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# Meditative Tooth Brushing ( MTB) Article

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# Meditative Tooth Brushing (MTB)

A Smarter Way to Healthy Mouth & Happy Mind

## Introduction

The concept of holistic health (harmony of mind, body, behavior, and surrounding) was well recognized and deeply rooted in Vedic culture, which has been explained in the literature of Ayurveda. Contemporarily, however health practice and recognition of the health-related quality of life (Holistic Health) began only after WHO expanded the definition of health “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” in 1948 [1]. This has resulted in the paradigm shift of health and disease from a medical model to a biopsychosocial model. It is simple to understand and logical to think that any disease that could interfere with the activities of daily life may have an adverse effect on the general quality of life.

It is evident from the literature that the notion of health-related quality of life (HRQOL) started to emerge in the late 1960s and slowly impacted the oral health sectors as well. Hence, the concept of oral health-related quality of life (OHRQOL) is a relatively new but rapidly growing phenomenon that has emerged over the past two decades [2]. Several authors have explored the evolution of OHRQOL and documented the circumstances that have led to its prominence [2,3,4] and, oral health-related quality of life (OHRQOL) describes the individual’s subjective perspective based on presented oral symptoms and experiences, allowing researchers to establish a relationship between oral and general health [5]. Good oral hygiene results in a mouth that looks healthy, is free of odor, assists in the nutrition of the physical body, enhances social interaction, and promotes self-esteem and feelings of well-being [6].

Oral health and disease are determined by a variety of factors from different organizational levels including molecular, cellular, individual, and social levels, and their interactions [7-9]. The human mouth is the host for one of the most diverse microbiomes in the body [10], with a complex microbiome consisting of bacteria, archaea, protozoa, fungi, and viruses [11]. These bacteria are responsible for two common diseases of the human mouth including periodontal (gum) and dental caries (tooth decay). Mouth and tooth diseases including dental caries and periodontal disease are among the most common diseases all over the world, affecting almost every age and geographic communities [12].

With over 1000 species of bacteria being commensal residents in the oral cavity, the oral cavity is by far contains the second most complex microflora in the body after the gut [13]. In the oral cavity, the immune system not only has to harmonize with the ecology of commensal bacteria, fungi, and viruses but also should be able to defend against pathogenic microbes. In fact, the oral microbiota is altered in situations when the immune system is dysregulated [14]. There are a number of human diseases or conditions that disturb the balance of the host immune system and have an effect on the host’s oral microbiota.

The human oral cavity is an ecosystem and like all ecosystems, the oral ecosystem is a combination of many different components (e.g. bacteria, fungi, metabolic compounds, host cells, salivary constituents) and in one way or another, this system retains a balance. It is important to note that the bacterial communities can vary between different collection sites in the oral cavity. Variations in oral microbial diversity in different oral sites, especially between the mucosal and dental sites and between saliva and dental sites, have been observed [15]. A recent study demonstrated that buccal mucosa, gingivae, and hard palate had similar microbiota, whereas the saliva, tongue, tonsils, and throat, and supra- and sub-gingival plaque each had distinctive communities [16]. To date, saliva serves as the best oral compartment to look for differences in the microbial composition in a variety of human diseases as it ‘captures’ the closest true representative microbiota in the oral cavity [17-20].

When we talk about the healing capacity of biological tissue, we need to understand that in the oral cavity, interactions between saliva, diet, the oral microflora, tooth surfaces, and the oral mucosa support a dynamic state of equilibrium (healthy condition) [21,22] as an integral part of an ecosystem. Oral health and disease are influenced by balances/ imbalances between these components (Fig.1). Consequently, preventive and treatment strategies should aim to maintain or re-establish balance with a more holistic view of preventive, diagnostic, and treatment strategies in contrast to the traditional methods that are focusing on a limited number of pathogenic factors [23].

