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COMPARING DIFFERENT SOFTWARE PACKAGES FOR VIRTUAL TOOTH MOVEMENT IN ALIGNER THERAPY

by

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DEDICATION

I dedicate this thesis to my family. To my father, Sunny Dhingra, for your unconditional love and support. To my mother, Dr. Seema Dhingra, for your guidance and encouragement both in orthodontics and in life. To my brother, Aman Dhingra, for your motivation and being my best friend. And to my girlfriend, Alisha Ambe, for your inspiration and being my source of joy. I love you all more than I can put into words.

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COMPARING DIFFERENT SOFTWARE PACKAGES FOR VIRTUAL TOOTH MOVEMENT IN ALIGNER THERAPY

Abstract

by

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Introduction: The purpose of this study was to compare the differences in tooth movements when implementing the same virtual setup on four different software packages: ClinCheck® Pro, Ortho Analyzer®, SureSmile® and Ortho Insight 3D®.

Methods: Twenty-five adult patients treated with Invisalign® at CWRU's department of orthodontics were retrospectively collected. Initial STL files were obtained and imported into three software packages. Here, the teeth were moved in order to replicate the virtual setup from ClinCheck® Pro. Final outcomes were exported from each of the software packages. ClinCheck® Pro STL files were used as the reference while STL files produced by the other software packages were used as targets. Best fit superimpositions were performed using Geomagic® Control X. Based on the results, tooth position was adjusted in the three software packages until the virtual setups from ClinCheck® Pro were

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replicated. Once confirmed, the tables containing the tooth movements extrusion/intrusion, translation buccal/lingual, translation mesial/distal, rotation mesial/distal, angulation mesial/distal and inclination buccal/lingual were compared. The number of aligners and number of attachments automatically generated from each of the software packages were also evaluated.

Results: Extrusion/intrusion ($p \leq 0.0001$) and translation buccal/lingual ($p \leq 0.0004$) were significantly different among the software packages. The four remaining movements did not differ significantly. ClinCheck® Pro and SureSmile® ($p \leq 0.000$), SureSmile® and Ortho Insight 3D® ($p \leq 0.014$), SureSmile® and Ortho Analyzer® ($p \leq 0.009$), and Ortho Insight 3D® and Ortho Analyzer® ($p \leq 0.000$) generated a significantly different number of maxillary aligners. The results varied slightly for mandibular aligners with only ClinCheck® Pro and Ortho Insight 3D® ($p \leq 0.000$), SureSmile® and Ortho Insight 3D® ($p \leq 0.000$), and Ortho Insight 3D® and Ortho Analyzer® ($p \leq 0.000$) exhibiting a significant difference. ClinCheck® Pro and SureSmile® ($p \leq 0.000$) differed significantly in the number of attachments produced.

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Conclusion: There are statistically significant differences in extrusion/intrusion, translation buccal/lingual, number of aligners and number of when implementing the same virtual setup on different software packages. Clinicians may need to consider this when utilizing software programs for digital diagnosis and treatment planning.

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REVIEW OF LITERATURE

Pioneers in Orthodontics

Dr. Norman Kingsley was one of the most well renowned innovators in the field we now call Orthodontics and Dentofacial Orthopedics. In his 1880 book "A Treatise on Oral Deformities," he emphasized the importance of etiology, diagnosis and treatment planning. Using this philosophy as a foundation, Kingsley was able to successfully treat cleft palate patients and even introduced the concept of occipital traction. He was one of the first clinicians to extract teeth in order to create space and, later in his career, was able to enhance his treatment mechanics by incorporating novel appliances.[1, 2] Similar to Kingsley, Dr. John Farrar was a pioneer who developed the theory of intermittent force and invented the expansion screw to deliver that force. He studied the limits of tooth movement and was the first to use occipital anchorage to retract anterior teeth. In 1888, he published "A Treatise on Irregularities of the Teeth and Their Correction" and consequently became recognized as the "Father of American Orthodontics."[3, 4]

Dr. Calvin Case was one of the most fruitful authors in orthodontics, publishing over 120 articles along with his novel "A

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Practical Treatise on the Technics and Principles of Dental Orthopedia." He was the first clinician to use light wires (.016" and .018") and was among the earliest to use class II intermaxillary elastics. Case placed emphasis on facial esthetics and, along with Farrar, was one of the first to attempt the bodily movement of teeth.[1] One of his greatest contributions was in the treatment of craniofacial patients, where he advocated for the extraction of teeth to correct facial deformities.

One of the most dynamic and influential figures in orthodontics was Dr. Edward Angle. He is credited with distinguishing the field of orthodontics from general dental practice and, even to this day, is considered the "Father of Modern Orthodontics." He founded the first postgraduate school of orthodontics (Angle School of Orthodontia), the first orthodontic society (American Society of Orthodontics) and the first orthodontic journal (The American Orthodontist). Angle's classification of malocclusions – based on the relationship of the maxillary and mandibular first molars – remains one of the most utilized tools today. His book "Treatment of Malocclusion of the Teeth" had seven editions and has been regarded as the standard of the profession for several years. Appliances like the E-arch, pin-and-tube, ribbon arch and edgewise represent a small portion of the thirty-seven patents he held. Angle's

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edgewise appliance, in fact, remains as one of the most commonly used appliances today.

Straight-Wire Appliance

Over the years, Angle standardized his appliance and developed pre-fabricated parts that could be purchased and used on a majority of patients. He recommended that clinicians build information into the bracket slots, a technique that would later be termed "building treatment into the appliance."[5, 6] Expanding on this foundation, Dr. Lawrence Andrews developed the Straight-Wire Appliance (SWA) in which brackets were individually designed for each tooth and contained information about torque, angulation and offset. The SWA supposedly allowed orthodontists to level and align teeth into an ideal position using a straight, unadjusted wire. This was rarely achievable, however, without some degree of wire bending.[7-10] Since its introduction, dozens of variations of the SWA have come about, thus revolutionizing fixed appliance treatment.

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Self-Ligating Appliance

Dr. Jacob Stolzenberg was the first to describe a self-ligating edgewise bracket in 1935.[11] The concept became more popular, however, in the 1990's and has been a topic of controversy ever since. Self-ligating brackets have a built-in mechanism that can be opened and closed. This mechanism is utilized instead of elastic or wire ligatures to secure the arch wire in the slot.[12] Advocates of self-ligating brackets propose numerous advantages related to treatment efficiency. They claim that leveling and aligning is faster, appointments are fewer and shorter, there is less need for extractions, treatment is more comfortable and overall, there is less anxiety for the patient. Furthermore, they suggest that decalcification and root resorption are less frequent, and that the results of treatment are better and more predictable.[13]

These claims, though, are still unsubstantiated. Studies claiming shorter treatment time were observational, and compromised by selection and observer bias. The results were confounded by varied operator experience, different arch wire sequencing and irregular appointment frequency. Studies investigating treatment efficiency and outcome quality found no difference between self-ligating and conventional brackets. Efficiency and quality depend on a complex

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interaction between the type of appliance, patient compliance and the bone remodeling process.[14]

Clear Aligners

Clear aligner therapy has become increasingly popular over the past decade. The concept of moving teeth without brackets and wires, however, is not a new one. In 1945, Dr. Harold Kesling introduced his "tooth positioning appliance." The device was intended to be used as a finishing appliance after orthodontic treatment with full fixed appliances. It could de-rotate teeth, establish proper axial inclination and interdigitation, and achieve good root parallelism in extraction cases. The positioner was supposed to be delivered immediately after debanding. Patients were instructed to wear the appliance for four hours during the day and while sleeping. If used as prescribed, the positioner could correct rotations, reduce spaces and improve arch form within a month. Once the desired results had been achieved, a conventional retainer was to be fabricated and coordinated with the positioner.[15]

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Cephalometry and CBCT

In 1895, Wilhelm Rontgen – a German physicist and engineer – made a revolutionary breakthrough in the field of medical and dental diagnostics. He was able to detect and produce a new type of electromagnetic field referred to as X radiation or x-ray. This invention enabled doctors to look inside the human body and sparked an era of increased diagnostic capability. Intraoral radiographs were introduced to dentists soon thereafter. As the technology improved, more complex extraoral radiographs, like panoramic and cephalometric x-rays, came into play.[16]

