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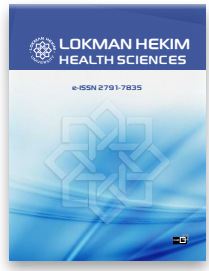

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ORIGINAL ARTICLE

The Effect of a Practical Training Model on Dental Students' Attitudes Toward Rubber Dam Use

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Abstract

Introduction: This study aims to evaluate the attitudes of third- and fourth-year dental students toward the use of rubber dam (RD) isolation, particularly among those who possess theoretical knowledge but have limited clinical experience. Although the role of RD in enhancing clinical success is well recognized, its routine implementation remains relatively low.

Methods: The study was conducted with the volunteer participants who had completed theoretical training on RD but lacked hands-on experience. Data were collected through online questionnaires administered before and after a practical training session. The surveys included closed-ended questions addressing sociodemographic characteristics and students' attitudes and experiences related to RD use. Statistical analyses were performed using R (version 2025.05.1.513) and RStudio (version 2025.05.1) at a 0.05 significance level. Appropriate non-parametric tests, including the Wilcoxon rank sum test, Cochran-Armitage trend test, Fisher's Exact Test and Chi-squared test, were applied according to the data type.

Results: The study was completed with 70 students. Prior to the training, 34.2% of participants believed that theoretical education alone was sufficient; this rate significantly decreased to 4.3% after the hands-on session ($p<0.001$). A notable increase was observed in students' intentions to use RD, particularly in endodontic procedures. The most preferred technique for placement was the simultaneous application of the clamp and rubber sheet.

Discussion and Conclusion: The findings indicate that practical training significantly enhances student awareness. Improving knowledge and skills related to RD placement techniques may positively influence post-graduation usage rates. To ensure effective use of RD, it is essential that practical training is integrated robustly into the dental curriculum alongside theoretical instruction.

Keywords: Dental education; Endodontics; Rubber dam isolation

Rubber dam (RD) use has been known for over 150 years to reduce microbial contamination and prevent patients from swallowing or aspirating materials such as irrigating solutions, endodontic instruments or infected dental debris.[1] The guideline published by the European Society of Endodontology in 2006 emphasizes that all stages of root canal treatment should be performed under RD isolation.[2] In its 2010 position statement, the American Association of Endodontists recommended the use of RD in non-surgical endodontic procedures.[3]

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Dental students are taught in the early stages of their clinical training that the use of RD enhances visibility of the treatment field, facilitates access to root canals, enables effective moisture control, provides a drier working environment, supports soft tissue retraction and that endodontic procedures should not be performed without RD isolation.[1,4,5]

There are several techniques for applying the RD sheet to the tooth.[6] These techniques are generally classified into four main categories. In the first technique, the RD assembly -which includes the rubber sheet, frame and clamp- is prepared as a single unit and placed on the tooth all at once. In the second technique, the clamp is positioned on the tooth first, followed by the application of the rubber sheet and frame together. The third technique involves attaching the clamp to the rubber sheet beforehand, placing them on the tooth as a unit and then securing the frame to the sheet. In the fourth technique, the rubber sheet and frame are placed first and the clamp is applied to the tooth afterward. The choice of technique may vary depending on the clinician's preferences and the specific clinical situation.[6]

Despite being widely acknowledged and taught as the indispensable "gold standard" in endodontic practice, RD is still underutilized in routine clinical settings. Recent studies have highlighted that the frequency of RD application remains significantly below the expected levels.[4,7]

The aim of this study is to evaluate the effect of practical RD training, in addition to theoretical instruction, on dental students' attitudes toward RD and their perceived self-efficacy regarding its clinical use. The findings are intended to contribute scientifically to the evaluation of the role and effectiveness of hands-on training within dental education curricula.

Materials And Methods

Study Design and Setting

This cross-sectional survey study was conducted at the Faculty of Dentistry, Çankırı Karatekin University, in May 2025.

Study Population and Sample

A total of 94 third- and fourth-year undergraduate dental students enrolled at the Faculty of Dentistry, Çankırı Karatekin University, were invited to participate in the study. Participants had previously completed the theoretical curriculum on RD use as part of their preclinical training but had limited hands-on experience in clinical settings. Inclusion criteria were: being actively enrolled in the third or fourth year, having attended the RD theoretical lectures and agreeing to participate voluntarily. Students who had prior clinical experience with routine RD application were excluded. The sample size was not calculated a priori; instead, participation was based on voluntary responses.

