Nature needs no help – just no interference. Once we have recognized the importance of the malfunction of the stomatognathic structures as a source of distress and infection, it is not difficult to appreciate the fact that certain systemic disorders fall within the concern of the dentist. We must recognize, of course, that the dentist is not claiming full responsibility for such systemic difficulty. The complaints of the patient can result from a totally different etiology or – perhaps more commonly – the patient is complaining of certain somatic disorders because more than one etiologic factor is operative, e.g., a combination of disturbed function and psychic stress. What is important to keep in mind is the necessity for removing any causative factor. To neglect so important a source of distress as disturbed function of the stomatognathical structures is to overlook a significant etiologic influence in systemic pathology. The reader should not feel that an inordinate claim is in process for dentistry, but rather an insistence that its role be recognized. Essentially, the argument remains the same as it was in the earlier chapters: malfunction and pathology of the stomatognathical processes due to pathologic occlusion of the teeth constitutes an important distress source in the body.

I. Gastrointestinal Disorders

Proper physiologic balance of the structures of the stomatognathical system is contributory in the improvement of some gastrointestinal disorders. Definitive dental treatment of patients has routinely shown this to be a fact. The precise mediators of the disorders and their alleviation remain unknown, but it is logically assumed that when other etiologic sources are not present, the elimination of distress due to a dental condition is influential in ameliorating the difficulty.

Selye points out that the gastrointestinal tract is particularly sensitive to general stress, since signs of irritation and upset of the digestive organs may occur in any type of distress. He became particularly interested in the problem of why the stomach does not digest itself. In the course of his experimentation of this problem, Selye discovered some significant relationships between the stress adaptation hormones and the digestive tract.

Rats were injected with fresh gastric juice to determine whether or not the gastric juice would work only on non-living tissue and thus
attach food but not the wall of the stomach. It was found that the gastric juice did attack the rat’s flesh; therefore, it could be concluded that the juice will attack living tissue. Crotin oil was injected into another group of rats in order to produce a barrier of inflammatory tissue. Once this tissue was produced, the gastric juice was introduced into these rats. This time, the gastric juice was not able to pass beyond the inflammatory barrier. The same experiment was repeated (introducing gastric juice into an inflammatory barricade formed by pretreatment with crotin oil), but this time, the animal was exposed to the stress of immobilization. During the stress, the inflammatory barricade broke down, presumably this was due to the production of anti-inflammatory corticoids, and the gastric juice was able to attack the surrounding tissue. It would appear, then, that this same mechanism can function in man, i.e., chronic gastric ulcers which are under control can perforate under stress.

To prove the theory, Selye repeated the last experiment with adrenalectomized rats. Here, the inflammatory barricade remained unaffected, showing that the controller of the breakdown of the inflammatory protection in the stomach is the adrenals. It also points up the connection between the corticoids and less serious stomach disorders. There is undoubtedly an interplay with the nervous system as well, and the anatomical site of this interplay is most likely the sympathetic-adrenal axis mentioned in Chapter III.

Certain gastrointestinal disorders of chronic character may therefore be mitigated through the elimination of stress upon the individual. Quite obviously, then, distress of dental origin must be considered in any attempts to offer such relief, as the following cases demonstrate.

Case History #88

Male, Age 36, Laborer

**Medical History:** The patient was referred to ascertain if a dental cause could be found for his lengthy bout with ill-health. Over a period of years, he had undergone various treatments in different medical centers. In 1956, after extensive diagnostic work and treatment, he was placed on an ulcer diet and medication. The bland diet was continued for eight years, but the ulcer problem persisted. Although he had been an endurance-bike-racing enthusiast, health forced him to discontinue this hobby. His back gave him much trouble, and by 1963, he could rise from bed only by first getting on the floor on his hands and knees and gradually righting himself.

Mental overtones accompanied the physical debilitation. From a mild-mannered and good-natured man, he became a veritable bear, with an erratic and terrible temper. His subconscious aberrations became more and more prominent. In mid-December of 1963, while cutting down a Christmas tree, he got very cold. When he reached his car, his breathing became labored, he had a lapse of memory, and became hysterical, insisting he had lost his hands. His health gradually worsened, and he was
hospitalized in January of 1964. Among other findings, tests revealed considerable blood in the urine.

**Oral Condition:** All four first molars and four third molars were missing. Occlusal stress was dominantly in the bicuspid area upon closure. X-rays showed considerable alveolar bone loss around the remaining teeth.

**Treatment Record:** Because of his condition, the remaining teeth were removed in four appointments while under antibiotic therapy.

Upper and lower full dentures were placed, taking care to insure proper molar support and a physiologically balanced relationship of the teeth. Post-insertion care was uneventful, and an immediate and dramatic reversal of the health picture took place without any additional medical care.

One month later the patient appeared before an assembled group of visiting doctors to demonstrate that his back no longer troubled him. He had resumed his bike racing with no discomfort or problem. He had also discontinued his ulcer diet, and now drank coffee, used alcohol, and ate highly seasoned foods without any discomfort or indigestion. His wife and family said he is once again gentle, kind, considerate, and mild-mannered. His wife added that he had shoveled 7 ½ tons of gravel in one afternoon just three weeks after the dentures were placed.

A few months later, he participated in the annual Elgin-to-Chicago bike race.

**Case History #27**

Male, Age 70, Clergyman

**Medical History:** The patient had had surgery for gall bladder and prostate gland.

**Principal Complaints:** The patient complained of frequent excess acidity of the stomach and of heartburn. He appeared to be in a stupor, and this lethargy and dull mental condition persisted throughout the time in which his basic dental work was done.

**Oral Condition:** Nine posterior teeth were missing and several teeth were carious.

**Treatment Record:** All remaining maxillary teeth were removed.

A lower partial denture and a full upper denture were placed.

The patient improved quickly. Subsequent visits showed a marked upsurge in his physical and mental condition. He no longer required anyone to watch over him or assist with parish duties.
Case History #80

Female, Age 33

**Medical History:** A month previously, the patient had sustained a kidney infection.

**Principal Complaints:** The patient experienced considerable systemic disorder, including chronic stomach pains and gynecological difficulties.

