

DR KEVIN'S TOP FIVE



Dr Kevin Bourke was prolific in time spent researching and developing the Munchee relative to his main clinical interests of oral health and later orthopaedics and orthodontics. He used the Munchee over and over for many years particularly to address the following:

- Gum disease
- Oral Health
- Oral Exercise
- Malocclusion
- Posture



GUM DISEASE (GINGIVITIS)

Background:

Gingivitis is an inflammatory process limited to the mucosal epithelial tissue surrounding the teeth and the alveolar processes. Gingivitis has been classified by clinical appearance (eg, ulcerative, hemorrhagic, necrotizing, purulent), etiology (eg, drug-induced, hormonal, nutritional, infectious, plaque-induced) and duration (acute, chronic). The most common type of gingivitis is the chronic form induced by plaque.

Professions:

Dental

Why use Munchee:

- Dr Kevin Bourke originally developed the concept of a "chewer" to treat gingivitis and gum disease.
- His initial clinical trials astonished him in terms of how effective a "chewing brush" was at addressing gum issues.
- He went on to study and research saliva and oral pH throughout his career.
- His published article said: "by therapeutic massage of the oral tissues, it maintains them in states of health through extensive treatment periods".
- Today the Munchee is still effective on gum health due to the effect of the prongs massaging the periodontal tissues and stimulating salivary production.

Suggested Protocols:

- Research in Japan in the 1980's showed a significant decrease in plaque for children who used the Munchee actively.
- Active use is required to assist gum health and prevention of gingivitis induced by plaque.
- In this capacity the Munchee is recommended to be used as an adjunct to regular brushing and active chewing can be encouraged after teeth brushing. Particularly in very young children.

Other Exercises:

- The Munchee should not replace regular at-home dental care. Brushing and flossing should still be part of a daily routine.

What the research says:

Published research by Dr Kevin Bourke is still available:

Bourke, K. (1991). The effects of the MYO appliance in children with malocclusions of the primary dentition. *The Journal of clinical pediatric dentistry*, 15(2), 90-95.

ORAL HYGIENE

Background:

Oral hygiene involves the maintenance of the oral tissues through cleaning and flossing. This is essential to prevent gum disease, tooth decay and promotes the long term prevention of dental caries while fostering a clean and odour free oral environment.

Professions:

Dental

Why use Munchee:

- The prongs on the Munchee have a similar role to the bristles on a tooth brush.
- Initial studies in Japan in the 1980's showed significant reduction of plaque in children when they actively chewed a Munchee.
- This research showed the Munchee "chewing brush" to be more effective at cleaning the lingual surfaces of teeth in the 3-6 age group.
- The Munchee is easy for young children to use and can be used outside the bathroom during other activities such as reading, car travel and TV time.
- The Munchee can be a great adjunct to oral hygiene in older children and adults.
- There are further benefits to chewing a Munchee including muscle strength and function (see Section 4.3)

Suggested Protocols:

- Active chewing should be performed twice daily and works best in conjunction with brushing and flossing

- Chew gently for 3-5 mins with mouth shut, breathing through the nose

Other Exercises:

- Chewing the Munchee is not intended to take the place of brushing and flossing, these practices should be maintained and encouraged while using the Munchee.

What the research says:

In his articles and lectures Dr Kevin Bourke wrote about saliva and the benefits of the chewing brush on oral hygiene (see appendix for full article):

"Not only does the chewing brush produce copious amounts of saliva to nullify any acid production in plaque but it also produces a very alkaline saliva because of the rate of flow. That rate is 30 times the normal rate for parotid saliva.

This ability of the chewing brush to raise the PH of saliva from PH 5.8 to PH 7.4 in 30 seconds must have a resounding effect on acid production in plaque and on the oral microbia in general."

Recent research also supports Dr Bourke's observations and writing. A 2015 review of human saliva and its functions concluded;

"Clearly, saliva has many functions which are needed for proper protection and functioning of the human body. " (Dawes 2015)

These excerpts demonstrate that as far back as the late 1960's Dr Kevin Bourke was correct in pursuing his ideas of the chewing brush/Munchee in encouraging salivary flow and genetic expression of health states.

ORAL EXERCISE

Background:

Many populations are concerned with maintaining and improving aesthetic appearances. Many practitioners are aware that form follows function, meaning what appears to “look good” also points to optimal function and symmetry.

The Munchee can be used as an Oral Exercise tool to improve gum health and function, muscle tone and to generally assist in decreasing the rate of bone resorption during the ageing process. Please note the Munchee will not re-grow lost bone, but will assist in prevention or slowing of resorption depending on individual case presentations/ conditions.

Professions:

Dental, Speech, Manual Therapy

Why use Munchee:

- Simple to use and easy to teach.
- Effective with a short amount of daily usage.
- Functions on muscle, bone, teeth and gums.
- Assists enhances and preserves structure and function.
- Can be used effectively in cases where cognitive function is impaired e.g. early stage dementia.

Suggested Protocols:

- Active use is best suited to promote oral health and function.
- The Munchee can be chewed up to three times a day for periods of up to 10 minutes.
- For this kind of therapeutic effect consistency and frequency are the most important variables. Meaning, it is better to chew actively for 3min x 3 times per day than for 10 mins every few days.

