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In Silico Modeling of Bone Adaptation to Rest-Inserted Loading:  
Strain Energy Density Versus Fluid Flow as Stimulus

Abhishek Kumar Tiwari , Rakesh Kumar , Dharmendra Tripathi ,  
Subham Badhyal

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**Highlights**

- In silico model is used to study osteogenesis induced by rest-inserted loading.
- Strain energy density (SED) and canalicular fluid flow are considered osteogenic.
- SED may have limited success in explaining the in vivo new bone formation.
- Fluid flow as stimulus has been able to fit experimental bone formation.
- Incorporation of fluid flow will improve in silico models of bone adaptation.

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