

Introduction & Aim

Although the clinical use of milled and 3D-printed dentures has rapidly advanced, polishing techniques remain the same as those used for conventional bases, without verifying if these treatments are truly appropriate for each material.

Objectives

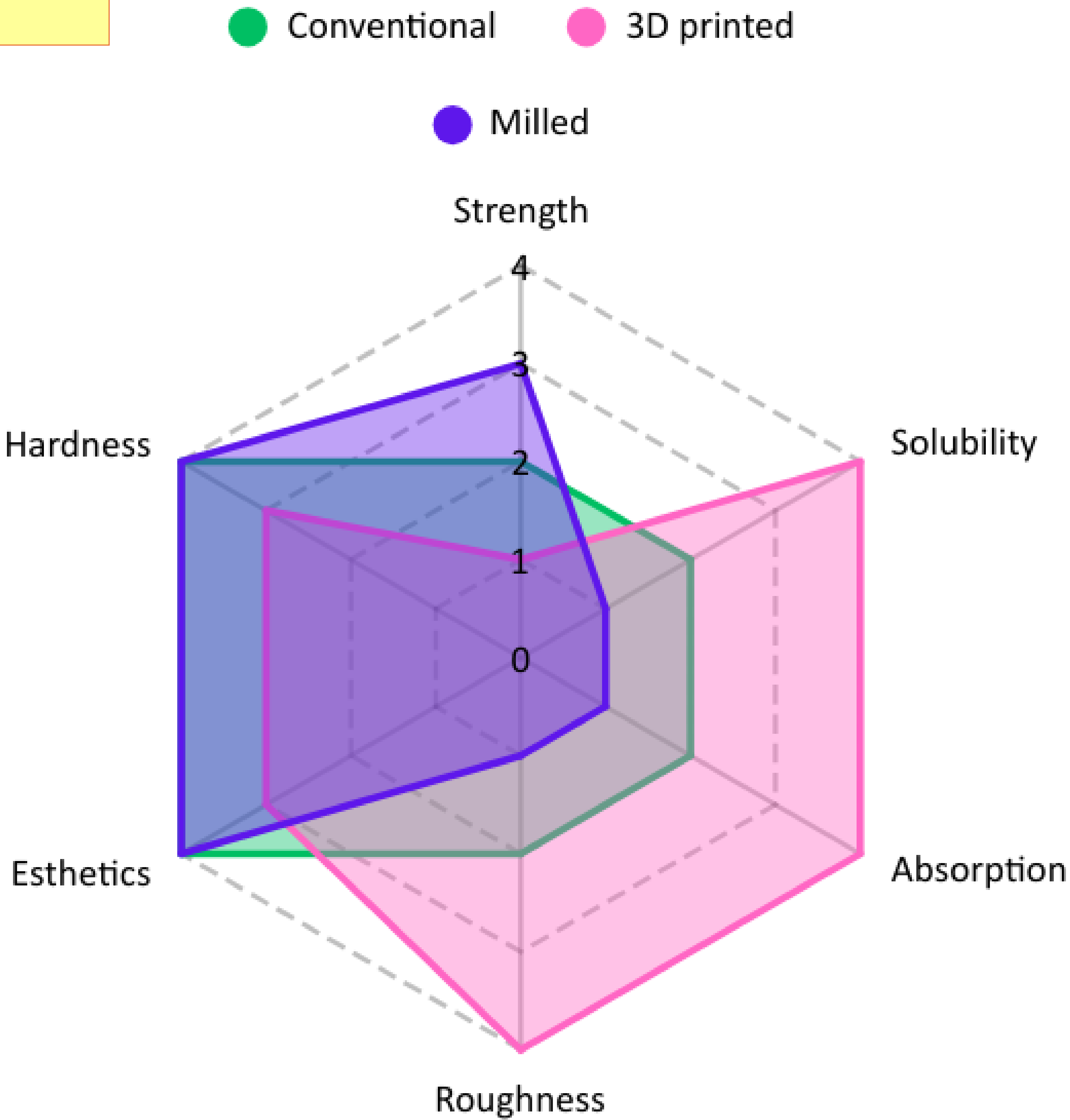
- Describe the effects of polishing techniques on denture base surface properties.
- Compare mechanical polishing for 3D printed and milled bases.
- Identify optimal strategies to enhance comfort, esthetics, and long-term.

Methods

This review analyzed in vitro and clinical studies, systematic reviews, and meta-analyses, with a comparative approach to link laboratory findings to clinical implications.

