

## Cross-bite-correction with eCIGNER® (3D-digital Clear-Aligner)

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### eCIGNER® Treatment for Cross-bite case

Anterior and posterior cross-bite treatment have been performed by orthodontic appliance to recover functional and esthetic purposes. In juvenile patient cases, it is a key to jump anterior cross-bite to prevent further mandible over growth. Posterior scissor bite case may lead to interrupt masticatory movement, even exaggerate facial asymmetry.

Conventionally, it is required to treat anterior or posterior cross-bite patient by applying posterior bite raising(bite bloc) procedure combined with spring or elastics inserted in acrylic resin appliance.

eCIGNER® is digitally settled removable Clear Aligner by 3D CAD/CAM-System to treat malocclusion patients and to pursue minimum-bonding and simply designed structure.

eCIGNER® treatment for cross-bite cases is not required, as like posterior resin bloc nor springs. One of those reasons is that eCIGNER® covers whole dental arch includes soft tissue, thus there is seldom to find trauma from occlusion (TFO) between upper and lower teeth during jumping the target teeth. This is one of the advantage of eCIGNER® which performs orthodontic treatment for cross-bite cases (Pic 1-7).

**Abb. 1**



34/M, Anterior cross-bite case

**Abb. 2**



A-P direction expansion procedure is applied for jumping the incisors

**Abb. 3**



Aligning procedure to correct midline

**Abb. 4**



After eCIGNER® treatment, prosthodontic(veneer crown) treatment is followed

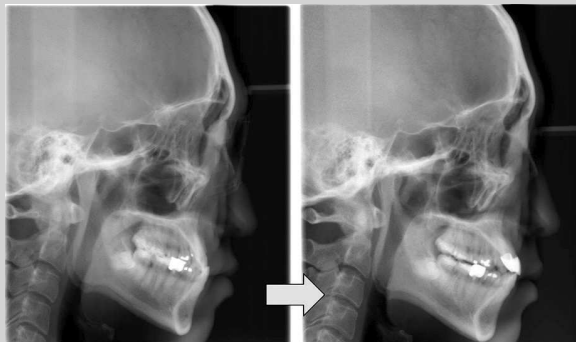
## Mechanic

### (1) Expansion mechanic

Anterior-posterior direction expansion is applied to treat anterior cross-bite cases regarding ideal arch form. Bite jumping progress and tooth movement follows rapid tipping expansion to avoid prolonged edge to edge bite moment at cross-bite position. It is recom-

mended to keep using eCIGNER® in meal time to prevent uncertain damage to moving teeth. In long term clinical observations, it has not been occurred frequently as long as proprioceptor function is alive (Pic 8-11).

**Abb. 5**



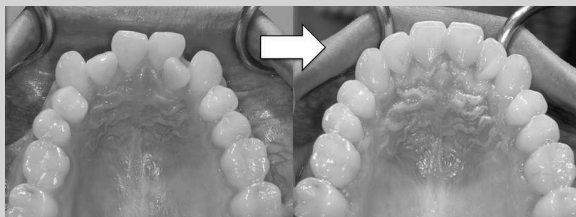
Before and after cephalometric x-ray.

**Abb. 6**



During the jumping procedure, intermediate edge to edge bite shows. In anterior cross-bite case, tipping movement is applied to accelerate the cross-bite correction procedure.

**Abb. 7**



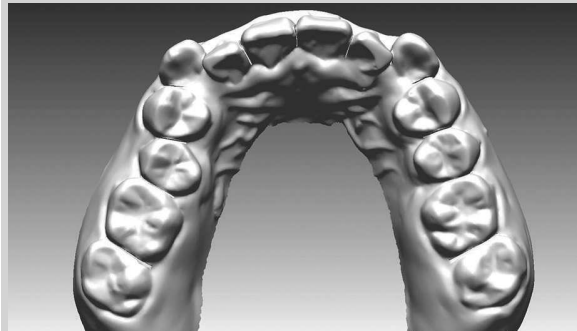
51/F. Anterior cross-bite on lateral incisors on maxilla both side has been corrected

**Abb. 8**



A-P direction expansion procedure to correct anterior cross-bite case.