**Oral Condition:** The patient wore full upper and lower dentures.

**Symptomatology:** Crepitation was present in the temporomandibular joint. The patient experience tinnitus and severe headaches. There was numbness in the templar area. The submaxillary muscles were sore bilaterally and there was spasm of the eye and lip muscles. She complained of dryness of the skin, hair, and scalp. She experienced a burning sensations in the mouth and neuralgic pains in the back of the head and in the spinal area. The stomach was frequently upset and nausea was very common. Pains in the stomach were chronic. During menstruation, she flowed excessively for seven or eight days, with dark, heavy clotting the first two days. She experienced considerable depression and unfounded fears.

New upper and lower dentures were placed.

The patient never returned for the usual post-insertion follow-up observations and adjustments, but waited until it was time for her six-month check-up. She stated that all the symptoms had subsided or lessened considerably after the new dentures were placed. She added that when we first discussed her problems, she did not believe her teeth had any bearing on her health in general. When she noted the lessening or absence of symptoms, she was forced to accept the fact. Now her lower denture seemed out of proper relationship and a bit loose. There had been a recurrence of some symptoms, and she felt she needed attention.

The denture was relined and the occlusion was adjusted. She again was symptom free.

**II. Gynecological Disorders**

In 1931, Frank articulated for the first time a syndrome of disorders associated with menstruation. He referred to this as the Premenstrual Syndrome or Premenstrual Tension. The Syndrome enunciated by Frank included nervous tension and the desire to find relief in some sort of foolish actions. Other constant complaints were migraine headache and swelling of the fact, hands, and feet, with a definite increase in weight due to water-retention. Pain in the back and breasts, small hemorrhages in the skin, a feeling of stuffiness in the nose, asthma, and rarely, epilepsy-like seizures were also reported by Frank.
**A. Stress and Gynecological Disorders.** In 1949 and 1950, Selye pointed out that menstrual anomalies were among the many systemic disorders which can result from prolonged exposure to stress.

There were many other diseases in whose etiology an exposure to systemic stress – and more particularly a defective or excessive corticoid production – appears to play a role. Among these, we might mention the formation of peptic ulcers in the digestive tract, the precipitation of an attack of gout in a predisposed subject, certain menstrual anomalies, some types of leanness or adiposity, neuroses, various psychosomatic disturbances...

Gynecological disturbances are one of many disorders which can result from a derailment of the general adaptation syndrome.

**B. The “Shift” in the Pituitary Anterior Lobe Production.** When experimental animals are subject to intense and prolonged stress, sexual derangements are observed. During stress, the sex glands shrink and become less active in proportion to the enlargement and increased activity of the adrenals. The sex glands are, of course, stimulated by the gonadotropic hormones of the anterior lobe of the hypophysis. It seems probable that when stress is prolonged in an animal, the increased amount of ACTH required to compensate for the stress causes a cutting back in the production of other pituitary principles. For instance, lactating females produce no milk during intense stress, and young animals cease to grow.

According to Selye, clinical studies have confirmed that people exposed to stress react very much like experimental animals in all these respects. In women, the monthly cycles become irregular or stop altogether, and during lactation, milk-secretion may become insufficient for the child. In men, both the sexual urge and sperm-cell formation are diminished.

In both sexes the gonads undergo atrophy during the general adaptation syndrome. This has also been interpreted as due to the “shift in pituitary-hormone production,” which necessitates a decreased secretion of other hypophyseal principles in order to permit maximal corticotrophin elaboration. Sterility (in either sex) and the estrus or menstrual anomalies resulting from continuous exposure to stress, are probably also due to this same “shift.”

This shift in anterior-pituitary production is further emphasized by the fact that it takes place for hypophyseal principles other than gonadotropin.

**C. Premenstrual Tension and Stress – The Desoxycorticosterone Syndrome.** The great tendency to retain water, the predisposition for various allergic and hypersensitive reactions, the occasional occurrence of convulsive seizures, the vascular disturbances and rheumatic like pains of the Premenstrual Tension Syndrome are reminiscent of the desoxy-
corticosterone (DOC) intoxication syndrome. Selye noted that monkeys overdosed with DOC probably suffered from sick headaches prior to convulsive fits. They retired to the corners of the cage holding their heads between their hands and their attitudes unmistakably suggested migraine. Autopsy of animals which died during these spells revealed intense congestion and swelling of the brain.

Selye further states:

It is also of interest that, among all the drugs with which I have so far tried to combat the DOC syndrome in animals, ammonium chloride proved to be most effective—presumably because this salt washed out sodium and therefore acts just like a salt-free diet. It deprives DOC, the mineralocorticoid of sodium, the mineral substance through which this hormone normally appears to act. In this manner it helps to decongest and dehydrate the swollen tissues, including the brain. Now, interestingly, in women with the premenstrual syndrome, ammonium chloride (7 1/2 - 15 grains about three times a day during a fortnight preceding the period) is often also very effective, especially if the patients are at the same time using as little salt as possible in their food. Furthermore, sex hormones, which alter mineral metabolism and which we found to influence the DOC syndrome in animals, affect the premenstrual syndrome of women essentially the same way.

It is interesting that many of the women who suffer from this condition also suffer from allergic symptoms. In chapter VIII, it was pointed out that quite likely STH-overdosage is responsible for these hypersensitivity reactions. The syndromes of DOC-overdosage and STH-overdosage are quite similar, according to Selye. It would seem, therefore, that in these patients, we are dealing with some source of stress bringing on an endogenous intoxication with the body’s own anti-inflammatory corticoids.

In general, we may say that there are perhaps two avenues of study in anomalies of the menstrual cycle and premenstrual tension: the “pituitary shift” and the DOC-overdosage syndrome. Prolonged stress can bring about both of these.

**D. GYNECOLOGICAL DISORDERS AND THE DENTIST.** The research of the author uncovered at a certain point a definite correlation between chronic female problems and stomatognathical malfunction. Once this correlation was established, a tabulation was begun to ascertain the percentage of females with neuromuscular imbalance of the mandibular structures who were also experiencing gynecological problems. Every new mature female patient whom the author saw at his office or at the University of Chicago, Billings Hospital, was questioned. The first thirty-six consecutive patients ranging in age from fourteen to forty-four years of age, who had chronic disorders of the stomatognathical structures and the usually
associated symptoms of the ear and the respiratory system, also complained of gynecological difficulties. The complaints included: premenstrual and/or midmenstrual cramps, irregular cycle, excessive flow, both in amount and duration,* heavy black clotting the first two days, occasionally purulent discharge, and frigidity. Although the latter was not always the case, it occurred in the majority of the married women questioned, and it was often a serious marital problem. Eighty-nine consecutive patients were seen before the second questionable correlation occurred.