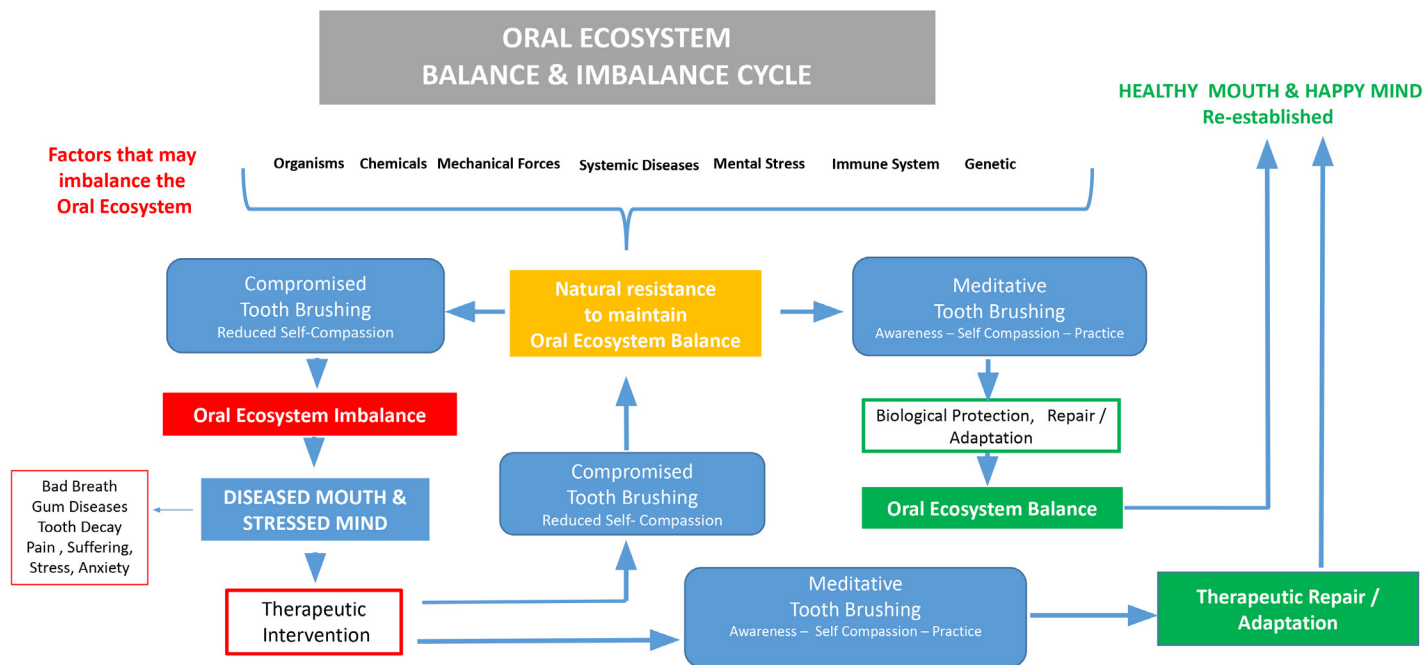


Fig.1

## Global Oral Health Burden

Dental caries and periodontal diseases pose an enormous burden on mankind as non-communicable diseases. A high proportion of the world's population (approximately 90%) suffers from oral diseases at some point in their lives [24], and dental caries and periodontal diseases are the most common chronic diseases causing severe pain in later stages [25,26]. It has been estimated that almost 100% of adults and 60%–90% of schoolchildren worldwide suffer from dental caries, and about 20%–50% of the global population suffers from periodontal disease [27]. Severe periodontitis is the sixth most prevalent disease in the world, which may lead to tooth loss [27,28]. Moreover, growing researches have shown that there is a strong correlation between oral diseases and major non-communicable diseases such as diabetes and cardiovascular diseases [24,29]. A strong interaction has been shown to exist between oral health and mental health that has been well documented in the literature. [30–40]. Hence, oral diseases are considered the most significant global oral health burdens [25].

The impact of oral diseases on the global economy consists of direct and indirect treatment costs [41, 42] and can have a huge negative economic impact on society. WHO estimated that oral diseases are the fourth-most expensive diseases to treat in most industrialized countries [43].

