School of Dentistry

Shiraz University of Medical Sciences

AuthorAID in the Eastern Mediterranean

Workshop: Research writing and publication

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Day 1

EXERCISE: Please write a title for each abstract. What specialty do you think the articles are from? What specialists need to read this article to improve their research or clinical care?

1. Title:

Background
Ultraviolet (UV) radiation-induced p53 activation promotes cutaneous pigmentation by increasing transcriptional activity of pro-opiomelanocortin (POMC) in the skin. Induction of POMC/α-melanocyte-stimulating hormone (α-MSH) activates the melanocortin 1 receptor (MC1R), resulting in skin pigmentation. The common p53 codon 72 polymorphism alters the protein's transcriptional activity, which may influence the UV radiation-induced tanning response.
Objectives
We assessed the association of the p53 codon 72 polymorphism with tanning response, and its interaction with MC1R variants on tanning response and skin cancer risk.
Methods
The assessment was done in a nested case–control study within the Nurses' Health Study [219 melanoma cases, 286 squamous cell carcinoma (SCC) cases, 300 basal cell carcinoma (BCC) cases and 874 controls], and among controls from four nested case–control studies within the Nurses' Health Study.
Results
We found that the p53 Proline (Pro) allele was positively associated with childhood tanning response only among black/dark brown-haired women. Compared with the Arginine/Arginine (Arg/Arg) genotype, odds ratios (ORs) of childhood tanning tendency for Arg/Pro and Pro/Pro genotypes were 1·59 (95% CI, 0·96–2·65) and 1·56 (95% CI, 0·55–4·40), respectively. The association between MC1R variants and childhood tanning tendency was similar in both p53 Arg/Arg genotype and Pro allele carriers (Arg/Pro or Pro/Pro). The association of the p53 Pro/Pro genotype with melanoma risk was strongest among women with light pigmentation, and with MC1R variants, with the joint risk categories having the highest overall risk. We did not observe such interaction for SCC and BCC.
Conclusions
Our study suggests the involvement of the p53 codon 72 polymorphism in the skin tanning response and potential interaction with skin pigmentation on melanoma risk. Further work is needed to evaluate the association between p53 and its associated proteins and skin cancer risk.

2. Title:

Abstract
Papillary renal carcinoma (PRC) comprises about 10% of all kidney epithelial tumors. Familiar/hereditary papillary renal carcinomas (HPRCs) have been described, but the majority of cases seem to be sporadic. HPRC is characterized by the predisposition to develop bilateral, multifocal renal tumors. Activating mutations in the tyrosine kinase domain (TK) of the hepatocyte growth factor (HGF) receptor, c-met, have been identified in both hereditary and sporadic PRC. The main aim of this study was to examine a family with no history of PRC in which the proband was a female patient affected by multiple and bilateral PRC at early onset. DNA mutation analysis has been performed by direct sequencing of exons 14-21 of c-met gene which include the TK domain. The proband displayed the germline c-met missense mutation g.3522G→A in exon 16. Two other family members were found to carry the same mutation. The mutation analysis extended to 15 selected patients, allowed to identify the first case of an Italian patient affected by PRC displaying the somatic missense mutation g.3997 T→C located in exon 19 of c-met. The mutation frequency of the selected-based population of PRC patients in this report was 12.5%. Furthermore, the phosphorylated c-met expression detected by immunohistochemistry in PRCs with germline/somatic or no c-met mutation, supports the concept that c-met activation may occur in PRC oncogenesis by c-met mutations and/or c-met over-expression.

3. Title:

BACKGROUND: Transient bradycardic hypotensive events occur in resting rabbits. If the hypotension is due to vasodepression, these events may be a model for vasovagal syncope.
OBJECTIVES: To determine whether these events are responses to brief stimuli and whether the hypotensive episodes are solely due to rapid-onset bradycardia.
METHODS: Rabbits were instrumented with subcutaneous electrocardiogram leads, and cannulae were acutely inserted into an ear artery to obtain continuous arterial pressure measurements. Exposure to brief, low-level auditory stimuli at 5 kHz transiently increased the RR interval by approximately 70 ms and decreased mean arterial pressure by approximately 5 mmHg.
RESULTS: These evoked bradycardic hypotensive events were almost identical to previously reported spontaneous bradycardic hypotensive events. Intra-aortic telemetric blood pressure monitoring was used to demonstrate that the evoked hypotension reflected prolonged diastole, rather than local ear arterial vasoconstriction. Furthermore, administration of the muscarinic blocker glycopyrrolate abolished not only bradycardia (RR interval 64±14 ms to 1±1 ms; $P<0.0001$), but also hypotension (-4.1±0.8 mmHg to -0.4±0.3 mmHg; $P=0.0055$). Finally, cardiac pacing abolished the inducible bradycardia (RR interval 51±10 ms to 2±1 ms; $P=0.0006$) and its associated hypotension (-4.1±0.7 mmHg to -1.2±0.3 mmHg; $P=0.003$).
CONCLUSIONS: Brief auditory stimuli evoked a transient bradycardia mediated by cardiac muscarinic receptors and consequent hypotension. This is not a model for vasovagal syncope.