Questionnaires and the Training

Data were collected anonymously using an online questionnaire (Google Forms). The questionnaire had two sections. The first included three closed-ended questions regarding sociodemographic data (age, gender and year of study). The second section contained nine items assessing the knowledge, attitudes and perceptions of students who had received only theoretical training on RD use.

Following the initial questionnaire, participants attended a practical RD training session on dental phantom models under the supervision of an experienced instructor (EGS). The session lasted a total of 6 hours: a 2-hour demonstration phase and a 4-hour hands-on practice phase. During the demonstration phase, RD equipment and its intended purposes were reviewed and four standard placement techniques were explained and demonstrated step-by-step: 1st technique – direct placement of the RD sheet onto the tooth in one step; 2nd technique – placement of the clamp first, followed by the frame and RD sheet; 3rd technique – simultaneous placement of the clamp and RD sheet, followed by the frame; and 4th technique – placement of the RD sheet and frame first, with the clamp attached last. Each technique was demonstrated on anterior, premolar and molar teeth in both maxillary and mandibular arches.

In the practice phase, all participants individually applied the four techniques on phantom models, covering anterior, premolar and molar regions of both arches.

After the training, a second questionnaire was administered, including the same nine pre-training questions plus eleven additional items evaluating participants' hands-on experiences and practical assessments of RD use. All items were closed-ended, using Likert-type scales or multiple-choice formats (See Table 1 for survey questions).

Data Collection

All the data were collected anonymously and used solely for research purposes. Participation was voluntary and all completed questionnaires were evaluated anonymously.

Table 1. Survey questions

Q1	A theoretical explanation of the RD isolation technique is sufficient to be able to apply RD.
Q2	The RD isolation technique should also be taught in a hands-on laboratory setting.
Q3	Treatments performed using RD will have a higher success rate.
Q4	Tools such as cotton rolls and suction can provide sufficient isolation without RD.
Q5	Using RD will make it easier to access root canals.
Q6	The use of RD is generally challenging.
Q7	Do you plan to use RD in restorative treatment?
Q8	Do you plan to routinely use RD in endodontic treatment?
Q9	At which stage of endodontic treatment would you prefer to use RD?
Q10	Which RD application technique did you find the easiest to perform?
Q11	Would you change the technique when applying RD to the anterior, premolar or molar region?
Q12	Which method would you prefer in the maxillary anterior region?
Q13	Which method would you prefer in the maxillary premolar region?
Q14	Which method would you prefer in the maxillary molar region?
Q15	Which method would you prefer in the mandibular anterior region?
Q16	Which method would you prefer in the mandibular premolar region?
Q17	Which method would you prefer in the mandibular molar region?
Q18	Which is the most difficult stage of RD application for you?
Q19	I do not plan to use RD when treating patients because:
Q20	Please mark the advantages that you think RD has.

Questions Q1–Q6 were answered using a Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Questions Q7–Q20 were multiple-choice. Questions Q10–Q20 were asked in the second round of the survey, following the practical training. RD: rubber dam.

Statistical Analysis

The statistical analyses were conducted using the R programming language (version 2025.05.1.513; R Core Team, Vienna, Austria) and the RStudio integrated development environment (RStudio version 2025.05.1; Posit, Boston, MA, USA), at a 0.05 level of significance. The analyses employed the DescTools[8] and effsize[9] packages for statistical tests and effect size calculations.

To compare the pre- and post-training responses to the first six questions, which employed a Likert scale, the Wilcoxon rank sum test was used. Effect size was expressed as the rank-biserial correlation (r), calculated as $r=Z / \sqrt{N}$, where Z is the standardized test statistic and N the total number of observations. The Cochran-Armitage test for trend was applied to evaluate the frequency with which participants intended to use RD in restorative and endodontic treatments. For the analysis of responses regarding the stage of endodontic treatment at which RD was preferred, Fisher's Exact Test was employed. Analyses concerning the preferred clinical techniques were conducted using the Chi-squared test. The strength of association in Chi-square tests was quantified using either Cramer's V or Cohen's w, depending on the contingency table structure.