In addition to the direct and indirect treatment costs and economic impacts, oral diseases have a large impact on people's daily lives and are responsible for the yearly loss of millions of school and work hours around the world [41–45]. Hence even from an economic point of view, the improvement in the oral health of the population may be highly beneficial and could further increase people's well-being [42]. The concept and methods regarding the treatment of dental decay are changing with light of new research evidence based on the fact that dental caries is a behavioral and dietary dependent disease with bacterial participation and the treatment plan should consider the healing capacity of biological tissues [46–49]. Preventing the occurrence of carious lesions should remain the primary aim of any oral care plan and, treating dental caries as an infectious disease



with the unnecessary removal of sound tissue and replace it with restorative materials is no longer acceptable within the field of dentistry. The author has been advocating the Vedic Smile concept [50] that focuses on preventing diseases at the early stage with an effective self-performed oral hygiene method, enforcement for a regular dental checkup, minimally invasive approach in early diagnosis of oral diseases, its timely prevention and intervention with a patient-centric holistic care approach.

## Education & Prevention

Prevention is better than cure, and this can be applied in lowering the oral health disease burden in society. It has been documented that, effective self-performed regular oral hygiene has been identified as a key attribute in oral disease prevention [51,52]. And during dental visits, the dental care team normally provides advice and instruction on oral health to the patients based on the results of their clinical examinations, to develop oral self-care skills for maintaining good oral hygiene [53]. However, multiple studies have shown that patients' adherence to a proper daily oral hygiene regimen generally remains poor [54-56]. and even a large number of adults clean their teeth less than the recommended number of times and duration [57] therefore, have shown to have problems achieving oral cleanliness through self-performed oral hygiene.

This shows awareness and cultivating self-compassion plays a major role in achieving optimal oral health. Increasing adherence to oral hygiene behavior is regarded as an essential attribute in the prevention of dental caries and periodontal diseases [58,59]. Lack of oral health awareness, self-compassion, and self-regulatory skills is associated with a disinclination to change health behaviors to approach effective self-performed regular oral hygiene. Hence, we need to think of a smart approach to oral care that is healthy, reliable, simple, and affordable to adopt as a daily routine in life.

“

**Lack of oral health awareness, self-compassion, and self-regulatory skills is associated with a disinclination to change health behaviors to approach effective, self-performed, regular oral hygiene.**

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Scientific studies have already shown that tooth brushing is regarded as a key practice for self-performed oral care. And, it depends on effective behavioral change interventions that can enhance an individual's ability to perform self-oral-care as well as long-term dental habits critical for the maintenance of oral hygiene, which are the key factors for achieving good oral health [58,60]. Multiple research findings have already shown that self-care, behavioral change, and diet modification play a vital role in achieving a healthy mouth in the reduction of oral diseases' global burden [61-64].

Empowerment over persuasion is the key to successful oral health promotion while achieving good oral health [65]. Moreover, oral health education has been considered as one of the fundamentals in oral health promotion [66,67] and a strong interaction exists between oral health and mental health has been well documented in the literature. [68-78]

With education, a child receives training and encouragement specially to stimulate the development of skills, aptitude formation, and creation of values, which lead to acting positively in relation to his oral health and other people's oral health on a daily basis. The importance of oral health education programs in schools is reported predominantly in the form of

positive learning and behavior in children [79-85]. Hence, is necessary to promote new empowerment strategies to modify oral health habits based on patient, age, knowledge, attitudes, practices, abilities, and self-monitoring. Thus there arises a need of inculcating healthy oral health habits as a daily life routine. With this notion in mind, a unique technique has been formulated that encompasses the mind, body, and behavior to achieve a better quality of life by improving the oral health-related quality of life (OHRQOL) via a method as simple as tooth brushing. The meditative Tooth Brushing(MTB) technique as we would like to call it, is a consciousness-based oral hygiene practice and is a component of holistic health care.