Who can help you improve your writing? When can they help you?

Table 1. Types of text problems and who can help authors to improve the text

Text problem	Origin	Who can help	When
Grammar, syntax	Writing, editing (superficial)	Well-educated native speaker, preferably with some specialized knowledge	Before submittal
Specialized terminology, usage	Writing, editing	Subject expert (peer) or specialized translator/editor	Before submittal
Organization, logical flow	Content, thinking (deep)	Well-educated native speaker, translator/editor or subject expert (peer)	During writing before submittal, during review for resubmittal
Rhetoric, persuasiveness	Content, thinking	Well-educated native speaker, translator or author's editor, or subject expert (peer)	During writing before submittal, during review for resubmittal
"Scientific style," usage, nomenclature	Editing (discipline-specific)	Copyeditor or proofreader	After acceptance but before publication

Day 2

EXERCISE: Please analyze the sample manuscript below to see if it satisfies the goals for clear writing. Please identify different types of writing problems: use of English (language and writing) or scientific content and logic.

NOTES:

SAMPLE MANUSCRIPT

Using orthodontic intrusion of abraded incisors to facilitate restoration
The technique's effects on alveolar bone level and root length

Abstract
Background. The authors examined the effects of orthodontic intrusion of abraded incisors in adult patients to facilitate restoration, focusing specifically on changes in alveolar bone level and root length.
Methods. The authors analyzed records of 43 consecutive adult patients (mean age 45.9 years). They identified intrusion by means of cephalometric radiographs and bone level and root length by means of periapical radiographs. They calculated treatment differences from the pretreatment period to the posttreatment period.
Results. In general, bone level followed the tooth during intrusion, but a small amount of bone loss occurred ($P < .0001$). There were no significant associations with age, sex, treatment time, intrusion or pretreatment bone level. All intruded teeth exhibited significant root resorption during treatment (mean = 1.48 millimeters). However, the change was similar to that seen in incisors that were not intruded. There were no associations with age, sex, treatment time or intrusion, but there was a positive relationship between pretreatment root length and root resorption.
Conclusions and Clinical Implications. Incisor intrusion in adults moves the dentogingival complex apically and is a valuable adjunct to restorative treatment. Potential iatrogenic consequences of alveolar bone loss and root resorption are minimal and comparable with the consequences of other orthodontic tooth movements.

Key Words: Orthodontics; incisor abrasion; intrusion; interdisciplinary; restorative; bone level; root resorption

Abbreviations: AC: Alveolar crest. • **CEJ:** Cementoenamel junction. • **D:** Distal. • **M:** Mesial. • **T1:** Pretreatment. • **T2:** Posttreatment.

Introduction

The number of adult patients referred for orthodontic treatment has increased through the years. Many of these patients have significant anterior tooth wear caused by parafunction, trauma or both.[1] In most circumstances, the teeth erupt to maintain contact, resulting in short clinical crowns and disproportionate marginal gingivae. The result usually is unesthetic and often presents a dilemma for the restorative dentist. Surgical crown lengthening may be used to address this specific problem. However, in many cases periodontal surgery is undesirable, because it requires greater incisal reduction and often leads to a more extensive final restoration. Orthodontic intrusion offers a valuable alternative as part of the interdisciplinary management of such cases.[2,3] It has the potential added benefit of a more conservative final restoration. In many cases, a bonded veneer restoration is possible, thus precluding the need for full coverage.

An example of maxillary incisor intrusion is shown in Figure 1. One of the authors (V.G.K.) intruded this patient's maxillary central incisors to achieve ideal crown proportions and improve the relationship of the anterior marginal gingiva. Figure 2 shows the intrusion of mandibular incisors performed by the same clinician to create interocclusal space, thus precluding the need for periodontal surgery and facilitating restoration of the abraded teeth to ideal proportion.
←Proof of concept?

