



九龍中醫院聯網
Kowloon Central Cluster



廣華醫院

KWONG WAH HOSPITAL

HA CONVENTION:

EVALUATION OF OROFACIAL MYOFUNCTIONAL THERAPY FOR OBSTRUCTIVE SLEEP APNEA SYNDROME IN CHILDREN

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INTRODUCTION

- Orofacial myofunctional therapy (OMT) improves oral facial muscles function, corrects tongue position and posture in children
- It has been advocated as an adjunctive therapy for obstructive sleep apnea syndrome (OSAS) in adults and children
- The evidence for its efficacy in children is still limited

OBJECTIVE

- To investigate the effectiveness of a structured multidisciplinary 12-week OMT exercise program in improving quality of life among children with OSAS in Hong Kong

METHODOLOGY

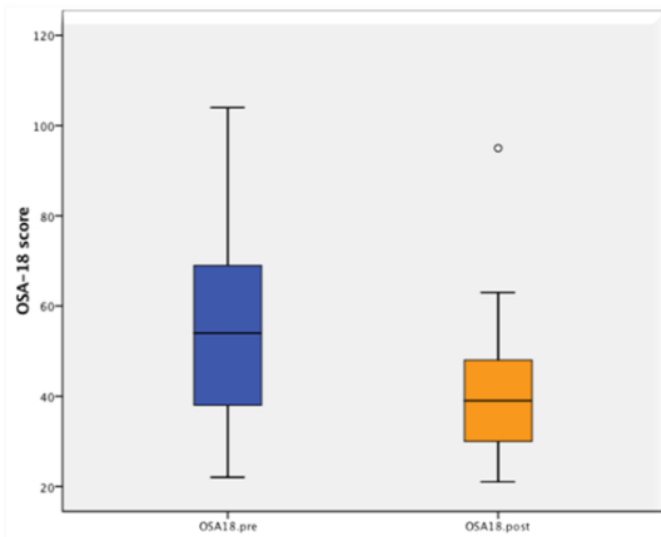
- **Retrospective study**
- **Evaluate the effectiveness of a 12-week OMT exercise program**
- **Inclusion criteria:**
 - Children with OSAS as defined by apnea-hypopnea index >1
 - Presence of symptoms of OSAS
- **Exclusion criteria:**
 - Younger than 6 years of age
 - Moderate degree of mental retardation and neuromuscular diseases
- **Primary outcome measure:**
 - Obstructive Sleep Apnoea-18 (OSA-18)
- **Secondary outcomes measures:**
 - Tongue strength
 - Nordic Orofacial Test-Screening (NOT-S)
 - Sleep Related Breathing Disorder (SRBD)
 - Modified Epworth Sleepiness Scales (mESS)



RESULTS

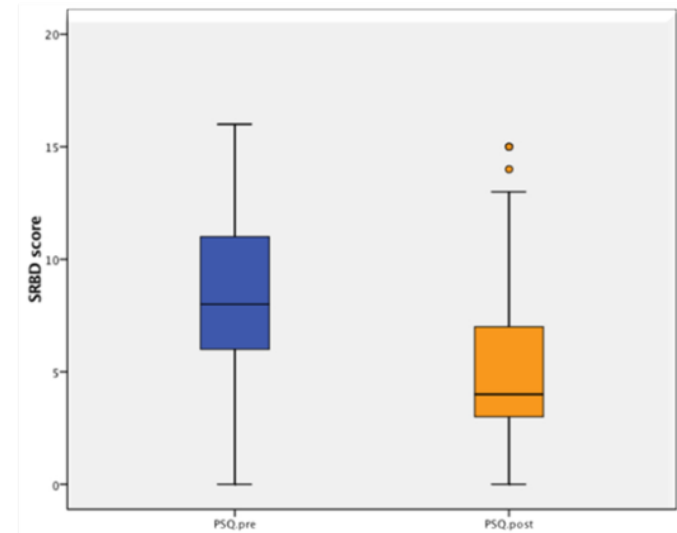
- 44 children (median age: 12.9) completed the program
- Significant improvements in quality of life:

