The Occlusal Spectrum and Complete Dentures

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Complete denture occlusion has preoccupied dentists for many years. Several early dental pioneers were the principal developers and proponents of numerous posterior tooth forms and arrangements. In recent years, many modifications have been made to the original patterns to satisfy more fully the demands of denture construction and to answer the criticisms of detractors. It is interesting, however, that none of these occlusal schemes are accepted universally and that all of these occlusal schemes have been accepted by segments of the dental profession with very little long-term scientific research or statistical data to demonstrate the advantages of one scheme over another. Furthermore, such proof probably will never be produced because of the large number of uncontrolled variables involved in human research. Presently, the dentist must rely on clinical skill, experience, and judgment when deciding on the type of occlusion to give his patient. Frequently, the biases introduced during a dentist's early training play a large part in this decision.

This article will discuss the purported advantages and disadvantages of five basic occlusal schemes, comprising the spectrum of occlusions, which are available for removable prosthodontics (Table 1). Obviously, there are many more tooth forms and arrangements, as well as many other arguments for and against each occlusal scheme, than can be presented here. In addition, many other factors besides tooth form and arrangement are involved in successful complete denture prosthodontics.

The existence of an occlusal spectrum is important in complete denture prosthodontics because overlying it is a patient spectrum (Figure 1). Frequently, the location of the patient in the patient spectrum places limits on the selection of the occlusal scheme. Regardless of one's beliefs about the superiority of a particular form of occlusion, the anatomical, mechanical, physiologic, and esthetic limits presented by the patient will limit the choice of occlusal schemes. Consideration of anatomy alone or of oral tissue conditions alone is not an adequate basis for selecting an occlusion, although emphasis on one factor over another varies with the operator.
TABLE 1
FIVE BASIC OCCLUSAL SCHEMES
IN USE TODAY

Anatomic, balanced occlusion
Semi-anatomic, balanced occlusion
Lingualized occlusion (balanced or non-balanced)
Non-anatomic, balanced occlusion
Neurocentric occlusion

The (Edentulous) Patient Spectrum

The patient spectrum can be thought of as similar to
the Scale of Edentulosity introduced in Miller’s text
on removable partial dentures.

The left end of the patient spectrum represents young,
healthy patients with large, firm ridges covered with
firm, healthy mucosa. These patients ideally have a high
dental IQ, good oral awareness, and good oral dexterity,
and are esthetically demanding. These patients were
the type commonly seen in the heyday of prosthodontics,
when removable prosthodontics was a young and grow-
ing specialty. Much of the information and literature
on which current practice is based was developed with these
patients. Today, however, as our population ages, the
young, healthy denture patient is becoming scarce.
Preventive dentistry and the retention of more teeth for
a longer time have made these patients a rarity in the
clinical practice of complete denture prosthodontics.

The reverse is true of patients at the opposite end of
the patient spectrum. At the right end is the geriatric
patient. This patient is old and ill. He or she has highly
resorbed residual ridges with a thick, friable mucosal
covering. He has poor oral awareness and poor oral
dexterity. Senile changes have lowered his once ade-
quate dental IQ to a point at which communication for
the purpose of patient education is nearly impossible.
This patient frequently is not interested in esthetics. His
greatest requirement is comfort and, to a lesser degree,
function. The number of such patients seen by prosth-
odontists is increasing daily.

Between these two extremes in the patient spectrum
lie a large number of patients with varying anatomic
conditions, varying degrees of esthetic concern, and
varying levels of oral dexterity and oral awareness. In
the exact middle of the spectrum might be the average
patient seen today. This patient is middle-aged or
slightly older, with resorbed but adequate ridges covered
with fairly healthy mucosa. Oral dexterity and aware-
ness can vary, as well as interest in esthetics.

The Occlusal Spectrum

Underlying the patient spectrum and related to it is
the occlusal spectrum (Figure 2), which can be thought
of as a collection of occlusal schemes (tooth forms and
arrangements) arranged to match patient needs and
requirements.

