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		unaffected side					
patient number	age (in years)	masseter muscle (cm <sup>3</sup> )	temporal muscle (cm <sup>3</sup> )	pterygoid muscles (cm <sup>3</sup> )	hemi- mandible (cm <sup>3</sup> )	masseter muscle (cm <sup>3</sup> )	tem m
1	0,33	1,25	2,82	1,61	5,89	0	]
2	0,5	2,15	4,23	1,99	5,97	0	
3	5,42	4,69	10,33	3,69	10,03	0	7
4	6,33	9,57	19,67	9,54	19,37	0	4
5	6,83	14,11	24,03	11,14	19,85	6,77	1
6	11,42	13,37	24,34	16,27	20,99	0	
7	15,92	24,09	30,18	13,47	32,04	0	1
8	16,58	22,3	21,14	15,3	25,12	0	1



- The masseter muscle is absent in the affected side in 7 patients .

# **Masticatory Muscle Defects in Hemifacial Microsomia:** a New Embryological Concept

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- Recently, we demonstrated that PA1 CNCCs, which give rise to skeletal element of the jaws, are required for the differentiation and patterning of PA1 CMMCs leading to masticatory muscle formation

- Based on experimental results from animal models, we propose that the hypoplasia or agenesis of masticatory muscles derives from a defect in the CNCC/CMMC communication during early

- Another fact supporting an early defect is continued growth of the hypoplastic muscles during postnatal development, suggesting that their basic physiology is preserved and that they do not regress

- This new embryological concept could contribute to improved understanding of the aetiology for hemifacial microsomia, and it





(A-B) right (unaffected side) and left (affected side) view of a skull 3D reconstruction. (C) CT-scan section (at the indicated level in A and B) with the defined masticatory muscles. (D-E)