

ADG Treatment Guide - Consent to early Functional Appliance Therapy

What is functional appliance therapy?

This therapy involves use of a brace to hold the lower jaw forwards, usually during the pubertal growth spurt period, with the aim of creating anterior lip seal and gentle muscular traction such that remodelling of the teeth and jaws is encouraged to reduce the proclination of the front teeth. The functional appliance also alters swallowing behaviour and minimises the need for the tongue to thrust forwards to create a lip seal to commence the swallow as this is now achieved by the lips. The combined effect of the postural changes described is usually a favourable change in tooth position and reduction in prominence of the upper front teeth.

The pubertal growth spurt is typically between the age of 11.5 and 13.5.

Early referral

Dentists and parents often seek an early referral of prominent upper incisors due to the unfavourable appearance. There is some evidence to suggest that children with prominent front teeth occasionally suffer from issues of self-esteem due to bullying, unwarranted comments from peers, and negative stereotyping. This can affect a child's confidence.

There is also a significant concern about dental trauma for overjets of 6 mm or greater. Damage to a front tooth is debilitating and can result in treatment of many thousands of pounds over many years to manage the life cycle of dental trauma.

Prevention of Dental Trauma

There are several ways in which the risk of dental trauma can be minimised. One way is to fabricate a sports-guard which is worn during all contact sports activities. There is also some evidence that use of a so called 'functional appliance' is effective in minimising the risk of dental trauma to the front teeth and the use of such an appliance may also commence the process of correction of the large overjet by growth modification. This in itself, over a few months may slightly reduce the prominence of the front teeth.

Advantages and limitations of early functional appliance treatment

The main benefit for early intervention for prominent front teeth is to limit the incidence of dental trauma. This benefit is only realised if the appliance is worn full time while the prominence of the front teeth is significant. It is important to bring the front teeth within the control of the lower lip to achieve protection of the front teeth.

When this has occurred, it is possible to continue the functional appliance treatment by wearing the functional appliance only at nights:

<https://kevinobrienorthoblog.com/patients-twin-blocks-full-time/>

It is important to realise that the optimum time for functional appliance therapy is during the pubertal growth spurt. As such any growth during the pre-adolescent years will be limited.

The success of growing the jaw forwards during pre-adolescence, preventing the need for extractions later, or minimising the need for orthognathic surgery (jaw surgery) due to an underdeveloped lower jaw is not established scientifically, although may occur. It is therefore impossible to guarantee a functional benefit from early intervention. It is also impossible to provide an absolute guarantee that the child will not suffer severe trauma to front teeth despite wearing these full-time. Our science is clear that a large 'overjet' can result in doubling or trebling the risk of trauma to the front teeth:

<https://www.nature.com/articles/6401099>

In medicine we rely on the Cochrane database of clinical controlled trials to confirm the presence or absence of therapeutic benefit to all interventions, and fortunately a trial has been carried out on the benefits and limitations of pre-adolescent treatment of prominent front teeth:

<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003452.pub4/full>

Early treatment may see some growth of the lower jaw/repositioning of teeth to reduce the time in orthodontics during the definitive orthodontic phase in adolescence at 12-13 although this is not guaranteed. There are many functional appliances designs namely a 'Bionator', 'Medium Opening Activator' or 'Twin Block'. The correct choice of appliance will depend on the presence of baby teeth, the dental age, and the need to keep some space free to allow shedding of baby teeth and obtaining retention of the appliance despite the exfoliating baby teeth.

It is entirely possible that your child will need a second functional appliance after the initial appliance. The current appliance must be considered 'interceptive' i.e. early intervention to reduce future problems rather than be the definitive orthodontic treatment. As such, this sort of interceptive orthodontic treatment is paid for under private contract and is not available at our practice under NHS contract. That is not to say that management of the overjet cannot be done wholly under the NHS, but during the pubertal growth spurt and ideally when all adult teeth are in place. It is your choice to have early treatment, benefit from the additional protection and possible reduction in dental trauma, and the possible reduction in prominence of the front teeth.

The NHS have strict criteria for acceptance for NHS funded orthodontics. It is entirely possible that early treatment will result in positive change and your child will no longer qualify for NHS funded comprehensive orthodontics in the future. Should this be the case, then this is actually good news because it means that the bite has substantially improved. Should this be the case, and yet it is desirable to have a phase of fixed braces for cosmetic tooth alignment, then our orthodontist will quote you for such treatment under private contract later in life.

I confirm that I have read and understood the information contained within this guide, and I have had the opportunity to ask questions. I feel that I understand the risks, benefits and limitations of the procedures described, and I understand that no promises or guarantees of the proposed outcome can be made. By signing this form, I am providing my explicit consent to render necessary treatment to assist my dental condition.

Name of Patient _____

Date of Birth _____

Patient signature _____ Dated _____

Parent/Guardian/
Legal Representative _____ Dated _____