Few studies have focused on incisor intrusion in adult patients. What happens to the alveolar bone level as the teeth move apically? Are these teeth more susceptible to root resorption? Some researchers suggest that incisor intrusion actually may improve bone levels and lead to regeneration of lost periodontal attachment[1,2]; however, this has not been confirmed in a large sample of patients. Current thoughts with regard to root resorption are equally controversial. Therefore, the purpose of our study was twofold: to determine the effect of adult incisor intrusion on alveolar bone level and on root length.

Writing or editing errors in

1. Spelling and language usage

2. Content for the Introduction section

3. Conceptual confusion reflected in careless use of English: quantitative variable (bone level in mm) described with qualitative verb (to improve)

Materials and methods
Subjects. We collected the records of 51 consecutively treated adult patients (aged ≥19 years) from four Seattle orthodontic practices (one of which belongs to one of the authors [V.G.K.]; the other three used the same radiography laboratory and treated a large number of intrusion cases). The institutional review board at the University of Washington, Seattle, approved the subject recruitment and records analysis. We selected records using the following criteria:

Materials and methods
Participants. We retrospectively reviewed the records of 51 consecutively treated adult patients (aged ≥19 years) from four Seattle orthodontic practices. One practice belongs to one of the authors (V.G.K.); the other three used the same radiography laboratory and treated many patients with intrusion. The institutional review board at the University of Washington, Seattle, approved the subject recruitment and records analysis. We selected records using the following criteria:

– incisor intrusion attempted to create interocclusal space for restorative treatment, correction of excessive anterior overbite or both;
– pretreatment (T1) and posttreatment (T2) anterior periapical and lateral cephalometric radiographs obtained under identical conditions at a professional imaging center (Northwest Radiography, Seattle);
– treatment completed between 1995 and 2006;
– no incisor extraction or restorative procedures affecting the cementoenamel junction (CEJ) during the treatment period.

We excluded six subjects because their T1 anterior periapical radiographs had been obtained at a different facility, and we excluded two because of incisor extraction. Thus, we obtained a sample of 43 subjects (27 men, 16 women), with a mean age of 45.9 years (range, 19.2–63.6 years) and a mean total treatment time of 28 months (range, 16–40 months).

Among the four clinicians who participated in our study (one of whom is an author [V.G.K.]), intrusion mechanics were similar, involving continuous arch wires with reverse curves, step bends or both. To minimize relapse, the clinicians retained the intruded incisors in their desired positions for at least six months before removing the appliances.

The four clinicians who participated in our study (one of whom is an author [V.G.K.]), used similar intrusion mechanics, involving continuous arch wires with reverse curves, step bends or both. To minimize relapse, the clinicians retained the intruded incisors in their desired positions for at least six months before removing the appliances.

Radiographic measurements. We used cephalometric radiographs to measure incisor intrusion and anterior periapical radiographs for all measurements of alveolar bone level and root length. We imported and analyzed digital images with ImageJ, a public-domain Java image-processing program developed at the U.S. National Institutes of Health and available on the Internet at "http://rsb.info.nih.gov/ij/". We made all measurements to the nearest 0.01 millimeter and made no corrections for magnification.

The authors used the incisor centroid, defined as a point on the longitudinal axis of the tooth that is independent of any change in inclination, to measure intrusion.[10] Incisor proclination, or tooth tipping, is a common side effect of intrusion. Using the incisor centroid eliminated this variable and allowed a true representation of the intrusion achieved during treatment. We estimated the centroid of maxillary and mandibular central incisors to be 33 percent of the distance from the midpoint of a line connecting the mesial and distal alveolar crest (AC) to the root apex.[11] After we identified the centroid on T1 anterior periapical radiographs, we transferred it to T1 and T2 cephalometric radiographs using the labial CEJ as a common reference point. We used a reference plane relative to the centroid to evaluate whether true intrusion had been achieved; we used the palatal plane (anterior nasal spine–posterior nasal spine) for the maxillary incisors and the mandibular plane (gonion-menton) for the mandibular incisors as skeletal reference structures. We used the vertical change of the incisor centroid during treatment relative to the reference planes to measure the amount of intrusion. We assumed that the vertical change of adjacent central incisors would be identical.