Dr. Birdsall Broadbent Senior and Dr. Thomas Todd are responsible for the introduction of cephalometrics to orthodontics. In 1925, they modified the anthropological craniometer and constructed the Western Reserve University radiographic craniostat. This allowed users to obtain standard profile and frontal head radiographs. In 1931, a cephalostat that facilitated radiographic standardization was introduced and termed the Broadbent-Bolton cephalometer.[17] In Germany, Dr. Hofrath independently patented a similar device the same year. Cephalometry was initially used to study craniofacial growth and development. The first

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cephalometric analysis used in every day clinical practice wasn't published until 1948 by Dr. William Downs.[18]

During the mid-1960's, Sir Godfry Hounsfield produced the first device capable of recording objects in all three planes of space.[19, 20] This machine became known as the computerized tomography (CT) scanner. A modified version of CT, called cone beam computerized tomography (CBCT), was developed at the Mayo Clinic for use in angiography.[21] Almost two decades later, the CBCT scanner was adjusted for craniofacial use and in 2001, the first craniofacial CBCT machine was introduced. When comparing CT and CBCT scanners, the primary differences lie in the shape of the x-ray beam and the type of detector utilized. While CT scanners use a fan-shaped beam in helical progression with linear detectors, CBCT scanners use a cone-shaped beam that is directed through the region of interest onto flat-panel detectors.[22-24] Most CBCT scanners have a variable field of view that can be adjusted according to the region of interest, thus allowing for a reduction in radiation. DICOM (digital imaging and communication in medicine) images obtained from a machine using a large field of view allow users to generate reconstructions of panoramic, cephalometric, periapical and temporomandibular joint radiographs.

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Intraoral Scanners

Intraoral scanners (IOS) were first introduced in the 1980's, around the same time as the computer-aided design/manufacturing (CAD/CAM) and chairside economical restoration of esthetic ceramics (CEREC) technologies. IOS were initially used in restorative dentistry to capture direct optical impressions of limited areas. As the technology improved, however, IOS became capable of capturing complete dental arches and in 2008, Cadent released the first IOS suitable for orthodontics – the iTero®. Since then, many full arch IOS have emerged on the market making conventional alginate or polyvinyl siloxane impressions obsolete.[25-27]

During the scanning process, images are obtained from the wand of the IOS system. The wand has a built-in light source and sensor. Laser or structured light is projected from the wand onto the dentoalveolar structures and adjacent tissues. This light is then reflected back into the sensor of the wand. Since the wand is connected to a workstation or laptop, the data captured by the sensor is processed by the software and rendered as a 3D model. In a similar fashion, IOS can also be used to digitize existing study models.[25-31] The virtual 3D models can then be used for a variety of purposes. Users can conduct digital study model

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analysis, setup indirect bonding, design appliances, and simulate different treatment plans.[24, 27, 30]

IOS have the benefit of enhancing patient comfort, clinical efficiency and precision. Digital study models mean no discomfort related to taking impressions, readily available diagnostic records and no storage issues. The workflow is expedited, the number of patient visits is reduced, and the whole process consequently becomes more cost-effective. Not only do diagnosis and treatment planning become faster, but they become more precise as well. Virtual setups and the resultant tooth movement simulation facilitate easier treatment planning and improved communication with patients and interdisciplinary professionals' alike.[25, 30]

Standard analyses performed on plaster study models – like determining arch width and arch length, measuring teeth width, calculating Bolton ratios and analyzing the occlusion – can also be performed on digital study models.[30] Certain software packages have the capability of segmenting and moving teeth, allowing users to generate an ideal virtual setup. Every stage can then be saved as a printable standard tessellation language (STL) file that can be used to produce aligners. Moreover, brackets can be virtually placed on the

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ideal setups and printable transfer tray files can be exported. This allows for greater efficiency and accuracy with indirect bonding procedures.

Currently, the biggest drawback of IOS is the financial investment. They are rather expensive and the cost-benefit ratio is still not feasible for many clinicians around the world. Additionally, IOS require the purchase of costly software packages and cloud-based storage options. These services often require an annual subscription fee. Another potential disadvantage of IOS is the learning curve required for the operator. Recent updates in hardware and software, however, have made most IOS increasingly user-friendly, thus minimizing the learning curve.[31]

The accuracy and reliability of IOS have been investigated in several studies. Traditionally, orthodontists have used physical dental models for diagnostic and treatment planning purposes. The methods of fabricating these dental models have evolved greatly over the past several decades. More recently, dental models have been made using alginate impression material and plaster casts.[32] The accuracy of alginate, however, can be affected by mixing technique, material shrinkage during storage, temperature sensitivity or prolonged time before casting. It has been shown repeatedly that digital orthodontic models have comparable accuracy and reliability to plaster models.

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They can therefore be considered an adequate replacement for clinical and research purposes.[25, 27]

Invisalign®

The development of computer-aided design began in the 1950's at Massachusetts Institute of Technology.[32] Soon thereafter, computer-aided design and manufacturing (CAD/CAM) systems were incorporated into industrial planning and production. It took an additional thirty years, however, for CAD/CAM to be introduced to the field of dentistry.[33] Finally, in 1997, two graduate students from Stanford University founded Align Technology, the company that initiated the use of CAD/CAM for the movement of teeth.[34] Invisalign® was the first[35, 36] and is currently the largest provider of custom made clear aligners for orthodontic tooth movement.[37] They have offered their services to dentists and orthodontists for over twenty years, initially focusing on cases with mild crowding or spacing.[38]

In 2005, Djeu et al. compared the treatment outcomes of patients treated with Invisalign® to those treated with tip-edge fixed appliances. Pre-treatment and post-treatment study models, lateral cephalograms and panoramic radiographs were analyzed. The mean age of the

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Invisalign® group was 10 years greater than the fixed appliance group. Both groups, however, were primarily comprised of adults who were not actively growing. The results showed similar treatment outcomes for rotations, marginal ridge heights, space closure and root alignment. Sagittal discrepancies, occlusal contacts and posterior torque were better controlled in the tip-edge group.[39] It can be debated whether the results would have been different today, bearing in mind that the Invisalign® system has since evolved and practitioners have acquired additional expertise using it.

In 2007, Kuncio et al. investigated the post-retention records of the Djeu et al. study sample. Study models and panoramic radiographs were obtained three years after the completion of treatment and evaluated using the American Board of Orthodontics objective grading system. They concluded that patients treated with Invisalign® showed more relapse than patients treated with tip-edge fixed appliances. While mandibular anterior alignment worsened in both groups, maxillary anterior alignment only worsened in the Invisalign® group.[40]

Gu et al. analyzed the treatment effectiveness of the Invisalign® system. The records of forty-eight Invisalign® patients and forty-eight fixed appliances patients were split into two groups. The Peer

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Assessment Rating (PAR) index was used to assess the post-treatment outcomes. Although the final occlusal scores did not differ significantly between the two groups, more constructive malocclusion improvement was observed in the fixed appliances group. Invisalign® patients, on the other hand, finished treatment six months faster on average.[41]

In their systematic review from 2019, Ke et al. aimed to verify whether the treatment efficacy of clear aligners was comparable to traditional fixed appliances. They concluded that both clear aligners and fixed appliances were effective in treating malocclusions. Shorter treatment time was the main advantage of clear aligner therapy. Fixed appliances, in contrast, had the benefit of greater malocclusion improvement i.e. better occlusal contacts, superior torque control and more expansion.[42] Similarly, Galan-Lopez at al. concluded in their systematic review from the same year that both Invisalign® and fixed appliances altered intercanine, interpremolar and intermolar widths when crowding was present. Occlusal contacts, buccolingual inclination and root control, however, were better when fixed appliances were utilized.[34]

Finally, Robertson et al. published yet another systematic review in 2020 assessing the predictability of clear aligners along with their

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treatment outcome. They concluded that clear aligners may produce clinically acceptable results – similar to fixed appliances – for the buccolingual inclination of incisors in patients with minor malocclusions. Despite the recent advances in technology, though, most types of tooth movement will require additional refinements to overcome the current limitations.[43]

Focusing more so on the efficiency of tooth movement, Kravitz et al. evaluated the efficacy of expansion, constriction, intrusion, extrusion, mesiodistal tipping, labiolingual tipping and rotation using Invisalign® aligners. Tooth movements were predicted using the ClinCheck® software. The predictions were then compared to the actual treatment results via 3D superimposition. The mean accuracy of tooth movement with Invisalign® was determined to be 41%. Lingual constriction was the most accurately predicted tooth movement (47%) while extrusion was the least accurately predicted movement (30%). No differences in accuracy were observed between maxillary and mandibular teeth.[44, 45]