Anatomic Occlusion

At the left end of the occlusal spectrum is “anatomic
occlusion,” that is, anatomic teeth set in balanced
occlusion. Anatomic teeth are, by definition, teeth with
a cuspal inclination of 30 degrees or more, which are

![The Patient Spectrum](image)

Figure 1—The patient spectrum. The conditions with which the patient presents, as well as his needs and desires, enable us to locate the patient somewhere on this scale.
intended to duplicate the masticatory surfaces of natural teeth. Such teeth are the preference of the “anatomic school” of practitioners who believe in placing the artificial teeth in exactly the same positions as the natural teeth once were in. Anterior teeth are placed so that vertical and horizontal overlap of the natural teeth is duplicated. A cusp-to-marginal ridge or a “tooth-to-tooth” arrangement of posterior teeth provides uniform, bilateral, simultaneous contacts in centric relation. A combination of anterior-posterior and lateral curves provides cross-tooth, cross-arch, and protrusive balance during excursive movements. The premise of this occlusal scheme is that stability, function, and comfort are provided by having the teeth contact during all ranges of functional and nonfunctional movements. Maximum esthetics is a major consideration. Some practitioners even attempt to provide bilateral balance without protrusive balance, arguing that the protrusive position is not used during chewing, bruxing, or swallowing. At best, this philosophy represents a deviation and a compromise within the concepts of balanced occlusion.

Advantages of Anatomic Occlusion

1. From an esthetic standpoint, duplication of the arrangement of the patient’s natural anterior teeth and use of cusped posterior teeth (especially in the first and second premolar position) achieve a more esthetic and more natural appearance. Very few practitioners would debate this advantage.

2. A reported advantage of the anatomic occlusal scheme is that cusps penetrate a bulbus better, requiring less chewing force and, therefore, decreasing the vertical stress on the ridge. This advantage is debatable, as different laboratory studies have produced conflicting results.

3. The ability of cusped teeth to be arranged in harmony with the temporomandibular joint (TMJ) and the muscles of mastication during speech, swallowing, and chewing supposedly will provide an occlusion which is mechanically and physiologically balanced, more stable, and, therefore, more acceptable to the oral environment. As will be pointed out below, this advantage is debatable.

4. The interdigititation of the denture teeth is believed by some to resist rotation of the denture, thus encouraging a more vertical chewing pattern and greater denture

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*Lundquist DO, Goldman BM: Personal communication.
stability during parafunctional movements. A form of this argument is also used by those who favor canine guidance in complete dentures.

Disadvantages of Anatomic Occlusion

1. Precise, exact, reproducible records are required to generate this occlusion on the articulator, thereby requiring a more careful and time-consuming technique. However, it presents no real problem in the patient with good ridges and firm tissue. The problem arises in the patient with poor ridges and resilient, displaceable tissue which make such exact records more difficult to obtain.

2. It is argued that using an occlusion which functions against inclines generates a greater lateral force against the residual ridges. Traditionally, it has been accepted that these lateral forces are more destructive than vertical forces and that they might speed up resorption of the residual ridge. There is some literature to support this criticism. In 1966, Swoope and Kydd showed that anatomic teeth caused greater denture base deformation; they interpreted this to mean that greater lateral forces were generated against the residual ridge. Using photoelastic resin mandibular models, Sharry showed that cusped teeth produced greater deformation of the resin; this was interpreted as greater bone deformation in the mandible. An exact correlation between these laboratory studies and the human mandible has yet to be reported.

3. Anatomic occlusion is challenged on the grounds that, in addition to being more technically challenging and more time-consuming, the results are short-lived. The denture will remain in a good occlusal position until slight ridge resorption occurs, at which time the denture will be more difficult to adjust and to keep in adjustment than one with an occlusion of a simpler nature.

