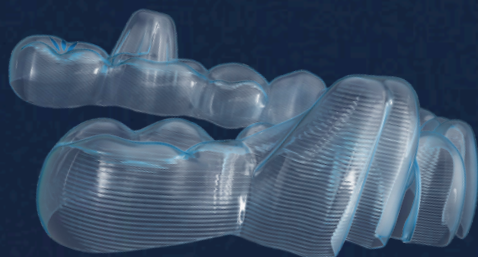


eBook

Clinical Guide for
**Mandibular
Advancement
Selection**

By Dra. Eva Mayo



Clinical Guide for Mandibular Advancement Selection

As an orthodontist, I encounter growing patients with Class II malocclusion on a daily basis. Nowadays, we have different possibilities to perform mandibular advancement with aligners, but the question often arises: when should we choose one over the other?

That is why I propose this practical clinical guide, designed to help us decide in which situations mandibular advancement is truly the best option and which system may be most effective according to each patient's characteristics.



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Approximately 85% of patients with Class II malocclusion present a skeletal origin associated with mandibular retrognathia.

This reminds us that we are not facing a simple dental problem, but rather a foundational alteration that requires precise diagnosis and a well-defined therapeutic strategy. For these patients, functional mandibular advancement becomes a key tool—capable of influencing growth development and significantly improving treatment prognosis.

Invisalign aligner therapy expands our possibilities by incorporating two mandibular advancement systems: ***WINGS and BLOKS***.

However, the choice between them should not be made randomly, but rather based on understanding which option is most appropriate for each patient.

For this reason, I propose this clinical guide, which reviews two fundamental aspects:

1. Determine whether the patient is a suitable candidate for mandibular advancement, by analysing diagnosis, growth stage, and level of compliance.
2. Select the most effective system according to the facial pattern, overbite, and the magnitude of the required advancement.

The purpose is to provide clear, evidence-based criteria that help orthodontists make informed decisions rooted in both research and clinical experience—offering a practical tool that facilitates the selection of the most effective treatment for each patient.



Diagnosis: What is the main cause of Class II?

The first step is always to determine whether the patient truly requires mandibular advancement. The diagnosis should identify the origin of the skeletal Class II problem.

- Most Class II cases are due to a **RETROGNATHIC MANDIBLE**. These patients are the best candidates for mandibular advancement treatment.
 - 1.
- When a **MAXILLARY PROTRUSION** is present, mandibular advancement is not the treatment of choice. The indicated treatment is dentoalveolar camouflage or orthognathic surgery, depending on the severity and the patient's age.



2 Key Facts about Class II

20%

*Prevalence of Class II
Permanent Dentition*



85%

*Origin of Class II
Mandibular Retrusion*

Growth: At which stage of vertebral maturation is the patient?

The second step is to assess growth, as this factor decisively influences the treatment response. For this purpose, the cervical vertebral maturation (CS) stage is evaluated on the lateral cephalometric radiograph. If the patient is in:

- **CS2** → During this phase, preparation and mandibular advancement can be initiated with the aim of guiding growth and correcting habits.
- **CS3-CS4** → This phase represents the period of maximum orthopaedic effectiveness and is ideal for orthopaedic mandibular advancement.
- **CS5** → During this phase, growth is residual and the effects will be mainly dentoalveolar.
- **CS6** → During this phase, growth has ended and there is no orthopaedic response.



Compliance: What level of compliance do you expect from the patient?

The success of aligner treatment does not depend solely on the system used. Even the best device will fail if not worn for a sufficient amount of time. According to the patient's level of compliance, it can be classified as follows:

- **No Compliance:** When the patient does not wear the aligners properly, treatment becomes unpredictable.
- **Moderate Compliance:** If the patient's cooperation is irregular, results are usually partial and largely dependent on continuous reinforcement.
- **High Compliance:** When the patient wears the aligners consistently and correctly, mandibular advancement treatment is highly predictable.



Facial Pattern:

What is the patient's facial pattern?

At this stage, we must identify the facial pattern, as it determines the patient's tolerance to vertical changes. This will allow us to anticipate the effects of mandibular advancement and adjust the treatment strategy accordingly.

