

To Give Life a More Beautiful Smile

Orthodontic Advances and Reflections: Insights from Dr. Greg Huang at the Olsburgh Smile Foundation Meeting – April 2025, Lausanne

On April 4th, 2025, sixty dentists gathered at the Centre Patronal in Paudex, near Lausanne, for an engaging session led by Dr. Greg Huang, Professor and Chair at the University of Washington. Organized by the Olsburgh Smile Foundation, this event provided professionals an opportunity to critically assess current orthodontic practices through evidence-based frameworks.



Dr. Huang opened the lecture by referencing his home city of Seattle — renowned for innovation with companies like Microsoft, Boeing, Amazon, and Starbucks. He drew a parallel between this spirit of innovation and the evolving landscape of orthodontics. His lecture explored various topics, ranging from treatment mechanics to biological processes, always underscored by an emphasis on critical thinking and clinical humility.

Revisiting Orthodontic "Reversals" Through Evidence

The heart of Dr. Huang's message focused on "reversals" — moments in orthodontic history where previously popular treatments were

reevaluated and, at times, abandoned due to better evidence. He presented the hierarchy of evidence, from expert opinion and case reports to randomized clinical trials and systematic reviews.

One example of reversal was the shift regarding extractions. Dr. Angle taught Dr. Tweed that orthodontic treatment should always include the full complement of teeth. But Dr. Tweed was disappointed by some non-extraction results, and he challenged Angle's non-extraction philosophy in search of better facial esthetics and stability, Similarly, self-ligating brackets, initially marketed as faster and more efficient, were found to show no significant difference in treatment time, arch dimensions, or pain levels when compared to conventional systems in randomized trials.

Speed in Orthodontics: Caution with Acceleration Devices

Speed remains a top priority for both clinicians and patients. However, methods such as corticotomies and vibration devices (e.g., AcceleDent, Propel) have not consistently demonstrated faster results in high-quality studies. Dr. Huang highlighted the discrepancy between marketing claims and actual evidence, noting that many acceleration methods are supported by limited or biased data. "Innovation is important," he reminded the audience, "but early reports often exaggerate effectiveness." He also discussed other potential reversals, including those around obstructive sleep apnea, orthodontic expansion, and frenectomy.

White Spot Lesions: Prevention and Reality Check

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



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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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