4. A fourth disadvantage of anatomic occlusion is that, while it can be used for crossbite situations and for Class II and Class III jaw relationships, the limitations placed on tooth position by the tight interdigititation of the cusps makes the use of this occlusal scheme in these cases more difficult, with fewer acceptable final results. This criticism seems justified.

5. Another criticism of anatomic occlusion is that the occlusal balance achieved is totally mechanical and exists only on the articulator. It is well known that most articulators used in removable prosthodontics do not reproduce the exact movements of the mandible and, therefore, will not produce the same areas of occlusal contact as they exist in the mouth. The resulting occlusion is not a duplication of nature, but an approximation. It would be expected that a more exacting technique would produce contacts sufficiently similar to provide stability and comfort during denture function. This argument, used particularly by those who favor an area of occlusal contact rather than a point of contact, seems well founded.

6. A sixth criticism is that while the anti-rotational element of anatomic occlusion may be effective in the young, healthy patient with good ridges and healthy oral mucosa (left end of the patient spectrum), it is not at all effective in the patient with poor ridges and friable, unhealthy oral mucosa. A patient who desires to have the artificial dentition duplicate his natural teeth may represent a compromising situation, especially if he presents with a steep vertical overlap with no horizontal overlap. Such a situation requires steep anterior-posterior and lateral curves to produce a balanced occlusion. These steeper curves lead to greater dislodging forces.

Neurocentric Occlusion

Neurocentric occlusion, at the far right of the occlusal spectrum and the exact opposite of anatomic occlusion, was developed by DeVan. He believed that the popularity of anatomic teeth and balanced occlusion existed because early practitioners failed to recognize or understand the differences between the support of the natural teeth and the support of the artificial dentition. He felt that there was not enough literature to substantiate the use of cusps and balanced occlusion, but that just doing away with cusps without neutralizing other occlusal factors was equally dangerous. He also stated that teeth should be placed where they grew as long as the mechanical laws were not violated. This more mechanically oriented school of thought sought to improve denture stability by taking maximum advantage of the mechanical aspects of denture construction. However, an ideal positioning of the natural teeth is a rarity. For example, extruded, migrated, and tipped teeth and steep vertical overlap with little horizontal overlap all produce situations which are not tolerated in the complete denture and which need to be corrected, even if esthetics must be compromised for the sake of mechanics.

DeVan coined the term neurocentric to embody the two key objectives of his occlusal scheme, the neutralization of inclines and the centralization of forces. There are five elements in this occlusal scheme: position, proportion, pitch, form, and number.

Position—DeVan positioned the posterior teeth over the posterior residual ridge as far lingually as the tongue would allow, so that forces would be perpendicular to the support areas. He felt this was the most important factor, and that "off-ridge" contacts for purposes of balance created more problems than they solved. This idea seemed to receive some support from Kapur, who found that the most effective buccolingual position was over the ridge crest, and that other locations were detrimental to masticatory efficiency.

Proportion—DeVan reduced tooth width 40% to correct tooth proportion. Such a narrowing supposedly reduced vertical stress on the ridge by narrowing the occlusal table. In addition, horizontal stress was reduced because friction between opposing surfaces was decreased. Forces were centralized without encroachment on the tongue space.
Pitch—Tooth pitch (inclination, tilt) was corrected by placing the occlusal plane parallel to the underlying ridges and midway between them. This positioning directed forces perpendicular to the mean osseous foundation plane. There was no compensating curve and no incisal guidance. Patients were educated not to incise or protrude.

Form—Tooth form was corrected by using flat teeth with no deflecting inclines. This arrangement reduced destructive lateral forces and helped to keep masticatory forces perpendicular to the support. All contacts were in a single plane with no projections above or below the plane to interfere with mandibular movement.

Number—The posterior teeth were reduced in number from eight to six. This decreased the magnitude of the occlusal force and centralized it to the second premolar and first molar area. The lower molar incline was avoided by keeping the teeth ahead of it.