Interpretation of effect sizes followed established conventions: small ($0.10 \leq |r|, |V|, |w| < 0.30$), medium ($0.30 \leq |r|, |V|, |w| < 0.50$), and large ($|r|, |V|, |w| \geq 0.50$).

A priori power analysis was not conducted, as the sample consisted of 70 volunteer students whose participation was beyond the researchers' control.

Ethical Approval

The ethical approval for the study was obtained from the Ethics Committee of Çankırı Karatekin University, Faculty of Health Sciences (approval date: 27/05/2025, meeting no: 21). The research was conducted in accordance with the principles of the Declaration of Helsinki.

Results

A total of 94 dental students, of whom 70 students (49 third-year and 21 fourth-year) completed the process. The age range of participants was 20 – 27 years (mean ± SD: 21.9 ± 1.18 years) and the sample included 26 males and 44 females. The two-stage questionnaire was answered in full by all participants both before and after the practical training, yielding a 100% response rate. Of the participants, 26 were male (37.1%) and 44 were female (62.9%). The mean

Table 2. Distribution of student responses to Likert-scale questions (Q1–Q6) before and after the training

Likert scale	Step 1 (%)					Step 2 (%)					p
	1	2	3	4	5	1	2	3	4	5	
Q1	14	17	34	7	27	30	29	37	1	3	**<0.001**
Q2	0	1	0	1	97	0	0	4	7	89	0.053
Q3	0	0	4	17	79	0	0	4	19	77	0.849
Q4	17	40	27	1	14	19	41	24	3	13	0.753
Q5	0	9	24	27	40	3	4	19	23	51	0.208
Q6	11	34	41	7	6	23	49	14	6	9	**0.011**

The table presents the percentage of students selecting each response option (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) for each of the six survey questions. "Step 1" refers to responses collected before the training session; "Step 2" refers to responses collected after the training session. The p-values indicate the results of statistical tests comparing the overall distribution of responses between Step 1 and Step 2 for each question. Statistically significant p-values (<0.05) are shown in bold. Percentages may not sum to exactly 100% due to rounding. Please refer to Table 1 for the details of the questions.

Table 3. Distribution of student responses to Question 7 and Question 8 before and after the training

	Step 1 (9)			Step 2 (%)			p
	Rarely	Frequently	Always	Rarely	Frequently	Always	
Q7	37	59	4	17	53	30	<0.001
Q8	1	73	26	1	47	51	0.003

The table presents the percentage of students selecting each response option (Rarely, Frequently, Always) for each question. "Step 1" refers to responses collected before the training session; "Step 2" refers to responses collected after the training session. The p-values indicate the results of statistical tests comparing the overall distribution of responses between Step 1 and Step 2 for each question. Percentages may not sum to exactly 100% due to rounding. Please refer to Table 1 for the details of the questions.

age was 21.9 years. In terms of academic level, 21 students (30%) were in their fourth year and 49 (70%) were in their third year. All respondents indicated that they had received theoretical instruction on the RD isolation technique.

Before receiving the practical training, 34.2% of the participants (n=24) believed that theoretical instruction alone was sufficient and that hands-on training was unnecessary. However, this proportion decreased significantly to 4.3% (n=3) following the training session, a change found to be statistically significant (p<0.001, r=0.34).

The participants' agreement with the statement that "RD isolation should also be taught in a hands-on laboratory setting" did not change significantly after training (p=0.053, r=0.07).

There was no statistically significant difference between the pre- and post-training responses regarding the belief that "treatments performed using an RD are more likely to result in clinical success" (p=0.849, r=0.012). Similarly, attitudes toward the statement that "cotton rolls and aspiration can provide sufficient isolation without RD" did not change significantly after the training (p=0.753, r=0.025).

The number of students who believed that RD facilitates access to root canals increased from 47 (67.1%) before training to 52 (74.3%) afterward, but this difference did not reach statistical significance (p=0.208, r=0,1) (See Table 2 for the results of Questions 1 to 6).

The participants' tendencies to use RD were evaluated using the ordinal response options: "Rarely," "Frequently," and "Always." A statistically significant increase was observed in the intention to use RD more frequently in restorative procedures following the practical training (p<0.001, r=0.35). Similarly, there was a significant rise in the intent to routinely implement RD in endodontic treatments after training (p=0.003, r=0.32). These findings indicate that hands-on instruction positively influenced students' attitudes and behaviors regarding RD use (See Table 3 for the results of Questions 7 and 8).

