therapy. The objective of this study is to evaluate changes in dental occlusion, which are associated with long-term oral-appliance and CPAP therapy.

**Methods:** 29 OSAS patients using an anterior traction oral appliance and 34 patients using CPAP therapy, were evaluated. Data was analyzed at baseline, two year and 10 year follow-up. Changes in dental occlusion were manually analyzed from dental plaster casts using a digital sliding caliper.

**Results:** At 2 year follow-up, oral appliance therapy resulted in significant dental changes as compared to CPAP therapy. Overjet and overbite decreased on average with 1.5 mm (sd ±1.5mm) and 1.2 mm (sd ±1.1mm), respectively. The anterior-posterior change in occlusion was significantly larger in the oral appliance group (−1.3 ± 1.5 mm) as compared to the CPAP group (−0.1 ± 0.6 mm). Both groups showed a significant decrease in number of occlusal contact points in the (pre)molar region. After 10 years follow-up, higher significant changes were seen in overjet and overbite, but also in anterior-posterior change and in the number of contact points in the (pre)molar region. Definitive analysis are currently conducted and will follow.

**Conclusion:** This study confirms that oral appliance and CPAP therapy changes dental occlusion significantly. These changes appear more pronounced with an anterior traction oral appliance as compared to CPAP therapy.

**Support (If Any):** -

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**0593**

**DIFFERENCES IN PREDICTED THERAPEUTIC OUTCOME AND OPTIMAL PROTRUSION POSITION OF ORAL APPLIANCE DETERMINED DURING PSG WITH REMOTELY CONTROLLED MANDIBULAR POSITIONER BETWEEN CANADIAN AND CHINESE OSA PATIENTS**

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**Introduction:** In-lab mandibular protractive titration using a Remotely Controlled Mandibular Positioner (RCMP, MATRx, Zephyr sleep technologies, Calgary, CDN) has been found to predict the success rate of oral appliance (OA) in obstructive sleep apnea (OSA) and reliably determine the Optimal Protrusive Position (OPP) for participants predicted to be therapeutically successful with oral appliance therapy in these patients. The aim of this prospective pilot study was to compare OA success rate and OPP using in-lab RCMP manual titration performed in Canadian (Quebec, Canada) and Chinese (Shenyang, China) OSA patients.

**Methods:** Seventeen untreated Canadian and 9 Chinese OSA patients were recruited (inclusion criteria: age: 20–75 years, AHI:15–50/h; BMI < 40 kg/m²). In each center, manual RCMP titration was performed during an in-lab sleep study using a same procedure that had been previously reported.

**Results:** Anthropometric features and OSA severity didn’t differ between Canadian and Chinese subjects. The resting occlusal position of lower mandible (determined by the scales on RCMP trays) was lower in Chinese patients than in Canadians (3.91 ± 1.95 mm vs. 9.76 ± 2.22 mm, p = 0.01, independent t-test), with similar maximal mandibular advancement level (17.24 ± 1.51 mm vs. 17.14 ± 1.55 mm, p > 0.05). The predicted success rate according to the RCMP titration tended to be lower in Canadians (41%) than in Chinese (78%) (p = 0.07, chi-square test). Among patients with predicted success, the mean OPP was 94.6 % ± 11% of maximal protrusion in Canadians, which tended to be higher than its value in Chinese subjects (81.1% ± 13% of maximal protrusion; p = 0.08).

**Conclusion:** According to in-lab RCMP titration, Chinese OSA patients appear to be more prone to benefit from OA treatment than Canadians, with lower level of optimal mandibular advancement.

**Support (If Any):** RCMP device was provided by Zephyr sleep technologies, Calgary, CDN.

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**0594**

**PREDICTORS OF SUCCESS FOR ORAL APPLIANCE (OA) THERAPY IN OBSTRUCTIVE SLEEP APNEA (OSA) PATIENTS BASED ON INITIAL CRANIOFACIAL CHARACTERISTICS**

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**Introduction:** The aim of this investigation was to explore hard and soft tissue cephalometric predictors for the success of oral appliance therapy, in patients with varying severity of OSA.

**Methods:** A review of 108 consecutively treated patients with OSA was performed at the Dental Sleep Medicine Clinic at Tufts University School of Dental Medicine. Fifty-two subjects, all treated with OA therapy were included. Our predictive factors included BMI, age, gender, mandibular plane angle (MP), vertical distance between MP and the most superior point of the hyoid bone (MP-H), ANB angle (ANB), soft tissue ANB angle (S.T. ANB), anterior-posterior upper lip position (UL-VL), anterior-posterior lower lip position (LL-VL), and anterior-posterior soft tissue chin position (C-VL). Treatment success was defined in three ways: 1. At least 50% reduction in initial AHI, 2. Residual AHI ≤ 10 after treatment, and 3. Residual AHI ≤ 5. A multiple regression model was developed to study the effect of various variables on success. The level of statistical significance was set at 0.05.

**Results:** No statistically significant differences were found between subjects with mild, moderate and severe OSA (P>0.05). BMI (median = 28.3, IQR = 5.9) was weakly correlated to AHI (r = 0.28, P = 0.045). OA therapy resulted in 51.9%, 55.7% and 30.7% successful outcomes, using the first, second and third methods of defining success, respectively. MP and C-VL were positively associated with treatment success (AUCCMP = 0.67 and AUCCVL = 0.71).

**Conclusion:** A weak positive correlation was found between BMI and OSA severity. The MP and C-VL were significantly correlated to the outcome of OA therapy, but showed a weak to moderate predictability for the success of OA therapy. The results should be interpreted with caution and their clinical significance should be investigated in future studies.

**Support (If Any):** N/A.

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**0595**

**OUTCOMES OF ORAL APPLIANCE THERAPY FROM FIVE DENTAL SLEEP MEDICINE PRACTICES**

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**Introduction:** Oral appliance therapy (OAT) is now a first line treatment for obstructive sleep apnea (OSA). Since OAT is gaining...