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**The importance of oral health education programs in schools is reported predominantly in the form of positive learning and behavior in children.**

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**Oral health education**

## The Concept

Meditative Tooth Brushing (MTB) is based on the Vedic Smile [50] concept (Fig.2) of holistic care and focuses on the harmony of mind, body, behavior, and surrounding (in this case oral ecosystem) of the person so that the person apprehends the core benefits of MTB and adopt it as health and happiness promotion habit. The MTB action emphasizes the mind-body connection and combined mechanical tooth brushing act with the simplified meditative approach so as to keep the mouth healthy and release mental stress. The fundamental aim of MTB is being self-aware, nurturing compassion, and practicing good oral habits as a behavior. The concept of incorporating awareness, compassion, and practice in the MTB process is briefly explained below;

### Awareness:

Awareness is one of the key components of well-being. The importance of enhancing well-being and reducing mental distress is more apparent today than ever. Distractibility, loneliness, depression, and anxiety are all on the rise, creating an emerging crisis in mental health and a growing deficit in our collective well-being [86-88]. Research has studied interventions that improve well-being through the use of various forms of self-regulation [89] including psychotherapy [90,91] positive psychology interventions [92,93] and contemplative practices like meditation [94-100]. Hence, MTB emphasizes thoughtfulness so as to lower the harmful effects of distraction which is shown to impair executive function [101] as well as increase stress and anxiety [102], attention deficit hyperactive disorder (ADHD) symptoms [103,104]. It is to be noted that being informed and being aware are two different things at the mind level. For example, a smoker may be fully informed about the negative consequences of smoking tobacco on overall health and well-being in the long term, however, if this piece of information is not synthesized at the conscious level of mind then the person cannot quit smoking easily. Compassion: Kindness is a key component in enhancing mental health that helps to maintain quality of life.

A person lacking in self-compassion for health or body parts could easily become victims of multiple diseases in a lifetime and may do self-harm to health and happiness. It is the authors' long-term clinical findings that a person neglecting oral hygiene generally neglects his or her overall health, and the status of oral hygiene can be a good indicator in understanding a person's self-compassion level towards his quality of life (QOL). Hence, the MTB technique is designed to cultivate self-compassion towards their teeth, gums, and other parts of mouth and body, and help them to keep their mouth healthy and mind happy thereby improving QOL. Teaching self-compassion at an early age of children could be a smart approach to self-care, and by cultivating kindness towards each tooth as an individual "being" this MTB practice encourages kids to keep their teeth clean and adopt good oral hygiene habits.

### Practice:

Tooth brushing is a behavioral daily habit, hence, it is not easily altered, even after professional oral hygiene instruction in the clinical setup and multiple studies have shown that patients' adherence to a proper daily oral hygiene regimen generally remains poor [54,55] and even large number of adults clean their teeth less than the recommended time [56] and have been shown to have problems achieving oral cleanliness through self-performed oral hygiene. The act of tooth brushing is a science-based skill that requires at least basic oral hygiene