Advantages of Neurocentric Occlusion

1. This technique is simple and requires less precise records. Therefore, it is ideal for a patient at the right end of the patient spectrum in whom it may be difficult or impossible to make precise records which can be duplicated. The admonition of McLean,28 repeated often by Boucher, that “it is not the cusps, but how the cusps are handled that is important,” is appropriate here. Regardless of one's belief in the necessity for using cusps, it may be impossible to mount casts and adjust the articulator to the degree of accuracy needed to use cusps properly.

2. By removing inclines, the lateral forces, which are very destructive to the residual ridges, are reduced. It should be pointed out, however, that the lateral forces are not eliminated. Frictional forces, leading to a lateral force component, always exist. In addition, flat teeth may encourage a lateral component to the chewing stroke.29 Nevertheless, the intensity of lateral forces is at least less with this occlusal scheme than with cusped teeth. This is especially important in patients with excessive inter-ridge distance, where lateral forces could be magnified by the length of the lever arm. Sharry and Kydd both lend some credence to this argument through their research.10,22

3. Teeth set with a neurocentric occlusal scheme are easier to adjust. Gronas23 introduced a technique using sandpaper strips intraorally. While this technique is probably adequate in a cooperative patient with good ridges and firm healthy tissue, this situation is rarely present in those patients for whom neurocentric occlusion is indicated. An additional refinement to this technique is the use of an intraoral tracer to stabilize the denture during adjustment24 or to perform the technique on remounted dentures. Additional refinements were introduced by Brudvik and Wormley.25 Their technique is rapid and keeps occlusal surfaces flat.

4. Because the neurocentric technique provides an area of closure and does not lock the mandible into a single position,26 the geriatric patient with limited oral dexterity is an ideal candidate. Also, the centric occlusion-centric relation discrepancy introduced by denture settling would tend to be less destructive because of the unlocked nature of the occlusion.13

5. Another advantage is that neurocentric occlusion is especially good for Class II (retrognathic), Class III (prognathic), and crossbite cases. In the geriatric patient with resorbed ridges, the chances for arch relationship discrepancies are increased; therefore, greater horizontal overlap and lack of specific interdigititation make neurocentric occlusion ideal.

6. The last argument for neurocentric occlusion is simply that if it is good in the patient with poor ridges, it will be even better in the patient with good ridges.30 However, several long-term studies by Woelfel, Winter, and others31 indicate that greater loss of bone and vertical dimension occur in patients with non-anatomic teeth, and that tooth relation should be based on factors other than the desire to preserve the residual ridges.32 There certainly is no consensus on this question yet.

Disadvantages of Neurocentric Occlusion

1. The greatest criticism of this occlusal scheme is that it is the least esthetic of the five basic schemes. That there is no incisal overlap and no posterior cusps certainly makes this statement true. However, few patients ever mention lack of cusps or incisal guidance as a problem unless the dentist points it out.12 Also, the first premolar can be reshaped to appear more cusp-like without interfering with its monoplane nature.

2. A strong criticism of neurocentric occlusion is that moving the teeth lingually and altering their vertical position may not be compatible with tongue, lip, and cheek function.4 This criticism certainly may be valid, especially if Devan's guidelines on proportion are not followed.

3. A third disadvantage of neurocentric occlusion is that its flat nature impairs mastication because of poor bolus penetration. As a result, vertical forces on the ridge are increased. Patients comment that the teeth “feel dull.”40 While vertical forces are more acceptable to the residual ridge than horizontal forces, there is a limit beyond which base movement and discomfort occur. The literature seems to give cusps a slight advantage over non-cusp teeth in incising power and efficiency.31,32

4. According to the tenets of neurocentric occlusion, if the incisal guidance is kept to zero and the patient is trained not to protrude or incise on the front teeth, the effect of condylar guidance is absent. Therefore, the condylar guidance on the articulator can be set to zero, simplifying the technique by requiring only a single centric relation record. Proponents believe that the patient will learn to function at centric relation and will maintain his jaw there.40 While that may be true in Class I and Class III patients, often it is not the case in Class II patients, especially severe Class II cases. These pa-
patients tend to hold their jaws forward and to function forward of centric relation. They continue to do this regardless of dentists' efforts at patient education. The result is disclusion of the posterior teeth, due to Christensen's phenomenon, and continual soreness in the anterior area of the mouth because forces are not being placed perpendicular to their support areas. These patients then require some form of anterior-posterior compensating curve to increase their comfort.

