

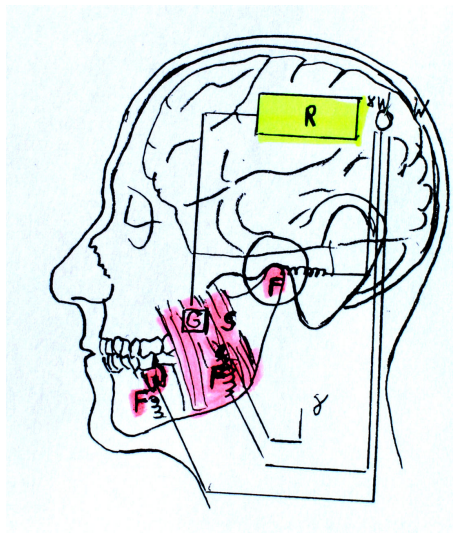
**The responsibility of the dentist and orthodontist**  
**Successfully treated symptoms of CMD / Range of success**

**The occlusal cogwheel and CMD**

- If the dental cogwheels of the upper and lower jaws are not interlocking perfectly, their ball bearing will be affected by lever forces of the strongest muscle forces of the human body.
- Continuous dysfunction of the dental cogwheels affects the muscles and nerves itself in their cooperative balance and nutrition. By this the balance of the hardware and software is getting out of order resulting into complex dysfunction of adjacent organs and the central control station.
- Continuously imbalanced dental cogwheels are the source for Craniomandibular Dysfunction, CMD

**The Bio-Cybernetic Feedback-system**  
**of the organ of mastication**

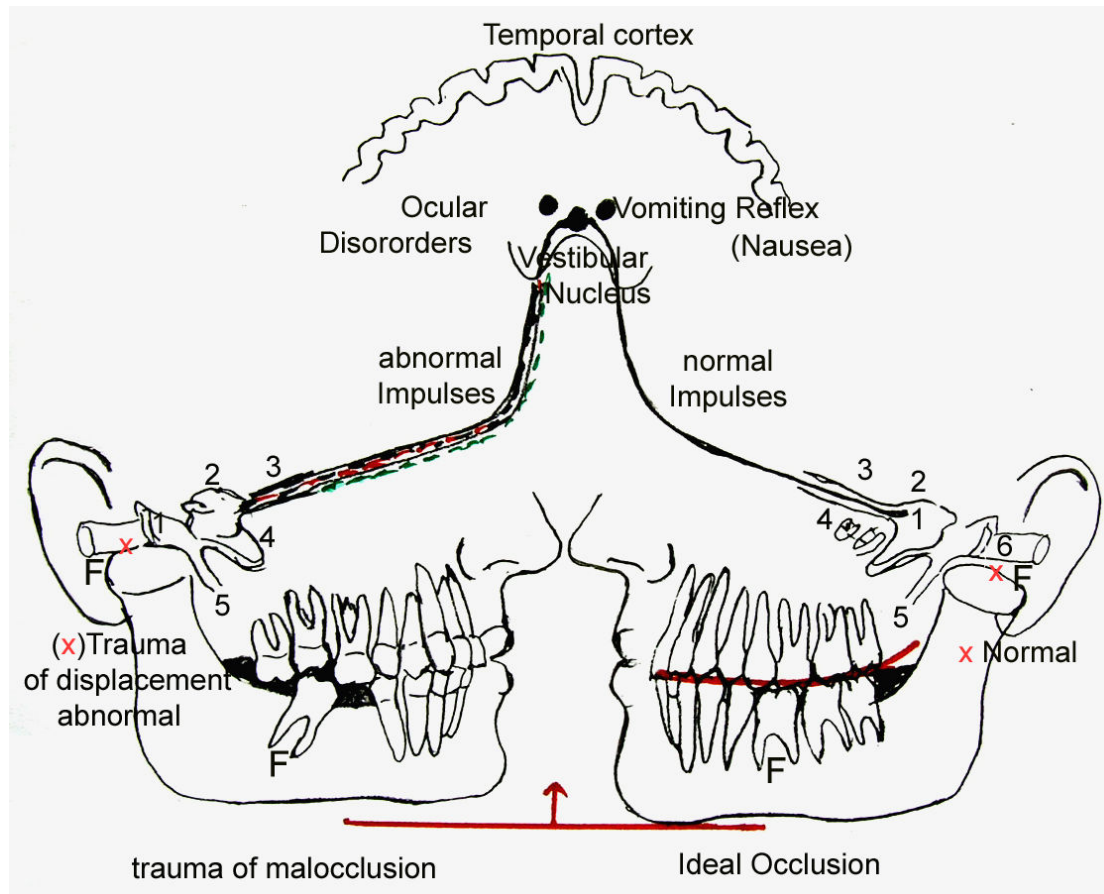
**Wrong positioned teeth with occlusal dysfunction will lead to various forms of dysfunction by lever arm forces to the temporomandibular joints, spasm and pain of the various muscles of mastication, head and shoulders.**



**Fig. 1:** Bio-Cybernetic Feedback-System of the cranio-mandibular system [G.H. Schumacher, "Die Funktionelle Anatomie", Hüthig Verlag 1985, Basics of Bio-Functional Orthodontics, BFO].