A more current tabulation of patients studied to determine the correlation of dental distress and gynecological disorder shows the following: 321 of 326 consecutive malocclusion patients complained of irregular cycle and the other common gynecological complaints listed above. Even the five questionable cases were not completely free from gynecological difficulties. Almost without fail, those cases treated to remove the dental distress factor experienced cessation of gynecological difficulty: there was a normal menstruation free of discomfort even if it began as soon as three to four days after physiologic neuromuscular balancing of the mandible was established. There was a moderate, clear, two to three day flow. Previously, the flow had been five or more days with excessive flow the first two days, usually accompanied by black, heavy clotting, and with the most severe flow lasting from nine to seventeen days. The cycle became regular whether it had been occurring once every nine months, every three weeks, or so, or whether it varied only a few days early or late each month. Frigidity was no longer experienced. Many patients freely volunteered the information that domestic and marital problems were a thing of the past. They now looked forward to their husband's attention and occasionally requested it (often for the first time in their marital life). No longer did the patient experience the mental depression and unexplained crying spells that were a part of this premenstrual tension problem.

When we consider the social problems that irregularity, premenstrual tension, and incompatibility have presented (and some sociologists have volunteered that these problems give rise to our greatest social ills), one can see the responsibility of the dentist to explore the full implications of his own work in close collaboration with his medical colleagues.

Gastrointestinal and gynecological disorders constitute the most serious systemic complaints of patients with disturbed neuromuscular balance of the mandible and temporomandibular joint malarthrosis. We must recognize, of course, that in certain cases these disorders may be due mostly to psychic stress or to an independent physical cause. In the cases cited, the women had not received a diagnosis of other etiological factors. Furthermore, the disturbance of the stomatognathical structures was not only a source of physical stress, but had its debilitating effect upon the

* Occasionally but rarely the problem was amenorrhea.
psyche as well. The balance, both physical and mental, of the total patient was upset.

The following is a comparative study of fifty of the females chosen at random from the author’s files. The only prerequisite for being included in this study was that the case history was sufficiently complete to insure complete information on the patient’s condition. Therefore, this group represents a good cross section study of the many mature females treated by the author for elimination of stress of dental origin. Chart A gives a listing of the gynecological problems experienced by these fifty women for the purpose of acquainting the reader with the constancy of gynecological difficulties in dental distress patients. Charts B and C give a comparison of two groups among these fifty. Twenty-five were treated (Chart B) and twenty-five were the untreated control group (Chart C). The twenty-five women who were treated (Chart B) allow us to see what is routinely accomplished for women through definitive dental care.

![Chart A](chart.png)

- **Unknown** (this information was never requested)
- * denotes a very severe problem
- yes 1 in column 5 indicates 1 miscarriage.
- yes 2 in column 5 indicates two miscarriages.
- yes in column 5 indicates infertility (inability to become pregnant).
- S - Single
Forty-nine of the fifty women had a history of irregularity in their menstrual cycles.

Four varied fifteen or more days from the “normal” time between menstrual periods.

Ten varied a month or more from the “normal” time between menstrual periods.

All fifty flowed excessively (amount and duration).

Twenty-five flowed from five to six days.

Twelve flowed seven days or more. Some flowed ten days or more and had a history of transfusions to replace the blood loss.
All thirty-eight women questioned about heavy, black clotting the first two days of menstruation had this problem.

Three had bleeding between periods.

Seven had a purulent discharge between periods.

All forty-nine patients questioned had the complaint of cramps and/or backache.

Eight had midmenstrual cramps.

Fifty-one percent of the patients questioned had a history of miscarriages and/or inability to become pregnant.

Fifty complained of premenstrual tension.

Fifty complained of depression.

Four complained of severe depression. Some contemplated self-destruction.

Forty-three of the forty-nine questioned about frequent crying spells in conjunction with the premenstrual tension admitted to this problem.

All forty-nine questioned about headaches had this problem. Six had severe headaches.

Only two patients questioned about frigidity did not have this problem.

Five had very serious problems with frigidity.

Case histories that follow depict these various symptoms quite graphically.

**Case History #38**

Female, Age 31

**Medical History:** The patient was referred by her physician. She was a hypochondriac and suffered from melancholia. No medical cause had been found for her difficulties.

**Principal Complaints:** The patient complained of pain in the temporomandibular joint area. She had a number of gynecological difficulties: her menstrual cycle was thirty-six to thirty-eight days with much black, heavy clotting. Purulent discharge occurred between periods. Premenstrual tension and cramps were severe.

**Oral Condition:** The patient wore ill-fitting full upper and lower dentures.

**Symptomatology:** Crepitation and pain were present in the temporomandibular joint. Backaches were frequent. The ears evidenced excessive cerumen, itching, and aching on occasion. The patient was allergic to a number of different kinds of food. She complained of frequent
upset stomach and nausea and a general skin and complexion problem was present. Constipation and frequent urination were also problems.

**Treatment Record:** The patient could not afford any dental expense and would only consent to relining her dentures. The teeth were equilibrated to remove occlusal disturbances and insure proper occlusal support and free-way space.

The following day the patient reported no dreaming; she awakened and felt energetic. Her hands were not swollen and she had neither headaches nor dizziness.

Still, after one month she stated that she rested well and felt good. She had had two normal menstrual periods, free of cramps, with a three day flow and no excessive bleeding or thick black clotting. There had been no purulent drainage between periods. The cycle was twenty-eight days instead of one and one-half months.

Two years later her physician reported that she was symptom-free and enjoying good health and that there had not been any recurrences of her multiple problems since her dental treatment.

**Case History #42**

Female, Age 32, Waitress

**Comment:** The patient requested complete dental care, and was therefore not questioned previous to treatment regarding any symptoms which have been found to follow upon disturbances of the mandibular musculature and temporomandibular joint malarthrosis. Thus, she was included in a group of patients who formed one of the research control groups. This group of patients did not know of nor did they expect any systemic changes following complete dental care. In this way, the possibility of autosuggestion as a cure for any of their disorders might be ruled out. The listing of symptoms for this patient will therefore be included as they came to light during treatment.