**Abb. 9**



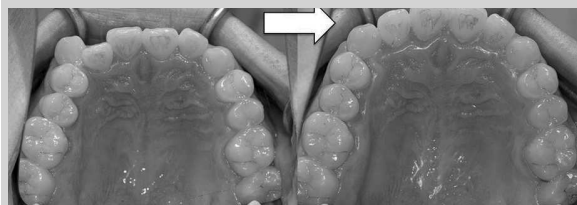
Before treatment patient maxilla data file view.

**Abb. 10**



Final set-up data on maxilla by eCIGNER® software.

**Abb. 11**

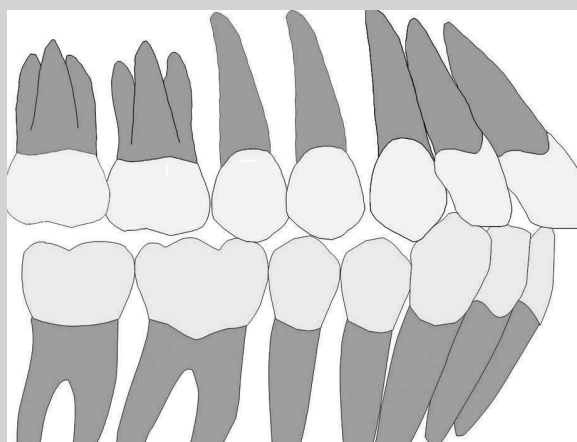


28/M. Before and after photo in maxilla. A-P direction expansion has been applied to correct anterior cross-bite.

## (2) Dynamic occlusion theory

Physiologic tooth eruption occurs at un-occluded part in entire occlusion, in terms of Dynamic Occlusion Theory. After jumping out, open-bite is observed at posterior area. eCligner® wearing time is 17 hours a day. It means that patient can take out 7 hours a day. At this 7 hours, physiologic tooth eruption occurs in un-occluded area fit to occlusion by this theory. eCligner®

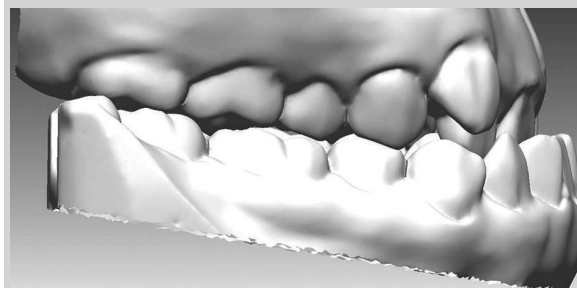
Abb. 12



After jumping out the anterior teeth, posterior un-occluded teeth are shown. 7 hours free of aligner brings patient functional occlusion by Dynamic Occlusion Theory.

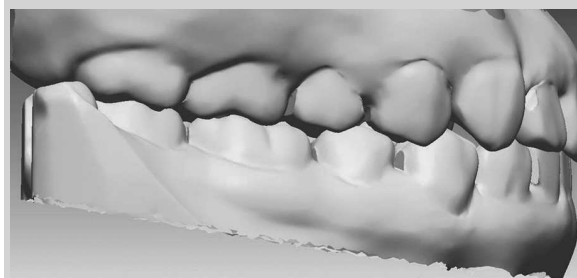
digital set-up data is made up to achieve final ideal occlusion by 3D software considering Dynamic Occlusion Theory (Pic 12-16).