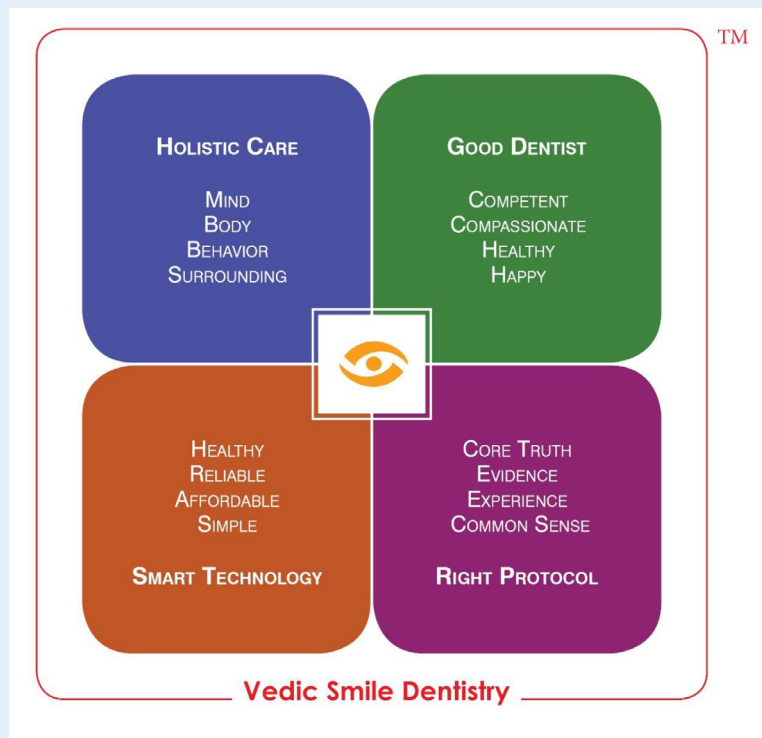


Fig.2

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**The act of tooth brushing is a science-based skill that requires at least basic oral hygiene education, and suitable skill training which must teach the art of tooth brushing with the right protocol.**

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education, and suitable skill training which must teach the art of tooth brushing with the right protocol. Moreover, from the movement science viewpoint, skill training requires many repetitions of the same movements to incorporate them into an individual's habitual motor program.

In this regard, one needs to understand the role of practice (repetition) with the aware and compassionate mind in the act of tooth brushing. An aware and self-compassionate mind can easily realize the importance of learning the right skill of tooth brushing and using it properly as a lifelong responsibility. Also, the MTB concept encourages its user to continue practicing good cultural oral hygiene habits that exist in their society. For example, rinsing the mouth 2-3 times vigorously after each meal with normal water is a deeply rooted oral hygiene practice in Nepal. The author has been suggesting his patients keep on practicing such good cultural habits along.

## MTB - Three Step Oral Care

MTB has simple three steps to keep the mouth clean and relax the mind, namely PREPARE, CLEAN & PROTECT (Fig.3) Awareness of these three steps is the key to a successful tooth brushing.

### Prepare:

Mind is like a monkey and taming this “monkey mind” while brushing teeth is the key idea to this preparation step. The monkey mind becomes calm and relaxed if we are able to instruct it with awareness and compassion by giving some tools to play. Before starting tooth brushing, the practitioner should fully be aware of the right instruction to be given to the mind so that for the next 3-4 minutes the mind-body connection is achieved. MTB suggests following simple steps to tame the “monkey mind”;

- Look into the mirror and have a quick glance into your mouth.
- Check the condition of tooth surfaces by rolling your tongue all over its surfaces.
- Be compassionate and grateful to your teeth for serving you since birth. Give a “Happy SMILE” and be ready to brush.

These simple steps help to bring your mind to brushing movement and stop any distraction, thereby reduce stress, anxiety and bring calmness within you, such that tooth brushing action becomes enjoyable and thus successful.

### Clean:

Various researches so far have shown that the main objective of tooth brushing is to meticulously remove food debris and dental plaque from tooth surfaces and help to maintain the oral ecosystem in harmony. The process of cleaning during tooth brushing is completely a mechanical action that demands basic cleaning skills and proper tools.

It is recommended that both, the toothbrush (MTB recommends toothbrush having soft and tapered bristles with a small head) and brushing motion should not harm hard and the soft tissues of the mouth and should be capable of removing food debris and dental plaque from the flat tooth surfaces as well as the interdental area effectively. MTB recommends cleaning all the interdental areas first. Once they are cleaned properly, the mouth should be rinsed vigorously with water and then other tooth surfaces should be brushed completely. Regarding the tooth brushing motion, MTB suggests being logical as the aim of brushing is to remove dental plaque from all interdental and flat tooth surfaces. Therefore, vertical strokes from gums towards teeth for cleaning the interdental area and for the flat surfaces, a short scrub in circular motion is recommended.

To keep a person fully aware and compassionate during the teeth cleaning process, MTB emphasizes using a silent MTB mantra “I LOVE You” which helps to confine one’s mind in the tooth brushing movement and reminds the practitioner to clean all the Interdental - Lingual – Occlusal – and Vestibular surfaces of Each tooth meticulously. MTB recommends not to use toothpaste or gel during the cleaning step because the basic notion of this step is to; focus on mechanical cleaning effects of tooth brushing, increase the tooth brushing duration, stimulate the salivation mechanically, increase the visibility of tooth surfaces during brushing, and last but not the least, make tooth surface properly cleaned and ready to receive suitable chemical protection for its optimal effects.

