



# TAKE A BITE OUT OF OSA

## The Effectiveness of the Physiologic Approach & the MicrO<sub>2</sub> in Treating OSA

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Historically the George Gauge has been the most popular way to take a bite for a mandibular advancement device for treating OSA (Obstructive Sleep Apnea). This results in a protrusion of 70% of the patient's maximum protrusion. A new approach to treating OSA and other Sleep Breathing Disorders (SBD) is the Physiologic Approach which requires TENSing the muscles of mastication and the airway before taking the bite, and then taking the bite in the physiologic resting position of the mandible. This protocol results in a much less protrusive position of

the mandible as well as less titration necessary and fewer post-treatment complications like TMD and/or painful muscles of mastication upon awakening. In a recent study (also in this issue of Visions), the average difference of forward protrusion between the George Gauge position and the Physiologic Bite position (as taught at LVI) was 4.15 mm, and the average difference in muscle hypertonicity was significantly higher in the George Gauge position with that position averaging 7.5 mv and the Physiologic Bite position averaging 1.68 mv.

The most common appliance used in treating SBDs has been the SomnoDent by SomnoMed. However a new appliance has been developed that utilizes patented designs to eliminate airway closure on opening (vertical fins) and the linguless design which eliminates the need for excessive protrusion of the appliance. The appliance is the MicrO<sub>2</sub>, and has no moving parts and stable and strong milled construction. The MicrO<sub>2</sub> comes in two upper and two lower arches which, using the Series A, allows for 1 mm, 2 mm, and 3 mm titration. Strength testing has shown it to be stronger in all areas as well as 1/10 the amount of methyl methacrylate.

This study was done to determine the effectiveness of the less protrusive technique taught at LVI (The Las Vegas Institute for Advanced Dental Studies) and with the MicrO<sub>2</sub>. Users of the MicrO<sub>2</sub> who also use the Physiologic Approach as taught at LVI were asked to submit before and after sleep studies as well as indicate how far they titrated the patients to achieve the results. Some indicated that they were not done titrating and wanted to bring the already lowered scores down but were included anyway. This author gathered 88 patients and their sleep studies with the results below. The red indicate severe AHI results, the orange indicate moderate AHI results and the yellow indicate mild AHI results. If a patient had an AHI of less than five that score was indicated by the color green. If there was no titration, the box is green. If the titration was 1 mm, then the box is yellow. Over 1 mm titration and the box is red.

## RESULTS

- The average beginning AHI was 20.23.
- The average after was 4.21.
- The average amount of titration from the physiologic position of the mandible was only 0.47 mm.
- There were ten (10) severe AHI patients with an average AHI of 50.12 and an average after of 4.95.
- The doctors who contributed to the study indicated that all their patients were comfortable in the MicrO<sub>2</sub> appliance and had no problems wearing them.
- 16 of the 24 patients whose after AHI was in the "mild" range after treatment instead of below five had not been titrated beyond the zero position indicating that perhaps an improvement could be achieved with minimal titration.
- Seven of the remaining eight have only been titrated 1 mm with one being titrated 2 mm. Even those might get better results with minimal titration.
- Only eight patients out of the 88 were titrated more than 1 mm.
- Only three of those patients were titrated more than 2 mm with the most titration being 4 mm with one patient.