Abb. 13



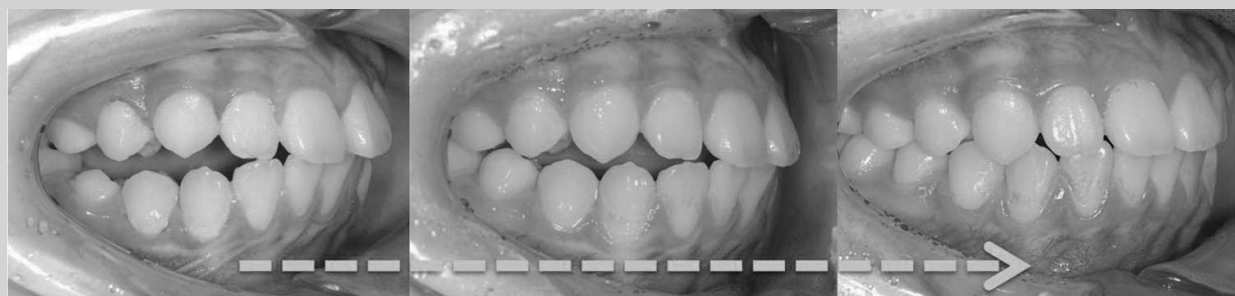
Before treatment data file

Abb. 14



Final set-up data file shows ideal occlusion which is established from physiologic eruption.

Abb. 15



Young adolescent patient shows open-bite on buccal segment. Occlusion has been settled up in serial eCligner®.

Abb. 16



24/F. Series of progress shows occlusion adaptation after jumping the cross-bite lateral incisors.

### (3) Clinical Cases

A. Anterior cross-bite case, Adolescent patient (7/M)  
(Pic 17, 18)

**Abb. 17**



7/M. Anterior cross-bite case

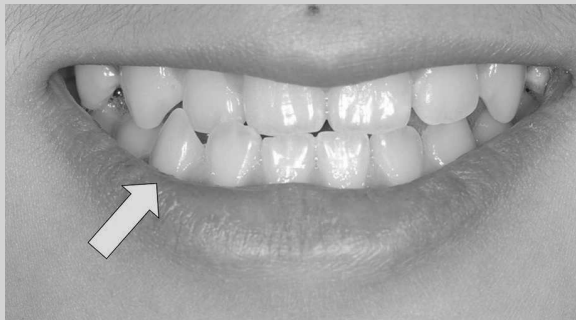
**Abb. 18**



After 3 months eCIGNER® treatment, cross-bite has been corrected.

B. Adolescent patient, plunger cusp case (12/M)  
(Pic 19-23)

**Abb. 19**



12/M patient has plunger cusp on right incisor area. Lower right canine is positioned labially, thus smile view shows anterior cross-bite and mandible shifting to right side.

**Abb. 20**



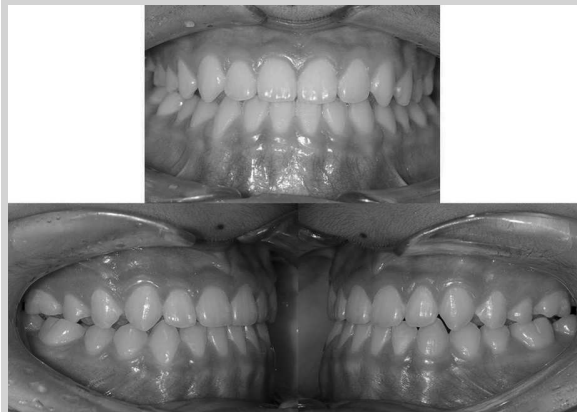
Plunger cusp on lower right canine area

**Abb. 21**



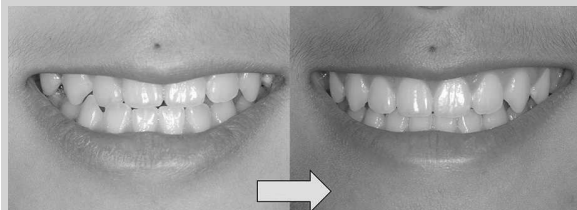
Before treatment

**Abb. 22**



After eCIGNER® treatment, plunger cusp is eliminated and midline has been corrected.

**Abb. 23**



Smile change before and after correction of midline

C. Posterior scissor bite case (26/F) (Pic 24, 25)

D. Buccal Scissor bite case (27/F) (Pic 26)

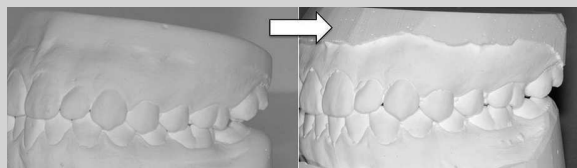
E. Skeletal CI III case (17/M) (Pic 27)

