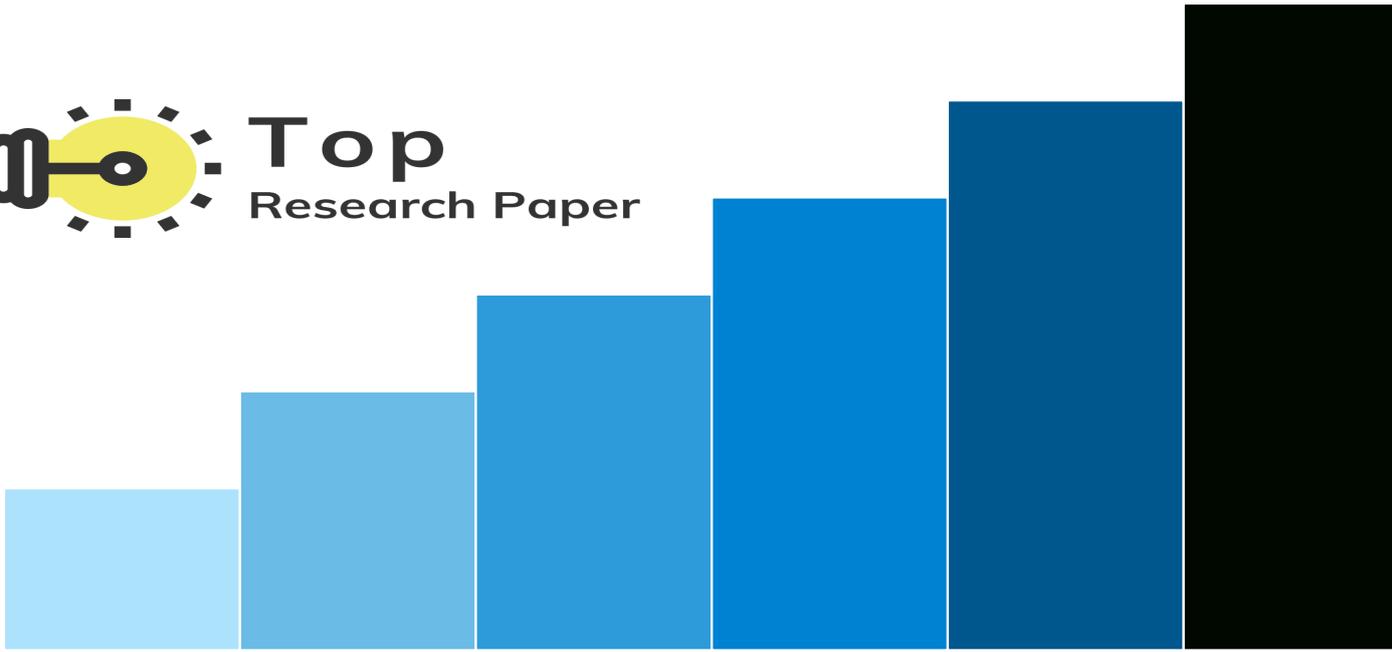


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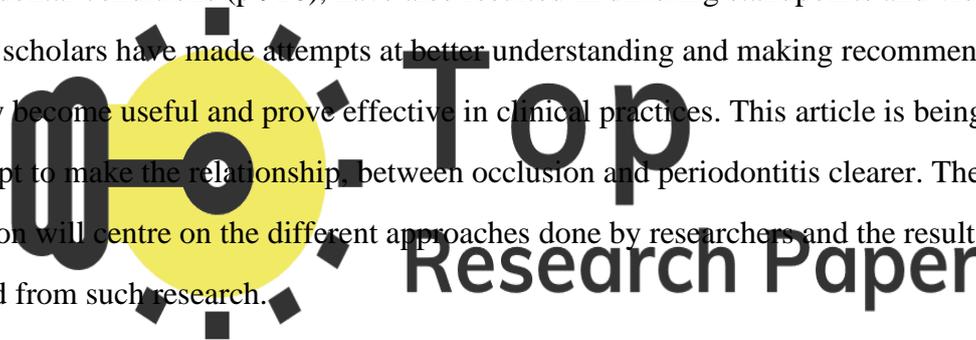
# Occlusion and Dental Concerns

The Relationship between  
Occlusion, Periodontal and Dental  
Concerns

## **The Relationship between Occlusion and Periodontal and Dental Issues**

### **Abstract**

Bhola, Cabanilla and Kolhatkar (2008), contend that in spite of many research attempts since the 1930's to unearth any conclusive reasons for the 'cause and effect' in results achieved between occlusion trauma and periodontitis and other dental related issues, there seems to be still no conclusive evidence from the scholarly research. Research has not been clear whether the two dental conditions occur because of the existence of each other (p 929). They have, however, been able to discover that the complex research methods carried out with regards to the two dental conditions (p 928), have also resulted in differing standpoints and viewpoints. Various scholars have made attempts at better understanding and making recommendations that may become useful and prove effective in clinical practices. This article is being written to attempt to make the relationship between occlusion and periodontitis clearer. The discussion will centre on the different approaches done by researchers and the results achieved from such research.

