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Nota di contenuto	1 Theoretical framework supporting the research of biophysical stimulation of osteoblasts -- 2. Methodologies used and their rationale -- 3. Osteoblast explant cultures -- 4. End parameters -- 5. Determination of in vitro generated tissue -- 6. In vitro safety studies -- 7. In vivo safety evaluation -- 8. Efficacy in vivo studies -- 9. Setups for external application of biophysical energy -- 10. Mechanical stimulation -- 11. The original contribution to knowledge -- 12. Contribution to developing the theory in the field -- 13. The impact of the work on professional practice -- 14. The nature of the work's academic impact -- 15. The strengths and weaknesses of the methodologies used (critical analysis) -- 16. Conclusion.

Sommario/riassunto

This book integrates the current basic and clinical knowledge in the area of biophysical stimulation of osteoblast for in vitro and in vivo live bone generation. This innovative methodology and its applications are presented and discussed in several clinical conditions: treatment of fracture nonunion, spine stabilization, bone replacement after tumor resections, stabilization of failed joint endoprostheses in revision surgery and in treatment of bone loss (osteoporosis and osteopenia). The author analyses different types of biophysical stimulation of osteoblasts for bone regeneration, e.g. mechanical (static and alternating, including distraction osteogenesis), electromagnetic (pulsed, alternating, static), light (at different spectrum range, including laser), acoustic (including ultrasound), RF etc. Moreover, he summarizes and discusses the most significant findings for in vitro bone generation and its resulting clinical use as autologous bone graft without surgical morbidity. Reflecting the author's extensive experience this book is an excellent source of knowledge and a valuable aid to clinical practice for all orthopedic surgeons, fellows, and researchers wanting to gain insights into this promising field. .
