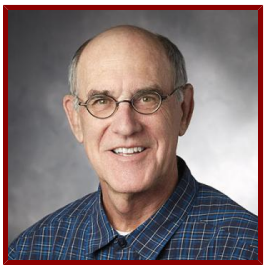
Stanford



Dennis R Carter

Professor of Mechanical Engineering, Emeritus

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

Carter studies the influence of mechanical loading on the growth, development, regeneration, and aging of skeletal tissues. Basic information from these studies is used to understand skeletal diseases and treatments.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Mechanical Engineering
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Director of the Biomechanics and Mechanobiology Program BMMB/CMMI/ENG, National Science Foundation, (2010-2014)

PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Biomedical Engineering (1976)
- M.S.E., Stanford University , Bioengineering (1973)
- B.S., University of Michigan , Aerospace Engineering (1971)

LINKS

- Google Scholar Citations: http://scholar.google.com/citations?hl=en&user=zI6PxocAAAAJ

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Professor Carter studies the influence of mechanical loading upon the growth, development, regeneration, and aging of skeletal tissues. Basic information from such studies is used to understand skeletal diseases and treatments. He has served as President of the Orthopaedic Research Society and is a Fellow of the American Institute for Medical and Biological Engineering.

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)

Publications

PUBLICATIONS

- **Dimensional, Geometrical, and Physical Constraints in Skull Growth.** *Physical review letters*
  Weickenmeier, J., Fischer, C., Carter, D., Kuhl, E., Goriely, A.
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- **Improving the Estimate of the Effective Elastic Modulus Derived from Three-Point Bending Tests of Long Bones** *ANNALS OF BIOMEDICAL ENGINEERING*
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- **Connective Tissue Growth Factor in Regulation of RhoA Mediated Cytoskeletal Tension Associated Osteogenesis of Mouse Adipose-Derived Stromal Cells** *PLOS ONE*
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  2010; 5 (6)
- **Computational simulation of spontaneous bone straightening in growing children** *BIOMECHANICS AND MODELING IN MECHANOBIOLOGY*
  Carpenter, R. D., Carter, D. R.
  2010; 9 (3): 317-328
- **An approach to quantifying bone overloading and hypertrophy with applications to multiple experimental studies** *BONE*
  Chen, J. C., Beaupre, G. S., Carter, D. R.
  2010; 46 (2): 322-329
- **Biocompatibility of poly(ethylene glycol)/poly(acrylic acid) interpenetrating polymer network hydrogel particles in RAW 264.7 macrophage and MG-63 osteoblast cell lines.** *Journal of biomedical materials research. Part A*
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- **The pathogenesis of osteoarthritis in cerebral palsy** *62nd Annual Meeting of the American-Academy-for-Cerebral-Palsy-and-Developmental-Medicine*
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- **Mechanobiology of mandibular distraction osteogenesis: experimental analyses with a rat model** *BONE*
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- **Mechanobiology of soft skeletal tissue differentiation-a computational approach of a fiber-reinforced poroelastic model based on homogeneous and isotropic simplifications** *BIOMECHANICS AND MODELING IN MECHANOBIOLOGY*
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- **A theoretical analysis of the changes in basic multicellular unit activity at menopause** *23rd Annual Meeting of the American-Society-for-Bone-and-Mineral-Research*
  Hernandez, C. J., Beaupre, G. S., Carter, D. R.
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- **Mechanical strain effects on dura mater biology: Implications for understanding immature calvarial healing** *10th International Congress of the International-Society-of-Craniofacial-Surgery*
  Fong, K. D., Warren, S. M., Loboa, E. G., Henderson, J. H., Fang, T. D., Nacamuli, R. P., Carter, D. R., Longaker, M. T.
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