

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Finite element analysis of a hemisphere compressed against a frictionless rigid plate.

File Name: Supplementary Movie 2

Description: Finite element analysis of a titled pillar compressed against a frictionless rigid plate.

File Name: Supplementary Movie 3

Description: Finite element analysis of an intrafillable pillar without gradient compressed against a frictionless rigid plate.

File Name: Supplementary Movie 4

Description: Finite element analysis of a GIA compressed against a frictionless rigid plate.