5. A final criticism of neurocentric occlusion is that this flat type of occlusion cannot be balanced, and the lack of cusp height encourages a lateral component to the chewing cycle, which can lead to bruxism, ridge soreness, and possible TMJ problems. Unfortunately, so many of the patients in whom neurocentric occlusion is indicated have such poor oral awareness that they would not recognize a more definite closure path even if they had one.

Semi-Anatomic Occlusion

Semi-anatomic occlusion (teeth with a cuspal inclination of less than 30 degrees set in full balance) represents an effort by the anatomic school to overcome some of the problems and criticisms of anatomic occlusion. It is a compromise by those who desire cusp sealing for esthetics, chewing efficiency, and balance, and yet still desire to decrease the lateral force component introduced by cusp inclines.

In 1952, Schuyler pointed out that functional harmony can be achieved with shallow cusp teeth by reducing the incisal guidance. The advantages and disadvantages of semi-anatomic occlusion are basically the same as for anatomic occlusion. Esthetics is compromised, to a degree, by decreasing the incisal guidance, but the advantage of reduced lateral forces seems to make this a worthwhile compromise.

Non-Anatomic Occlusion

Non-anatomic (zero degree, non-cusp, monoplane) teeth set with a compensating curve to provide some degree of protrusive and lateral balance is a widely accepted occlusal scheme. In this scheme, tooth inclines are eliminated and balance is produced by a combination of anterior-posterior and lateral curves, or by the use of a balancing ramp leading to "three-point balance." Interest in this occlusal scheme arose from a concern for the preservation of the residual ridges and a belief that the elimination of tooth inclines would aid in ridge preservation. While this occlusal scheme uses non-anatomic teeth, it cannot be considered strictly a monoplane occlusion, as occlusal contacts occur on curves rather than on a single flat plane as in neurocentric occlusion.

Advantages of Non-Anatomic Occlusion

Many of the advantages and disadvantages previously discussed for neurocentric occlusion also apply to non-anatomic occlusal schemes. However, the following important benefits of this technique should be pointed out.

1. It is more esthetic than neurocentric occlusion because some degree of vertical overlap is allowed by the presence of posterior compensating curves. This esthetic advantage is particularly evident when the first maxillary premolar is modified to resemble a cusped tooth. Therefore, this occlusal scheme is useful in the more esthetically demanding patient with poor ridges, in whom it may be possible to get reasonably accurate records but not records accurate enough for cusped teeth.

2. A second advantage of this technique is that it is simple and less time-consuming than other occlusal schemes. While this technique is more complicated than neurocentric occlusion, because of the requirements for protrusive and possibly lateral records to set the articulator and generate acceptable curves, it is certainly simpler than many other balanced occlusal schemes. Furthermore, occlusal balance is easier to achieve if the incisal guide angle is kept small, particularly if the horizontal condylar guide angle of the patient is also small.

3. This technique is good for patients with crossbite or Class III relationships, and especially for patients with severe Class II relationships who have an extremely long functional path, and who tend to hold their jaws forward and to function in that position. The presence of a compensating curve allows these patients to hold their jaws anywhere and still maintain posterior contacts over the areas where occlusal forces can be resisted (Figures 3 and 4).

