

at least. A transparent resin mask helped choosing the *Access®* angle correctors, which had to be directly screwed onto the implant head to parallelise the axes of the implant emergencies.

The resonance frequency analysis made with *Osstell®* ISQ device measured the primary implant stability at zero time. The ISQ values of anterior implants were measured by placing the probe in mesial, distal and vestibular position; for the posterior implants, the ISQ was taken in the buccal palatal and mesial position. Following this, the *SmartPeg™* was removed and the titanium prosthetic cylinders that act as transfers were installed above the *Access®*. The surgical template was used as an open tray to take a silicone impression. The occlusal contacts were checked with an articulating paper. The patient was invited to maintain in the maximum intercuspitation position (ICP) throughout the swallowing technique. A bite-type silicone was injected between the mask and the vestibule: it blocked the intercuspitation position, polymerized and then was removed. The ICP impression was used to construct the temporary prosthesis. The temporary resin strengthened by glass fibers was produced based on the implants' emergencies and the wax teeth assembly, and after 24 hours was delivered to the patient.

At the end of the surgical phase, antibiotic and anti-inflammatory therapy was prescribed and a soft diet was recommended for at least 30 days.

The patients were summoned back after 3 months and 12 months after surgery. The final prosthesis was delivered after 6-8 months from the temporary prosthesis implant.

After the temporary prosthesis removal, the peri-implant mucosa healing process was evaluated and the ISQ values of each implant were measured.

Outcomes measures and results

The obtained ISQ values reflect the stability level on the universal ISQ scale, from 1 to 100. Three measurements were recorded for each direction tested but only the highest value was considered. The ISQ values were recorded after implant installation of *Access®* (Neoss Ltd. Harrogate, UK) during the different stages: during surgery (t0), after 3 (t1) and after 12 months (t2) from insertion. The values of ISQ ranged between 53-88 ISQ (average 66 ± 6.1 ISQ, median 67 ISQ) at t0, 51-80 ISQ (average 70 ± 5.8 ISQ, median 70 ISQ) at t1 and 53-80 ISQ (average 70.8 ± 5.7 ISQ, median 72 ISQ) at t2.

Analyzing the variation tables of the ISQ value over time, we note an increase at t1 and a slight increase or stabilization at t2. In Tables 1, 3 and 5 some implants slightly drop the ISQ values from t0 to t1 and an increase them from t1 to t2. In Tables 1, 2 and 5 ISQ values higher than 75 recorded at t0 fall at t1, then stabilize or return to growth in the ISQ control performed at t2. In Tables 2, 3 and 4 three out of twenty-five implants have shown a different trend: lower ISQ values at t1, which stabilized at t2 in Tables 2 and 4 while further decreased at t2 in Table 3. In Tables 1, 3 and 4, three implants with ISQ values lower than 60 at t0 showed a marked increase in the ISQ value at t1 and t2, conforming to the ISQ values of the other implants present in the respective Tables.

The patient 2 was supplied with prosthesis in both the maxillary bone and the mandible, thus we could draw two distinct tables to monitor the different osseointegration of the maxillary and mandibular implants over time. The ISQ values trend is described above in both Tables. If the mandibular implant with abnormal ISQ val-

Table 1. The variation table of the ISQ value over time in patient 1.

PATIENT 1												
SITE	IMPLANT	ACCESS	T0			T1			T2			
			V	M	D/P	V	M	D/P	V	M	D/P	
1.5	3.5 X 13	20°	72	65	65	52	66	64	71	72	73	
1.2	3.5 X 11	30°	88	73	68	72	62	72	77	77	77	
2.2	3.5 X 11	30°	65	69	67	68	68	68	68	72	72	
2.4	3.5 X 11	20°	53	65	53	58	63	58	67	70	67	

Table 2. The variation table of the ISQ value over time in patient 2.

PATIENT 2												
SITE	IMPLANT	ACCESS	T0			T1			T2			
			V	M	D/P	V	M	D/P	V	M	D/P	
1.6	3.5 X 11	10°	52	52	52	X	X	X	X	X	X	
1.4	3.5 X 11	10°	70	70	63	72	72	72	73	73	73	
1.1	4 X 11	20°	62	67	67	77	77	77	65	71	71	
2.2	3.5 X 11	30°	62	65	65	72	72	72	65	69	69	
2.4	4 X 11	30°	66	66	61	71	72	71	76	76	76	
2.6	4 X 11	30°	63	70	63	77	77	77	74	74	74	
3.3	4 X 13	10°	67	69	69	77	80	80	77	80	80	
4.2	3.5 X 11	10°	72	72	72	63	63	63	62	62	63	
4.5	4 X 10	30°	71	79	72	76	80	76	80	76	76	