Years later, Simon et al. investigated the efficiency of the Invisalign® system in translating, rotating and torqueing teeth. In particular, they evaluated the influence of attachments. Using a split mouth design, patients were divided into two subgroups: The first

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subgroup used attachments to support tooth movements while the second subgroup used no auxiliaries. The overall efficacy of the three types of movement studied was determined to be 59%. Rotation showed the lowest accuracy while translation showed the highest. Moreover, no statistically significant differences were observed when the movements were supported with an attachment.[46]

Molar distalization has been shown to have the highest accuracy of all movements in clear aligner therapy, reaching nearly 90% when one and a half millimeters or more [movement] is prescribed.[46] Ravera et al. specifically looked into the distalization of molars using Invisalign®. Twenty non-growing subjects with a bilateral end-on class II molar relationship underwent distalization using Invisalign® aligners. The results demonstrated that aligners were effective in distalizing maxillary molars without significant vertical or mesiodistal tipping movements. Clear aligner therapy can therefore be used to treat adult patients in need of two to three millimeters of molar distalization.[47]

Canine rotation has been the subject of investigation in a number of recent studies. In 2008, Kravitz et al. explored the accuracy of canine rotation using clear aligners alone, clear aligners with the addition of attachments, and clear aligners combined with interproximal reduction

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(IPR). They found that the accuracy was highest in the IPR group, indicating that interproximal contacts may impinge or hamper canine rotation. The vertical attachment, on the other hand, offered little clinical improvement.[48] In their 2009 study, Kravitz et al. determined that the achieved canine rotation was approximately one-third that shown in the prediction. Furthermore, the amount of rotation significantly influences the accuracy – rotations greater than fifteen degrees reduced the accuracy by almost 50%.[45] Taking all of this into consideration, Rossini et al. concluded that clear aligners are not effective in controlling the rotations of rounded teeth.[44]

Chisati et al. looked into different factors that might influence Invisalign® treatment. More specifically, they evaluated age, sex, root length, morphometric features and bone quality. The results indicated that the relationship between age and tooth movement is complex, and that this relationship may vary depending on the sex of the patient. A negative correlation was found between tooth movement and the distance from apex to the center of rotation. No connection was found between bone quality and tooth movement.[49]

In their study from 2012, Drake et al. investigated whether material fatigue affected the efficiency of tooth movement with Invisalign®

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aligners. Two groups of subjects were followed prospectively for eight weeks. The first group was treated with the same aligner for two weeks. The second group was provided a new duplicate aligner for the second week of each cycle. Initial and final CBCT images were obtained and compared to characterize tooth movement. The results demonstrated that material fatigue did not play a significant role in the rate or amount of tooth movement.[50]

Buschang et al. evaluated the accuracy of ClinCheck® predictions by comparing them to the actual post-treatment models of twenty-seven patients treated with the Invisalign® system. They concluded that the ClinCheck® software does not reliably reflect the patients' final occlusion. Occlusal contacts, buccolingual inclination and occlusal relationships are overestimated.[51] Using a larger sample of 116 patients, Solano-Mendoza et al. quantified the predictability of expansion in the ClinCheck® software. By comparing the measurements of 3D models with that of ClinCheck®, they concluded that planned expansion is not predictable.[52] Lastly, Houle et al. assessed the reliability of the ClinCheck® software for planning transverse changes in the anterior and posterior segments. They determined the mean accuracy of dentoalveolar expansion to be 73% in the maxilla and 88% in the mandible. In addition, accuracy decreased when progressing from the

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anterior region to the posterior region. While the ClinCheck® predicted more bodily movement, dental tipping was primarily achieved clinically.[53]

Ortho Analyzer®

Based out of Denmark, 3Shape is a company that develops and manufactures 3D scanners and CAD/CAM software solutions. It was founded in 2000 by two graduate students, Tais Clausen and Nikolaj Deichmann, who used their passion for technology to revolutionize the hearing aid industry. In 2005, 3Shape entered the dental market with the release of the D200 scanner. Four years later, the company introduced its first orthodontic software allowing labs and practices alike to take advantage of digital technology for treatment planning and appliance design. With the release of the TRIOS intraoral scanner in 2011, 3Shape firmly established themselves as a leader in CAD/CAM for laboratories.[54]

3Shape offers a variety of software solutions including a Design Studio, Splint Studio, Implant Studio, Clear Aligner Studio and Indirect Bonding Studio. In regards to their orthodontic software specifically, users can diagnose cases by virtually measuring the occlusion, overjet, overbite and Bolton ratios. They can also analyze and treatment plan

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cases by merging panoramic radiographs, cephalometric tracings and photos with the digital study models. These tools allow for the assessment of treatment outcomes and provide a seamless connectivity for communication in interdisciplinary cases. Several studies have investigated the accuracy of 3Shape's orthodontic software and its various features.

A diagnostic wax setup (conventional setup) is defined in the glossary of Prosthodontic Terms as "waxing of intended restorative contours on dental casts for evaluation and planning; a wax replica of a proposed treatment plan."[55] Historically, conventional setups have been the only way to visualize treatment outcomes and, as a result, have been considered the gold standard. With the advent of technology, however, virtual setups can now be used to establish the proposed outcome of esthetics and function.

Camardella et al. compared the outcomes of conventional and virtual setups by superimposing the models using Geomagic® Qualify software. They found that the accuracy and reliability of virtual setups was similar to that of conventional setups. Virtual setups, then, could be the preferred choice in many situations because of its advantages. Digital storage of the data allows for easy transfer, fabrication of the

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setup is less time-consuming, multiple treatment plans can be presented from a single set of digital models, and the visualization of planned tooth movements through videos is as a valuable communication tool. Despite these advantages, the cost associated with the software and hardware along with the training required to utilize this method serve as limitations.[56]

Due to their challenging nature, interdisciplinary cases often require special attention during diagnosis. Congenitally missing one maxillary lateral incisor – which often presents with a small or peg-shaped contralateral incisor – is one of the most common interdisciplinary cases an orthodontist encounters. Proper diagnosis and planning is critical in order to obtain an acceptable esthetic and functional result. Three orthodontic solutions to treat unilateral agenesis are available to choose from: Extract the peg-shaped lateral and symmetrically close the space with bilateral canine substitution; unilaterally close the space and plan for restorative work to compensate for the dental asymmetry; or open space in the area of the missing lateral for a prosthetic replacement with subsequent equal enlargement of both incisors. Cocconi et al. used a 3D virtual setup in Ortho Analyzer® to determine the most ideal position of the teeth in

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need of restorative work. This, in turn, allowed them to establish the best final occlusion possible.[57]

Another subset of cases that require considerable attention during diagnosis are those associated with maxillary transverse deficiency. Posterior crossbites can be displayed unilaterally or bilaterally. They can be buccal or lingual in nature, and can also be categorized as primarily skeletal or primarily dental. Because of this multifocality, Leonardi et al. used 3Shape's digital workflow to determine the location of constriction in functional posterior crossbites. By identifying the median palatal plane and taking linear measurements, they were able to assess palatal dimensions and symmetry on the digital models. They found that in patients with a functional posterior crossbite, there is a bilateral symmetric constriction in the palatal vault and an asymmetric constriction in the alveolar process. They also concluded that a digital workflow can be a great tool in diagnosing patients affected by maxillary transverse deficiency.[58]

In addition to addressing the transverse dimension in patients with unilateral posterior crossbites, Tonni et al. recognized the importance of correcting the mesial rotation and mesialization of the maxillary first molars. Specifically, they found that early correction of the molars'

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migration in the mixed dentition could improve the inter-occlusal molar relationship and reduce the need for fixed appliances in the future. A linear correlation was also found between molar rotation/mesialization and the amount of class II molar on the crossbite side. They arrived at these conclusions only after performing measurements on digital dental casts in Ortho Analyzer®.[59]

Analyzing final digital models – especially when overlapped with CBCT images – gives clinicians and researchers a good indication of the changes that happened during treatment, during growth or both. Herzog et al., for instance, evaluated arch-width and perimeter changes by comparing the final digital models of two groups. In this study of class I cases, group one was treated with extraction of all first premolars while group two was treated without extraction. They found that cases treated with extractions had decreased maxillary and mandibular intermolar widths and perimeter measurements. No such differences were found in maxillary and mandibular intercanine widths.[60]

