

# How the BOB app supports & monitors oral hygiene in orthodontic patients with fixed appliances.



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**For most patients, orthodontic treatment is vital to achieving a beautiful smile and it has become a popular treatment with patients in recent years. However, one challenge for orthodontic patients is that of maintaining a high level of oral hygiene. Many patients are unaware of the associated risks of poor oral hygiene and its effect in combination with appliances when they first start orthodontic treatment. In this case, it is the responsibility of the dental professionals who play an important role in educating the patients. It is their ethical duty to show & educate their patients on the possible risks that can occur should they not carry out effective daily oral hygiene.**

**Orthodontic treatment provides considerable opportunities and allocates desired therapeutic effects; however, if a patient does not follow the given recommendations, it may result in an array of complications that can occur both during and after the treatment.**

**One of the most common reasons for this situation is poor oral hygiene with chronic gingivitis.**

Braces are composed of many elements, such as a lock, ring, arch or ligature, in which biofilm will accumulate. With these elements, food debris can also accumulate and obstruct the flow of saliva, which can then become a self-cleaning problem.

If a patient is struggling to complete a good level of oral hygiene then plaque biofilm will continue to accumulate. The first layer is a soft plaque that contains microorganisms and adheres tightly to the surface. This cannot be disrupted with a jet of water or spray and the only way is to remove it mechanically.

Mineralization of the soft plaque begins after 2-3 days and if the patient does not remove the plaque after 7-10 days, it becomes mature plaque. We can also distinguish between supra-gingival and sub-gingival plaque as the difference between them is in their composition.

Immature levels contain aerobic bacteria, while the latter is a mixture of aerobic and anaerobic bacteria.

An orthodontic patient has specific needs and needs specific care. Their oral hygiene should be extremely meticulous if they wish to keep their teeth and gums to a high standard of health. This group

of patients need to be constantly motivated in maintaining diligent oral hygiene. Unfortunately, the research shows that after 6 months from the beginning of the treatment, patients fail to recognise and complete thorough oral hygiene and it is apparent that they return to their old habits and are not caring for their teeth and gums.

They do not realise that inadequate oral hygiene can cause acute gingivitis, demineralisation of the enamel or orthodontic stomatopathies.

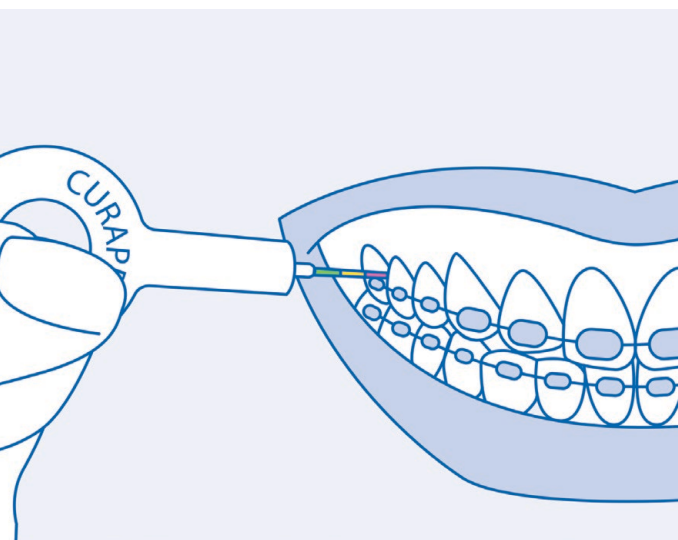
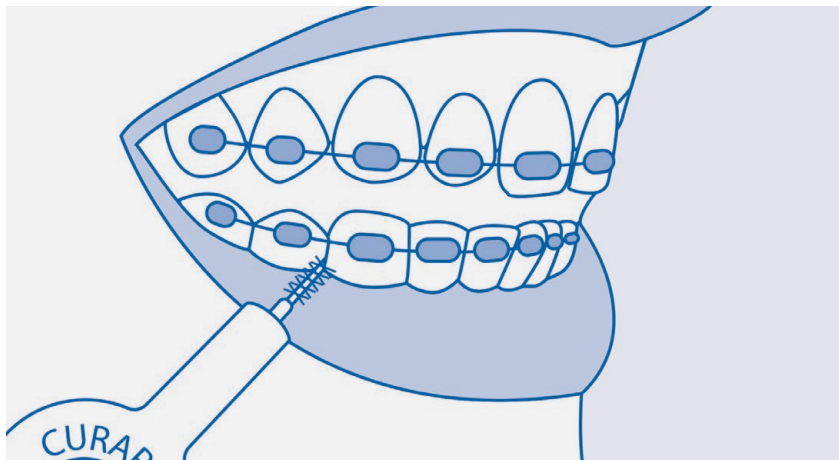
For this process to cease, a dental professional needs to show the patient what the problem is and how together they can overcome it. There are particular tools and methods that dental professionals can use with their patients, to motivate and guide as well as to raise their awareness of the importance of thorough oral hygiene.