When asked whether they preferred using RD at a particular stage of endodontic treatment, no statistically significant difference was found between responses before and after the practical training (p=0.27, V=0.19). However, the most frequently chosen stage for RD application was "after identification of root canal orifices" (See Table 4).

Following the practical training, 65.7% of participants identified "Technique 3: simultaneous placement of the clamp and RD, followed by frame positioning" as the

Table 4. Preferred stage for rubber dam application in endodontic treatment before and after training

	Step 1		Step 2	
	n	%	n	%
After locating canal orifices	38	54.3	48	68.6
After anesthesia	9	12.9	10	14.3
During access cavity preparation	15	21.4	7	10.0
During canal shaping	6	8.6	3	4.3
During canal obturation	2	2.9	2	2.9
Total	**70**	**100**	**70**	**100**
p value		**0.2707**		

The table shows the number (n) and percentage (%) of students selecting each preferred stage for rubber dam application during endodontic treatment, recorded before (Step 1) and after (Step 2) the training. Percentages are calculated column-wise for each step and may not sum to exactly 100% due to rounding.

easiest technique for RD application. Additionally, 41.4% (n=29) reported modifying their RD placement technique depending on the region of the tooth. Technique 3 emerged as the most frequently preferred approach in both the maxillary and mandibular arches across anterior, premolar and molar regions ($p<0.001$, $w=1.01$). No significant difference was observed in the technique preference between the maxilla and mandible ($p=0.853$, $w=0.04$, negligible effect). However, the frequency of selecting Technique 4 varied significantly by region ($p=0.012$, $w=0.40$), being most commonly preferred in the anterior region compared to others (see Table 5).

When asked about the most challenging aspect of RD application, 42.9% of the participants identified the simultaneous placement of the clamp, RD and frame as the most difficult step. Conversely, placing dental floss around the tooth was reported as the least challenging, with only 1.4% of participants identifying it as such.

Regarding potential future barriers to RD use, the most commonly cited reason was the perception that it is "time-consuming" (32.9%).

The main advantages of RD reported by the participants were as follows: effective saliva control (34.3%), reduced microbial contamination (28.6%), improved visibility of the operative field (18.6%), protection against aspiration and swallowing (17.1%) and soft tissue retraction (1.4%).

Discussion

An analysis of the participants' attitudes and tendencies regarding RD use in relation to gender revealed no statistically significant differences, aligning with previous literature suggesting that gender is not a determining factor in this context.[1,10] Similarly, no statistically significant difference was found between third- and fourth-year students in terms of their attitudes toward RD usage. This outcome may be attributed to the fact that students at both academic levels had not yet received practical training in RD application.

In a study conducted by Madarati, it was reported that 20.7% of participating dentists had not received any training on RD application during their undergraduate education.[11] The same study also highlighted a significant and positive correlation between RD usage during undergraduate training and its continuation in professional practice. In dental education, RD application is both encouraged and, in many restorative procedures, mandated. Furthermore, the European Society of Endodontology also includes RD usage among its quality standards.[2] Although RD

Table 5. Distribution of preferred rubber dam techniques by jaw type and intraoral region

Jaw	Region (%)	Technique 1 (%)	Technique 2 (%)	Technique 3 (%)	Technique 4 (%)	Total (%)
Maxilla	Anterior	10.0	10.0	57.1	22.9	**100**
	Premolar	7.1	7.1	74.3	11.4	**100**
	Molar	12.9	11.4	68.6	7.1	**100**
	Overall	10.0	9.5	66.7	13.8	**100**
Mandible	Anterior	12.9	4.3	65.7	17.1	**100**
	Premolar	7.1	10.0	72.9	10.0	**100**
	Molar	8.6	10.0	72.9	8.6	**100**
	Overall	9.5	8.1	70.5	11.9	**100**
Both jaws	Overall	9.8	8.8	68.6	12.9	**100**

The table shows the percentage distribution of four rubber dam application techniques across different jaw types (maxilla, mandible) and intraoral regions (anterior, premolar, molar). Percentages are calculated row-wise, with each region summing to 100%. "Overall" rows represent the combined data for all regions within the same jaw type. "Both jaws" refers to the combined data for maxilla and mandible. Percentages may not sum to exactly 100% due to rounding.