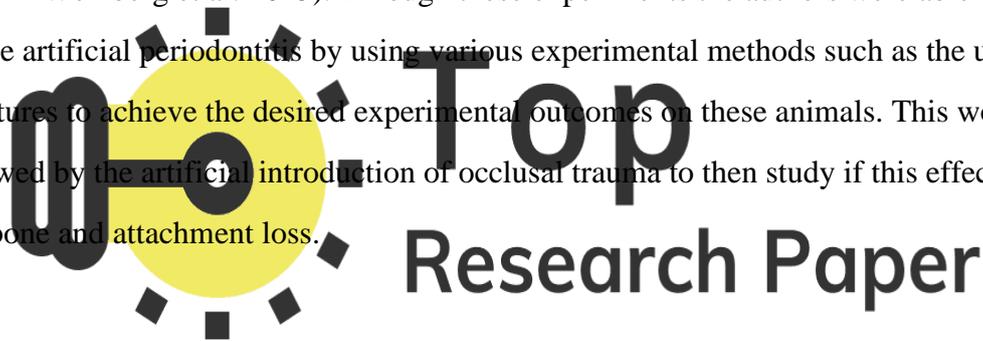


### **The Interlink between Occlusion and Periodontitis through Research**

According to the *Comprehensive Periodontics for the Dental Hygienist, (4<sup>th</sup> ed)* written by Weinberg, Theile, Froum & Segelnick (2015), conclusions have been that there is really no direct correlation between the onset and worsening of periodontitis and the existence of occlusion trauma, which is caused when the natural mechanism of the teeth does not function properly, putting pressure on the teeth and leading to attrition and solidity issues as well as tissue injury (Weinberg et al: 2015). In early research (1930s) and over the passage of several years, studies were carried out on animal and primate species with results that concluded in the positive that occlusal trauma was a direct cause of periodontitis worsening and also on human subjects. Various theories of this connection were also developed in conjunction with these experiments, with the most prominent being the theory on codestruction developed by Glickman. According to this theory, Glickman concluded that

the pre-existence of inflammation in the structures that support the bones and teeth together with the existence of occlusion trauma, would lead to the eventual inflammation reaching the periodontal ligament space thus resulting in the condition worsening of the periodontal cavity thus creating a direct causal link in the two conditions (Weinberg et al: 2015).

Other studies and investigations carried out by other scholars also had shortcomings in terms of being clearer of the relationship between the two conditions. The most noteworthy studies were theories carried out by Polson & Zander on various animal specimens such as monkeys (as cited in Weinberg et al: 2015). Through these experiments the authors were able to introduce artificial periodontitis by using various experimental methods such as the use of silk ligatures to achieve the desired experimental outcomes on these animals. This would then be followed by the artificial introduction of occlusal trauma to then study if this effect would lead to bone and attachment loss.



Ericsson & Lindhe's experiments on beagles had more positive results in accelerated attachment loss with the introduction of heavy artificial occlusal forces (as cited in Weinberg et al: 2015) in combination with plaque induced periodontitis. Bone loss was further evident in the absence of the occlusal forces as well as the movement of teeth. Thus basing on animal studies alone, the existence of a direct link between occlusal trauma and periodontal progression was established and in the absence of the trauma, only the widening of the periodontal space and bone loss was evident.

Human studies on the other hand led to varying accounts of the causes of the natural or progressive decay of the periodontal space in relation to the existence of occlusal trauma. Initially Pihlstrom (as cited in Bhola et al: 2008) had similar results to the animal studies carried out by earlier scholars with the conclusions that where occlusal trauma was existent, there was more pronounced periodontal decay progression compared to when the occlusal forces functioned in a normal manner. However, these human results were then interpreted in different ways with some scholars accounting for the possible existence of

other dental problems such as plaque build-up which could of its own been the cause of the occlusal trauma and not that it pre-existed initially to the condition (Bhola et al: 2008).

Further studies were then carried out all with varying results that could not have assisted in the clinical practice of solutions to these conditions and reasons forwarded in this regard were that mainly most dental conditions were individualistic in nature and as such needed a one on one study of human subjects which could also have proven a mammoth task. This eventually also led to the study of the two phenomena based on the individual tooth which also followed over time (Bhola et al: 2008). This then led to a realisation that some studies found a direct correlation between increased attachment loss and mobility and some did not thus expressing the fact that tooth mobility can be a result of various existing dental issues which may include the loss of alveolar bone to the inflammation within the periodontal ligament space. The scholars further held that discrepancies in the manner by which occlusal forces and controversies are deduced, may add to the argumentative findings seen in several human studies (Bhola et al: 2008).

### **Conclusion**

Authors in these articles have demonstrated that while the existence of occlusal forces may not be the direct cause of the onset of periodontal ligament loss, studies carried out have managed to uncover a link in the two phenomena which will occur via a series of other dental occurrences within human studies carried out. They have further managed to show that further studies are still needed to understand the issues of occlusion and periodontitis within the dental space.

## **Bibliography**

Weinberg, M. A., Theile, C. M. W., Froum, S. J., & Segelnick, S. L. (2015). *Comprehensive periodontics for the dental hygienist*. Pearson.

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