- R - central regulator- station
- F - sensors, receptor-systems (ends of nerves in parodontium of teeth, TMJ, muscles)
- G - the adjusting regulator G is the force produced by the chewing muscles
- S - the distance covered by the muscle contraction
- X - is the magnitude of regulation-order
- W - the set point ( Sollwert ) of the order, given by the brain,  $X_w$  - the standard deviation,
- Y - the magnitude of regulation
- $\gamma$  - the setting of sensitivity (Empfindlichkeitseinstellung )

**Visual demonstration of the feedback system  
of wrong inclined teeth**



**Fig. 2**

- Diagram which *shows* unilateral occlusal trauma resulting in abnormal vestibular impulses conveyed by one ear as compared with the other.
  - Traumatic malocclusion of one side may cause abnormal pressure in that Joint and traumatic movements of the other Joint.
  - Differences of vestibular impulses cause vertigo and associated Symptoms.
  - 1, Middle ears and ear drums. 2, Semicircular canals and vestibules.  
3, Vestibular nerve 4, Auditory nerve 5, Eustachian tubes 6, Auditory meatus.
- [H.T. Kelly, D. J. Goodfriend, "Diseases of the temporomandibular apparatus", 1982]

Anatomic treatment objectives of straight wire orthodontics are in opposition to textbook anatomy of general dentistry to the right, ideal occlusion with Curve of Spee.

## Treatment results of CMD-Symptoms by H. T. Kelly und D.J. Goodfriend

**Table 1** Dental-medical treatment of patients with vertigo\*

Symptoms	No. of symptoms	Results of treatment	
		Complete relief	Per cent Complete relief
Dizziness	105	94	89
Visual disorders	97	85	83
Nausea	23	17	75
Vomiting	19	15	80
Blackouts	24	21	88
Loss of consciousness	20	17	87
Staggering gait	10	8	80
Uncertainty of heights	11	5	43
Diminished hearing	47	16	35
Ear noises	46	20	43
Sensitivity to noise	22	9	40
Ear blocking	32	19	59

\* 89 per cent received complete relief of vertigo; 45 per cent received complete relief of ear disorders.

**Table 2** Dental-medical treatment of Temporomandibular joint and neuralgia symptoms of 105 patients with vertigo\*

Symptoms	No. of symptoms	Results of treatment	
		Complete relief	Per cent complete relief
Joint			
Crepitus	32	27	84
Pain	16	11	70
Limited movement	10	8	80
Excessive movement	4	2	50
Neuralgia			
Facial pain	32	21	65
Head pain	26	17	65
Ear pain	26	16	62
Neck pain	40	26	65

\* 79 per cent received complete relief of temporomandibular joint symptoms; 64 per cent received complete relief of neuralgia symptoms.

## **“SUMMARY**

1. An 8 year study of 105 patients with vertigo indicates that a surprisingly high percentage of vertigo associated ocular and vagal Symptoms are caused by dental occlusal and temporomandibular joint abnormalities which irritate and injure the adjacent structures of the ears.
2. The Symptoms of these patients included pain, blurring of vision, dizziness, staggering gait, light-headedness, nausea, vomiting, abdominal pain, blackouts, and loss of consciousness. These Symptoms had resulted in previous inadequate diagnoses of Meniere's disease, brain tumor, brain degeneration, hypertension, atherosclerosis, cholecystitis, abdominal epilepsy, and psychoneuroses.
3. Dental treatment that established a harmonious dental occlusion and nonpathogenic relationships of the temporomandibular Joints, with the adjacent structures of the ear, resulted in complete relief of vertigo and associated Symptoms in 89 per cent of the patients.

## **CONCLUSION**

The findings of this study and of Goodfriend's previous 10 year study indicate that physicians and dentists should give early consideration to dental-occlusal temporomandibular Joint causes in the diagnosis of vertigo and associated pain, blurring of vision, disorders of hearing, nausea, vomiting, blackouts, and loss of consciousness.”

[Diseases of the Temporomandibular apparatus: A Multidisciplinary Approach / St. Louis, Toronto, London, 1982, p. 625]