training is incorporated into Türkiye's National Core Dental Education Curriculum (DUCEP), several studies have identified issues such as insufficient training, low frequency of usage and lack of student motivation.[12,13] The relatively low utilization of RD in Türkiye has been attributed in the literature to systemic, pedagogical and cultural factors. Limited clinical training time in the curriculum, deficiencies in clinical infrastructure and adherence to traditional clinical practices have been identified as significant contributors to this phenomenon.[14,15]

According to the survey results, while 34.2% of participants initially believed that theoretical instruction was sufficient for RD application, 58.6% stated after the training that theoretical knowledge alone was inadequate. This shift suggests that practical training significantly enhances students' awareness and understanding. Moreover, it underlines the need to evaluate the impact of various teaching strategies on RD use in undergraduate education.[16]

This finding indicates that the importance of RD use has been emphasized at a theoretical level and that students have become aware of its significance. Joynt et al.[17] have suggested that explaining the rationale for RD use is more important than the application techniques themselves. However, in this study, particular attention was also given to RD placement techniques. This focus is justified, as significant discrepancies have been reported between the awareness of RD importance and its actual clinical usage rates, both in Türkiye and other countries.[13,16,18] Although the positive impact of rubber dam use on endodontic treatment outcomes has been frequently reported in the literature, this study did not collect direct clinical success data. Therefore, the contribution of RD use to clinical success is discussed solely within the context of existing literature findings rather than based on data from the current study.

Most participants were aware of the advantages of RD, a finding consistent with multiple studies conducted in Türkiye.[18] This indicates a growing awareness of RD's importance at the theoretical level. Joynt et al.[17] argue that explaining the reasons for RD use is more crucial than teaching placement techniques. However, the current study places specific emphasis on RD placement techniques, as discrepancies have been reported both in Türkiye and internationally between the perceived importance of RD and its actual clinical implementation.[18,19]

Therefore, it is essential to teach proper RD usage during both undergraduate and postgraduate training. Previous research has shown that those who acquire the skill to apply RD are more likely to use it in clinical settings.[11,17] A balanced emphasis on both theoretical background and hands-on practice could effectively increase RD adoption. Participants identified the main advantages of RD as saliva control (34.3%), reduction of microbial contamination (28.6%), improved visibility of the operative field (18.6%), protection against aspiration and ingestion (17.1%) and isolation of soft tissues (1.4%). These findings agree with Tanalp et al.[20]

In this study, when participants were asked whether they preferred to use RD during a specific stage of endodontic treatment, the most frequently reported stage was "after identifying the canal orifices." There was no statistically significant difference between pre- and post-training responses (p=0.271). The main reported advantages of RD use were ensuring saliva control (34.3%), reducing microbial contamination (28.6%), improving visibility of the operative field (18.6%), protecting against aspiration and ingestion (17.1%) and isolating soft tissues (1.4%).

The literature indicates that RD use provides important clinical benefits during different stages of endodontic treatment. During access cavity preparation, RD prevents contamination of the pulp chamber and reduces the risk of instrument ingestion or aspiration.[1] In the canal shaping stage, it maintains an aseptic and dry working environment, thereby minimizing the risk of bacterial ingress.[21] During obturation, RD facilitates the precise placement of obturation materials and enhances patient safety against exposure to substances such as sealers or solvents.[21] When our findings are evaluated in light of this evidence, RD isolation emerges not only as a standard procedure but also as a critical factor that enhances both treatment quality and patient safety.

Soldani and Foley stated that dentists who refrain from using RD are often trained by instructors who do not themselves endorse the practice.[22] In the present study, enthusiasm for using RD in endodontic procedures was notably high, with 98.6% of participants expressing willingness to use it both before and after the practical training. However, an increase was observed in willingness to use RD in restorative procedures after the hands-on training. This suggests the importance of instructor consistency and motivation in encouraging RD use among students.[23] Therefore, it is crucial that dental schools provide students with sufficient opportunities and materials for practice. RD placement is a teachable skill that can be developed through regular repetition.[24]

Contrary to some findings in the literature, a majority of participants in this study stated before (57%) and after (60%) the training that alternative isolation methods (e.g., cotton rolls, suction) were inadequate.[25] Although such methods may offer some protection for soft tissues, they do not prevent aspiration or swallowing of endodontic instruments and fail to achieve complete isolation.[11]

