Home > Research > Browse Publications

Finite Element Pre-operative Simulation Of Cementless Hip Replacement

C.D. Visnic, R.H. Reid, Omar Ghattas, Anthony M. Di Gioia, and Branislav Jaramaz
Proceedings Simulation Conference, December, 1994, pp. 856 - 860.

Download

○ Adobe portable document format (pdf   ) (433KB)

Abstract

Cementless hip replacement surgery requires increased precision of the bone preparation and appropriate biomechanical feedback to avoid problems of implant instability and bone damage. This paper presents finite element simulations of both femoral and acetabular cementless Components. The models focus on the simulation of replacement surgery and its biomechanical consequences. Geometries of the femur and the acetabulum are idealized axisymmetric, but the model includes nonlinearities associated with material law and contact coupling. Results of our studies show that the assembly strains resulting from the press fit procedure must not be ignored.

Notes

○ **Associated Center(s) / Consortia:** Medical Robotics Technology Center
○ **Associated Lab(s) / Group(s):** Medical Robotics and Computer Assisted Surgery
○ **Associated Project(s):** Joint Replacement Biomechanics

Text Reference

C.D. Visnic, R.H. Reid, Omar Ghattas, Anthony M. Di Gioia, and Branislav Jaramaz, "Finite Element Pre-operative Simulation Of Cementless Hip Replacement," *Proceedings Simulation Conference*, December, 1994, pp. 856 - 860.

BibTeX Reference

@inproceedings{Ghattas_1994_3642,
  author = "C.D. Visnic and R.H. Reid and Omar Ghattas and Anthony M. Di Gioia and Branislav Jaramaz",
  title = "Finite Element Pre-operative Simulation Of Cementless Hip Replacement",
  booktitle = "Proceedings Simulation Conference",
  pages = "856 - 860",
  month = "December",
  year = "1994",
}