



# Acoustic Neuroma Association New Techniques for facial rehabilitation

The reanimation of the one-sided paralyzed face is one of the most challenging endeavors that facial plastic surgeons encounter. The exquisite complexity of the facial motor system allows for an endless variety of emotional expressions, as well as providing for eye protection and control of speech, food, and saliva.

The exact duplication of this system is albeit impossible; however, by using an operative technique called "Dual Simultaneous Systems-2" (DSS-2), a remarkably natural reconstructive result can be accomplished.

The object of this new operation is to reanimate the face so that the upper and lower face move independently of each other, thus giving two spheres of activity, one surrounding the eyes and the other dealing with the mouth and smiling.

This procedure is accomplished by moving and attaching (transposing) a muscle, the masseter, to reanimate the lower face and a partial hypoglossal (Nerve XII) nerve attachment with the upper division of the facial nerve to supply the area of the brow and eye.

By treating the upper and lower zones of the face separately, patients can regain a more natural facial expression and more coordinated facial muscle movements.

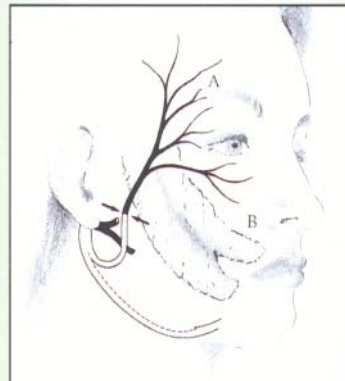
First the hypoglossal is nerve split and reattached to the upper division of the facial nerve to reanimate the upper facial zone. By splitting the hypoglossal nerve instead of taking the whole nerve (as is done in the hypoglossal crossover operation) tongue movement remains normal.

To restore lower face movement, the masseter muscle (which runs from the cheekbone to the lower jaw and is used for chewing) is divided into two parts and moved into the oral region, one part with its accompanying nerves derived originally from the fifth cranial nerve (V) is positioned above the mouth, the other below.

The masseter muscle functions almost immediately after the operation. A near normal smile can be achieved by a self training program of looking in the mirror while smiling. Eventually, through this type of biofeedback, the brain will realize that the chewing muscle is now in a new location with the goal that the patient will be able to smile at will.

The nerve graft to the eyes takes about 9 months to impart some tone and about 18 months for movement to begin.

The final stage of the reconstruction occurs as the fine nerves flow out from the transposed masseter muscle into the surrounding facial muscles, giving them increased tone and eventually purposeful movement, adding expressive facial motion.



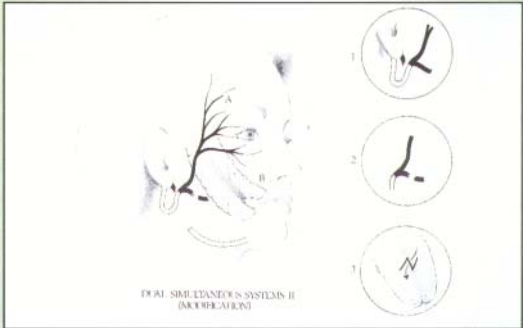
DUAL SIMULTANEOUS SYSTEMS II

### Facial Reanimation Technique

#### A. Upper facial nerve distribution

1. Upper portion of facial nerve (VII) shown by dark lines
2. Split hypoglossal (XII) nerve shown by white lines
3. Arrows point to the connection between the split hypoglossal and the upper facial nerve

#### B. Transposed masseter muscle



DUAL SIMULTANEOUS SYSTEMS II  
(MAY 1984-1985)

### Hypoglossal Nerve Reversal

A modification of this procedure may help to reverse the effects of a poorly functioning hypoglossal crossover operation. This may be accomplished by attaching the hypoglossal (XII) nerve to the upper division of the facial nerve and transposing the masseter muscle as described above.

A 33-year-old nurse's facial nerves were severed in a car accident



Patient has no control over facial movement



After surgery, Patient's smile is restored



Patient's smile is distorted due to the inability to move half her face



After surgery patient has gained natural smile movement



Before surgery patient was unable to close eye



After surgery eye can close normally