For decades, orthodontists have been using expanders to increase arch-width perimeter. Over the years, several expander designs and expansion protocols have been suggested, and many

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studies have consequently investigated the stability of the dental arch post-expansion. Kim et al. assessed the long-term stability of maxillary and mandibular arch dimensions when using a Hass-type rapid palatal expander in growing patients. They compared pre-treatment, post-treatment and post-retention changes by superimposing the digital models in Ortho Analyzer®. They then calculated arch width measurements at the canines, first premolars, second premolars and first molars in both arches. Significant increases were perceived in the maxillary and mandibular arch width dimensions post-treatment. Although many of the dimensions decreased during the retention period, net gains remained for all measurements post-retention.[61]

Another key point in orthodontic diagnosis and treatment planning is the position of the incisors. Not only does this position influence the esthetics of the lips, but excessive proclination of the incisors may create the risk of gingival recession. By comparing measurements between pre-treatment and post-treatment digital models, Ciavarella et al. evaluated the correlation between post-orthodontic lower incisor position and gingival recession. Statistical correlations between gingival and cephalometric variables were evaluated. It was concluded that changes in lower incisor position during orthodontic treatment – especially excessive proclination – may

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play a role in causing gingival recession. Additional randomized studies, however, are needed to clarify the extent.[62]

Accurate bracket placement is fundamental to efficiently achieving one's treatment goals. Indirect bonding (IDB) is a technique that helps orthodontists more precisely place brackets. Duarte et al. investigated the reproducibility of IDB using 3D printed models and subsequent 3D printed transfer trays. Thirty-three orthodontists completed IDB on models of the same malocclusion using the same transfer trays. The models and brackets were scanned, and superimpositions between the digital models after IDB and those from the original virtual setup were fabricated. The results confirmed the high positional accuracy and reproducibility of digital IDB.[63]

Virtual bracket removal (VBR) from digital models can enable same-day delivery of orthodontic retainers to patients. Chamberlain-Umanoff established a reliable technique for VBR involving two software programs: Ortho Analyzer® and Meshmixer. He then assessed the accuracy and reproducibility of the technique by superimposing the virtually debonded models with control models. He concluded that both software's utilized in the study could facilitate the computer-aided design and manufacture of orthodontic retainers.[64]

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SureSmile®

SureSmile® technology was founded and developed by OraMetrix, a company launched in 1998 by Dr. Rohit Sachdeva and Friedrich Riemeier. SureSmile® provides the orthodontist with customized arch wires to use during treatment. The technique utilizes 3D imaging, digital treatment software and a proprietary robotic approach to create the wires. To begin, the orthodontist virtually moves the teeth into an esthetically and functionally acceptable position. Once complete, the SureSmile® software plans the most efficient and direct route for tooth movement. This information is then sent to a robot that customizes the wires specifically for that patient. This technique allows for a high level of digital precision throughout all phases of orthodontic treatment.[65]

Saxe et al. investigated the efficiency and effectiveness of the SureSmile® process. Sixty-two patients were anonymized and randomized into two groups. The first group was treated with customized SureSmile® wires while the second group was treated with conventional fixed appliances. They found that the SureSmile® process resulted in a 25% reduction in treatment time when compared to the conventional approach. Furthermore, the cases treated with SureSmile® wires had

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better average scores when using the American Board of Orthodontists Objective Grading System.[66]

Similarly, Alford et al. evaluated the clinical outcomes of patients treated with the SureSmile® method versus those treated with traditional fixed appliances. 132 patients treated non-extraction were included in the study. The clinical outcomes were assessed by a calibrated examiner who was blinded to the treatment modality. They found that cases treated with SureSmile® wires were finished in less time and had better cast/radiographic evaluation scores for first-order alignment and interproximal space closure. Second order root alignment, on the other hand, was found to be inferior when compared to cases treated with conventional fixed appliances.[67]

In 2015, OraMetrix and SureSmile® technology introduced Elemetrix, a newly designed digital treatment planning platform. Elemetrix expanded the orthodontic treatment options offered by the company to include traditional, ceramic and lingual braces along with clear aligners. The software made advances in aligner design, indirect bonding technique and diagnostic capabilities to new levels of accuracy, control and clinical efficiency.[68] Due in part to the success of Elemetrix, Dentsply Sirona – the world's largest manufacturer of

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professional dental products – announced its acquisition of OraMetrix in 2018.[69]

After the company's acquisition, Elemetrix was rebranded as SureSmile® Ortho. With the increasing demand for esthetic orthodontic approaches, many features have been added to the aligner system in particular. The incorporation of cut-outs, for instance, now make it possible to correct mild class II and class III cases. Automated pontics and variable trim lines allow for increased flexibility and convenience for patients.[70, 71] Based on the current platform, SureSmile® Ortho offers four different packages to fit the needs of the clinician. The four packages offered are as follows:

1. Indirect bonding (IDB) package requires in-person training in order to enable it. The IDB process begins by uploading the patient's intraoral scan and image set. Diagnostic models will be available within 48 hours after submission. Once bracket placement is completed to the clinician's satisfaction, the IDB trays can be ordered. Delivery is guaranteed within nine days. Alternatively, the STL files can be exported so that the IDB trays can be 3D printed in-house. Currently, IDB tray designs only support the labial bonding of brackets.

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2. Do-it-yourself aligner staging (DIY) package allows the clinician to create a staged model sequence himself. To begin the DIY process, an intraoral scan of the patient's dentition, image set and radiographs must be uploaded. After submission, a diagnostic model with segmented teeth will be returned and the movement of teeth can immediately begin. Attachments can be added automatically based on the prescribed movements or manually based on the clinician's preferences. After tooth movements have been finalized, the aligners can be ordered. As with the previous package, STL files can also be exported so that the aligners can be fabricated in-house.
3. Full-service aligner staging package includes a lab-created setup and staging of aligners. An intraoral scan and image set must be uploaded to the patient's file along with a complete dental examination and prescription form. Uploading of radiographs is optional but recommended. After submission, a setup along with the staged model sequence will be returned. The clinician can either approve or modify the setup depending on the desired outcome. Once approved, aligners can be ordered with three years of refinements included at no

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additional cost. Again, STL files can also be exported so that the aligners can be produced in-house.

4. Advanced diagnostics package helps the clinician visualize various treatment outcomes before beginning any clinical treatment. As with all the packages, an intraoral scan and image set must be uploaded to the patient's file. Once the patient's scan is processed, a dynamic 3D therapeutic model is returned and the treatment simulation can begin. Different simulations can be achieved by moving teeth, applying interproximal reduction, extracting teeth or mimicking elastic wear.

Hou et al. studied the effect of digital diagnostic setups on orthodontic treatment. The records of six patients representing various case types were collected and presented to twenty-two orthodontists and seven orthodontic residents. Each was asked to formulate treatment plans for the cases, including a recommended plan and two alternatives. Virtual setups for each suggested treatment plan were created using the SureSmile® Ortho software and shown to the practitioners. Their confidence levels in the success of their plans were recorded before and after viewing the setups. The study showed that viewing the virtual setups resulted in changes to the treatment plans in

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24% of the cases. The use of virtual setups was also associated with higher levels of confidence in the selected plans.[72]

Ortho Insight 3D®

Ortho Insight 3D® was developed by Motion View Software, LLC in 2012. The company began designing orthodontic software thirty years prior, however, and was the first to integrate cephalometric tracing predictions with the morphing of digital photographs.[73] Today, the company offers the Ortho Insight 3D®, Facial Insight 3D and Ortho Share 3D software's. It also produces a 3D desktop scanner and 3D printer to use in conjunction with the aforementioned, and provides indirect bonding and clear aligner services.

Ortho Insight 3D® was named as such because it was produced to provide orthodontic and orthognathic insight for diagnosis and treatment planning in 3D.[73] More specifically, the software enables practitioners to store patient data, trim casts, take measurements and perform model analyses. It has automated capabilities that allow for landmark identification, tooth segmentation, arch length analysis and evaluation of occlusion.[74] This data can then be utilized to provide a report for the American Board of Orthodontics discrepancy index.