PHYSIOLOGIC MICR02 BITE STUDY		BEFORE		AFTER	TITRATION	APPLIANCE		
Dr Name	Patient Name	DATE	AHI	DATE	AHI	DIF	LEVEL	USED
Michael Reece	R. M.	5.15	51.7	9.15	1.4	50.3	0	MICR02
David Miller	M. W.	4.15	14.1	8.15	12	2.1	0	MICR02
Mandy Grimshaw	C.Y.	10.14	27.1	12.14	6.1	21	0	MICR02
Mandy Grimshaw	M.K.	2.15	15.8	6.15	4.1	11.7	0	MICR02
Mandy Grimshaw	P.M.	2.14	12	8.15	2.6	9.4	0	MICR02
Mandy Grimshaw	B.A.	2.15	6.7	8.15	3.7	3	0	MICR02
Deric Ikuta	J.B.	7.14	6	8.15	5	1	0	MICR02
Shauna Palmer	T.T.	4.14	8.7	8.15	2.8	84.2	0	MICR02
Donna Blair	B.C.	4.15	14.7	7.15	3.1	11.6	0	MICR02
Donna Blair	N.V.	8.14	49.1	5.15	5.3	43.8	0	MICR02
Timothy Isaacson	L.D.	2.05	13	2.15	4.5	8.5	0	MICR02
Timothy Isaacson	R.J.	10.14	5.7	1.15	3	2.7	0	MICR02
Timothy Isaacson	M.C.O.	2.15	10	8.15	1.5	8.5	3	MICR02
Alex Tang	A.T.	10.12	26.8	10.14	15	11.8	0	MICR02
Mark Tompkins	J.A.	6.15	16.1	6.15	4	12.1	4	MICR02
Mark Tompkins	W.C.	2.15	21.5	5.15	2.1	19.4	0	MICR02
Mark Tompkins	J.C.	5.06	10.5	9.15	1	9.5	1	MICR02
Mark Tompkins	H.B.	12.14	23.1	11.15	3	20.1	1	MICR02
Michael Adler	S.H.	1.15	27.2	5.15	5.1	22.1	0	MICR02
Michael Adler	J.K.	3.15	27.5	6.15	8	19.5	0	MICR02
Michael Adler	E.S.	2.15	20.7	5.15	6.7	14	2	MICR02
Mandy Holley	C.B.	2.13	12	9.15	3.3	8.7	0	MICR02
Trey Carlton	N.M.	6.08	22.90	10.13	3.50	19.40	0	MICR02
Trey Carlton	W.C.	3.14	15.50	5.14	3.80	11.70	0	MICR02
Trey Carlton	J.K.	2.15	9.30	9.15	3.00	6.30	0	MICR02
Trey Carlton	J.M.	4.15	33.30	9.15	4.70	28.60	1	MICR02
Trey Carlton	P.R.	9.12	15.10	10.15	1.20	13.90	2	MICR02
Trey Carlton	J.K.	2.15	9.30	9.15	3.00	6.30	0	MICR02
Trey Carlton	J.M.	4.15	33.30	9.15	4.70	28.60	1	MICR02
Trey Carlton	P.R.	9.12	15.10	10.15	1.20	13.90	2	MICR02
Trey Carlton	J.L.	6.15	25.6	10.15	5.9	19.70	1	MICR02
Trey Carlton	R.B.	7.15	9.9	12.15	1.6	8.30	1	MICR02
Trey Carlton	E.W.	6.15	8.9	10.15	4.7	4.20	0	MICR02
Ann-Maree Cole	C.H.	4.14	6.3	5.15	0.4	5.9	0	MICR02
Ann-Maree Cole	B.A.	4.15	24.5	8.15	5.4	19.1	1	MICR02
Ann-Maree Cole	A.B.	10.14	10.3	7.15	5.8	4.5	0	MICR02
Ann-Maree Cole	S.B.	5.15	12.2	6.15	5	7.2	2.5	MICR02
Ann-Maree Cole	R.C.	10.14	35.2	6.15	2	33.2	1	MICR02
Ann-Maree Cole	S.D.	1.14	25.8	1.14	6.4	19.4	1	MICR02
Ann-Maree Cole	C.E.	9.14	5.2	9.14	4.8	0.4	1	MICR02
Ann-Maree Cole	D.E.	4.15	34.6	4.15	3.7	30.9	0	MICR02
Ann-Maree Cole	K.F.	5.15	10.9	5.15	1.3	9.6	1	MICR02
Ann-Maree Cole	D.G.	3.15	11.5	5.15	4.8	6.7	1	MICR02
Ann-Maree Cole	C.H.	4.15	6.3	5.15	0.4	5.9	0	MICR02
Michael Bufo	N.W.	1.15	18	7.15	7	11	1	MICR02
Joe Barton	D.H.	12.14	8.9	9.15	3.5	5.4	0	MICR02
Joe Barton	M.G.	4.15	18.3	10.15	7.2	11.1	0	MICR02
Nicole Cook	E.R.	1.15	42.6	4.15	2.9	39.7	0	MICR02
Joe Henry	M.Z.	8.14	7.7	5.15	4.9	2.8	1	MICR02
Joe Henry	J.K.	2.13	9.6	4.15	0.5	9.1	0	MICR02
Brian Davidson	W.T.	12.13	15.4	7.15	5.7	9.7	0	MICR02
Brian Davidson	A.O.	8.14	7	8.15	2.3	4.7	0	MICR02
Brian Davidson	S.A.	4.15	27.9	9.15	6.4	21.5	0	MICR02
Brian Davidson	E.S.	11.14	38.4	2.15	7.2	31.2	0	MICR02