**Oral Condition:** The patient had fifteen posterior teeth missing.

**Treatment Record:** The mandibular bicuspids were crowned. All basic dental care was completed in preparation for the placement of a lower partial denture and upper immediate full denture. Because the patient had a severe allergy problem, several weeks were consumed in determining what metals and cements could be used to do this restorative work. Violent tissue reactions occurred when some materials were used. The crowns were recemented three times before zinc oxide and eugenol were found to be the only acceptable materials for cementing purposes.

The patient returned for her six-month check-up and her past and present medical history was recorded. In 1955, she had had her first asthma attack. If the weather was warm, she was free of asthma during the daytime. If the weather was cool or damp, she had asthma continuously. She was never free of the problem at night. By October 1955, it was decided that ephinedrine would give her relief for two or three
hours. She spent a year sleeping in a sitting position. If she reclined, she awakened choking, congested, and breathing laboriously. By January 1956, she was on medication around the clock. Changes in climate, bedding, etc., brought no relief.

She was allergic to different plants, foods, metals, and medicines. She almost went into shock from allergy to eggs. She was so allergic to all soaps and detergents that the fingers became denuded and had deep fissured sores. She experienced considerable digestive disorder and in 1957, an ulcer was diagnosed. It was active when she came for the dental care.

The skin throughout the body was dry and the hair was very brittle. This condition of dry skin had persisted since she was a teen-ager. Acne throughout the upper torso had been constant for years.

She complained of chronic malaise and napped every afternoon. If she missed this nap, she would fall asleep by 7 or 8 P.M. She awakened exhausted every morning, and had erratic dreams every night.

Dizzy spells occurred regularly and often she had to support herself to keep from falling. Riding in a car disturbed her vision. The eyes were generally bloodshot and were very sensitive to light.

She experienced chronic respiratory difficulty.

Her gynecological condition was equally disturbed. Menstruation was always accompanied by cramps. She flowed for six or seven days and the bleeding was excessive. Her menstrual cycle was very irregular, and purulent discharge between menstrual periods had persisted for ten years. She was frigid and abhorred relations with her spouse. For at least ten days following relations, she was mentally depressed, exhausted, and sore. She suffered from severe melancholia and was irritable toward husband and friends. She had suicidal tendencies and was a compulsive worker, eater, and drinker.

Her present medical history was quite different. The patient reported that the bizarre picture of ill health had completely changed shortly after the dental stress factor was removed. The sinusitis and respiratory condition cleared up and she has been free of colds since then. Only once did she suspect that she might get an asthma attack, and it did not develop. Rubber gloves were no longer necessary and her hands, face, skin and hair were naturally oily. She was allergic to nothing. The ulcer had healed and she could eat any food. She rested well, with no dreaming and tossing. All the gynecological problems were gone – she was regular with a three day flow and no cramps or depressions. She looked forward to her husband’s attention, was very much in love, and very relaxed.

She is still enjoying good health.
**Case History #84**

Female, Age 50, Housewife

**Principal Complaints:** Respiratory disorders and recurrent headaches were the patient’s principal complaints.

**Oral Condition:** Fourteen posterior teeth were missing. Roentgenograms and clinical examination showed caries and some loss of supporting bone structure around the remaining teeth.

**Symptomatology:** The patient had suffered from hay fever for over thirty years, was a mouth breather, and was allergic to many things. Her hands, face, and scalp were constantly dry. Pain persisted in the nape of the neck and in the shoulders. She had an irregular menstrual cycle and a seven day flow. She was perpetually tired, and rather irritable with her family.

**Treatment Record:** Immediate upper and lower full dentures were placed.

After 60 days both dentures were again relined and the occlusion was adjusted. Then after six months the dentures were again relined and the occlusion was adjusted.

The patient’s breathing was no longer labored, and her respiratory problems had disappeared. She was now a nose breather, and had not had a cold since the dentures were placed. Her gynecological condition had also changed. She now flowed three days instead of seven, and seemed to be losing a frigidity problem. She was more tolerant with people in general. Her hands were still dry some of the time, and her skin felt rough.

**Case History #33**

Female, Age 37

**Principal Complaints:** The patient’s principal difficulties were gynecological: she experienced an occasional ache in the ear, frequent itching and plugged sensations. There was a chronic cold. The nape of the neck, the shoulders, and the arms were tender, and the scalp was sensitive. She complained of a numbness and a sensation of cold in the hands, and constantly dropped things. Her complexion was poor and she possessed brittle nails, cracking in the skin of the hands, and dandruff. Sinusitis was present with accompanying headaches, and she had several allergies to various foods. She suffered periods of tension and depression and was incapable of meeting her problems.

**Treatment Record:** All basic work was finished.

Upper and lower treatment templates were placed to correct the occlusion.

Six months later the patient reported that she had a better winter than she has had in many years. She has been free of the colds and other respiratory symptoms. Hearing acuity has improved and the gynecological difficulties subsided.
Four months later there was a recurrence of the chronic colds. Equilibration was indicated and done. The symptoms again subsided.

A year later she was still free of respiratory and gynecological disorders.

Case History #19
Female, Age 26

Principal Complaints: The patient complained chiefly of severe headaches and of gynecological disorders.

Oral Condition: The patient possessed a full complement of teeth in generally sound condition and in good relationship. Examination revealed that she had premature contact in the premolar area and a lack of occlusal support in the molar area.

Symptomatology: During the previous year, the patient had experienced crepitation and a numb or drawn sensation in the temporomandibular joint and mandible. She had a history of ear infections, sore throats, and chronic malaise. Her menstrual cycle was extremely irregular, sometimes three or four months between periods. She flowed excessively for four to seven days.

Treatment Record: The teeth were equilibrated. The patient complained that it felt as if menstruation was about to occur, but it did not.

One week later the occlusion was adjusted again. The following day, menstruation began without the difficulty experienced in the past. The patient was, however, indulging in bruxing.

Nine days later the patient reported that every few days she felt as though she would get a headache, but these never developed. She also reported that her period lasted for six days, but it was clear and did not contain the usual dark clotting. She claimed that her malaise had considerably improved.