In my opinion, the BOB app is a tool that can support dental professionals and patients in how to overcome these challenges of incorrect and low-level oral hygiene. I have been working with this app since 2020 and before I start the hygiene procedure, I will always use a diagnostic probe to check the condition of the gums and if I notice bleeding after 30 seconds, then I mark it on the mouth

map. I then choose two colours of interdental brushes which the patient should work with in order to cease both the bleeding and inflammation.

The next step is to take a photo of the patient's current status and eventually when I accept all processes, the patient can then receive their BOIB (Bleeding On Interdental Brushing Index). For me, this is one of the most important elements regarding the BOB- app because it creates a sense of awareness for the patient as to what gingivitis looks like. When patients receive their results, they are often surprised as BOB visually shows them the condition of their mouth as they often do not know that they are suffering from inflammation.

The final result is that the patient receives all their BOB results, via an email which they can view their mouth map with all the interdental brushes that had been chosen by me for each interdental space. Additionally, they will receive a supportive image of a percentage result of their inflammation, and this changes after each appointment with the aim of an overall improvement and lower percentage of inflammation. Therefore, the patient can see their improvement or deterioration and as a result, the patients are aware that they are under constant observation. They are not able to be dishonest about their oral hygiene routine as BOB shows it all, and he supports me tremendously. Especially in the case of orthodontic patients, who need to be constantly motivated and monitored so that together we strive to complete a high level of oral hygiene.



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Dental hygienist Agata Modzelewska, has graduated in 2016 at Warsaw Medical College (Poland). She works as a freelancer in private practices and is also a teacher at the Warsaw Medical College. Through dedicated workshops named "Conscious Mom" she informs and instruct pregnant women about the importance of oral health. Since 2019 she is also a dedicated ITOP teacher.



## Case Study

A 32-year-old woman, 1-year orthodontic treatment, visited my surgery. During her treatment, no one had informed her on how to care for her teeth and gums. She had not received any oral hygiene instructions and therefore she carried out care to the best of her knowledge. She uses an electric toothbrush and an irrigator, yet her Interdental spaces were not cleaned with a mechanical product such as floss or an interdental brush.

### First appointment

The first BOB result showed 100% interdental inflammation, which corresponds to severe inflammation. After instructing my patient in how to use the Curaprox Prime 06 and 08 brushes, I explained that her gums were swollen so it was likely she would feel discomfort when using the interdental brushes. Therefore, I educated her in how to use the interdental brush, until she feels this discomfort. I further explained that her gum health should improve day by day with the interdental brushes eventually passing through all of her interdental spaces. To improve the condition of the gums between teeth 32-42, I also recommended a solo toothbrush. The patient returned to the office after 14 days.

She was under the illusion that her oral hygiene was very good as she did not see the inflammation.

I decided to use BOB with her, as a means to demonstrate and educate her gum health. It goes without saying, that I wished to motivate her in using interdental brushes for her interdental spaces.