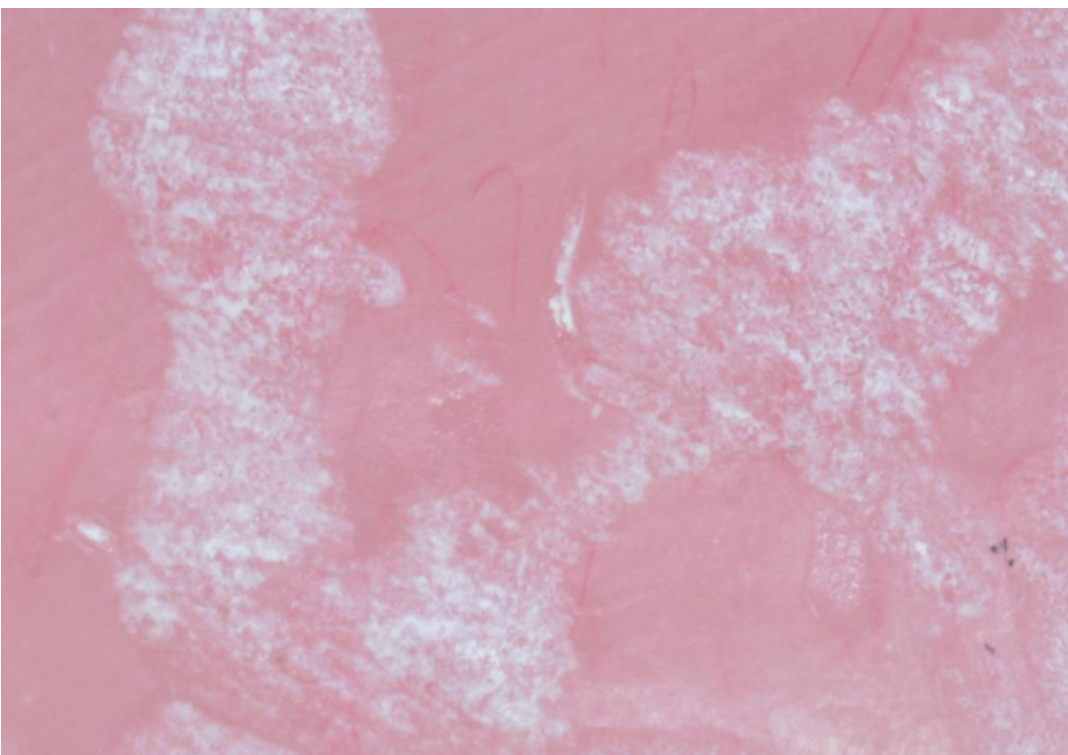
Results

Comparative Performance of Denture Base Materials



Surface Treatment recommended

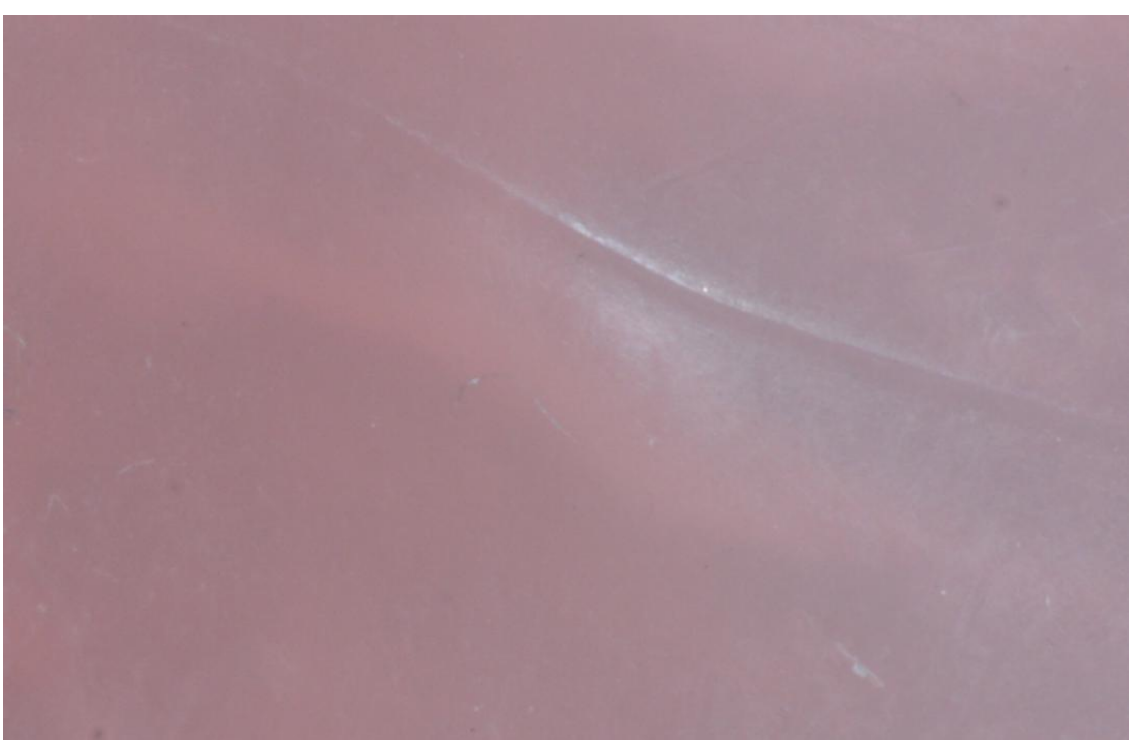
Step / Tools & RPM	Conventional	Milled	3D Printed
IF – Fine carbide / 30–40 μm diamond (10–20k rpm)	✓		✓
SP – Stepwise polish: discs C→SF Silicone polishers Felt + diamond paste (5–10k rpm)	✓	✓	✓
PP – Goat hair / Felt wheel +pumice (1–3k rpm)	✓		
HP – Felt/cotton wheel + high-shine paste (0.5–1 μm) (1–3k rpm)	✓	✓	✓
Light-cured glaze			✓