The patient continued to fluctuate for the next four days. Equilibration was the only procedure used thus far, but it was felt that a mandibular acrylic template would make treatment easier and recovery more stable and permanent.

An acrylic template was placed. She reported that she was able to work better, felt rested upon rising, and no longer has nervous feelings. Her husband had remarked on the change. She would still occasionally awaking with the front teeth biting. Then, she would note that it would be two or three hours before she could feel the first occlusal contact on the molar teeth. On such occasions, mild headache or sore throat would occur.

A month later she reported that her menstrual period occurred in thirty-five days instead of the usual three months. The backache and ear conditions had improved noticeably. She felt that she was so improved
that she could do without the template. She went for thirty-five days without the splint and then blacked out in the car. Thereafter, when she reclined, she was all right, but as soon as she rose, she experienced dizziness and nausea. Seven days after she replaced the template, her menstrual period began.

After another six weeks, she reported that she was now feeling fine, though she still experienced some ache in the back, the legs, and the nape of the neck.

Bruxism continued to be considerable, and one night, she fractured off the distal buccal cusp of a mandibular first molar while grinding her teeth. This was not a carious tooth, so we can see what pressures were brought to bear during her nocturnal bruxing.

When last seen the patient had been symptom-free for more than two years.

**Case History #83**

Female, Age 32, Housewife

**Principal Complaints:** The patient suffered from severe headaches and gynecological difficulties.

**Oral Condition:** Four posterior teeth were missing. The remaining teeth were in fair condition and the supporting tissues appeared healthy.

**Symptomatology:** The patient exhibited most of the symptoms of the syndrome. Sinusitis and recurring headaches were a problem. Severe depression and crying spells preceded the onset of menstruation. Premenstrual tension was accompanied by cramps and backache. She was irregular in her cycle and flow excessively in amount and duration. She experienced malaise and was thirty pounds overweight.

**Treatment Record:** All routine dental care was completed. Replacement of the posterior teeth was deferred; it was evident that the patient did not believe that this replacement was necessary for health.

After a few months the patient returned to discuss replacement of the posterior teeth. She stated that she had been under psychiatric care for the previous two months in an effort to save her marriage. While she felt that this care had aided her in seeing her problems, there were a number of health problems which she felt needed to be taken care of. She had a feeling of pressure in the templar area. This would become painful and migrate to the back of the head. Sinusitis was severe and malaise constant. She and her husband were getting along better, but she still dreaded his attention sexually.

A lower denture splint was placed, and the occlusion was balanced.

After two weeks the occlusion was readjusted to eliminate premolar prematurities.
The patient was free of headaches for two months. The sinusitis had disappeared, the red blood count was normal, and she no longer took iron. The female problems had disappeared, and she looked forward to her husband's attention. The children's behavior had changed, and they had settled down to a relaxed and normal life. She was also pregnant at this time, and was experiencing nausea from the denture splint. Removal of the splint would relieve the nausea, but the headaches would recur. She and her husband were now ready to consider fixed bridgework, for the difference in their lives had made it worthwhile.

The partial denture splint was radically altered to completely eliminate the metal extensions that contacted the tongue.

After another month the nausea had completely subsided and six months later she reported that she actually enjoyed this pregnancy. There was no recurrence of the nausea. She felt well, and the domestic problems were all a part of the past. Her final remarks are worthy of quotation: “This is all like a miracle to my husband and me. Even the neighbor women have inquired about the change in me, the children, and our family relationship. They can't believe it.”

Case History #96

Housewife, age 26 (barren). The wife of a young gynecologist, after 4 years of marriage, had been unable to conceive. She presented with a full complement of teeth, with 4 mm. free-way space, and premolar prematurities. Occlusal inlay overlay (plastic) fillings were placed to provide bilateral, balanced occlusion at a vertical so tight that the molars barely cleared in speech. (In my experience this is the proper vertical, free-way space, for many people. All musculature of the head and neck are most relaxed at this vertical.) Six weeks later she was pregnant to the amazement of the gynecologist-spouse.

Case History #97

Male laborer, age 42. Referred by a marriage counselor. All legal work had been completed for a divorce. The wife believed he no longer loved her since it had been years since they had intercourse. Medical aid was unsuccessful in making it possible for him to have an erection. Both mandibular first molars were missing and there was considerable loss of vertical, crowding of the anterior teeth and all posterior teeth were in linguoversion. A mandibular splint was placed to provide dominant and balanced molar support at the proper vertical. He reported having intercourse two times that week. The marriage has been doing well for several years.

Case History #98

Male office worker, age 28. Low sperm count. He was childless and after medical care by a specialist his sperm count was only 10% of the
“normal count” expectancy. There was hypermobility in the TM joints and a free-way space of 3 mm. Self-curing acrylic inlay-overlays were placed to provide bilateral molar support with a minimum of free-way space; the molar teeth barely clearing in speech. Two weeks later the sperm count was 80%. The patient did not return until 2 ½ months later when the acrylic support had worn down and the sperm count had returned to 10%. Mandibular gold overlays were eventually placed for a permanent correction.

**COMMENT:** The author is convinced that dental distress is the dominant stressor of the body. He is constantly amazed how many severe, chronic health problems that have not responded to conventional medical treatment do respond to physiologic dentistry.

**III. Anomalies of the Blood**

Research into the hematology of the malocclusion patients is still in the early stages, yet certain patterns in the blood picture emerge. The blood morphology is routinely altered in acute cases of dental stress and in cases in which secondary acute problems coexist. Occasionally, we see a marked alteration in the number and quality of the red blood cells. The white blood cell count is greatly altered in an occasional acute head and neck stress condition. The common finding is lowered hemoglobin. When correction of the malocclusion eliminates the head and neck muscle distress, the blood picture normalizes rapidly. If the secondary problem has not become a self-sustaining situation, it disappears.

Since the average malocclusion case exhibits chronic low-grade problems, the blood picture is not as greatly affected as it is in acute infections. But the hemoglobin is disturbed in these low-grade, chronic cases, hovering near “normal” limits. These female patients are often placed on a daily iron supplement by a physician during pregnancy.