## Meditative Tooth Brushing (MTB)

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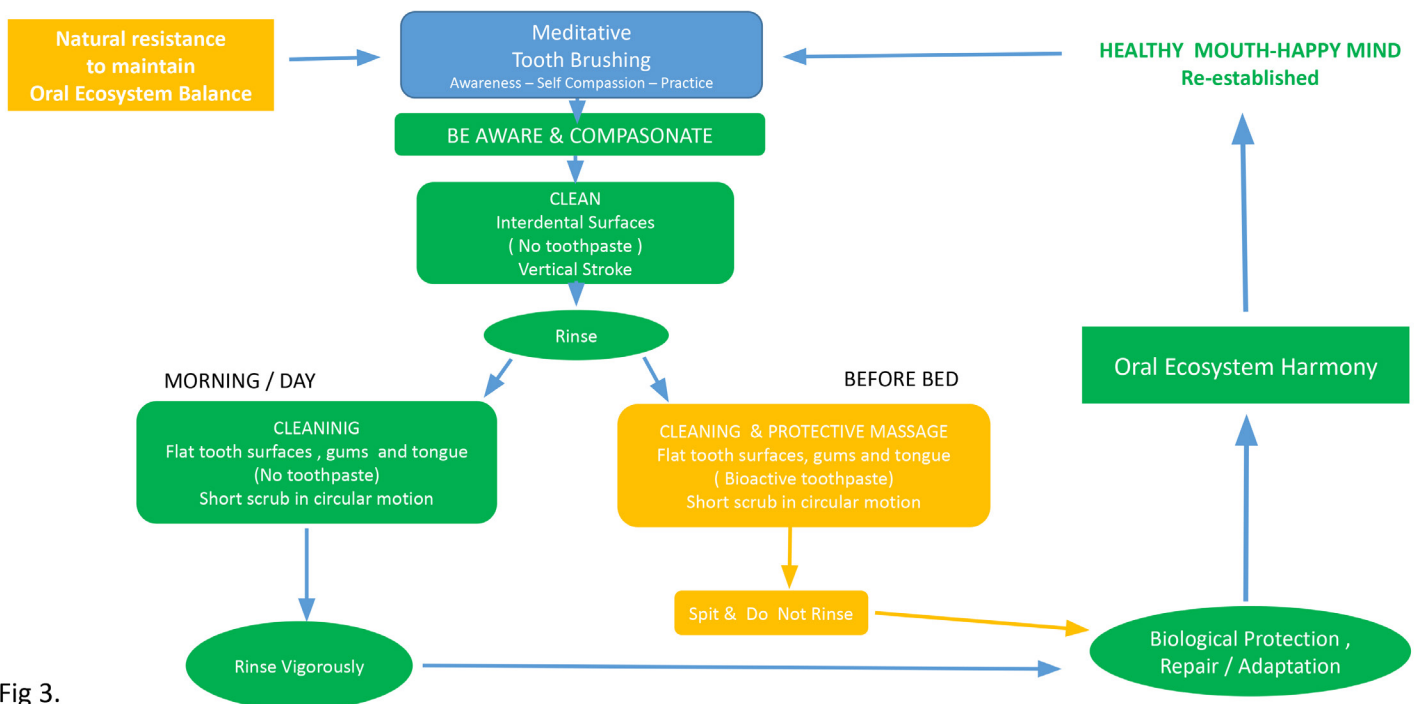


Fig 3.



## Protect:

Depending on the possibilities of exposure to the oral ecosystem disharmony risk factors (Fig.2), a suitable protective plan needs to be adopted. Use of fluoridated toothpaste, antimicrobial mouthwash, application of fluoride varnish, tooth surfaces bioactive protective barriers, pit and fissure sealants, protective mouth guards (to protect possible teeth damages due to mechanical forces), and diet modification, etc. are few examples of the protection approach and should be followed as per the professional recommendation.

