on current incidence of bruxism.

To date, there have been very few properly designed and comprehensive investigations into the incidence of bruxism and certainly none truly representative of the general population. Conseauently, we get an educated consensus that among the general population the rate of bruxism is from 5 to 27 % . However (again only an educated guess), the rate in periodontal patients, as reported, is above 50 %.[22]

THEORIES OF THE ETIOLOGY OF BRUXISM.

Local - Mechanical : The most commonly thought of factor is the occlusion. An unstable occlusion in both centric relation (the most posterior, superior and medial position of the condyles in the glenoid fossa) and centric occlusion (intercuspal position) are often thought to initiate bruxism.

Studies were reported by placing occlusal highpoints with acrylic cements by Jankelson [8]; high amalgam restoration by Ramfjord to support this theory.[19]

The mechanical theory states that a feedback mechanism exists between the Central Nervous System (CNS) and periodontal and gingival receptors in the maxilla and mandible which are disturbed by unstable intercuspal positions. This leads to a lowering of the dental irritability threshold with bruxism resulting as an attempt to wear the irritation down.

Systemic : The literature is full of case reports indicating the effects of psychic factors on almost every tissue in the body. A variety of disorder gastric ulcer, migraine, asthma, essential hypertension, insomnia, epilepsy, anorexia nervosa, organic brain damage, CNS lesion and various other disorders - have long been associated with psychologic disturbances Studies are now beginning to show a definite relationship of psychologic disturbances to structural alterations as suggested by Weiss and English in 1949.[16]

Nadler also reported other systemic changes with bruxism hyperacidic urine, hyperthyroidism and endocrine disturbances. Many authors feel that subclinical nutritional deficiencies play a role in bruxism. Several authors have reported on genetic factors in bruxism. However, none of the studies on the systemic etiology have been conclusive. [13]

A large number of experimental studies show that stress sets off a chain of reactions in the body in which the adrenal cortex is stimulated via the adrenocorticotropic hormone (ACTH) . ACTH is produced by the anterior portion of the pituitary gland, along with the somatotropic hormone (STH). The adrenal cortex stimulated by ACTH produces both phlogistic glucocorticoids. The STH acts similarly to the minetalocortircoids, and it is believed that the response of the tissuse to STH is sensitization of the peripheral tissues to the mineralocorticoids, Thus stress produces a chain of somatic reactions resulting in pathologic changes. These changes affect neural, vascular and endocrine systems, which play an important part in maintaining the proper function of oral tissues.[16]

Psychological : A number of authors have also syggested that tension may serve as a trigger factor for bruxism. The majority of the veiws are centered on bruxism as a release of frustration, anxiety, rage and tension.[24]

All of the psychological investigations have several problems. Most of the studies are corelative in nature, do not show high levels of diagnostic reliability and validity, hence the data cannot be regarded as definitive.

Occupational : Athletes, boxers, watchmakers, die-makers and diamond cutters require a high level of precision and alertness which causes a great amount of physical and mental stress and strain.[13]

Involuntary stress : When motorist uses the brakes, soil tilling with a plough by farmers, during war-combat by soldiers, during recovery from general anesthesia, electroconvulsive therapy of psychotherapy, during the final stage while yawning, opening a tightly closed jar or during cutting vegetables are some of the few examples of involuntary bruxism by stress.

Voluntary stress : Dancers, musicians during a stage performance, men chewing cigar, players chewing gums, children biting on pencil, corners of cloth piece handkerchiefs, Aerialists who twirl their bodies at high altitudes, stuntmen etc, are a few examples of voluntary stress.[13]

MECHANISM OF ACTION OF PSYCHIC FACTORS ON PERIODONTAL TISSUES.

Emotional disturbances affect certain physiological processes of the body in such a way that the oral tissues may become directly and adversely affected; the mechanism of action of psychologic factors on the periodontal tissues has been postulated and well described by Miller.[16]

1. By altering the local oral environment.

   (a) changes in the salivary secretion and composition :

   The flow of saliva is controlled by the sympathetic and parasympathetic fibers of the salivary glands. Psychic influence on secretion is exerted through this autonomic innervation by vasoconstriction or vasodilation of the salivary secretory ducts. Thus in some individuals chronic emotional stress has been found to cause a marked increase in saliva in the oral cavity. This may , in turn , permit the rapid formation of salivary calculus. In some individuals salivary excretions has been shown to decrease under emotional stress. The reduction of saliva in the oral cavity will remove the washing effect of the saliva and will thus permit the deposition of bacterial plaque. This will

also effect the periodotium adversely.