- In **BRACHYFACIAL** patients, posterior mandibular rotation and molar extrusion are favourable. Strong musculature contributes to vertical dimension control. Advancement is preferably carried out with **BLOKS**, except in open bite cases.
- In **MESOFACIAL** patients, there is a good balance between musculature and skeletal pattern. They usually tolerate vertical changes well and allow for versatile orthopaedic management, using either **WINGS** or **BLOKS**.
- In **DOLICHOFACIAL** patients, uncontrolled posterior extrusion and posterior mandibular rotation increase the vertical dimension, which is unfavourable. Advancement is preferably performed with **WINGS**, as they offer better vertical control.

**BRACHYFACIAL****MESOFACIAL****DOLICHOFACIAL**

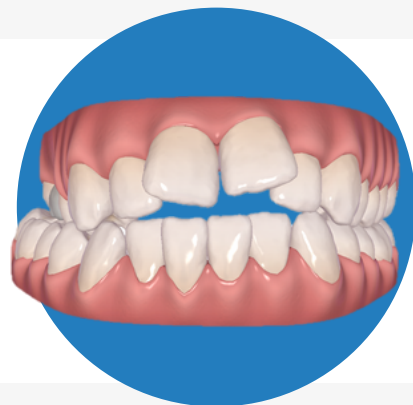
Overbite: What type of overbite does the patient present?

Analysing the magnitude of the anteroposterior discrepancy is essential, as it largely determines the effectiveness of the orthopaedic response.

- In patients with a **NORMAL OVERBITE**, mandibular advancement does not significantly alter the vertical dimension. The choice of system will depend on other factors such as the facial pattern and the magnitude of advancement. It is advisable to perform the advancement with **BLOKS** or **WINGS**, depending on the facial pattern.
- In **DEEP BITE** cases, posterior extrusion associated with mandibular advancement can be beneficial, as it helps to reduce the overbite. It is advisable to perform the advancement with **BLOKS**, which provide better overbite control.
- In **OPEN BITE** cases, possible posterior extrusion during mandibular advancement may worsen the opening, making vertical control essential. It is advisable to perform the advancement with **WINGS**, regardless of the facial pattern.



DEEP BITE



OPEN BITE

Amount of Mandibular Advancement:

What is the required amount of advancement?

Analysing the amount of anteroposterior discrepancy is essential, as it largely determines the effectiveness of the orthopaedic response.

- When the discrepancy is **LESS THAN 2 MM**, mandibular advancement produces little to no orthopaedic effect. A mandibular advancement system is usually unnecessary; in these cases, correction with **intermaxillary elastics** is generally sufficient.
- For **MODERATE ADVANCEMENTS (BETWEEN 2 AND 4 MM)**, good results are usually achieved as long as the facial pattern and vertical dimension control are taken into account. Both **BLOKS** and **WINGS** advancement systems are effective, with the choice adapted to facial pattern and vertical control.
- For **ADVANCEMENTS GREATER THAN 4 MM**, a stable mechanics is required to maintain anteroposterior control and prevent unwanted side effects. The facial pattern will largely determine the final choice. **BLOKS** are generally preferable, **except in dolichofacial patients or cases with open bite, where WINGS are recommended.**



CONCLUSIONS

In summary, both mandibular advancement systems are effective, but each responds better to a different patient profile.

The first requirement is that the patient presents with **mandibular retrognathia**, is in a **phase of maximum orthopaedic potential (CS3-CS4)**, and demonstrates a **high level of compliance**.

From that point, the choice will depend on three main factors: **facial pattern, type of overbite, and magnitude of advancement**.

- **BLOKS**: More effective in patients with deep bite and a brachyfacial pattern, providing vertical control and stability.
- **WINGS**: A versatile alternative for patients with open bite and a dolichofacial pattern, promoting mandibular projection without compromising vertical dimension.

This guide is intended as a **practical diagnostic and decision-making tool**, offering clear criteria on when to choose **WINGS** or **BLOKS**, and when to consider other alternatives. Its purpose is to provide guidance based on clinical evidence and experience, while reminding us that the final decision should always be **individualised according to the patient's complete assessment and the orthodontist's professional judgement**.





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