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Dragstrem et al. assessed the accuracy of the digital American Board of Orthodontics discrepancy index (DI) calculations of Ortho Insight 3D® and OrthoCAD. Forty-five patients with various malocclusions were included in the study. Total DI scores were calculated manually with a periodontal probe on the original plaster casts (gold standard) and digitally with both software's on the pretreatment models. No significant differences in total DI score were found between OrthoCAD and the manual computations. This indicated that OrthoCAD's DI module was a clinically acceptable alternative to manual calculation. The total DI scores calculated by Ortho Insight 3D®, on the other hand, were found to be significantly greater than those by manual computation. As a result, a DI calculated by Ortho Insight 3D® may cause the clinician to overestimate case complexity.[75]

Kim et al. also used the Ortho Insight 3D® laser scanner and software to compare the accuracy of Bolton analysis measured on digital models with that obtained from traditional plaster models and CBCT images. Records, including plaster models and CBCT scans, were collected from fifty patients. Plaster models were scanned with the Ortho Insight 3D® laser scanner and digitized using the Ortho Insight 3D® software. CBCT images were imported and assessed using the AVIZO software. Plaster models were measured with a digital caliper and

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considered the gold standard in the study. They found that scanned digital models are extremely accurate for analyzing the spatial relationships of dental arches when compared to physical models and CBCT scans.[76]

Another study investigated the accuracy of digital models generated using Ortho Insight 3D® to predict anterior root inclination characteristics. The results were then compared to relevant data obtained from CBCT images. For this study, Dastoori et al. obtained the pre-treatment plaster models and CBCT scans for thirty-one patients. Plaster models were scanned using the Ortho Insight 3D® laser scanner and virtual roots were predicted using the Ortho Insight 3D® software. The long axes of the actual roots – as determined from the CBCT images – were compared to the predicted roots using best-fit lines and inter-axis angles. The maxillary and mandibular canines produced the worst results, showing a maximum disparity in angulation of almost forty degrees. The maxillary central incisors showed the best results with a median disparity of only 8 degrees. From the results, it was determined that root morphology prediction is not a primary function of Ortho Insight 3D® and cannot be considered reliable or accurate unless correlated clinically with a radiographic image.[77]

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Magkavali-Trikka et al. found similar results in their study evaluating the accuracy of Ortho Insight 3D® in estimating anterior tooth root inclination from digital impressions of the crowns of teeth. Plaster models were fabricated from fifty-five anterior natural teeth derived from fourteen dry human skulls. The models were scanned with the Ortho Insight 3D® laser scanner and virtual roots were constructed by the Ortho Insight 3D® software. The fifty-five natural teeth were then extracted from the dry skulls and scanned with the Identica white-light scanner to compute their actual root angulation. The predicted tooth angulation was found to differ significantly from the actual angulation, varying from two to thirty-seven degrees. No statistically significant difference was found between tooth categories.[78]

Geomagic® Control

Founded in 1997 by Ping Fu and Herbert Edelsbrunner, Geomagic® is the professional engineering software brand of 3D Systems. Geomagic® offers a variety of software solutions for advanced CAD/CAM operations including Geomagic® Design, Geomagic® Freeform, Geomagic® Sculpt, Geomagic® Wrap and Geomagic® Control.[79] When used in conjunction, these programs help ensure quality

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during each stage of the manufacturing workflow: Designing, manufacturing, inspecting and maintaining. Geomagic® Control, in particular, allows for 3D quality control and dimensional inspection.[80]

In their 2014 study, Gao et al. analyzed the errors in surface accuracy produced by the Geomagic® software. Virtual models were compared to three-dimensional data to obtain the deviation values. It was concluded that the data points were in the permissible range, thus validating the accuracy of the Geomagic® software.[81] Taking it a step further, O'Toole et al. investigated the quality of the WearCompare software by comparing measurements to Geomagic® Control – the current gold-standard in the field.[82]

Numerous investigators have also incorporated the Geomagic® platform into their studies. Camardella et al. compared the accuracy and reliability of plaster models to digital models acquired from laser scanners. The models were evaluated by means of superimposition using Geomagic®.[83] Similarly, Pagano et al. analyzed the precision of 3D intraoral and desktop scanning systems utilizing the Geomagic® software. In 2017, Mendelli et al. assessed the validity of seven extraoral laboratory scanners. After scanning the reference model ten times with each one of the tested scanners, the Geomagic® software was applied

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to evaluate the trueness and precision.[84] Finally, Nedulcu et al. investigated the accuracy of seven intraoral scanners along with one conventional impression. The Geomagic® platform was used to complete a best fit alignment and three-dimensional comparison analysis of the models.

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STATEMENT OF THESIS

Objective: The purpose of this study is to compare the differences in tooth movements when implementing the same virtual setup on four different software packages: ClinCheck® Pro, Ortho Analyzer®, SureSmile® and Ortho Insight 3D®.

Null hypothesis: When implementing the same virtual setup on the four different software packages, the tooth movements found in each software will not significantly differ.

Alternative hypothesis: When implementing the same virtual setup on the four different software packages, the tooth movements found in each software will significantly differ.

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MANUSCRIPT FOR PUBLICATION

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COMPARING DIFFERENT SOFTWARE PACKAGES FOR VIRTUAL TOOTH MOVEMENT IN ALIGNER THERAPY

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Introduction

Over the last century, several advancements have shaped the field of orthodontics and dentofacial orthopedics into what it is today. The concept of using light wires and intermaxillary elastics was introduced by Dr. Calvin Case in 1907.[1] Appliances like the E-arch, pin-and-tube, ribbon arch and edgewise were released by Dr. Edward Angle in the 1920's. The first self-ligating bracket was described by Dr. Jacob Stolzenberg in 1935[2] and the straight-wire appliance – in which brackets were individually designed for each tooth – was proposed by Dr. Lawrence Andrews in 1976.[3] Few innovations if any, however, have had as great of an impact as the introduction of clear aligners by Zia Chishti and Kelsey Wirth in 1997.

Although clear aligner therapy has become increasingly popular over the past decade, the concept of moving teeth without wires and brackets is not a new one. Dr. Harold Kesling released his "tooth positioning appliance" in 1945.[4] The device was intended to be used as a finishing appliance after orthodontic treatment with full fixed appliances. If used as prescribed, it could correct rotations, establish proper interdigitation and achieve good root parallelism. Kesling stressed the importance of a diagnostic wax setup during fabrication.

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Specifically, he described two key factors: Clinicians must respect the biologic limitations of tooth movements and should only apply movements that are possible considering the available anchorage.[4] While Kesling was undoubtedly referring to conventional diagnostic setups in his statement, it's important for clinicians to be mindful of these factors when constructing virtual setups as well.

The development of computer-aided design began in the 1950's at Massachusetts Institute of Technology.[5] Soon thereafter, computer-aided design and manufacturing (CAD/CAM) systems were incorporated into industrial planning and production. It took an additional thirty years, however, for CAD/CAM to be introduced to the field of dentistry by means of intraoral scanners (IOS). IOS were initially used in restorative dentistry to capture direct optical impressions of limited areas. As the technology improved, though, IOS became capable of capturing complete dental arches and in 2008, Cadent released the first IOS suitable for orthodontics – the iTero®.[6-7] Since then, many full arch IOS have emerged on the market.

It has been shown that digital orthodontic models have comparable accuracy and reliability to plaster models. They can therefore be considered an adequate replacement for clinical and

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research purposes.[6, 8] IOS have the benefit of enhancing patient comfort, clinical efficiency and precision. Digital study models mean no discomfort related to taking impressions, readily available diagnostic records and no storage issues. Not only do diagnosis and treatment planning become faster, but they become more precise as well. Study model analysis, treatment simulations, indirect bonding procedures, digital appliance design and surgical planning can all be accomplished using a digital workflow.[8-12]

In 1997, two graduate students from Stanford University founded Align Technology, the company that initiated the use of CAD/CAM for the movement of teeth.[13] Invisalign® was the first[14, 15] and is currently the largest provider of custom made clear aligners for orthodontic tooth movement.[16] The initial focus was on cases with mild crowding or spacing.[17] The Invisalign® system has evolved over the years, however, and practitioners have acquired additional expertise using it. Treatment efficacy has improved substantially and tooth movements like rotation correction, incisor torqueing and molar distalization are more easily achieved. It is now possible to treat complex malocclusions and Invisalign®, in consequence, has been deemed an esthetic alternative to fixed orthodontic appliances.[18-22]

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Recently, several companies have implemented CAD/CAM and embraced the concept of virtual tooth movement. They've launched new software platforms to incorporate clear aligners as a treatment modality. While Invisalign® only offers full service aligner therapy and virtual setups, other companies have expanded on the idea and offer additional services including the digital fabrication of appliances, indirect bonding (IDB) trays and in-house aligners. Clinicians now have the option to utilize a variety of software packages to virtually move teeth during diagnosis and treatment planning. The purpose of this study was to compare the differences in tooth movements when implementing the same virtual setup on four different software packages: ClinCheck® Pro, Ortho Analyzer®, SureSmile® and Ortho Insight 3D®.

