

The Stress-Free Future of Dental Restorations: Stress Absorbing Restorative Composites-SARCs

CHITOSAN NANOPARTICLES

- 10-80 nm
- Increased stability
- Increased protein packing efficiency
- Easy to store
- Easy to transport

Chitosan

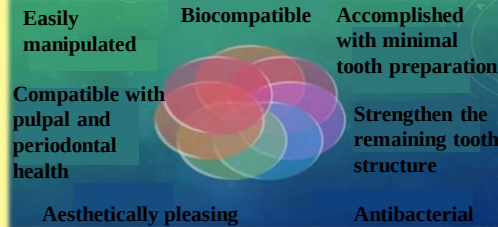
TRADITIONAL RESTORATIVE MATERIALS



AIM and GOAL of SARCs

To mimic and replicate the natural properties of teeth

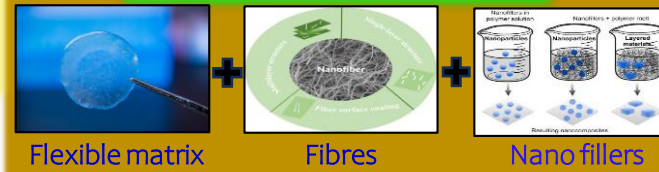
What are SARCs?



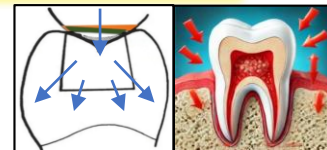
CLINICAL APPLICATIONS OF SARCs



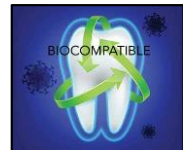
COMPOSITION



Advantages of SARCs over traditional filling materials



Distribution of Occlusal forces



Bioactive & Biocompatible



Anterior restoration with Aesthetics

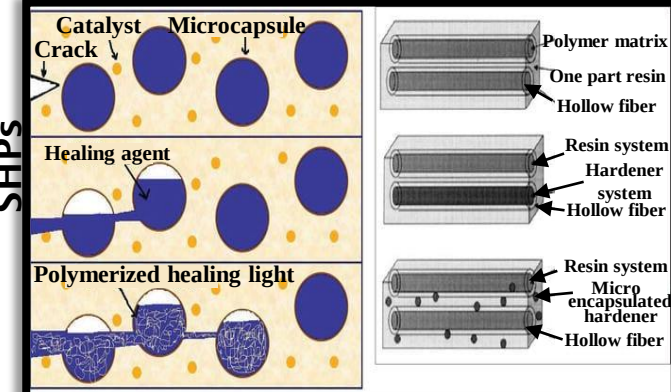


Posterior restoration with Durability

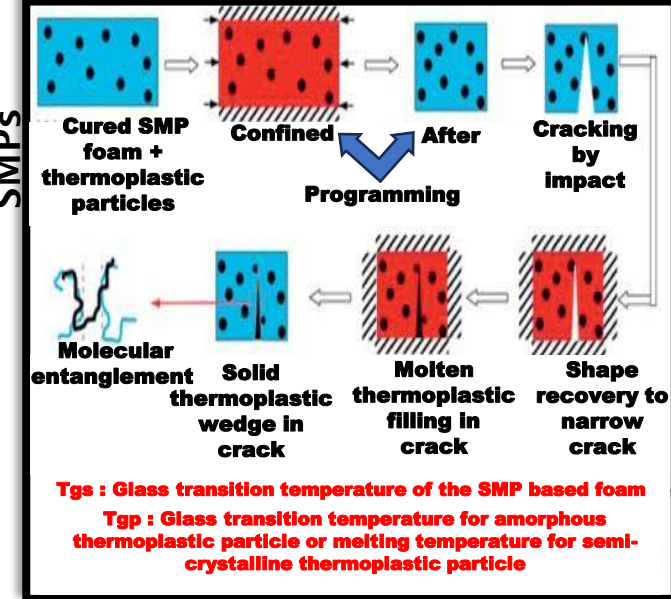
CONCLUSION

- 1) Mimics natural resilience with aesthetic and functional benefits
- 2) Long-term impact
- 3) Minimizes stress concentration by absorbing and distributing occlusal forces evenly
- 4) Supports tooth structure
- 5) Promotes and improves restoration longevity
- 6) Integrates with tooth anatomy

SHPs



SMPS



T_{gs} : Glass transition temperature of the SMP based foam
T_{gp} : Glass transition temperature for amorphous thermoplastic particle or melting temperature for semi-crystalline thermoplastic particle

FUTURE DIRECTIONS

- Personalized bite and occlusal pattern with more resiliency and durability using CAD-CAM and when AI-driven

Silk fibroin

Kevlar fibres