Chronic malaise is another constant finding among malocclusion patients. This is not surprising when we consider the routine situation of lowered hemoglobin coupled with the constant findings of lowered thyroid activity, lowered metabolic rate, and slower pulse. The resultant decrease in the oxygen supply to the tissues may account for many of the complex aches, pains, and tingling sensations so common in malocclusion patients.

The author has long been aware that circulation is affected by dental splint treatment. When an orthotic is placed to establish molar support at the proper vertical the circulation increase is obvious. The ear lobes and ankles that were pale and colorless take on a pinkish appearance. Continually monitoring the pulse before, during and after placing the orthotic reveals stronger pulsation seconds after the splint is inserted. Patients complaining of cold hands and feet and freezing unless they wear a sweater, often comment on the changes. The hands and feet become warm. They no longer need the sweater or wear stockings to bed to be comfortable. Family and friends comment on the fact that the wan look (pale-face) has changed to normal coloring.
When an open scalp sore of seven years duration that would not respond to conventional medical treatment heals two weeks after an occlusal splint is placed and when open ankle sores of 14 to 15 years duration heal in a few weeks after new dentures are placed to correct face height, the increased circulation had to be the reason. Also, the author has long suspected that most headache corrections were the result of the increased circulation.

The comment by Smith\textsuperscript{20} that the increase in blood supply to the head when the orthotic is placed is like opening a water faucet. His reports\textsuperscript{21,22} on monitoring the blood supply volumetrically, colorometrically and thermally demonstrates a doubling and as much as quadrupling of blood flow to the extremities.

**Case History #95**

Male, Age 12

**Principal Complaints:** Nasal deformity caused by delayed birth. Chronic upper respiratory problems.

**Oral Condition:** The patient possessed a full complement of teeth. There was an overbite of 5 mm. and a unilateral cross-bite of the molar and premolar teeth.

**Symptomatology:** Prematurities. There was a history of tonsillitis flare-ups. The patient habitually cleared his throat.

**Medical Record:** The patient was admitted to the hospital for correction of the nasal deformity. Laboratory tests revealed an abnormally low white blood count of 3,600 WBC (rechecked). All other aspects of the laboratory findings were within normal limits.

A complete rerun of the blood count and urinalysis again showed everything to be within normal limits with the exception of the white blood count of 3,500 WBC (2 pipettes – 4 chambers). The surgery was cancelled and the patient was released from the hospital.

**Treatment:** Over a period of months the patient made the rounds of several perplexed physicians. Repeated laboratory tests showed the white blood count had gradually decreased to 2,400 WBC. At this point the child’s mother, a registered nurse, granted permission to correct the malocclusion to provide dominant molar support at the proper vertical. Within a period of two weeks the white blood count improved to 5,250 WBC. The patient was readmitted to the hospital for the correction of the nasal deformity. Subsequent retesting has continued to show a normal 8,000 to 10,000 WBC. Tests as late as April 1976 showed 10,250 WBC.

**Case History #18**

Male, Age 7

**Principal Complaints:** Chronic laryngitis which had persisted for a six-week period was the chief complaint.
**Oral Condition:** The patient possessed a full complement of teeth for his age, sound and in apparently good relationship. Bruxing, however, was a decided problem, as he had reduced the crowns of all deciduous teeth to approximately one half of their original length.

**Symptomatology:** The tonsils were enlarged and the patient habitually cleared his throat. Testing revealed low hemoglobin – 11.2 gms. Or 73%. Earaches and a plugged feeling in the ears were routine.

**Treatment Record:** Occlusal fillings were placed in the mandibular first molars to increase the vertical height of these teeth 1 mm.

Two days later the laryngitis was gone and the habit of clearing the throat had also disappeared.

One month later the laryngitis recurred and persisted for three days before the patient returned. All the teeth occluded when the mouth was closed, probably due to a combination of the automatic suspension in the temporomandibular joints, eruption of the deciduous molars and the anterior teeth and depression of the first permanent molars. The occlusal fillings were replaced to open the bite an additional ½ mm., again leaving the entire occlusal stress on the first permanent molars. The following day, the laryngitis had again subsided.

One month later blood tests showed the hemoglobin to be 12.2 gms., or 79%.

**Case History #91**

Male, Age 18, Student

**Medical History:** The patient had been under treatment for the past year for sores in the mucosa of the lips which had not responded to different medications.

**Principal Complaints:** The patient sought dental attention to see if there might be some dental reason for the persistent sores.

**Oral Condition:** Three posterior teeth were missing. There were no caries or periodontal problems. An abnormally large free-way space was observed.

**Symptomatology:** Crepitation and subluxation were present in the temporomandibular joint. He experienced tinnitus and hearing loss. The lips were edematous and further questioning revealed that the lips had been rather “full” in appearance for three or four years.

**Treatment Record:** An acrylic treatment template was constructed to increase the vertical of the mandibular teeth 2 mm. and a week later the patient no longer felt exhausted all the time.

After one month an additional opening was necessary. The template was altered with self-curing acrylic to increase the overlay to 4 ½ mm.
One month later audiometric tests revealed that the hearing had improved from 25 to 35 decibels in all areas of testing. The hemoglobin had increased from 90% or 14.5 gms. to 96% or 15 gms. The condition of the lips had also normalized.

**A. Blood Glucose Levels.** Selye's research findings on the GAS indicate that, as a result of prolonged stress, there are gross anatomical phenomena which are repeatedly demonstrable on autopsy. However, it would be desirable to have some method of determining the presence or absence of distress in the living human being.

At the University of Alabama, Cheraskin attacked this problem from various angles. A significant series of tests were done to correlate the presence of clinically observable pathosis in the oral cavity with the glucose level in the blood. It was found that the greater the amount of oral trauma, the further from normal values the blood glucose levels were. The more free the patient was of oral pathosis, the closer the values were to an apparent ideal glucose level.

In a study, one hundred patient were selected at random for admission to their clinic for examination. A blood glucose level was run on all patients, regardless of the nature of their visits. The range found was from 80 to 120 mg./100 ml. of blood. Then all patients with Vincent's infection and acute periodontal disturbances were removed from the group and the rest were tested for blood glucose. Each time a new group was tested, those with the next most traumatic oral symptoms were eliminated from the test group and the remainder were tested. Finally, the last small sample contained only those patients who clinically exhibited a mouth entirely devoid of pathology or lost teeth – a near ideal occlusion. The smaller the group became, as unhealthy mouths were eliminated, the more definite a pattern became which indicated that the patient with a distress-free mouth carried a 100 mg./100 ml. blood glucose level.