Zoel Allen	Z.A.	9.14	23	12.14	3.2	19.8	0	MICR02
Blankenship, Keith	P.I.	3.15	16.9	9.15	4.3	12.6	0	MICR02
Blankenship, Keith	J.R.	3.15	16.9	9.15	1.7	15.2	1	MICR02
Blankenship, Keith	M.N.	1.10	23	6.15	2.8	20.2	0	MICR02
Blankenship, Keith	P.S.	6.11	9	8.14	5.7	3.3	1	MICR02
Durham	K.F.	5.15	16.1	7.15	0.9	15.2	0	MICR02
J. Charest	S.P.	9.14	6.6	2.15	4.1	2.5	0	MICR02
J. Charest	V.V.	5.14	8.1	5.15	4.1	4	0	MICR02
Nicol Cook	E.R.	1.15	42.6	4.15	2.9	39.7	0	MICR02
Lisa Kalfas	S.B.	4.13	31	10.15	4.5	26.5	1	MICR02
Teresa Isbell	E.B.	11.12	12.2	8.15	4.1	8.1	0	MICR02
Konig, Ron	S.S.	7.15	31.1	10.15	3	28.1	0	MICR02
Konig, Ron	V.J.	8.07	15	10.14	8	7	0	MICR02
Konig, Ron	M.G.	8.07	15	1.15	4	0	0	MICR02
Konig, Ron	K.H.	9.08	15	1.15	4	11	0	MICR02
Konig, Ron	C.L.	11.11	18.4	1.14	5	13.4	0	MICR02
Konig, Ron	D.M.	11.11	7	7.14	5	0	1	MICR02
Konig, Ron	R.M.	9.09	76	10.14	7	69	0	MICR02
Konig, Ron	R.S.	1.14	36.6	1.15	7	29.6	1	MICR02
Konig, Ron	M.W.	1.14	1.3	1.15	2	0	0	MICR02
Konig, Ron	S.R.	10.07	15.9	2.15	1	14.9	0	MICR02
Chelise Kasun	L.Y.	2.15	14	5.15	1	13	0	MICR02
John Krasowski	T.A.	12.02	34	11.13	3	31	0	MICR02
John Krasowski	D.B.	7.15	13	11.15	5	8	2	MICR02
John Krasowski	S.H.	8.15	11.5	12.15	9	2.5	0	MICR02
John Krasowski	K.R.	8.15	42	11.15	11	31	1	MICR02
John Krasowski	D.S.	9.12	10.2	1.14	3	7.2	0	MICR02
John Krasowski	J.S.	1.14	6.3	10.14	3.4	2.9	1	MICR02
Johnathan Renfro	R.C.	12.14	23.3	11.15	5.9	17.4	0	MICR02
Johnathan Renfro	J.C.	2.08	16.3	10.15	4.7	11.6	0	MICR02
Johnathan Renfro	J.R.	9.14	7.7	12.05	2.2	5.5	2	MICR02
Johnathan Renfro	G.T.	6.13	19.9	11.15	7.2	12.7	0	MICR02
Mark Provencher	R.G.	8.15	14.2	12.15	2.1	12.1	1	MICR02
Mark Provencher	T.R.	6.15	20.4	11.15	3.9	16.5	0	MICR02
<b>AVERAGE</b>			<b>20.23</b>		<b>4.21</b>	<b>16.01</b>	<b>0.47</b>	<b>MICR02</b>
Dr Name	Patient Name	DATE	BEFORE AHI	DATE	AFTER AHI	AHI DIF	TITRATION LEVEL	APPLIANCE USED

## CONCLUSION

This study confirms that using the physiologic bite as taught at LVI and the revolutionary new MicrO<sub>2</sub> sleep appliance is an effective way to treat sleep breathing disorders and prevent excessive protrusion of the mandible. In the vast majority of cases, no titration from this bite position was necessary with an average titration of 0.47 mm and 56 of the 88 requiring no titration at all. Twenty-one out of the 30 that required titration were only titrated 1 mm. As always in health care, further studies will show advances in design and approaches, but the results from this study indicate that not only is the MicrO<sub>2</sub> the best sleep appliance design on the market, but also that utilizing the Physiologic Bite Approach as taught at LVI is the optimal starting point for managing patients who are suffering with OSA and SBDs.

### THE PHYSIOLOGIC APPROACH TO TREATING SLEEP APNEA AT LVI

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