## Conclusion

In clinical long term study, ideal treatment result has

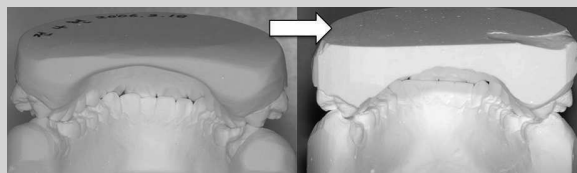
been achieved by eCIGNER® without showing side effects. Posterior bite raising or additional spring are not required for whole progress. Progressive tooth eruption is observed at un-occluded posterior area after jumping the cross-bite. In retention period, ideal occlusion has been maintained without side effect. (Pic 28)

**Abb. 24**



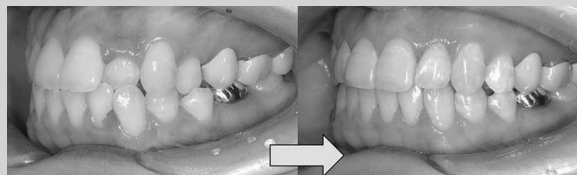
26/F. Scissor bite case on 2nd molar both side, accompanied with anterior minor crowding. Result is shown on right side (left).

**Abb. 25**



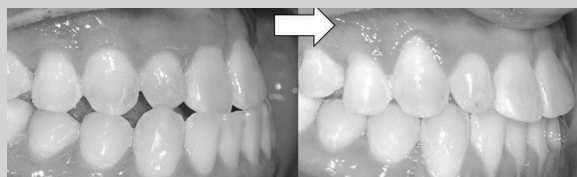
Scissor bite correction before and after (posterior view)

**Abb. 26**



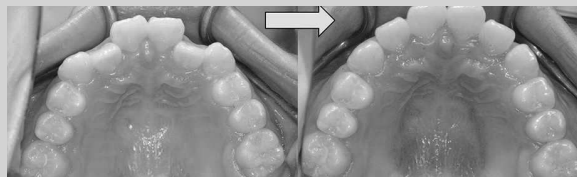
27/F. Cross-bite on upper lateral incisor and bicuspid has been corrected by eCIGNER®.

**Abb. 27**



17/M. Before and after photos. CI III tendency is shown with mandible over growth. CI III elastic with eCIGNER® is applied for 12 months to correct anterior occlusion.

**Abb. 28**



In clinical reviewing the cases treated with eCIGNER®, cross-bite has been successfully treated without additional bonding materials. During the jumping process, there is no significant side effect on incisors and posterior teeth both.

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gibt weltweit mit ihm Seminare zu Alignerbehandlungen.

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*Ganz klar das schönste Lächeln.*

**eCIGNER®**

3D Digital Clear Aligner

Große Wirkung bei kleinem Aufwand.  
Ihre Patienten werden begeistert sein.

Mit eCIGNER bieten Sie Ihren Patienten einen sanften und gleichzeitig wirkungsvollen Weg zu schöneren Zähnen – wie durch Zauberhand, ohne Zahnsperre oder andere unangenehme Eingriffe. Mit eCIGNER lassen sich Zahnfehlstellungen mit ästhetisch hochwertigen und digital hergestellten Schienen korrigieren. Die Schienen sind nahezu unsichtbar – die Ergebnisse sehenswert.

eCIGNER. Eine Auswahl der vielen Vorteile:

- Finales Resultat ist schon bei Behandlungsbeginn zu sehen
- Beste Ästhetik durch nahezu unsichtbares Schienensystem
- Angenehm und schmerzfrei zu tragen
- Einfache Behandlung mit reduziertem Aufwand
- Wenige und nur kurze Kontrollsitzen
- Hochqualitative und zeitsparende Zahnregulierung
- Alle Acrylmodelle je Behandlungsschritt werden mitgeliefert
- Kosteneffizient und wirtschaftlich interessant
- Sicherheit durch ausgereiftes und bewährtes System

**Innovativ seit 1998**

1998 setzte der koreanische Kieferorthopäde Prof. Dr. Tae Weon Kim die von ihm entwickelten Schienen erstmals erfolgreich ein. Sein Therapiekonzept ist heute weltweit State-of-the-Art-Methode.



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