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Fig. 1. Intraoral radiographs taken before placing miniscrews

Fig. 2. Schematic figure of placing miniscrews into the bone

Fig. 3. Intraoral photographs showing miniscrews, button and power chain applied

Fig. 4. Intraoral photographs showing overgrowth and redness of the gingiva

Fig. 5. Intraoral photographs showing good condition of the gingiva

Fig. 6. Intraoral radiography

Table 1. Number of miniscrews retained or lost

Table 2. Success rate following 8 weeks orthodontic force application
I. Introduction

Several studies have examined various aspects of the relationship between climate change and human health. For example, Aronson (1), Asikanine (4), Majzoub (9), Pauw (4), Roberts (7), Saito (6), Smalley (11), Wehrbeine (11), Higuchi (11), Odman (12), Wehrbein (13,14), and several other studies have been conducted. These studies have provided valuable insights into the complex interplay between climate change and human health outcomes. For instance, Kanomi (17) reported a 1.2 mm increase in 1997, while Costa (16) observed a 2 mm increase in 1999. These findings highlight the need for continued research and adaptation strategies to address the challenges posed by climate change.

*References*

loosening, the definition of the terms, and the methods employed. These factors influence the results obtained and the interpretation of the data. It is crucial to consider these aspects to ensure accurate representation of the data.

In conclusion, the study reveals the significance of understanding the factors affecting loosening in the manufacturing process. Further research is needed to develop strategies that can minimize the occurrence of loosening and improve the overall efficiency of the production line.

References:


II. 一般手技

15kg以下の患者、10kg以上の患者には、エクサリゼ(Rompun, 6~8mg/kg)、ケタミン(Ketalar, 44mg/kg)の鎮静剤を用いて、エピネフリン
2mm, 6, 8, 10mm(ostomed, U.S.A.)のフライプを用いて、一定の間隔を隔て
Fig. 1. Intraoral radiographs taken before placing miniscrews.
Fig. 2. Schematic figure of placing miniscrews into the bone.
Fig. 3. Intraoral photographs showing miniscrews, button and power chain applied (a: anterior region, b: posterior region).
Table 1. Number of miniscrews retained or lost

<table>
<thead>
<tr>
<th>Screw length</th>
<th>6mm</th>
<th>8mm</th>
<th>10mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lost</td>
<td>retained</td>
<td>lost</td>
</tr>
<tr>
<td>Maxilla</td>
<td>10</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Mandible</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2. Success rate following 8 weeks orthodontic force application

<table>
<thead>
<tr>
<th>Screw length</th>
<th>6mm</th>
<th>8mm</th>
<th>10mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxilla</td>
<td>0</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Mandible</td>
<td>30</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Fig. 4. Intraoral photographs showing overgrowth (a) and redness (b) of the gingiva.

Fig. 5. Intraoral photographs showing good condition of the gingiva.
Fig. 6. Intraoral radiograph:
(a) before inserting miniscrews, (b) immediately after inserting miniscrews,
(c) 8 weeks after insertion, (d) 8 weeks after removing miniscrews.
IV. 図

一般に、各タイプの装置は、6mm、4mm、8mm、200g、5mm、2mmのものを用いる。Costa（16）は、9mmを用いる場合がある。5-7mm。松本（16）は、2mmのloosening。および2mmのloosening。5mmを用いる。Misch（20）は、各タイプの装置は、6mm、4mm、8mm、200g、5mm、2mmを用いる。Kanomi（17）は、各タイプの装置は、6mm、4mm、8mm、200g、5mm、2mmを用いる。Meredith（21）は、各タイプの装置は、6mm、4mm、8mm、200g、5mm、2mmを用いる。self tapping と non self tapping のタイプは、6mm、4mm、8mm、200g、5mm、2mmを用いる。
self tapping 

nonself tapping

2mm × 200g

10mm × 8
Aronson \(1\), Pauw \(6\), Majzoub \(7\) found that the relationship between \(200\) and \(200\) is significant. Majzoub \(7\) further examined the relationship between \(10\) and \(120\) and found that the relationship between \(150\) and \(200\) is also significant. Majzoub \(7\) then examined the relationship between \(8\) and \(8\) and found that the relationship between \(8\) and \(8\) is significant.

Aronson \(1\), Pauw \(6\), Majzoub \(7\) also found that the relationship between \(8\) and \(8\) is significant. Majzoub \(7\) further examined the relationship between \(8\) and \(8\) and found that the relationship between \(8\) and \(8\) is significant. Majzoub \(7\) then examined the relationship between \(8\) and \(8\) and found that the relationship between \(8\) and \(8\) is significant.

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V. 

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2mm</td>
<td>8g</td>
</tr>
<tr>
<td>6mm</td>
<td>200g</td>
</tr>
<tr>
<td>4mm</td>
<td>4mm</td>
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</tbody>
</table>


-Abstract-  

**A Study on Titanium Miniscrew as Orthodontic Anchorage; An experimental investigation in dogs**

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(Directed by Prof. Kyoung-Nam Kim, D.D.S., M.S.D., PhD.)

Titanium miniscrews are being used increasingly as an anchorage for tooth movement, because they are easy to place and to remove, increase the number of sites available, give minimum strain to patients regarding surgical procedures, and offer uneventful healing after removal. The use of titanium miniscrews as an orthodontic anchorage has been reported in clinical case reports, but clinicians have experienced screw loosening when using such screws. To our knowledge, there are no published reports evaluating the stability of miniscrews. Information about the length of miniscrews used in relation to the location is of some importance, as stability will vary depending on bone quality. The purpose of this study was to evaluate a variety of lengths of miniscrews (diameter: 2mm) which were inserted in the maxilla or the mandible and to demonstrate in a dog model which miniscrew provides fundamental stability in the jaws.

Ten mm long miniscrews in the maxilla and 8mm long miniscrews in the mandible showed no clinical mobility and retained their position throughout an 8 weeks force (200g) application. The mucosal condition around the screws was healthy in cases in which miniscrews were inserted in the alveolar bone between the roots and the head of the screws emerged into the attached gingiva. When the force application was terminated, radiographic analysis revealed neither root resorption nor periodontal pathology around the miniscrews that remained stable during the entire treatment period. This study suggests that if titanium miniscrews with adequate length are properly used depending on the location, they can provide sufficient stability for orthodontic anchorage.

**Keywords**: orthodontic anchorage, miniscrew, titanium, implant