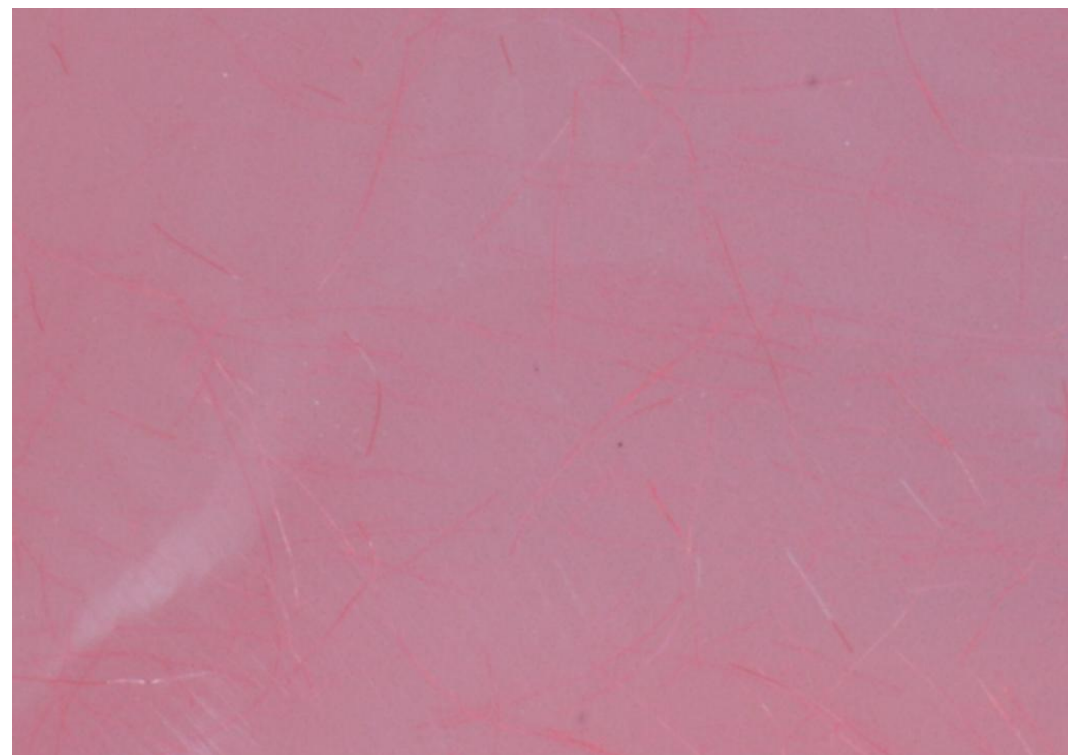
Conventional before polishing



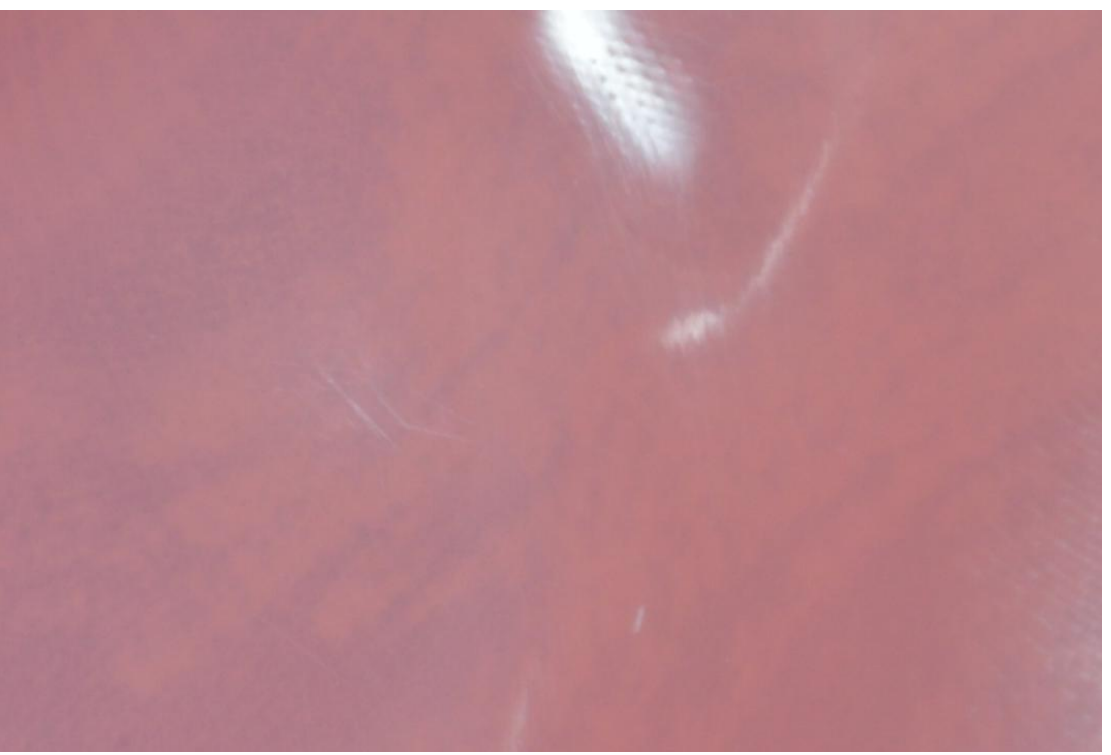
Milled before polishing



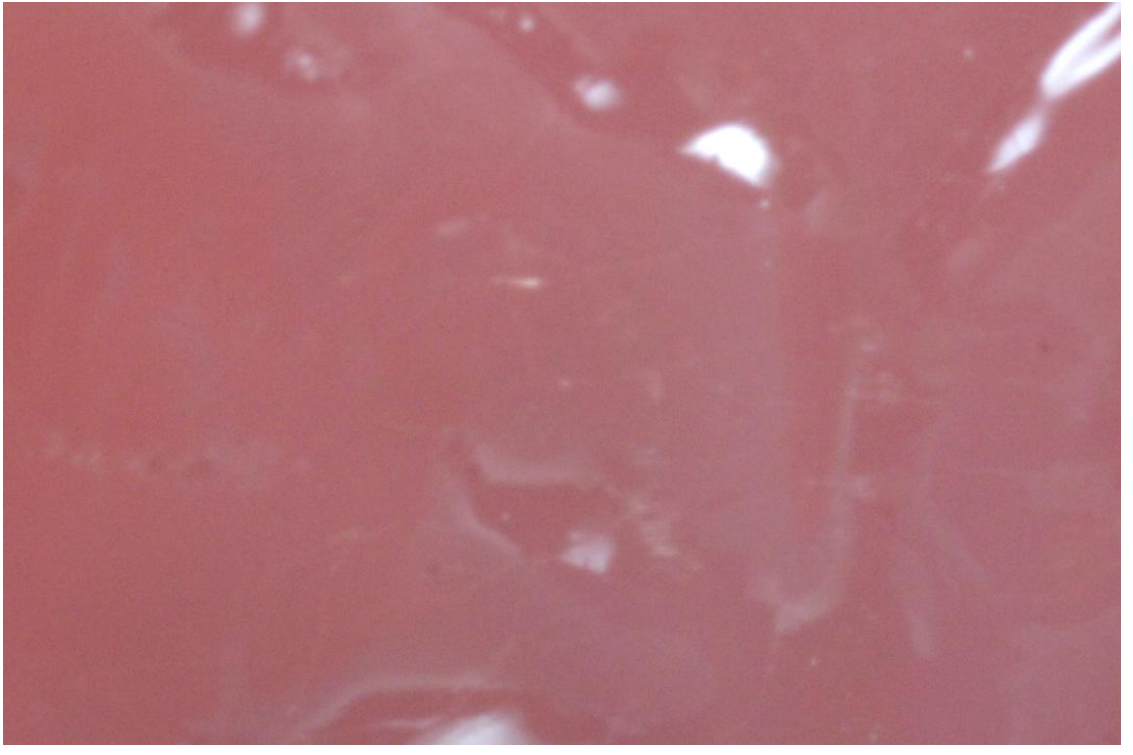
3D Printed before polishing



Conventional after polishing



Milled after polishing



3D Printed before Polishing + Glaze

Discussion

Surface finishing must be tailored to material properties. Also, over-polishing may compromise structure; under-polishing increases biofilm risk and Clinical relevance consist in selecting the correct protocol improves patient comfort, esthetics, and hygiene.

Conclusion

Optimized polishing protocols, adapted to each manufacturing technique, are essential to achieve functional, esthetic, and durable outcomes in denture therapy.

References

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