However, during self-oral care, teeth cleaning should be followed by oral massage (teeth, gum, and tongue) using the recommended toothpaste, gel, mouth wash, etc., so as to provide extra and effective bioactive protection against tooth decay, gum diseases, bad breath, and other oral diseases. For the prevention of tooth decay, regular use of a small amount of fluoridated toothpaste has been recommended by multiple scientific and clinical researchers [105-116]. Hence, a short scrub and a circular toothbrush motion with a little toothpaste/gel are recommended.

The mouth should not immediately be rinsed after oral massage with fluoridated toothpaste; however, the excess toothpaste/gel can be spit out properly. Regular tooth brushing and oral massage using protective toothpaste/mouth wash generally helps in biological repair (re-mineralization / healing) of the hard and soft tissues in the oral cavity. However, if the oral ecosystem disharmony

factors are on the higher side then sign and symptoms of disharmony like bleeding gums, teeth hypersensitivity, halitosis, demineralized white spots, micro decay, and non-carious tooth lesion such as erosion, abrasion and attrition become evident which demands professional care for repair and maintenance. And, Vedic Smile always emphasizes to use smart technology and materials, such as bioactive restorative materials, and noninvasive or micro-invasive techniques for the repair and maintenance of such early defects by dental professionals.

Teaching the right protocol in the right approach at right time is necessary for any cognitive skill training that involves the movements of body parts or motor skills. Tooth brushing activity as mentioned above is an art and science of keeping the mouth healthy and mind relaxed. The art component of tooth brushing demands skills for correct movement of the hand and brushing motion for long-term oral health benefits.

The skill learned with awareness and proper practice (repetition) at the right age is easily converted into behavioral habits. The efficacy of tooth brushing activities depends on multiple factors such as; age, awareness, motivation, quality of toothbrush, brushing frequency, brushing duration, brushing forces, and tooth brushing motion, etc. It is to be noted that the aim of MTB is not limited to keeping your mouth clean and healthy, but it also helps to brush up your mind by reducing your day-to-day anxiety and stress making it fresh and happy.



## MTB- Hands on Training Program and Appeal



Fig. 4

During these 30 years of clinical dentistry practice, the author has found that the patients visiting his dental clinic/hospital lack self-compassion for their oral structures and barely know the proper brushing technique. Moreover, it is also difficult to teach correct brushing skills in the busy clinical setup with just quick professional instruction. As mentioned earlier, tooth brushing is a skill-based behavioral habit and is difficult to change for the majority of individuals already reaching teens or adults. Therefore, the author has designed an exclusive “MTB- Hands-on Training Program” targeting the school children who are at an early age of their life.

The hands-on training focuses on the idea that any hand skill teaching requires proper motor skill training along with ongoing follow-up, evaluation as well as monitoring. It is a well-established fact that repetition is the key approach to convert a good health protocol into a habit, and early school age is the best period to develop healthy oral habits among kids. It is, therefore, MTB hands-on training is designed as a package of a basic dental checkup, caries risk assessment, oral hygiene awareness, and a step by step hands-on training program in a small group with an aim to engage and encourage them for regular MTB practice at home as well as at school, and also develop a “Keep in Touch” habit with their dentist at least once a year. The MTB certification system is incorporated into the program to make the children feel proud and happy for participating and learning good habits. To help promote this oral hygiene mission, the author has also

established an “Chetu Kids Club” and a monkey “Chetu” as a mascot (Fig.4) to demonstrate that we need to tame our monkey mind first, then only it would be easy to convert any good health practice into a habit. And the silent MTB mantra “I LOVE YOU” is used during tooth brushing so that kids would start adopting the art of self-compassion and gratitude in their lives. The author appeals to all schools, dental colleges, and dental clinics to incorporate the “MTB Hands-on Training” program as an inbuilt curriculum and support services.

In this regard, the author in joint collaboration with Oral Health Innovation Center(OHIC), Punyaarjan foundation, is in the process to develop a comprehensive “MTB Hands-on Training Manual” to support schools, oral health care organizations, and dental clinics around the world to conduct a well-organized MTB hands-on training. The readymade copy of the training manual will freely available at [www.punyaarjanfoundation.org.np](http://www.punyaarjanfoundation.org.np) after Oct 2021.

*References of this article is available on request through the publisher.*

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