A model of temperature transients in dental implants
Kevan Wong, Alan Boyde*, P.G.T. Howell

Department of Anatomy and Developmental Biology, University College London, Gower Street, London WC1E 6BT, UK
Department of Prosthetic Dentistry, Eastman Dental Institute, Gray's Inn Road, London WC1X 8LD, UK
Received 15 January 2000; accepted 9 January 2001

Abstract
Dental implants provide a continuous interface between the oral environment and the deep core structures of the jaws. Implants and trans-mucosal superstructures are primarily metal and heat conduction occurs readily. A hypothetical heat conduction model is investigated to determine the ranges of temperature gradients that might occur in implants. This model showed that a 60°C heat source will cause a heat front of 47°C to advance 3mm down an implant within one second. Oral temperature transients maybe a factor in implant pathology. © 2001 Elsevier Science Ltd. All rights reserved.