Psychic factors have been reported to cause a change in the chemical composition of the saliva. Adverse mental stimuli, such as fear and hate have been shown to decrease the salivary calcium content ; tranquility and peace of mind tend to increase it. It has also been reported that positive corelation exists between the acidity of saliva and increased emotional tension. The above factors may interfere with the normal microbial flora of the oral cavity, and thus may affect the periodontium adversely.

(b) by reduction of the local tissue nutrition through vascular changes :

Chronic emotional disturbances may cause vascular changes in the periodontal tissues, giving rise to blo ckage of the minute capillaries of the periodontium and thus interfere with the adequate supply of nutrients to the cells. Thus the tissue resistance is lowered, and such tissues are apt to give exaggerated response to local injury and invasion. In addition, tissues deprived of adequate nutrients may in time show atrophic changes.

Few investigators have shown that tension may lead to vasodilatation of the capillaries resulting in hemorrhage and hypertrophy of the oral tissues.

2. By the development of abnormal habits :

There is a general agreement that a number of abnormal habits, if practised continually, will give rise to injury to the periodontal tissues. Many of these habits are show to be psychogenic in nature and are practised unconsciously by the individual. These include lip biting cheek biting, tooth pick biting, abnormal occlusal habits, clenching, bruxism, abnormal tongue pressure against the teeth and others. Nail biting has been considered and evidence of a deep seated disease of the mouth. Similarly bruxism is primarily an expression of the psychologic make-up personality of the individual.

3. By alteration in the dietary habits and restriction of food intake :

It has been commonly observed that many emotionally disturbed individuals develop an abnormal desire for certain types of foods. These include excessive quantities of candy, soft drinks and alcoholic beverages. Others may develop an appetite for citrus fruits or highly spiced foods. These unhealthy choices of food may be determined by neurotic cravings and resultant taste perversions. Infantile eating habits may persist, resulting in the choice of soft mushy foods and the avoidance of a stimulating and harder adult diet. These food habits definitely have a deleterious effect on soft tissues of the oral cavity. Thus anxiety will indirectly cause vitamin and other dietary deiciencies by poor selection of food and by producing anorexia. Dyspepsia, gastric ulcer and other gastric intestinal disorders caused by psychic factors will also lead to the prescription of low residue diets specific for these disorders. These in turn will give rise to dietary deficiencies which predispose the gingival tissues to periodontal disease.

4. Endocrine dysfunction :

It is known that psychic stimuli can presumably effect pituitary function via the sympathetic nervous system the hypothalamus. Therefore, carbohydrate and calcium metabolism could be influenced by emotions ; with resultant effects on the oral tissues. With psychologic stress, there is an increase in the secretion of the adrenocorticoids, which consequently causes an increase in the flow of anterior pituitary hormone. This metabolic upset can be the predisposing factor in the initiation and progression of periodontal disease.

5. By producing neglect of oral hygiene :

Neglect of the mouth has been frequently observed in persons who have depression, acute anxiety, and in those who are mentally preoccupied.. Chronically poor oral hygiene is often seen in dependent individuals who refuse to take care of their oral hygiene. They are also not sensitive to accumulated food particles or to foul odour in the mouths, and thus permit oral disease to develop.

6. Resistance to infection :

It has been reported that psychic disorder tend to decrease the number of circulating antibodies and thus depress the body's defence against infection . The tissue of the periodontium will thus be more vulnerable to attack by the normal oral bacteria, owing to their low resistance to infection. Similarly, other local irritational factors like calculus and poor restorative dentistry will also establish conditions more conducive to the initiation and progression of periodontal disease in emotionally disturbed individuals.

EFFECTS OF BRUXISM ON NON-PERIODONTAL PATIENTS [22].

Bruxism may have a variety of effects on the masticatory system, affecting the temporomandibular joint (T M J), musculature, periodontium, and/or the teeth. In patients who brux with fairly normal periodontal support, reversible changes in the periodotium may been seen; increased density of the alveolar bone trabeculation and wider than normal periodontal ligament space with concomitant loss of alveolar bone. One of the most significant and mentioned dental signs of bruxism is wear of the teeth. This wear does