Throughout both of the phases of the study, the opinion that RD application is difficult remained at low levels. The main limiting factors reported were the procedure being time-consuming (32.9%), technically difficult (17.1%) and costly (10%). These findings align with previous research where RD use was similarly limited.[26,27] While most participants described RD as time-consuming, some studies argue that it actually saves time by providing a more efficient working field.[28] Other studies have shown that even inexperienced clinicians can apply RD within minutes.[29]

Whitworth et al.[28] reported that newly graduated dentists were more likely to use RD compared to their more experienced counterparts. In contrast, studies from Türkiye have found that only a limited number of dentists use RD regularly.[18]

The relatively low use of RD in Türkiye has been attributed in the literature to systemic, pedagogical and cultural factors. Limited time allocated for practical training in the curriculum, deficiencies in clinical infrastructure and adherence to traditional clinical practices have been identified as important contributing factors.[14]

When participants were asked at which stage of endodontic treatment they preferred to use RD, the most common response was "after locating canal orifices" (68.6%), followed by "after anesthesia" (14.3%), "during access cavity preparation" (10%), "during canal shaping" (4.3%) and "during canal obturation" (2.9%). Another study reported that RD was most frequently used following anesthesia, followed by canal orifice identification and access preparation.[30]

These differences may be related to the techniques through which students are taught. However, in both studies, the least preferred stage was obturation, suggesting that students understand the purpose of RD use regardless of the treatment phase.

After the practical training, the majority of participants (65.7%) considered the third technique—placing the clamp and RD sheet together, followed by the frame—to be the easiest technique. Other techniques were reported with similar levels of difficulty: the fourth technique (placing the RD sheet and frame first, then the clamp) at 14.3%; the first technique (applying RD as a single piece) at 10%; and the second technique (placing the clamp first, then the RD sheet and frame) also at 10%. Additionally, 41.4% of participants reported changing their technique depending on the tooth region. Consistent with the general findings, the third technique was the most preferred overall.

The most challenging steps during application were reported as the simultaneous placement of the clamp, RD sheet and frame (42.9%); placement of the clamp and RD together (24.3%); and positioning the clamp onto the RD sheet (11.4%). In contrast, the least difficult step was placing the dental floss, a technique also demonstrated during the training, which only 1.4% of participants identified as challenging.

Further research is needed to evaluate RD placement techniques based on the specific region of the oral cavity. Additionally, efforts should be made to develop new materials that simplify these procedures.

The findings of this study demonstrate that dental students acknowledge the importance of RD use and are willing to adopt it in their future practice. However, studies have also shown a decline in RD usage following graduation.[25,29] Although RD application is reported to be common in endodontic treatments in several countries, inconsistencies remain between usage rates among students and practicing dentists.[1]

To minimize this gap, several strategies aimed at enhancing student motivation should be adopted and greater emphasis should be placed on the frequency of RD use during education. As in this study, presenting different techniques not only theoretically but also through hands-on practice can help students develop the ability to apply RD appropriately across various jaw regions, potentially increasing its usage in clinical settings.

Limitations

This study has several limitations. The inclusion of participants exclusively from the third- and fourth-year cohorts of a single faculty of dentistry restricts the extent to which the findings can be generalized. Additionally, as the data were collected through self-reported questionnaires, the responses may have been influenced by the participants' subjective perceptions. The study primarily focused on quantitative data, which may have limited the depth of certain insights. Future research is recommended to involve larger and more diverse samples from multiple institutions to enhance the robustness and applicability of the findings.

Conclusion

Hands-on training positively influences dental students' attitudes and motivation toward RD use. Students show a strong preference for RD during endodontic procedures, with increased willingness to use it in restorative treatments after practical instruction. Even before training, many students recognized RD as a more effective isolation method compared to alternatives. Following the training, students showed enhanced knowledge, skills, and clinical awareness in the use of the rubber dam. Practical education reduces the perception that RD use is difficult or time-consuming. The evidence of decreased RD use after graduation underscores the need for more extensive practical opportunities during undergraduate education. Systematic teaching of various RD application techniques using phantom models may support continued and effective clinical use after graduation.

Ethics Committee Approval: The Çankırı Karatekin Ethics Committee granted approval for this study (date: 27.05.2025, number: 21).

Informed Consent: Written informed consent was obtained from participants.

Conflict of Interest: None declared.

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