OSA-18 score



Improved median score from 54 to 39
($p < 0.001$)

SRBD score

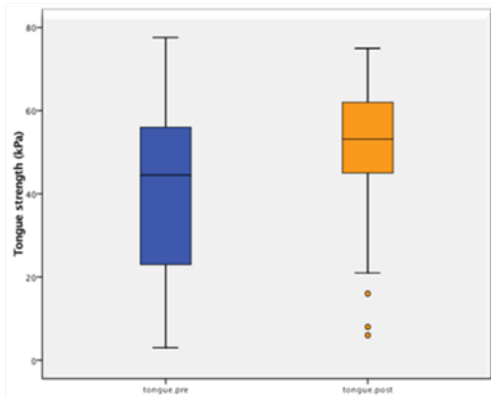


Improved median score from 8.0 to 4.0
($p < 0.001$)

RESULTS

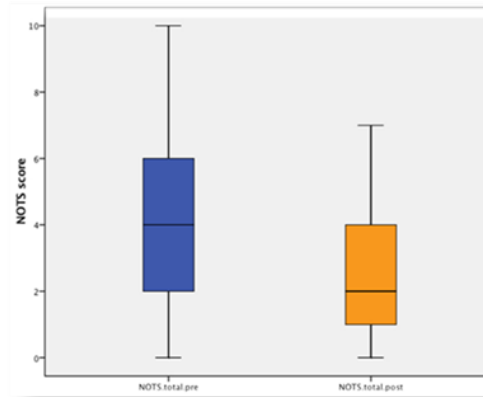
- Significant improvements in:

Tongue strength



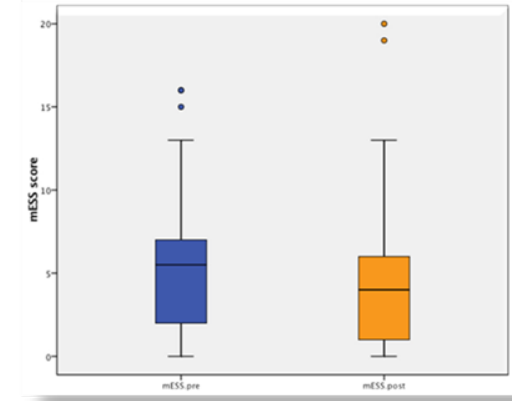
From 44.5kPa to 53.2kPa
($p < 0.001$)

NOT-S score



From 4.0 to 2.0
($p < 0.001$)

