

White spot lesions (WSLs) continue to challenge orthodontists. Dr. Huang discussed prevention strategies such as fluoride application every six weeks and reviewed treatment options like Tooth Mousse, bleaching, abrasion, and resin infiltration (ICON). While in vitro studies show promising results, clinical studies often fail to show significant improvement in white spot

appearance, even with combined protocols. Notably, aligners seem to result in the formation of fewer WSLs during treatment compared to fixed appliances, making them a preferred option for high-risk patients.

#### **Anterior Open Bites and Aligner Limitations**

Dr. Huang also focused on anterior open bites. His team investigated whether molar intrusion prescribed in Invisalign ClinCheck plans led to true intrusion. The conclusion: only partially. Intrusion often plateaus around 1 mm, at which point posterior bite blocks may lose contact and efficacy. Adjusting bite block thickness during treatment might help maintain their function.

#### **Aligners: Past, Present, and Persistent Challenges**

Tracing the history of aligners from Kesling's 1945 tooth positioner to modern clear aligners, Dr. Huang reflected on the progress and limitations of these systems. While aligners offer aesthetic and hygiene advantages, clinical results don't always match digital predictions. For instance, only about 27% of planned distalization is achieved. Despite over 60 systematic reviews, much of the aligner literature appears in non-orthodontic journals, highlighting challenges in both research quality and publication.

#### **Iatrogenic Risks and Bone Biology**

Dr. Huang also addressed iatrogenic risks, such as dehiscences and fenestrations, especially during expansion. Studies show that molar expansion with aligners is usually less than 2 mm, with minimal skeletal change. Encouragingly, post-treatment bone recovery of dehiscences and fenestrations seems possible. Dr. Huang proposed that if the periosteum remains intact and roots are allowed to move back into the original bony contours, bone can recover. This theory provides a more nuanced understanding of periodontal health in orthodontic treatment planning.

#### **Conclusion: A Thoughtful Look at Innovation**

Throughout the session, Dr. Huang stressed the importance of embracing innovation while demanding robust evidence. The orthodontic field, like medicine as a whole, has witnessed enthusiasm-driven reversals. By grounding clinical decisions in solid data and maintaining a critical mindset, orthodontists can continue improving patient outcomes by incorporating new techniques and treatments as they are supported by good evidence.

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