



# **Knowledge And Perception About Windows Impression Techniques Among General Dental Practitioner And Dental Students In Kumarapalayam- A Cross Sectional Survey**

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## **Abstract**

Accurate impressions are crucial in the success of fixed dental prostheses, where marginal adaptation and soft tissue management directly influence the longevity of restorations. The windows impression technique is a modified impression method designed to enhance subgingival detail reproduction, especially in cases where tissue management is complex. This study aims to evaluate the awareness, adoption, challenges, and clinical perceptions of dental professionals regarding the windows impression technique using a structured questionnaire. The findings are expected to provide insight into current practices and inform potential improvements in education and clinical training.

## **1. Introduction**

The precision of an impression significantly determines the fit and function of prosthodontic restorations. Conventional impression techniques, although widely accepted, may fall short in cases involving deep subgingival margins, bleeding tissues, or irregular gingival contours. To overcome such challenges, the \*windows impression technique\* was developed, which involves creating a cut-out or "window" in the impression tray directly over the prepared abutment. This allows for direct syringing of light-body material onto the preparation while the tray is seated with heavy-body material, offering improved margin detail and reduced tissue distortion.

While theoretically advantageous, the technique remains underreported in mainstream clinical practice. This study explores the awareness level, clinical application, training sources, and perceived benefits and drawbacks of the technique among dental professionals across varying levels of experience and specialties.

## **2. Objectives**

- \* To assess the level of awareness and familiarity with the windows impression technique among dental professionals.
- \* To evaluate how frequently and in what clinical contexts the technique is employed.
- \* To identify common materials and tray types used in conjunction with the technique.
- \* To understand the perceived advantages, limitations, and training sources of the method.
- \* To highlight the need for further education or standardization if required.

## **3. Materials and Methods**

### **3.1 Questionnaire Development**

1. Demographics and professional background
2. Familiarity and usage of the windows impression technique
3. Technical preferences and procedural challenges
4. Opinions, training, and recommendations

### **3.2 Participant**

- \* General dentists
- \* Prosthodontists
- \* Postgraduate dental students
- \* Dental technicians

### **3.3 Data Collection and Analysis**

Data were collected over a period of 30 days. Responses were compiled and analyzed using Microsoft Excel and SPSS software for frequency distribution and correlation between variables such as experience level and technique usage.

#### **Questions**

1. What is your professional role?

- General Dentist
- Prosthodontist
- Dental Technician
- Postgraduate Student
- Other:

2. How many years of experience do you have in fixed prosthodontics?

- 0–2 years
- 3–5 years
- 6–10 years
- More than 10 years

3. How frequently do you perform impressions for fixed prostheses?

- Daily
- Weekly
- Monthly
- Rarely

4. Are you familiar with the windows impression technique?

- Yes
- No

5. How often do you use the windows impression technique?

- Always
- Often
- Occasionally
- Rarely
- Never

6. What is your primary reason for using the windows technique?

- Better marginal accuracy
- Soft tissue control
- Subgingival margin management
- Instructor/senior recommendation
- Personal preference
- Other:

7. In which clinical situations do you prefer using the windows technique?

- Deep subgingival margins
- Multiple abutments
- Bleeding or inflamed gingiva
- Retraction cord contraindicated
- Always use it regardless of the case

8. Which impression materials do you typically use with the windows technique?

- Addition silicone (PVS)
- Polyether
- Alginate
- Condensation silicone
- Other

9. What type of tray do you use for the windows technique?

- Custom tray
- Stock tray
- Modified stock tray with cut-out
- Dual-arch tray

10. How do you manage soft tissue during the windows impression?

- Retraction cord (single or double)
- Retraction paste
- Electrosurgery
- Diode laser

11. What is the most common difficulty you face with the windows technique?

- Material overflow through the window
- Tray modification is time-consuming
- Inconsistent results
- Technique-sensitive
- No significant difficulty

12. Have you experienced impression failure using this technique?

- Yes – due to voids or bubbles
- Yes – due to poor margin recording
- Yes – due to tray misfit
- No

13. Do you feel the windows impression technique gives better results than conventional techniques?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. Where did you first learn about the windows technique?

- Undergraduate dental school
- Postgraduate training
- Workshop/Continuing Dental Education
- Colleague or mentor
- Online resources/self-study

15. Would you recommend the windows impression technique to others?

- Yes – it's reliable and effective
- Yes – but only in selected cases
- No – it's difficult to execute
- No – conventional techniques are better

## **4. Results**

### **4.1 Respondent Demographics**

Total respondents: 120

Professional roles: 40% general dentists, 30% prosthodontists, 20% postgraduate students, 10% technicians

Experience: Majority had 3–10 years of experience

### **4.2 Awareness and Usage**

Familiarity: 65% of respondents had heard of the windows technique

Usage frequency: 25% used it often or occasionally, while 60% never used it

Situations preferred: Most commonly used in cases with deep subgingival margins and bleeding gingiva

### **4.3 Materials and Methods**

Impression material preference: Addition silicone (PVS) was the most preferred

Tray type: Custom trays and modified stock trays were equally favored

Tissue management: Retraction cord was used by 70%, followed by laser and electrosurgery

### **4.4 Challenges and Failures**

Reported difficulties: Tray modification and technique sensitivity were common issues

Failure reports: 30% had experienced failure due to improper margin recording or material handling

### **4.5 Opinions and Recommendations**

Perceived benefits: Majority agreed that it improves marginal accuracy

Training source: Most had learned the technique during postgraduate education or workshops

Recommendation rate: 55% would recommend it for selective cases

## **5. Discussion**

The study indicates a moderate level of awareness regarding the windows impression technique, but actual clinical application remains limited. Practitioners cited complexity, need for tray modification, and limited training as key barriers to routine use. However, those with experience using the technique appreciated its effectiveness in capturing fine marginal details, especially in challenging gingival conditions.

Educational background significantly influenced usage, with postgraduate students and specialists more likely to adopt the technique. This suggests a need for broader inclusion of advanced impression techniques in undergraduate and continuing education curriculums.

Material selection and tray design play crucial roles in the success of the technique. Addition silicones (PVS) provide consistent results due to their dimensional stability and flow properties. Despite technical demands, the technique is viewed positively when applied in appropriate clinical scenarios.

## **6. Conclusion**

The windows impression technique, while not widely practiced, offers considerable benefits in specific clinical contexts. Increasing its adoption requires better integration into training programs, simplified execution methods, and further evidence-based validation. As prosthodontics continues to advance, such specialized techniques can contribute to enhanced treatment outcomes.

## **7. Recommendations**

- \* Incorporate advanced impression techniques in clinical training modules
- \* Develop prefabricated window trays or simplified guides
- \* Conduct longitudinal studies comparing accuracy and clinical outcomes
- \* Promote hands-on workshops and webinars to increase confidence in technique use

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