;14(7):840-848.
9. Shanbhag AS, Bailey HO, Hwang DS, Cha CW, Eror NG, Rubash HE. Quantitative analysis of ultrahigh molecular weight polyethylene (UHMWPE) wear debris associated with total knee replacements. *J Biomed Mater Res*. 2000;53(1):100-110.
10. Duddeck D, Albrektsson T, Wennerberg A, et al. CleanImplant Trusted Quality Mark 2017-2018 - Guideline and Consensus Paper [PDF Document of Consensus]. 2017; <https://www.cleanimplant.org>. Accessed March 10, 2021.
11. Norton MR. Will any dental implant do? *Br Dent J*. 2020;228(4):243-244.
12. Duddeck DU, Albrektsson T, Wennerberg A, Larsson C, Mouhyi J, Beuer F. Quality Assessment of Five Randomly Chosen Ceramic Oral Implant Systems: Cleanliness,

Surface Topography, and Clinical Documentation. *Int J Oral Maxillofac Implants.* 2021;36(5):863-874.