Disadvantages of Non-Anatomic Occlusion

1. One criticism of this occlusal scheme is that the compensating curve acts as one long cusp; therefore, it will produce the same damaging effect as cuspal inclinations. These inclined planes cannot be eliminated in the complete denture, because any mandibular movement will result in inclines regardless of the occlusal scheme used. This criticism, although certainly valid, usually is countered with the reply that the desire is not to eliminate inclines, but to reduce and control them. Shallow inclines should be less damaging, especially if they are controlled and are as compatible with jaw movements as possible.

2. A second criticism is that occlusal adjustments are harder to do with this technique than with neurocentric occlusion, and that, due to the presence of compensating curves, it is harder to use sandpaper strips for adjustments. This disadvantage is certainly valid, although minor in comparison to the effort required to adjust a fully balanced anatomic type of occlusion.

Lingualized Occlusion

The final scheme shown in the occlusal spectrum is lingualized occlusion. This occlusal scheme lies in the exact middle of the occlusal spectrum and is very important because of the large number of different
patient situations for which it is useful.

The umbrella term **lingualized occlusion** actually encompasses a number of different occlusal schemes. They can be bilaterally balanced, 36, 40 non-balanced, 41 linear, 42 functional-rational, 43 or functional. 44 Linguolized occlusion might even be considered a form of “organic occlusion” because the concept emphasizes that teeth are only blocks of porcelain or acrylic which need to be modified to fit the requirements of the patient. The shape of the occlusal surfaces can be altered to accommodate each individual patient’s needs, chewing patterns, condylar guidance, and incisal guidance.

For the purposes of this article, lingualized occlusion will be defined as an occlusal scheme which uses the maxillary lingual cusps as the major functioning occlusal element. These cusps oppose mandibular zero degree or shallow cusp teeth. The arrangement can be balanced or non-balanced, depending on the operator’s bias or the needs of the patient.

**Advantages of Lingualized Occlusion**

1. Unquestionably, the greatest advantage of the lingualized occlusion concept is esthetics. 3 The use of cusped posterior teeth provides a definite esthetic advantage, especially if a balanced occlusion is used which allows some incisal overlap, even if it is shallow.

2. In the lingualized occlusion scheme, cusps have better penetrating power and, therefore, might decrease the vertical forces placed on the residual ridges. 3 As mentioned earlier, the literature give slight credence to this concept. It should be pointed out that mastication with this occlusal form is as much the holding and grinding “mortar and pestle” type as it is the shearing type, which is exercised with anatomic balanced occlusion. 44

3. This occlusal scheme is a simple technique. It requires less precise records than fully balanced occlusion, and it is similar in requirements to non-anatomic teeth set on a curve, although it is not as

simple as neurocentric occlusion. From the standpoint of time, this is a clinical advantage, especially for the beginning practitioner. By graduation, few dental students have mastered the intricacies of fully balanced anatomic occlusion. 37 They discard it as inefficient and costly, and revert to a simpler technique. They do not return to a more complicated technique until a few years of experience have elevated their skills and understanding. Perhaps because it is a simpler occlusal scheme which can be modified to fit a number of possible clinical situations, lingualized occlusion and its numerous variations offer an advantage to the undergraduate dental curriculum. It is easier to master than fully balanced occlusion and certainly preferable to attempting balanced occlusion on an average value articulator using cusped teeth, which is done so often following graduation. This occlusal scheme can be used in every instance in which anatomic teeth are used and in many situations in which non-anatomic teeth are used. It is usable in transitional dentures where maxillary cusps articulate against lower acrylic blocks, as well as in many other situations.

4. With lingualized occlusion, additional stability is imparted to the denture during parafunctional movements when a balanced occlusion is used. 39

5. A fifth advantage of lingualized occlusion might be the reduced lateral forces directed against the ridges. These forces, which were discussed in the section on neurocentric occlusion, can be reduced to a level below even those produced by non-anatomic schemes, because not only have steep inclines been eliminated, but also large, flat contacting surfaces have been eliminated in favor of a single cusp against a relatively flat surface. The easier penetration produced by this occlusal scheme may reduce the lateral chewing component. 39 However, as mentioned earlier, although the lateral forces have been reduced, they still exist.