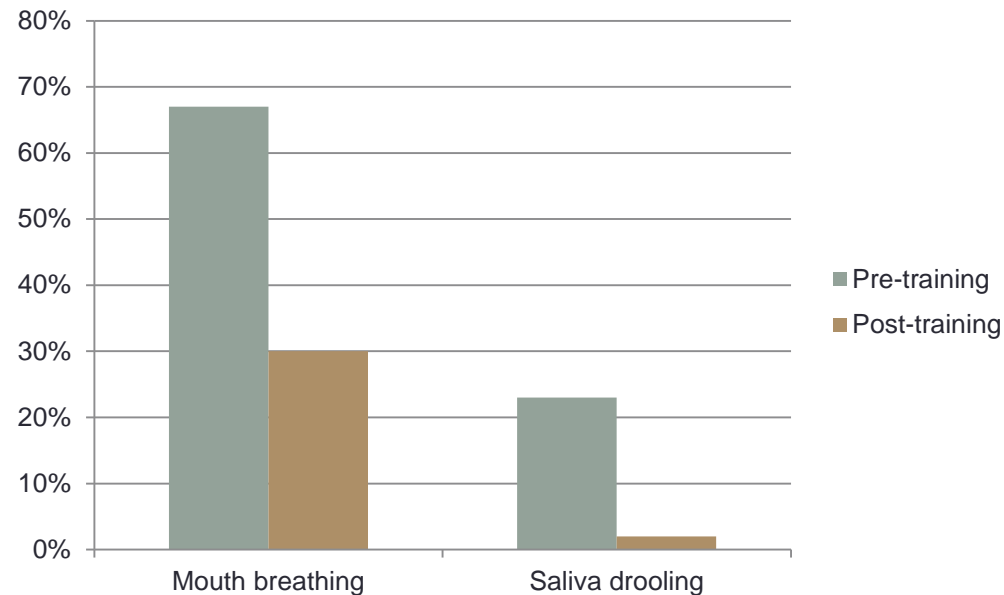
mESS score



From 5.0 to 4.0
($p = 0.026$)

RESULTS

	Prevalence of children with mouth breathing while awake	Prevalence of children with saliva drooling
Pre-training	67%	23%
Post-training	30% ↓	2% ↓



Obese group [BMI z-score ≥ 1.64 (n=8)]

	Pre (median (IQR))	Post (median (IQR))	P value
Gender - Male	6 Male (86%)		
Age	16.4 (12.9-17.1)		
BMI	25.7 (25.0-33.1)		
BMI z score	2.0 (1.9-2.3)		
AHI, n=2	12.1, 5.7	12.1 -> 1.0, 5.7 -> 2.3	NA
Compliance		60% (27.5%-70.8%)	
SRBD score (PSQ), n=6	6.5 (3.5-10.5)	↓ 2.5 (0.8-4.0)	0.043*
OSA-18, n=6	60.0 (51.0-74.0)	↓ 41.5 (32.0-49.5)	0.028*
mESS, n=6	2.0 (1.0-7.0)	2.5 (1.0-4.8)	0.157
NOT-s Total, n=6	4.0 (4.0-6.0)	3.0 (1.0-4.8)	0.066
NOT-s Int, n=6	2.0 (2.0-3.0)	1.0 (1.0-2.0)	0.063
NOT-s CE, n=6	2.0 (2.0-3.0)	1.5 (0.0-3.5)	0.109
Tongue strength (kPa), n=6	38.0 (30.0-54.0)	↑ 58.5 (41.5-66.3)	0.028*
Tongue Endurance (sec), n=4	3.0 (3.0-5.7)	4.0 (2.3-6.0)	0.593

Non-parametric, Wilcoxon Signed Rank test

Non-obese group [BMI z-score < 1.64 (n=36)]

	Pre (median (IQR))	Post (median (IQR))	P value
Gender – Male	28 Male (78%)		
Age	12.1 (9.2-16.1)		
BMI	16.9 (15.8-20.5)		
BMI z score	0.19 (-0.9-0.7)		
Compliance		80% (51%-90%)	
AHI, n=6	1.6 (0.4-5.1)	1.2 (0-5.9)	0.686
SRBD score (PSQ), n=32	8.0 (6.0-10.3)	↓ 4.5 (3.0-7.8)	<0.001*
OSA-18, n=34	53.0 (37.0-67.0)	↓ 39.0 (29.3-48.3)	<0.001*
mESS, n=34	6.0 (3.0-7.0)	4.0 (1.0-6.0)	0.079
NOT-s Total, n=35	4.0 (2.0-6.0)	↓ 2.0 (1.0-3.0)	<0.001*
NOT-s Int, n=35	2.0 (1.0-3.0)	↓ 1.0 (0-2.0)	<0.001*
NOT-s CE, n=35	2.0 (1.0-3.0)	↓ 1.0 (0-2.0)	<0.001*
Tongue strength (kPa), n=35	45.0 (19.3-56.8)	↑ 53.0 (38.7-62.0)	<0.001*
Tongue Endurance (sec), n=29	5.0 (3.0-8.0)	↑ 9.0 (6.0-14.0)	<0.001*

Non-parametric, Wilcoxon Signed Rank test

CONCLUSION

- **Multidisciplinary OMT exercise program** offered significant improvement in the **symptoms** and **quality of life** in children with OSAS
- The foresaid improvements were more prevalent in the non-obese group than the obese group