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Materials and Methods

This retrospective study was approved by the Case Western Reserve University (CWRU) Institutional Review Board (IRB) (Appendix 1). Adult patients treated with Invisalign® at CWRU's department of orthodontics were included in the study as long as their ClinCheck®s were from the SmartTrack era and, in turn, had tooth movement tables that were accessible. Patients with a history of facial trauma, craniofacial abnormalities, tooth malformation, inter-maxillary elastic use, CR/CO slide or impacted teeth were excluded from the study. To achieve 90% power with an alpha value of 0.05, a sample size of twenty-four patients was deemed necessary. Twenty-five patients were consequently selected based on the specified criteria.

To begin, final STL files from the approved ClinCheck® were exported from the ClinCheck® Pro software. Initial STL files were then obtained and imported into the three software packages: Ortho Analyzer®, SureSmile® and Ortho Insight 3D®. Here, the teeth were moved in order to replicate the virtual setup from ClinCheck® Pro (Figure 1). Final outcomes were exported from each of the software packages and saved as STL files. ClinCheck® Pro STL files were used as the reference while STL files produced by the other software packages were

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used as targets. Best fit superimpositions were performed using Geomagic® Control X and color-coded maps were obtained.

Based on the results [of the superimpositions], tooth position was adjusted in the three software packages until the virtual setups from ClinCheck® Pro were replicated. Only tooth surfaces were included in the superimpositions; gingiva and model bases were excluded. The maximum range was set from -1.0mm to 1.0mm while the tolerance for comparison was set from -0.25mm to 0.25mm in Geomagic® Control X. The negative average, positive average, absolute average and standard deviation values were obtained to quantify the differences between the virtual setups. Figure 2 illustrates superimpositions outside the tolerance, indicating that the virtual setups differ from ClinCheck® Pro. Figure 3, in contrast, exemplifies superimpositions within the tolerance, indicating comparable results.

Once confirmed that the virtual setups from the three software packages were equivalent to that of ClinCheck® Pro, the tables containing the tooth movements extrusion/intrusion, translation buccal/lingual, translation mesial/distal, rotation mesial/distal, angulation mesial/distal and inclination buccal/lingual were compared. The number of aligners automatically generated from each of the

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software packages were also evaluated. Furthermore, the software packages with automatic generation of attachments – specifically, ClinCheck® Pro and SureSmile® – were analyzed. The study design is outlined in Figure 4. To quantify the differences between the superimposed virtual setups, the negative average, positive average, absolute average and standard deviation values were obtained. The intra and inter-rater reliability were assessed by the intraclass correlation coefficient (ICC) on 20% of the sample.

Statistical Analysis

All tests were conducted in statistical package for the social sciences (SPSS 26.0) software. The Shapiro-Wilk normality test was performed and it was determined that the variables were not normally distributed. Since non-parametric tests were indicated, the Kruskal-Wallis one-way analysis of variance was used for differentiation. Pairwise comparisons were implemented to evaluate the specific interaction between variables. The Bonferroni correction was run to counteract the problem of multiple comparisons. P values of ≤ 0.05 were considered statistically significant.

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Results

Intra-rater (0.981) and inter-rater (0.976) ICC showed a high degree of reliability for repeated methodology. The Kruskal-Wallis one-way analysis of variance showed that extrusion/intrusion ($p \leq 0.0001$) and translation buccal/lingual ($p \leq 0.0004$) were significantly different (Table I) among the four software packages. The pairwise comparison showed that ClinCheck® Pro and Ortho Insight 3D® ($p \leq 0.026$), ClinCheck® Pro and Ortho Analyzer® ($p \leq 0.000$), SureSmile® and Ortho Analyzer® ($p \leq 0.000$), and Ortho Insight 3D® and Ortho Analyzer® ($p \leq 0.000$) all differed in the extrusion/intrusion direction (Table II). Similarly, ClinCheck® Pro and Ortho Insight 3D® ($p \leq 0.004$), ClinCheck® Pro and Ortho Analyzer® ($p \leq 0.001$), SureSmile® and Ortho Insight 3D® ($p \leq 0.009$), and SureSmile® and Ortho Analyzer® ($p \leq 0.002$) differed significantly in the translation buccal/lingual movement (Table III). The four remaining movements – translation mesial/distal, rotation mesial/distal, angulation mesial/distal and inclination buccal/lingual – did not differ significantly among the software packages (Table I). The difference between virtual setups was quantified using positive (0.064mm) and negative (-0.055mm) averages. The absolute average between the models was found to be 0.011 ± 0.086mm (table IV).

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The number of maxillary and mandibular aligners generated by each of the four software packages was also evaluated. The pairwise comparison showed significant differences between ClinCheck® Pro and SureSmile® ($p \leq 0.000$), SureSmile® and Ortho Insight 3D® ($p \leq 0.014$), SureSmile® and Ortho Analyzer® ($p \leq 0.009$), and Ortho Insight 3D® and Ortho Analyzer® ($p \leq 0.000$) for maxillary aligners (Table V). The results varied slightly for mandibular aligners with only ClinCheck® Pro and Ortho Insight 3D® ($p \leq 0.000$), SureSmile® and Ortho Insight 3D® ($p \leq 0.000$), and Ortho Insight 3D® and Ortho Analyzer® ($p \leq 0.000$) exhibiting a significant difference (Table VI). Additionally, the number of attachments automatically generated by ClinCheck® Pro and SureSmile® were examined. The Kruskal-Wallis one-way analysis of variance demonstrated that ClinCheck® Pro and SureSmile® ($p \leq 0.000$) differ significantly in the number of attachments produced (Table VII). Ortho Insight 3D® and Ortho Analyzer® weren't included in this calculation since they aren't capable of automatically generating attachments.

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Discussion

In recent years, several companies have updated their software platforms to include virtual tooth setups. The aim of this study was to compare the differences in tooth movements when implementing the same virtual setup on four different software packages. To the best of our knowledge, this was the first study to do this type of comparison. The initial hypothesis was that if we replicate virtual setups on four different software packages, the tooth movements found in each software will not significantly differ. If we used two different GPS applications to navigate from point one to point two, for instance, we would expect both applications to provide a similar route and estimated time of travel. This was not the case in our study, however. After implementing the same virtual setup in ClinCheck® Pro, Ortho Analyzer®, SureSmile® and Ortho Insight 3D®, there were significant differences in the movements of extrusion/intrusion and translation buccal/lingual. Due to these variations in tooth movements, the number of aligners and attachments automatically generated by each of the software packages also differed significantly.

One explanation could be that the different software packages use varying methods to segment the teeth and prepare the models.

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ClinCheck® Pro and SureSmile® use automated segmentation which may describe why these two software packages don't significantly differ in any of the tooth movements. Ortho Analyzer® and Ortho Insight 3D®, in contrast, require manual segmentation in order to prepare the teeth for virtual tooth movement. Moreover, these manual segmentation procedures differ from one another. In Ortho Insight 3D®, the steps include setting the facial axes, measuring the teeth, detecting landmarks and aligning the roots with the crowns. In Ortho Analyzer®, though, the steps include setting the mesial and distal points, defining cuts and specifying the central axes of teeth.

A second explanation could be that the software packages use different centers of rotation when altering the inclination of teeth. ClinCheck® Pro and SureSmile® seem to rotate teeth around approximated bone levels of healthy patients, around 1-2mm apical to the cemento-enamel junction (CEJ). This appears to resemble the motion of uncontrolled tipping. Ortho Insight 3D® and Ortho Analyzer®, on the other hand, seem to rotate teeth around the root apex. This more closely resembles the motion of controlled tipping. As an example, visualize proclining the mandibular incisors fifteen degrees via uncontrolled tipping. If you now visualize proclining the mandibular incisors fifteen degrees via controlled tipping, you'll notice that a relative

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protrusive and intrusive effect is produced. In order to minimize these relative effects and mimic the uncontrolled tipping movement – as was the goal in this study – we must extrude and translate the teeth lingually. Extrusion/intrusion and translation buccal/lingual were the only movements found to be significantly different among the four software packages. The need for these compensatory movements may explain, at least in part, the differences that were observed in tooth movement.