6. Another advantage of lingualized occlusion is that it is easier to adjust than fully balanced anatomic
occlusion, although not as easy as non-anatomic occlusal schemes.

7. Lingualized occlusion provides an area of closure. This area allows easier accommodation to unpredictable basal seat changes. 12

8. Lingualized occlusion can be used in Class II, Class III, and crossbite situations. Although not as flexible as non-anatomic occlusal schemes, lingualized occlusion can be designed using the upper or lower, buccal or lingual cusps as the functioning element.

9. A final advantage of lingualized occlusion is that it is a concept which is compatible with the major tenets of non-cast occlusion. It will satisfy some who believe in the centralization of forces, because the use of maxillary lingual cusps contributes to this effect. The reduction and elimination of inlines goes far toward neutralizing lateral forces.

Many of these advantages were discussed previously in relation to other occlusal schemes. Indeed, the greatest strength of lingualized occlusion is that it seems to incorporate many of the advantages but few of the disadvantages of other occlusal schemes (Figure 2).

**Summary and Conclusion**

The search for the ideal occlusal scheme, one which provides stability, comfort, function, and esthetics, is still underway. The probability that an ideal occlusal scheme ever will be developed is low, as the characteristics of the ideal scheme are not complimentary to each other. Everyone believes that teeth can be set to enhance retention, tissue health, masticatory efficiency, esthetics, and comfort, but just where or how is open to debate. Sophisticated studies of the number and locations of occlusal contacts have yielded such confusing and contradictory results that it is impossible for the individual dentist to know where the patient will close, chew, and function. 46-50 In designing and accepting an occlusal scheme, the practitioner must somehow allow for the limitations of the oral system. Fortunately, occlusion is only one factor in denture construction. Studies have shown that denture base movement makes short-term occlusal harmony, as seen on an articulator or as shown in simple line diagram analysis, impossible. 51, 52 Tissue changes make long-term occlusal harmony impossible.

Lingualized occlusion is an outstanding occlusal scheme in that it is adaptable to so many different clinical situations and offers the maximum number of advantages with few of the disadvantages of other occlusal schemes. It allows the dentist the possibility of blending the principles of both the mechanical and anatomical schools of thought; this is appropriate and necessary, because a denture is a rigid piece of acrylic resin which needs to be anatomically acceptable while being subjected to the physical and mechanical laws of a constantly changing environment.

While there is little research to support one occlusal scheme over another, it is known that all dentures are less efficient than natural teeth and that the ability to chew with dentures varies with the individual, regardless of the occlusal scheme. Poor oral awareness makes it more difficult for a patient to adapt to and function with a denture, especially one with a complicated occlusal scheme.

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**REFERENCES**


hydrocodone bitartrate* 5 mg with acetaminophen 500 mg
Warning: May be habit forming.

INDICATIONS AND USAGE: For the relief of moderate to severely severe pain.

CONTRAINDICATIONS: Hypersensitivity to hydrocodone or acetaminophen, increased intracranial pressure, status asthmaticus, severe respiratory depression.

WARNINGS:

Reduction of Respiration: At high doses or in sensitive patients, hydrocodone may produce dose-related respiratory depression by acting directly on brainstem reticular centers. Hydrocodone also affects centers that control respiratory rhythm, and may produce opiate-induced respiratory depression. Head Injury and Increased Intracranial Pressure: The respiratory depressant effect of hydrocodone and other narcotics may be less pronounced in the presence of head injury, other intracranial lesions, or a preexisting increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the diagnosis of the primary cause of the patient's pain or head injury.

Acute Abdominal Conditions: In the administration of narcotics may obscure the diagnosis of a clinical course of patients with acute abdominal conditions.