We measured alveolar bone level and root length on periapical radiographs. A single examiner (L.J.B.), who was blinded to the record period (T1 or T2), evaluated the position of the CEJs, the level of the ACs and the root apexes of the central incisors. This same examiner measured bone level as the vertical distance from the proximal CEJ to the AC. If a full-coverage restoration was present, he substituted the crown margin for the CEJ. We defined the AC as the most coronal area where the periodontal space retained its normal width.[12] The examiner evaluated the mesial and distal aspects of four teeth—the right maxillary central incisor, the left maxillary central incisor, the right mandibular central incisor and the left mandibular central incisor—for a total of eight sites. He measured root length as the distance from the midpoint on a line connecting the mesial and distal CEJ to the root apex. We evaluated all four central incisors (maxillary and mandibular). To ensure projection similarity, we used the maxillary and mandibular periapical radiographs centered on the midline for analysis.
We omitted all nonmeasurable sites from the analysis.

To ensure examiner reliability, the primary author (L.J.B.) repeated and recorded complete T1 and T2 measurements, one month apart, for 10 randomly selected patients.

Data analysis. We calculated the differences between T1 and T2 for all data. We compared alveolar bone levels and root lengths at all sites by using a paired *t* test. For the intrusion versus no-intrusion subgroup analysis, we averaged the data for each person and compared the results with a *t* test for independent samples. For the maxillary versus mandibular subgroup analysis, we averaged the values within each arch and compared them with a *t* test for paired samples.

We used multiple linear regression to determine the associations among variables. In the first model, change in alveolar bone level was the dependent variable, with age, sex, treatment time, magnitude of intrusion and T1 bone level serving as independent variables. In the second model, root resorption was the dependent variable, with age, sex, treatment time, magnitude of intrusion and T1 root length serving as independent variables. We used a significance level of .05 in all analyses.

Writing or editing errors in

1. English style and usage (nondehumanizing language)

2. Technical editing (percent or %, millimeters or mm)

3. Consistency in authorial voice (We or The authors)

Results

Method error. We assessed the examiner's reliability by computing intraclass correlation coefficients for repeated measurements. The coefficients ranged from 0.84 to 0.99, indicating high reliability of the measurements. The mean error for intrusion measurements was 0.44 mm for maxillary incisors and 0.69 mm for mandibular incisors. The mean errors for alveolar bone level and root length measurements were 0.19 mm and 0.27 mm, respectively.

Intruded incisors. Within the sample of 43 patients, 79 adjacent central incisor pairs (maxillary and mandibular) were available for study. On the basis of the results of the error study, we defined intrusion as greater than 1.00 mm of vertical movement of the incisor centroid. Combining both maxillary and mandibular incisor pairs, we found that 52 pairs met this criterion with a mean intrusion of 2.29 mm (range, 1.07–4.86 mm).
Relative to the CEJ, alveolar bone level remained relatively constant after intrusion (Table 1 and Figure 3). In other words, the bone followed the tooth during the intrusive movement. All sites exhibited significant bone loss; however, the change was minimal, with a mean loss of 0.32 mm. In general, there was a trend for the mesial sites to lose more bone than the distal sites; however, the difference was not statistically significant (P = .13).

All intruded incisors underwent significant root resorption during treatment (Table 2 and Figure 4). There was considerable variation between people as indicated by the high standard deviations within the sample. The mean root resorption was 1.73 mm for maxillary incisors and 1.37 mm for mandibular incisors. Statistically, there was no difference between right and left incisors (P = .56) and between opposing arches (P = .19).

Intrusion versus no intrusion. Of the 79 adjacent central incisor pairs, 52 were intruded more than 1.00 mm, and 27 were treated orthodontically but not intruded. Within the initial sample of 43 patients, 20 had central incisors in one or both arches that were not intruded. We derived a no intrusion group that excluded the values for any intruded incisors; 23 patients had central incisors in one or both arches that were intruded. We derived an intrusion group that excluded the values for any nonintruded incisors. We averaged both the bone level and root length of all sites within each person and compared them between groups.

The mean intrusion was 2.24 mm (range, 1.07 to 4.86 mm) for the intrusion group and –0.46 mm (range, –1.01 to 0.67 mm) for the no-intrusion group. The groups were well-matched with regard to age, treatment time, T1 bone level and T1 root length (Table 3). There was no statistical difference between the groups for either bone level or root resorption. Considering the entire sample, approximately 10 percent of root length was lost during treatment.

Edited sentence: In both intruded and nonintruded incisors, an average of approximately 10 percent of root length was lost during treatment.