Other Exercises:

- Myofunctional therapy has also been shown to improve the health and function of the lips face and tongue in the same way that exercise and movement may help posture and function.

What the research says:

Current evidence in this field is not prolific (Homem 2014) however the field is emerging. While there may be less research published specifically to oral exercise there is emerging evidence to suggest that oral based exercises have positive effects on functions such as sleep and sleep disordered breathing (Camacho 2015).

Camacho, M., Certal, V., Abdullatif, J., Zaghi, S., Ruoff, C. M., Capasso, R., & Kushida, C. A. (2015). Myofunctional therapy to treat obstructive sleep apnea: a systematic review and meta-analysis. *Sleep*, 38(5), 669-675.

Homem, M. A., Vieira-Andrade, R. G., Falci, S. G. M., Ramos-Jorge, M. L., & Marques, L. S. (2014). Effectiveness of orofacial myofunctional therapy in orthodontic patients: A systematic review. *Dental press journal of orthodontics*, 19(4), 94-99.

MALOCCLUSION

Background:

upper and lower teeth with the mouth closed. There are many categorisations of malocclusion and treatment for malocclusion remains a rigorously debated and researched area of dentistry.

The National Child Oral Health Study 2012-14 undertaken in Australia (Do LG & Spencer AJ 2012-14) shows a total combined incidence rate of severe to handicapping malocclusion to be 14% of children aged 12-14 years. These statistics account for only the most severe malocclusion within a population group. There are numerous geographic and population based studies and reports on malocclusion widely available.

Professions:

Dental (Treatment).

Speech Pathology, Manual Therapy and Occupational Therapy should be able to recognise malocclusion and assist and refer for treatment as required.

Why use Munchee:

There are two common uses for the Munchee relative to malocclusion:

1. Assistive therapy for orthodontic interventions:

- Active use of the Munchee works via soft tissue therapy, stimulating muscle action and function to assist length tension relationships and strengthening skeletal muscles within correct

occlusal relationships.

2. A tool for early intervention/prevention of malocclusions:

- Replacement/therapy for non-nutritive suck habits (NNS) such as pacifier use. NNS are commonly linked to malocclusions within academic literature.
- Intervention appliance for children aged 2-6 who may be showing symptoms/signs of malocclusion due to NNS or other aetiology and are too young to commence orthodontic treatment.

Suggested Protocols:

Relative to the two common uses outlined above:

1. The active chewing protocol can be maintained during pre-orthodontic treatment and with growth appliances.
- Dr Kevin Bourke utilised a combination of light removable appliances and active use of the Munchee in his practice to assist arch development, tooth positioning and retention.
 - Dr Bourke also trimmed appliances to assist tooth positioning and forces. Dental practitioners should use their judgement and skillset to determine if and when using the Munchee in this way is warranted. The practitioner only U-Trim appliances can be particularly helpful for this purpose.
 - If using removable growth appliances removing the appliance and chewing a Munchee for 5 minutes 2-3 times a day can be invaluable. Especially for those that do not use or have access to myofunctional therapy.

- Patients in braces are still able to use the Munchee although only passive use is recommended as the prongs on the Munchee can dislodge brackets while chewing.
2. There are two components to using the Munchee as an early intervention tool:
- i) As a replacement for Non Nutritive Suck (NNS) habits:
- The Munchee can be a very powerful tool to substitute for NNS habits such as pacifier use, thumb sucking and other passive suck habits.
 - The Munchee should be carefully introduced in concept to the child before attempting to replace the NNS habit. A straight up swap is often most effective.
 - Begin by using the Munchee for up to 5mins at times when the child may not be typically triggered to suck.
 - Once the child is comfortable with chewing introduce the Munchee as an alternative during times when suck habits are more prevalent for the child, for example; bedtimes, story times, in the car or watching TV.
 - Working in this way can take up to 2-3 months to change and re-pattern the sucking habits.
 - Myofunctional therapy interventions are also incredibly useful as an adjunct therapy to help with NNS.
- ii) Early intervention tool for young children:
- Children who are showing signs of developing malocclusion but are too young to begin orthodontics can use active chewing as a tool to improve the muscular forces acting on the growing bone following "form follows function" principle.

- Children younger than seven can perform daily chewing activities with the Munchee building to 2-3 times a day for up to 5-10 minutes.
- For children in this age group it is strongly recommended to use other activities as a "distraction" as 5 minutes can feel like a long time for these children.
- Listening to a song, audio story or having a book read to them are activities that will last 5+ minutes.
- Chewing while watching screens or TV is not recommended as concentration on chewing can be lost due to the hypnotic effect of screens and TV.

Other Exercises:

- A full myofunctional therapy program is highly recommended for both presentations of malocclusion.
- Breathing retraining for those with a mouth breathing habit and a patent nasal airway can be very important step for orthodontic outcomes. While the Munchee promotes nasal respiration some children may require specific breathing retraining.

What the research says:

To summarise the research on this relatively new and expanding topic is well beyond the scope of this manual.

As an initial start point, the case study below by Sugawara et al in 2016 (see reference list on the following page) provides an interesting case history