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Conclusion

There are statistically significant differences in extrusion/intrusion and translation buccal/lingual movements between software packages when progressing from the same initial malocclusion to the same final outcome. Similarly, the number of aligners and number of attachments differed significantly when implementing the same virtual setup on the software packages. In a day and age when digital dentistry is becoming exponentially more prevalent year by year, clinicians may need to consider these facts when utilizing software programs for diagnosis and treatment planning.

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Table I: Kruskal-Wallis One-Way Analysis of Variance for All Tooth Movements.

Tooth Movement Variables	ClinCheck® Pro (n=682) Mean ± SD	Ortho Analyzer® (n=682) Mean ± SD	SureSmile® (n=682) Mean ± SD	Ortho Insight 3D® (n=682) Mean ± SD	p-value
Extrusion/Intrusion (mm)	0.063 ± 0.025	0.329 ± 0.025	0.092 ± 0.025	0.136 ± 0.025	0.0001*
Translation Buccal/Lingual (mm)	0.248 ± 0.036	0.077 ± 0.036	0.234 ± 0.036	0.133 ± 0.036	0.0004*
Translation Mesial/Distal (mm)	0.016 ± 0.026	-0.027 ± 0.026	0.023 ± 0.026	0.023 ± 0.026	0.4630
Rotation Mesial/Distal (°)	-0.788 ± 0.350	-0.741 ± 0.350	-0.836 ± 0.350	-0.865 ± 0.350	0.9945
Angulation Mesial/Distal (°)	-0.149 ± 0.156	0.054 ± 0.156	-0.208 ± 0.156	-0.090 ± 0.156	0.6871
Inclination Buccal/Lingual (°)	0.740 ± 0.202	0.831 ± 0.202	0.686 ± 0.202	0.715 ± 0.202	0.9580

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Table II: Pairwise Comparison for Extrusion/Intrusion.

Sample Comparison	Mean (mm)	Standard Deviation (mm)	p-value
ClinCheck® Pro – SureSmile®	0.063 – 0.092	± 0.621 – ± 0.652	0.226
ClinCheck® Pro – Ortho Insight 3D®	0.063 – 0.136	± 0.621 – ± 0.637	0.026*
ClinCheck® Pro – Ortho Analyzer®	0.063 – 0.330	± 0.621 – ± 0.656	0.000*
SureSmile® – Ortho Insight 3D®	0.092 – 0.136	± 0.652 – ± 0.637	0.311
SureSmile® – Ortho Analyzer®	0.092 – 0.330	± 0.652 – ± 0.656	0.000*
Ortho Insight 3D® – Ortho Analyzer®	0.136 – 0.330	± 0.637 – ± 0.656	0.000*

Table III: Pairwise Comparison for Translation Buccal/Lingual.

Sample Comparison	Mean (mm)	Standard Deviation (mm)	p-value
ClinCheck® Pro – SureSmile®	0.248 – 0.234	± 0.864 – ± 0.832	0.814
ClinCheck® Pro – Ortho Insight 3D®	0.248 – 0.133	± 0.864 – ± 0.915	0.004*
ClinCheck® Pro – Ortho Analyzer®	0.248 – 0.077	± 0.864 – ± 1.095	0.001*
SureSmile® – Ortho Insight 3D®	0.234 – 0.133	± 0.832 – ± 0.915	0.009*
SureSmile® – Ortho Analyzer®	0.234 – 0.077	± 0.832 – ± 1.095	0.002*
Ortho Insight 3D® – Ortho Analyzer®	0.133 – 0.077	± 0.915 – ± 1.095	0.601

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Table IV: Geomagic® Control X Superimpositions.

	Absolute Average (mm)	Standard Deviation (mm)	(+) Average (mm)	(-) Average (mm)
Lower SureSmile® 001	0.0044	0.1289	0.0625	-0.0479
Upper SureSmile® 001	-0.0028	0.0659	0.0399	-0.0477
Lower Ortho Insight 001	0.0131	0.0893	0.066	-0.0594
Upper Ortho Insight 001	0.0112	0.0636	0.0255	-0.0423
Lower 3Shape 001	0.0206	0.0881	0.0672	-0.0438
Upper 3Shape 001	0.0137	0.0985	0.0832	-0.0663
Lower SureSmile® 002	-0.0017	0.07	0.0446	-0.0519
Upper SureSmile® 002	-0.0007	0.0837	0.0553	-0.0626
Lower Ortho Insight 002	0.0222	0.079	0.0696	-0.0476
Upper Ortho Insight 002	0.0159	0.0642	0.0556	-0.0399
Lower 3Shape 002	0.0302	0.1115	0.0975	-0.0787
Upper 3Shape 002	0.0202	0.0994	0.0837	-0.0668
Lower SureSmile® 003	0.0146	0.1161	0.0645	-0.0435
Upper SureSmile® 003	-0.0053	0.0936	0.051	-0.0617
Lower Ortho Insight 003	0.0085	0.0724	0.0551	-0.0459
Upper Ortho Insight 003	0.0048	0.0893	0.0588	-0.0603
Lower 3Shape 003	0.0226	0.135	0.1053	-0.0927
Upper 3Shape 003	0.0078	0.1163	0.0862	-0.0821
Lower SureSmile® 004	0.0144	0.1514	0.061	-0.0454
Upper SureSmile® 004	0.0092	0.0618	0.0485	-0.0433
Lower Ortho Insight 004	0.0117	0.0695	0.0579	-0.0427
Upper Ortho Insight 004	0.0102	0.0711	0.0555	-0.493
Lower 3Shape 004	0.0012	0.1064	0.0868	-0.0832
Upper 3Shape 004	0.0155	0.0986	0.0853	-0.0723
Lower SureSmile® 005	-0.008	0.0597	0.0414	-0.0482
Upper SureSmile® 005	-0.0005	0.0661	0.0423	-0.0463
Lower Ortho Insight 005	0.007	0.0942	0.0653	-0.061
Upper Ortho Insight 005	0.013	0.0829	0.0649	-0.0527
Lower 3Shape 005	0.0095	0.1113	0.0904	-0.0796
Upper 3Shape 005	0.0219	0.1043	0.0862	-0.0629
Lower SureSmile® 006	0.0017	0.0555	0.0382	-0.0323
Upper SureSmile® 006	0.0027	0.0735	0.0515	-0.0433
Lower Ortho Insight 006	0.0178	0.0643	0.0541	-0.029
Upper Ortho Insight 006	0.0112	0.054	0.0415	-0.0276

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Lower 3Shape 006	0.0237	0.079	0.0696	-0.0448
Upper 3Shape 006	0.0099	0.0757	0.0629	-0.0425
Lower SureSmile® 007	0.0007	0.0601	0.0415	-0.0426
Upper SureSmile® 007	0.0039	0.0767	0.0443	-0.0406
Lower Ortho Insight 007	0.0071	0.0813	0.0546	-0.0533
Upper Ortho Insight 007	0.0135	0.0763	0.0571	-0.0434
Lower 3Shape 007	0.0261	0.1126	0.0993	-0.0673
Upper 3Shape 007	0.0219	0.0945	0.0781	-0.0601
Lower SureSmile® 008	0.0033	0.074	0.0536	-0.0572
Upper SureSmile® 008	-0.0002	0.0626	0.0426	-0.0437
Lower Ortho Insight 008	0.0131	0.0861	0.0692	-0.0465
Upper Ortho Insight 008	0.0182	0.0866	0.0624	-0.0542
Lower 3Shape 008	0.0197	0.1047	0.0751	-0.0552
Upper 3Shape 008	0.0205	0.0863	0.0751	-0.0559
Lower SureSmile® 009	0.0124	0.0566	0.0453	-0.0366
Upper SureSmile® 009	-0.0006	0.062	0.0487	-0.0413
Lower Ortho Insight 009	0.0159	0.064	0.0535	-0.0372
Upper Ortho Insight 009	0.0128	0.0748	0.0573	-0.0442
Lower 3Shape 009	0.0201	0.0893	0.0782	-0.0563
Upper 3Shape 009	0.0148	0.0742	0.0615	-0.046
Lower SureSmile® 010	-0.0011	0.0598	0.0383	-0.0399
Upper SureSmile® 010	-0.0012	0.0738	0.0428	-0.0428
Lower Ortho Insight 010	0.0077	0.0846	0.0602	-0.0587
Upper Ortho Insight 010	0.0191	0.0737	0.0631	-0.0453
Lower 3Shape 010	0.0236	0.0919	0.0735	-0.055
Upper 3Shape 010	0.0241	0.0945	0.081	-0.0654
Lower SureSmile® 011	-0.0048	0.0714	0.0519	-0.0552
Upper SureSmile® 011	0.0048	0.0989	0.0542	-0.0488
Lower Ortho Insight 011	0.0032	0.0818	0.06	-0.0601
Upper Ortho Insight 011	0.0009	0.0997	0.0679	-0.0619
Lower 3Shape 011	0.0198	0.0905	0.0737	-0.0516
Upper 3Shape 011	0.03	0.097	0.0839	-0.0589
Lower SureSmile® 012	0.0056	0.0885	0.0523	-0.0451
Upper SureSmile® 012	0.0055	0.0784	0.0502	-0.0455
Lower Ortho Insight 012	0.013	0.0661	0.0535	-0.0417
Upper Ortho Insight 012	0.0101	0.08	0.0545	-0.0509
Lower 3Shape 012	0.0224	0.0925	0.0762	-0.0589
Upper 3Shape 012	0.0216	0.105	0.086	-0.0537
Lower SureSmile® 013	0.1609	0.485	0.321	-0.0723