Maxillary versus mandibular central incisors. Within the sample of 43 subjects, 16 patients had both maxillary and mandibular central incisors that were intruded more than 1.00 mm. We averaged the measurements for all sites within each arch and compared the two groups. / subgroups.

The mean intrusion was similar for both groups (Table 4). T1 bone levels and root lengths were significantly different. Mandibular incisors tended to have less bone support, and maxillary roots were longer. There was no statistical difference in bone level change and root resorption between intruded maxillary and mandibular central incisors.

Regression analysis. On the basis of the multiple linear regression model (n = 79), we found no association between the change in bone level and the following variables: age, sex, treatment time, magnitude of intrusion and pretreatment bone level. Similarly, we found no association between root resorption and the following variables: age, sex, treatment time and magnitude of intrusion. However, there was a significant association between root resorption and pretreatment

root length ($P < .0001$). The coefficient for this variable was 0.085, indicating approximately 0.085 mm of additional root resorption per millimeter increase in root.

Writing or editing errors in

1. Clarity of the language (-ing forms of verbs, groups and subgroups)

2. Technical editing (percent or %, millimeters or mm)

Discussion

The patients in our sample underwent orthodontic treatment primarily because of esthetic concerns about their anterior teeth. Long-term incisal wear with subsequent overeruption results in short clinical crowns and disproportionate marginal gingivae. Assuming / If the bony attachment follows the tooth during the eruptive process, there are two ways for clinicians to address these esthetic concerns: surgical crown lengthening and orthodontic intrusion.[1] Crown lengthening exposes cementum and subsequently requires a more invasive, full-coverage restoration. Orthodontic intrusion provides the potential benefit of limiting the restored area to enamel and often results in a more conservative bonded-veneer restoration. Intrusion is beneficial restoratively only if the bone level follows the tooth as it moves apically. In our study, many of the adult patients underwent incisor intrusion of as much as 4.00 mm, thus providing a unique sample for investigation.

Edited sentence: Many of the patients we studied had incisor intrusion of as much as 4.00 mm, and thus provided a unique sample for research.

The results demonstrate that, in relation to the CEJ, alveolar bone levels remain relatively constant during incisor intrusion. In other words, the bone follows the tooth as it moves apically. Clinically, this finding is beneficial because the primary goal of orthodontic treatment is to move the dentogingival complex apically and restore the missing coronal tooth structure. Our results conflict with those of previous human and animal studies that have shown bone movement toward the CEJ after incisor intrusion.[4–9] The human studies involved only patients with previous periodontal bone loss and, therefore, involved a combined approach in which clinicians performed periodontal surgery to débride the root surface before orthodontic treatment.[5–9] In essence, movement of the bone toward the CEJ constitutes periodontal regeneration **??new para needed.** A critical step in regeneration is the population of the root surface by regenerative cells from the periodontal ligament, bone or both, which can be facilitated by surgical débridement.[13] Most of the patients in our sample had minimal periodontal bone loss and had not undergone adjunctive periodontal procedures before having orthodontic procedures. This difference in treatment approach may explain why our results conflict with those of previous clinical studies.[5–9]

Our results are in agreement with those of other studies showing a small amount of bone loss during treatment.[14–18] The loss was similar in both arches and occurred regardless of whether or not the teeth were intruded. Nelson and Artun[18] studied alveolar bone changes in 343 consecutive adult orthodontic patients. They reported a mean bone loss of 0.54 mm among maxillary anterior teeth, which is similar to our finding of 0.32 mm. In adults, bone loss increases with age in the absence of orthodontic treatment. Albandar and colleagues[19] studied bone loss in untreated adult subjects across two years. They found little bone loss in subjects 32 years or younger, but found a loss of 0.20 mm per year in subjects aged 33 to 45 years. Given that the mean patient age in our study / the mean age of our patients was 45.9 years and patients had an average treatment time of 28 months, the patients' bone loss may have occurred independent / independently / regardless of orthodontic treatment.