### Second appointment

The second BOB result showed 46% interdental inflammation, which is categorised as moderate. I felt very proud of my patient and shared this joy and achievement with her as to further motivate her. She informed me that for 3-4 days she had felt discomfort whilst attempting to use an interdental brush. However, day by day there was an improvement and the attempt became easier. My patient noticed that her gums were bleeding less and she was pleasantly surprised by this. It was clear that there was still inflammation surrounding her anterior teeth, therefore I decided to show her again how she could work with the solo brush, as it was apparent that she was not as fluid in the usage of this tool. The patient returned to the surgery after 1 month.

### Third appointment

My patients third BOB result was 0%, which demonstrates no inflammation and therefore the gums are healthy. I noticed that I had to change her interdental brushes from CPS Prime 06 and 08 to 07 and 09 which is a natural progression once the gingival tissues have returned to health from being inflamed and swollen. If bacterial plaque is removed regularly, then the level of inflammation is reduced and naturally the gingival tissues become tighter and almost appear 'shrunk'. This trajectory from inflammation to health results in a need to change or add interdental brushes, otherwise the previous ones rec-ommend will be less effective from slipping through to easily without resistance from the filaments. When the patient viewed her result, she was extremely satisfied because she felt that for the first time in her dental history, someone had taken the time to care for her and her oral health.

She was unaware of having any issues prior to our sessions and she promised me that she would continue to use her interdental brushes, once a day.





## P1 BOB-Score



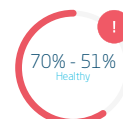
### NO INFLAMMATION

0% Bleeding / Inflammation



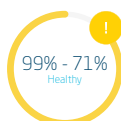
### MODERATE INFLAMMATION

30% - 49% Bleeding / Inflammation



### MILD INFLAMMATION

1% - 29% Bleeding / Inflammation



### SEVERE INFLAMMATION

50% - 100% Bleeding / Inflammation

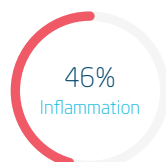


The BOB-Score mouth map (of the first to third appointment) indicates the interdental brush



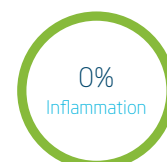
First appointment

December 2021



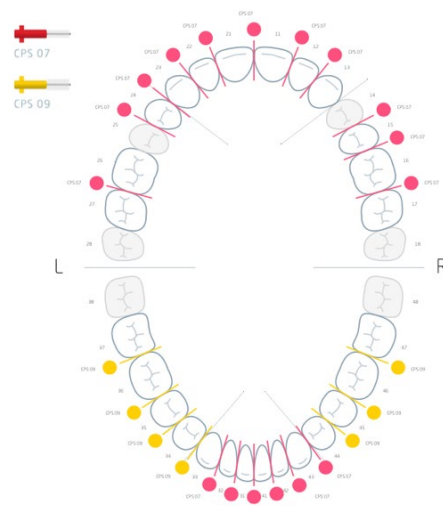
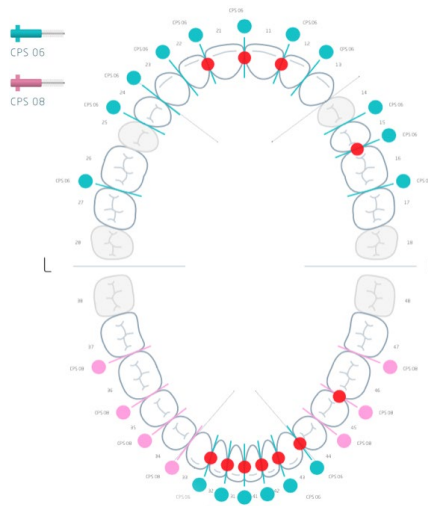
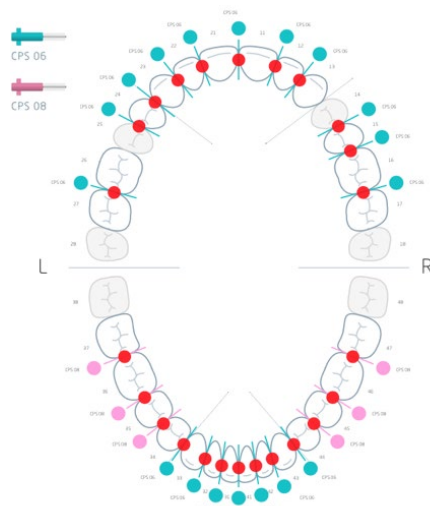
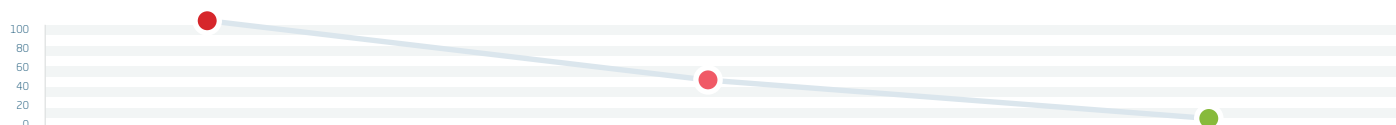
Second appointment

