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## Treatment of facial palsy patients in accordance with BMJO concept

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**Introduction:** A gold standard of evidence-based facial paresis treatment is facial nerve reinnervation. However, the outcomes are not always totally satisfactory. A comprehensive rehabilitation is an important component of therapy that influenced on restoring facial expression. Successfully performed surgical part is only a tip of an iceberg. The main parts of achieving excellent results are preparing the patient for enhanced recovery after surgery and postoperative integrative rehabilitation.

Analyzing anatomic structures involved in facial expressions and undertaking additional diagnostic examinations improve the outcomes of facial reanimation surgery. Our clinical approach that is called BMJO (Brain Muscule Joint Occlusion) is comprehensive included diagnostics, perioperative planning and rehabilitation. Before planning patients undergo electromyography (EMG), electroencephalography (EEG), magnetic resonance imaging (MRI) and occlusal analysis.

Restorative medicine is based on activating the adaptive and reserve forces. These processes are directly correlated with cerebral plasticity and different antinociceptive systems that are responsible for recovery. The most operative of them is opiategic, whose mobility can be assessed by the ratio of alpha and beta brain rhythms identified by EEG. Registering brain rhythms before, during and after treatment, the degree of adherence to therapy is assessed. Moreover, increasing the level of the alpha rhythm, which contributes to the production of large-molecular endogenous opioids, leads to enhanced recovery. Providing facial nerve coaptation with the masseter nerve, it is important to assess the electrical potential of the masseter muscle. The higher potential is, the more expressive facial function would be. TMJ condition and dental occlusion influence on responsible for the action of mastication.

**Objective:** To increase the efficiency of improving facial function and quality of patient's life who suffered from facial paralysis and paresis.

Tasks:

1. Determine the relationship between brain rhythms and the patient's potential for rehabilitation in postoperative period
2. Assess the role of the masticatory muscles, TMJ and dental occlusion as a part of comprehensive rehabilitation program

**Materials and methods:** For the period from 2020 to 2021, 12 patients suffered from facial paresis and paralysis were examined according to the BMJO approach at the Federal State Budgetary Institution NMICCO FMBA of Russia (the Department of Maxillofacial and Plastic Surgery).

**Results:** Preoperative examination such as EMG, EEG and MRI are often helpful in evaluating brain potential to produce endogenous opioids, the strength of the masseter muscle and TMJ stability. It contributes to the assessment of possible outcomes. Due to the correction of unsatisfactory it is possible to achieve excellent results.

**Conclusion:** Analyzing EEG with subsequent correction of opiategic system is significantly improve the outcomes of facial paresis treatment. Providing facial nerve reinnervation using the masseter nerve is important to assess the electrical potential of the masseter muscle, TMJ condition and dental occlusion according to BMJO approach. This approach leads to achieve excellent results preparing patients for enhanced recovery after surgery and postoperative integrative rehabilitation.

### Recent Publications

1. Finsterer J. Management of peripheral facial nerve palsy. *Eur Arch Otorhinolaryngol.* 2008;265(7):743-752.
2. Morales-Chávez M, Ortiz-Rincones MA, Suárez-Gorriñ F. Surgical techniques for smile restoration in patients with Möbius syndrome. *J Clin Exp Dent.* 2013;5(4):e203-e207.
3. Grossard C, Chaby L, Hun S, Pellerin H. et al, Children Facial Expression Production: Influence of Age, Gender, Emotion Subtype, Elicitation Condition and Culture. *Front. Psychol.* 2018: 9:446

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**Speaker Biography**

Dmitry Yudin graduated from the Moscow State Medical and Dental University and completed a clinical internship at its base. Subsequent training in the specialty maxillofacial surgery was completed on the basis of the Moscow Regional Scientific Research Clinical Institute. M. F. Vladimirsky", where, upon its completion, he worked as a staff doctor and held the position of a departmental employee. Having received a basic surgical edu-

cation, he continued his studies in oral surgery and implantology, plastic surgery and cosmetology, as well as physiotherapy and rehabilitation. He has repeatedly improved his qualifications and regularly undergoes training in all areas of his professional activity in Russia and Europe. He is the author of a patent and numerous scientific articles.

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