Correlating this data, Morgan hypothesized that perhaps a nonspecific type of stress such as temporomandibular disturbance or a muscular imbalance from malocclusion or stressful overclosure might manifest itself in a subtle, demonstrable way by means of blood glucose levels. Wishing to pursue this further, he made arrangements with Dr. Fredrich C. Bauer, pathologist at Silver Cross Hospital, Joliet, Illinois, to run glucose tolerance tests on selected patients before and after treatment for their clinically demonstrable and subjectively interpreted symptoms of dental distress.

These symptoms were primarily suboccipital headaches, neck and shoulder pains, etc. Fig. 86 shows the results of their stress through muscle balancing. After a treatment period extending over a six month span, the results of the treatment were examined on a clinical basis. Fig. 87 gives the results of the second set of glucose tolerance tests run on these patients.
As can be seen from the charts, patients C and K had an increase in the glucose level toward 100 mg./100 ml. The subjective symptoms and clinical manifestations of imbalance were reversed and treatment was termed successful. Patient K had the highest level rise, with a significant improvement in a generalized dryness and scaliness of the epidermis, in addition to relief of the subjective symptoms. Patient C had a less dramatic rise in the blood glucose level, but her subjective symptoms were relieved. Patient B, on the other hand, experienced relief from his symptoms, but not a significant change in the blood level. Treatment was termed successful, but it was not possible to show a correlation between blood glucose level at this time and the treatment involved. Patient V, however, had a nearly ideal blood glucose level to begin with and not much change of significance after six months of treatment. Her symptoms had not materially improved and treatment was not termed successful but was still in progress.
On the basis of this pilot sample of patients, Morgan\textsuperscript{8} postulates that the possibility of determining the presence of stress by means of a blood glucose level is good. However, a much larger sample will have to run to draw any definite conclusions as to the predictability of an improvement of blood glucose levels in a patient with dental distress symptoms. A much larger study is not in progress. Total blood sugar is also being investigated as an indicator.

**B. Mononucleosis.** During the years 1962 and 1963, several children and an adult who had been positively diagnosed as mononucleotics were given emergency dental care. Complete rest had been ordered for six weeks to six months, but emergency care necessitated dental attention, so the malocclusion was corrected at that time. The children were all treated in like manner: occlusal fillings were placed in the lower first permanent molars to increase the vertical sufficiently to insure molar support. This usually amounted to increasing the vertical $\frac{1}{2}$ mm. A template was placed on the adult. Follow-up on these patients showed that each patient appeared to have convalesced by the second or third post-dental day. That is, the patient felt good, the fever and sore throat were gone, the appetite was good, and the tiredness had disappeared. When each patient returned to the physician for the follow-up blood tests, the conclusion was that the case could not have been infectious mononucleosis because the tests were no longer positive for that blood problem, and the convalescence of the patient had been too rapid. This was true of all cases without exception, and yet all had tested positive for infectious mononucleosis before the malocclusion was eliminated. In the adult’s case, however, there was lymph node swelling that did not normalize. That case history follows the reports on one of the children.

**Case History #47**

Female, Age 8

**Medical History:** The patient had been hydrocephalic at birth and at eight and one-half months had sustained a serious kidney infection. Two years prior to this time, she had experienced two attacks of tonsillitis, and this year she had a very serious attack of tonsillitis. Preceding her first dental appointment, she tested positive for infectious mononucleosis. Her white blood count at that time was 15,700. The physician ordered complete rest and had stressed that recovery would be slow since the case was so severe.

**Oral Condition:** The patient had rampant caries.

**Treatment Record:** Because of a toothache, the physician permitted dental care. In addition to providing temporary relief measures, occlusal amalgam restorations were placed in both mandibular first permanent molars to increase the vertical $\frac{1}{2}$ mm., to provide the molar support that was lacking.

Two days later the mother reported that the child was eating normally and that her condition seemed fine.
One week later laboratory tests were negative for infectious mononucleosis, and the white blood count was normalizing.

Six weeks later the tests were repeated. They again showed a more normal white blood count. Even later tests showed a white blood cell count of 7,450.

**COMMENT:** This case follows the pattern of the other five cases of mononucleosis that were brought to the attention of the writer during the testing period. All experienced the same dramatic recovery in one to three days after dominant molar support was provided at the proper vertical.

**Case History #21**

Female, Age 53, Housewife

**Medical History:** The patient had a lymph node on her neck that had enlarged to 72 mm. by 45 mm. and projected out 18 mm. The gland had been indurated for four months, and a biopsy was planned.

**Principal Complaints:** Headache and vertigo were the chief problems.

**Oral Condition:** Seven posterior teeth had been removed during the past eight years.

**Symptomatology:** Crepitation was present in the temporomandibular joint, with occasional subluxation. Shooting head pains would start in the nape of the neck and the back of the head. These paroxysms of pain would then culminate in a headache. Occasionally, headaches would start over the right eye. She constantly awakened with a sore throat and was aware of a habit of clinching and grinding the teeth. Occasionally, the teeth would feel tender or a dull ache would be noted after bruxing.

**Treatment Record:** All basic work had been completed, when the patient telephoned to cancel her appointment because she had tested positive for mononucleosis, and her physician had ordered several months of complete rest. She was informed by the author of the successful results with previous mononucleosis cases and was advised to go ahead with the remaining dental care.

Upper and lower partial denture templates were placed. She rapidly responded so the physician repeated the blood tests and found a normal white blood cell count. It was also noted that the lymph node had started to diminish in size. It was now 55 mm. long and 35 mm. wide and projected only 8 mm. It was mobile and softened. The attending physician decided to postpone the biopsy to see if the node would completely normalize.

The patient never returned for the customary routine adjustments of the template which proper follow-up treatment requires and gradually the lymph node began to enlarge. A biopsy showed lymphosarcoma.
Specific medical treatment continued with no follow-up dental care. Death occurred five years later.

**C. Rheumatic Fever.** Rheumatic fever is not an uncommon finding in children, and it would seem advisable to consider the role of malocclusion in such cases. The cases treated by correcting the neuromuscular imbalance in the head and neck areas resulting from malocclusion have resulted in dramatic convalescences. Case reports follow.