Intrusion as a predictor of root resorption is a controversial topic in the literature. It is commonly believed that high stresses concentrated at the root apex during intrusion place these teeth at

higher risk for apical resorption.[20–22] Several studies of adolescents have examined this relationship,[23–27] but assessing intrusion in adolescent patients is difficult because it is complicated by / is complicated by vertical growth of the facial skeleton and alveolus. As McFadden and colleagues[25] demonstrated, intrusion of incisors in a growing patient is "holding against growth" **??meaning unclear** rather than true intrusion. Our study focused specifically on adults, and absolute intrusion was achieved entirely through vertical movement of the teeth within the alveolus. The intruded incisors in our sample exhibited **significant** root resorption. / **Considerable** root resorption occurred in the intruded incisors in our sample. However, results from / the results of our regression analysis were in agreement with results from previous studies and showed no relationship between the magnitude of intrusion and the amount of root resorption. In addition, our results support previous studies with adults that showed intrusion was not a significant predictor of apical resorption.[28,29]

The results of our subgroup analysis showed no difference in the amount of root resorption when we compared intruded incisors to those orthodontically treated / those that were treated orthodontically but not intruded. This finding supports the hypothesis that the amount of apical resorption may be related more closely to total displacement of the apex rather than direction of movement. As demonstrated in a 2004 meta-analysis,[30] apical displacement correlates highly with mean apical root resorption. The apexes of the nonintruded incisors may have been moved a similar distance but in a different direction, thus explaining our results. We did not assess total apical displacement in this study because of the difficulty in identifying the central incisor apex on cephalometric radiographs.

Our regression analysis showed no significant relationship between root resorption and the following variables: / the variables age, sex, treatment time and magnitude of intrusion. Most studies support this lack of association with age; however, a 2001 study of 868 patients showed that adults had significantly more resorption than children only when considering the mandibular teeth. / only in the mandibular teeth.[31] There have been conflicting results regarding the association between sex and root resorption. Results / The results from one study[32] showed a greater prevalence in men, but our results are in agreement with those of other studies that showed no significant association between sex and root resorption.[31,33] Of all treatment variables, treatment duration most often is correlated with resorption. **←Who is saying this? Unattributed source.** Still, / However, studies in adult patients report no association.[28,29] Prolonged treatment does not coincide necessarily with extended periods of active tooth movement and, thus, may be a poor predictive variable. / a poor predictor of **??** movement.[30] **←to coincide (occur simultaneously) = to predict (a phenomenon that happens after, not simultaneously with, an earlier phenomenon)**

As in results from other studies, we found a positive correlation between initial root length and the amount of root resorption.[18,31] The regression coefficient indicated 0.085 mm more resorption per millimeter increase in root length. A possible explanation for this finding is that apical displacement is greater during tipping and torquing of longer teeth. As clinicians, we are more concerned about resorption's / resoprtion occurring in patients with short roots. A more clinically relevant finding may be the loss of approximately 10 percent of total root length within our sample. However, individual susceptibility is likely the greatest factor in determining / likely has the greatest effect on root resorption, and clinicians should interpret generalizations with caution.

Incisor intrusion as an adjunct to restorative treatment is most applicable to / useful for patients with adequate bone support and root length. Dentists should exercise caution when considering this form of treatment for patients with significant periodontal bone loss, short roots or both. Clinicians should expect a further reduction in root length, as shown in this study. In some cases, this may lead to an unfavorable crown-to-root ratio, thus compromising the final restorative result.

Our study has limitations. We did not correct anterior periapical radiographs for differences in projection even though investigators commonly make such corrections according to the method

originally developed by Linge and Linge,[34] in which investigators use crown length as a reference to adjust for vertical angulation differences. The subjects in our study were atypical in that most received temporary incisal restorations after intrusion; therefore, the clinician modified crown length during treatment, and correction was not possible. Vertical angulation differences can affect root resorption estimates. However, Hausmann and colleagues[35] showed that angulation deviation of as much as 20 degrees has / had no significant effect on crestal bone height measurements. Despite our inability to make this correction, the radiographic quality and consistency were excellent because all patients' radiographs were obtained / produced at the same professional imaging center.

Conclusion

Orthodontic incisor intrusion in adults is a valuable treatment adjunct to the restorative management of incisal wear. Our findings suggest that the benefits of less tooth preparation and a more conservative final restoration outweigh the minimal iatrogenic effect on alveolar bone level and root length.

Edited Conclusion

Orthodontic incisor intrusion in adults is a potentially valuable treatment adjunct in the restoration of worn incisors. Our findings suggest that the benefits of less tooth preparation and a more conservative final restoration may outweigh the minimal iatrogenic effect on alveolar bone level and root length.

Writing or editing errors in

1. English grammar, syntax and usage

2. Exact meaning unclear in places

3. Paragraph organization

Source:

Bellamy LJ, Kokich VG, Weissman JA. Using orthodontic intrusion of abraded incisors to facilitate restoration. The technique's effects on alveolar bone level and root length. J Am Dent Assoc, 2008; Vol 139, No 6, 725-733.

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