December 2021



Third appointment

January 2022



## Case Study

**A 36-year-old woman, with 6-month orthodontic treatment. This patient uses a semi-hard toothbrush with no cleaning of her interdental spaces. I decided to use BOB to demonstrate and educate her current gum health. I wished to motivate her in how to use interdental brushes and to start cleaning the interdental spaces daily.**

### First appointment

The first BOB result showed 42% interdental inflammation, which corresponds to moderate inflammation. After instructing my patient in how to use the Curaprox Prime 07 and 08 brushes, I explained to her the cause of such a situation and recommended a solution.

I chose for her a solo brush and Velvet Toothbrush. The patient then returned to the surgery after 14 days.



### Second appointment

The second BOB result showed 4% interdental inflammation, which corresponds to mild inflammation. My patient informed me that for 3-4 days she experienced challenges in how to use the interdental brush, particularly between 32-44. In this situation, I recommended floss to her and she noticed that her gums stopped bleeding.

The inflammation remained near the temporary crown because there was a problem with its construction and I recommended to her the importance of restoring it. The patient returned to the surgery after 2 months.



### Third appointment

The third BOB result showed 0%, which is categorised as no inflammation and therefore the gums are healthy. I noticed that the teeth had changed their position which is a normal part of orthodontic treatment. I used my clinical judgment to change the floss from 32-44 to that of a CPS 07 interdental brush. Her interdental spaces are now larger and therefore it is easier to place the interdental brush in an atraumatic manner. My patient viewed her result and was satisfied due to the fact of someone, for the first time, taking care of her oral health with her.





## P1 BOB-Score



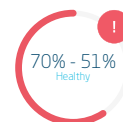
### NO INFLAMMATION

0% Bleeding / Inflammation



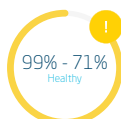
### MODERATE INFLAMMATION

30% - 49% Bleeding / Inflammation



### MILD INFLAMMATION

1% - 29% Bleeding / Inflammation

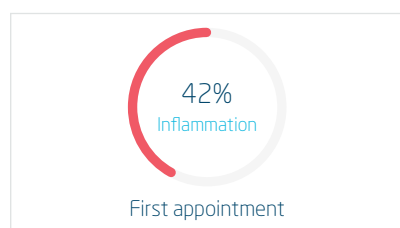


### SEVERE INFLAMMATION

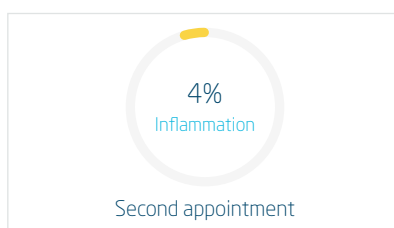
50% - 100% Bleeding / Inflammation



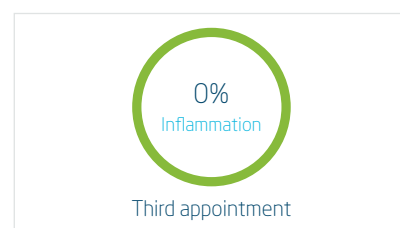
The BOB-Score mouth map (of the first to third appointment) indicates the interdental brush sizes and presents the inflammation for each interdental space.



November 2021



December 2021



February 2022