PRECAUTIONS:

Special Risk Patients: As with any narcotic analgesic, VICODIN should be used with caution in elderly or debilitated patients and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy, or urethral stricture. The usual precautions should be observed (including adult fentanyl) concurrently with VICODIN may exhibit an additive CNS depression. When administering hydrocodone therapy is contraindicated, the dose of one or both agents should be reduced.

Usage in Pregnancy: Pregnancy Category C. Hydrocodone has been shown to be teratogenic when given to rats and rabbits at doses 20 times the human dose. There are no adequate and well-controlled studies in pregnant women. VICODIN should be used during pregnancy only if the potential benefits justify the potential risk to the fetus.

Nonpregnant Health: In appropriate trials, regular delivery of delivery is typically followed by physical dependence. The withdrawal signs include increased heart rate and respiration, vomiting, nausea, diarrhea, and anxiety. The intensity of the syndrome does not correlate well with the duration of maternal exposure to drug. The symptoms may be severe in the newborn, the best method of treatment is onset of withdrawal. Chlorpromazine 0.75 to 2 mg/kg should be determined in the best method of treatment. The regimen is 1 to 2 mg/kg, and pain is 1 to 4 mg/kg, it has been used to treat withdrawal symptoms in infants. The duration of therapy is 4 to 12 days, with the dosage decreased as tolerated.

Labor and Delivery: As with all narcotics, administration of VICODIN to the mother shortly before delivery may result in some degree of respiratory depression in the newborn, especially if higher doses are used.

Nursing Mothers: It is not known whether this drug is excreted in human milk. Many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from VICODIN, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS:

Central Nervous System: Sedation, dizziness, mental clouding, dizziness, impair mental and physical performance, weakness, loss of appetite, nausea, vomiting, diarrhea, premature psychic dependence, mood changes.

Gastrointestinal System: Nausea, vomiting may occur. They are more frequent in amnion/born than in the recent born patients. Prolonged vomiting in supporting these effects. Some phenylbutazone derivatives seem to be antipsychotic and to increase the amount of narcotic. Other phenylbutazone derivatives may reduce the amount of narcotic. Poliomyelitis and other nervous system disorders of VICODIN may produce constipation.

Genitourinary System: Frequent, spasms of vesical sphincter and urinary retention have been reported.

Respiratory Depression: VICODIN may produce dose-related respiratory depression by acting directly on brainstem respiratory centers. Hydrocodone also affects centers that control respiratory rhythm and may produce opiate-induced respiratory depression. If significant respiratory depression occurs, it may be antagonized by the use of naloxone hydrochloride, 0.4 to 2 mg intravenously. Apply other supportive measures when indicated.

DRUG ABUSE AND DEPENDENCE: VICODIN is a Schedule II narcotic. Psychotic dependence and behavior disorders, and tolerance may develop upon repeated administration of narcotics. Therefore, VICODIN should be prescribed and administered with caution. The development of psychic dependence is unlikely to develop when VICODIN is used for a short time for the treatment of pain. Physical dependence, the condition in which the patient has developed a psychologic or physical need for the drug, is not likely to occur when VICODIN is used for short periods in the absence of a severe underlying disease. The degree of physical dependence may develop after a few days of narcotic therapy tolerance. In patients with increased doses are required in order to produce the same degree of analgesic effect. VICODIN is not associated with a prolonged duration of action, effect is apparent for approximately 24 hours. The drug may be habit forming. VICODIN is given orally. The usual adult dose is one tablet every 6 hours as needed for pain. In cases of more severe pain, two tablets every 6 hours may be given. The dose of one tablet every 4 hours on an empty stomach or as needed for pain. VICODIN may be given to children 6 years and older. VICODIN is given to children under 6 years of age. VICODIN may be given to children under 1 year of age. VICODIN is given to children under 1 year of age. VICODIN is given to children under 1 year of age. VICODIN is given to children under 1 year of age. VICODIN is given to children under 1 year of age.

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