**Case History #89**

Male, Age 12

**Medical History:** The patient was hospitalized at the age of seven for rheumatic fever. He never quite recovered, and two years later, he had another serious bout with rheumatic fever. Since that time, he had been on routine penicillin therapy.

**Principal Complaints:** The mother said that he bruxed his teeth and cleared his throat all the time. He was constantly tired and inactive, nervous, and without appetite.

**Oral Condition:** The mouth appeared healthy. Premature contact upon closure occurred in the premolar area. The molars were either depressed or had not been allowed to erupt completely.

**Treatment Record:** Occlusal fillings were placed in the mandibular second molars to insure molar support and after two months the patient returned.

The mother reported that there was a dramatic change in his health and disposition. He no longer bruxed, the habit of clearing the throat ceased, and he awakened active and alert. After the subsequent physical examination and blood tests, his physician allowed him to go out for sports for the first time in six years.

One year later he was still the picture of health.

**IV. Body Fluid Balance**

**A. Salivary Glands.** According to Stenger, patients who have a neuromuscular imbalance in the mandible have a disturbed saliva-flow condition. The sympathetic nervous system is responsible for the salt content of the saliva, the inorganic factors, and the parasympathetic system is responsible for the secretory factors in the mouth. All malocclusion patients suffer from what may be termed sympathetic atonia or overstimulation of the sympathetic system, and an underfunction of the parasympathetic system. The parasympathetic system never predomnates over the sympathetic system and frequently is far below a healthy balance.
This sympathetic atonia is normally possessed by patients with disturbed function of the mandibular musculature. It is characterized by a diminished saliva flow. Frequently, there are severe symptoms of dryness in the mouth, deep fissures in the tongue, and an edematous lower lip with a dry and nasty-looking epithelium. The excessive calculus deposits are probably due to the fact that in such patients, the sympathetic supply is producing greater salt content in the mouth, but the parasympathetic supply is not producing sufficient secretion. Therefore, there is bound to be more precipitation, since we have greater quantities of dissolved material and less solvent. In most cases observed, the saliva is viscous and stringy.

With the restoration of the proper mandibular function, this changes radically. Saliva flow immediately following treatment is actually excessive. The patient will often actually drool. Then, after a day or two, the flow becomes normal and very fluid. Thereafter, the teeth no longer need cleaning, since there is rarely any calculus deposit on them. This finding is constant.

Other fluid balance problems, such as constipation, also disappear in these patients. Lawton\textsuperscript{10} has suggested that a triad of fluid imbalance exists in malocclusion patients by which it is possible to determine the course of the disorder. Patients will first complain of dryness of the mouth or a burning sensation in the mouth. This dry-mouth is an early stage of the sympathetic atonia in malocclusion patients. Two later stages follow, achlorhydria and constipation. In the extreme case, or in the case where the condition has persisted for some time, all three conditions will be found.

**B. Skin and Hair.** Research of the author coincides with the finding Hard\textsuperscript{11} reported in a study of 140 females with diffuse hair loss: 18.6\% - almost one in five – had a slight iron deficiency. The deficiency apparently could affect the scalp, although it was not great enough to produce anemia. In every such case (indicated by blood and other tests), use of iron supplement stopped the hair loss.

Patients with malocclusion also consistently suffer from excessively dry skin, especially in the scalp, hands, and often the face. Occasionally, this dryness is apparent throughout the upper torso and even the entire body. Lesions and dry reddened areas are noted in the extremities, especially the legs.

Since the blood picture of dental distress patients shows a slight iron deficiency, lowered blood volume, slower pulse, and lowered metabolic rate, a problem with dry and brittle hair and skin and with diffuse hair loss is understandable. In blood studies, the writer had noted poorly formed red blood cells as well as the low hemoglobin, and there is reason to suspect qualitative as well as quantitative problems in the blood morphology of malocclusion patients for irregularly formed cells and an inordinately high number of immature cells are found.

When proper neuromuscular balance is achieved by establishing the correct rest and closure positions, the blood picture normalizes.
Repeated tests following removal of the dental stress show well formed blood cells, fewer immature cells and an increase in the hemoglobin content. The skin returns to a natural smooth, soft, and oily condition, and the hair is no longer dry and brittle.

Waldenstrom emphasized the importance of recognizing epithelial defects which may accompany anemia and non-anemic iron deficiency. He observed fissures at the lateral angles of the mouth, a burning sensation of the tongue, papillatrophy and atrophy of the mucous membranes. Changes in the hypopharynx with dysphagia were demonstrable roentgenologically. Brittleness and lamellation of the nail substance was an early sign of iron deficiency. Haxthausen and Rustung observed these same epithelial defects accompanying iron deficiency without anemia.

Larson pointed out that in iron deficiency, the depot iron and tissue iron diminish first. The decrease of hemoglobin is later and is accompanied by fatigue, palpitation, paresthesias, muscular unrest, craving for certain foods, etc.

**C. Kidney and Bladder Disorders.** Frequently, malocclusion patients exhibit irregularities in the function of the kidney and bladder. Infections of the kidney are not uncommon and are routinely alleviated when the dental distress factor is removed. Furthermore, patients will have complained of the necessity of frequent voiding of the bladder before correction of the physiologic imbalance of the stomatognathical structures. Usually the first or second night after dental distress is eliminated the patient can sleep the entire night without going to the bathroom to void. Children with this problem will often continue a habit of bed wetting until the dental distress is removed.

**D. Irregularity of the Bowels.** The general fluid balance of the body is disturbed due to sympathetic atonia in malocclusion patients, frequently causing bowel irregularity. Patients will exhibit constipation or altering constipation and diarrhea. It is logical to suspect that changes in the mucous membranes of the oral cavity and changes in the skin that are observed in these stress patients would occur in the intestinal mucosa along with the classic haemorrhagic areas throughout the intestinal mucosa, and that these changes are also related to the bowel irregularity or especially to the problem of gas formation and pruritus ani.

Combined dental-medical studies of the “medical” disorders discussed herein should be carried out in our teaching institutions by competent medical and dental researchers to impress upon the health field the importance of dental distress and the need for medicine and dentistry to work as a team in caring for the health of all patients.

**References**