

Digital Analysis to evaluate the reliability between ClinCheck® and final clinical result with Invisalign Go®: a multi center retrospective study

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Purpose: Clear aligner therapy is nowadays a well-established technique to align teeth. Recently, Align Technology has introduced a new product specifically designed for general practitioner in order to align teeth in the esthetic area called Invisalign® Go and Go Plus. While clear aligners are an ideal solution in terms of aesthetics, comfort and hygiene, there is no general consent on the predictability of the movements planned within the initial digital setup. The aim of this retrospective multi-center study is to compare the digital planning of dental movements of 20 Clinical Cases, diagnosed, planned and treated in a completely digital environment, with the final clinical result obtained.

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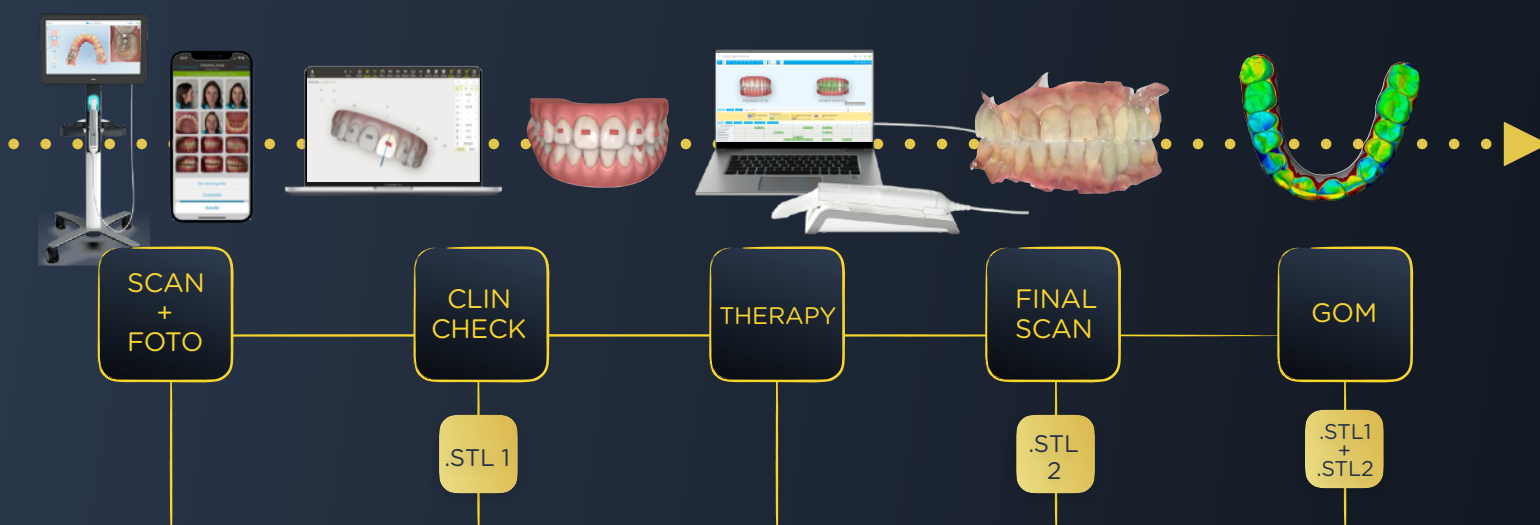
Material and methods: the sample of this retrospective study consisted of 20 patients (9-male, 11-female), mean age 32.7 years, treated with Invisalign® Go (from 5 to 5) and Go Plus (from 6 to 6) systems (Align Technology Inc., Tempe, AZ, USA) in two different dental clinics (10 patients each). The inclusion criteria were: 1) ASA-1 or ASA-2 classification; 2) aged > 18 years; 3) just a single set of aligners (no additional aligners) used to complete the treatment. Exclusion criteria were 1) patients required additional set of aligners to complete the treatment; 2) patients not compliant to wear aligners the required amount of time. All the impressions were made with digital intraoral scanner (iTero® Align Technology Inc., Tempe, AZ, USA). ClinCheck® 3D controls together with comments exchange with technicians were used in every case to modify and improve the proposed ClinCheck® by Align. Aligners were changed every 7-14 days; checkup visits were booked every 4 aligners. The .STL file of the final planned position was exported by ClinCheck® software and superimposed with the .STL file of the final clinical position taken with an iTero digital scan at the end of the treatment. Files were uploaded into a three-dimensional digital parametric inspection software (GOM Inspect 2019, Braunschweig, Germany). Second molars (never involved in the treatment) were used as references to perform superimposition between digital models. When missing, first molars were used (only Invisalign Go cases). Single deviation of the superimposed teeth was measured (threshold $\pm 0.5\text{mm}$) to evaluate how reliable the system was. An exemplary case is hereby presented.

Results: Twenty patients were included. 14 of them were treated in both arches, 6 only single arch was treated. Invisalign Go cases were 14 Invisalign Go Plus cases were 6. Mean deviation were calculated on patient basis and the result was 0.1373. On single arch basis (total of 34) the result was 0.1371

Conclusions: Invisalign Go proved to be a predictable and efficient system to solve mild to moderate malocclusions in a completely digital environment. To date, at the best of our knowledge, there are no studies comparing iGo and iGo Plus ClinCheck® setup and the real clinical result. Thanks to the mean deviation recorded we can assume that this value could ensure an acceptable predictability. Technology plays a pivotal role in the predictability of the whole treatment plan. It allows to enhance precision during all the steps, beginning from the intraoral scanning phase to the printing of the aligners. In addition, proprietary softwares such as TimeLapse and Invisalign Progress Assessment were useful to quality control the cases during the follow up appointments and to motivate patients, which collaboration proved to be fundamental to solve the malocclusion. For these reasons Invisalign Go could be considered an optimal solution to be used as well for preprosthetic purposes, in order to reduce teeth preparation, to optimize the aesthetics and to enhance the efficiency and predictability of the final restorations on a long term.

The **Goal** is to determine the **Consistency** of the iGo ClinCheck simulation (digitally & facially driven) with the final clinical result

STUDY WORKFLOW



	Total	Mean Deviation
Casi Go	14	
Casi Go Plus	6	
Totale arcate	34	0.1371
Totale pazienti	20	0.1373