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Upper SureSmile® 013	0.0141	0.0696	0.0589	-0.0478
Lower Ortho Insight 013	0.0028	0.0733	0.0549	-0.0521
Upper Ortho Insight 013	0.009	0.0818	0.0582	-0.0506
Lower 3Shape 013	0.016	0.1057	0.0864	-0.0657
Upper 3Shape 013	0.015	0.081	0.0652	-0.0481
Lower SureSmile® 014	0.0025	0.0679	0.0506	-0.0431
Upper SureSmile® 014	0.0021	0.1516	0.0613	-0.0544
Lower Ortho Insight 014	0.0141	0.0796	0.0642	-0.0494
Upper Ortho Insight 014	0.0047	0.0869	0.0611	-0.0526
Lower 3Shape 014	0.0252	0.0853	0.0725	-0.0479
Upper 3Shape 014	0.0246	0.0865	0.0711	-0.0448
Lower SureSmile® 015	0.0008	0.062	0.0449	-0.0437
Upper SureSmile® 015	0.0032	0.0792	0.0494	-0.0462
Lower Ortho Insight 015	-0.0022	0.0958	0.0735	-0.0718
Upper Ortho Insight 015	0.0173	0.0847	0.0714	-0.055
Lower 3Shape 015	0.0079	0.0967	0.08	-0.0684
Upper 3Shape 015	0.0241	0.0819	0.0712	-0.0471
Lower SureSmile® 016	0.0063	0.073	0.0534	-0.0484
Upper SureSmile® 016	-0.0017	0.0655	0.0438	-0.0505
Lower Ortho Insight 016	0.0066	0.0712	0.0529	-0.0511
Upper Ortho Insight 016	0.0127	0.0858	0.0672	-0.0521
Lower 3Shape 016	0.0229	0.0908	0.0808	-0.062
Upper 3Shape 016	0.0357	0.0983	0.0884	-0.0578
Lower SureSmile® 017	-0.0023	0.0595	0.0384	-0.0407
Upper SureSmile® 017	-0.0055	0.0758	0.051	-0.0555
Lower Ortho Insight 017	0.0086	0.0847	0.067	-0.0535
Upper Ortho Insight 017	0.011	0.0917	0.067	-0.056
Lower 3Shape 017	0.0206	0.0978	0.0827	-0.0648
Upper 3Shape 017	0.025	0.1034	0.0814	-0.0475
Lower SureSmile® 018	-0.0035	0.0608	0.037	-0.042
Upper SureSmile® 018	-0.0033	0.0694	0.0428	-0.0487
Lower Ortho Insight 018	-0.0012	0.0771	0.0585	-0.0569
Upper Ortho Insight 018	0.0062	0.0682	0.0528	-0.0484
Lower 3Shape 018	0.0028	0.096	0.0766	-0.0726
Upper 3Shape 018	0.0177	0.0845	0.0711	-0.0468
Lower SureSmile® 019	-0.0035	0.0774	0.0505	-0.0521
Upper SureSmile® 019	0.0002	0.0667	0.0484	-0.0437
Lower Ortho Insight 019	0.003	0.0936	0.0689	-0.0627
Upper Ortho Insight 019	0.0055	0.089	0.0618	-0.0592

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Lower 3Shape 019	0.0155	0.0949	0.0794	-0.0602
Upper 3Shape 019	0.0193	0.0923	0.0776	-0.0542
Lower SureSmile® 020	0.0064	0.0496	0.0407	-0.0311
Upper SureSmile® 020	0.0018	0.0605	0.0326	-0.0336
Lower Ortho Insight 020	0.0076	0.094	0.0761	-0.07
Upper Ortho Insight 020	0.0051	0.0794	0.0618	-0.0593
Lower 3Shape 020	0.0095	0.0827	0.0704	-0.0589
Upper 3Shape 020	0.013	0.0774	0.0606	-0.051
Lower SureSmile® 021	0.007	0.0794	0.0638	-0.0547
Upper SureSmile® 021	0.0047	0.1154	0.0656	-0.0641
Lower Ortho Insight 021	0.0127	0.0993	0.0749	-0.0652
Upper Ortho Insight 021	0.0124	0.0948	0.0722	-0.0608
Lower 3Shape 021	0.0164	0.0783	0.0655	-0.0501
Upper 3Shape 021	0.0227	0.0897	0.0753	-0.0565
Lower SureSmile® 022	0.0064	0.0602	0.0435	-0.0452
Upper SureSmile® 022	0.0047	0.1706	0.0623	-0.0513
Lower Ortho Insight 022	0.0143	0.062	0.0529	-0.0391
Upper Ortho Insight 022	0.0181	0.0657	0.0575	-0.0397
Lower 3Shape 022	0.019	0.0713	0.0618	-0.0413
Upper 3Shape 022	0.0143	0.0745	0.0645	-0.049
Lower SureSmile® 023	-0.01	0.0644	0.0432	-0.0507
Upper SureSmile® 023	-0.0018	0.0727	0.0451	-0.0517
Lower Ortho Insight 023	0.0046	0.0614	0.0465	-0.0432
Upper Ortho Insight 023	0.0218	0.0723	0.0598	-0.0436
Lower 3Shape 023	0.005	0.091	0.0715	-0.063
Upper 3Shape 023	0.0139	0.0806	0.0681	-0.0498
Lower SureSmile® 024	0.0017	0.0722	0.0519	-0.0568
Upper SureSmile® 024	0.0022	0.0686	0.0453	-0.0457
Lower Ortho Insight 024	0.0025	0.091	0.0684	-0.0686
Upper Ortho Insight 024	0.0079	0.0625	0.0498	-0.039
Lower 3Shape 024	0.0084	0.0875	0.0622	-0.0498
Upper 3Shape 024	0.016	0.087	0.0752	-0.0553
Lower SureSmile® 025	0.0004	0.0698	0.0434	-0.045
Upper SureSmile® 025	0.0002	0.0733	0.0433	-0.038
Lower Ortho Insight 025	0.0023	0.0907	0.0753	-0.0681
Upper Ortho Insight 025	0.0059	0.0771	0.0605	-0.0491
Lower 3Shape 025	0.0112	0.0784	0.0622	-0.0536
Upper 3Shape 025	0.0226	0.076	0.0675	-0.0418
Average of Sample	0.011	0.086	0.0637	-0.055

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Table V: Pairwise Comparison for Number of Maxillary Aligners.

Sample Comparison	Mean (n)	Standard Deviation (n)	p-value
ClinCheck® Pro – SureSmile®	20.92 – 12.96	± 6.64 – ± 4.71	0.000*
ClinCheck® Pro – Ortho Insight 3D®	20.92 – 17.36	± 6.64 – ± 6.05	0.085
ClinCheck® Pro – Ortho Analyzer®	20.92 – 25.76	± 6.64 – ± 12.01	0.379
SureSmile® – Ortho Insight 3D®	12.96 – 17.36	± 4.71 – ± 6.05	0.014*
SureSmile® – Ortho Analyzer®	12.96 – 25.76	± 4.71 – ± 12.01	0.009*
Ortho Insight 3D® – Ortho Analyzer®	17.36 – 25.76	± 6.05 – ± 12.01	0.000*

Table VI: Pairwise Comparison for Number of Mandibular Aligners.

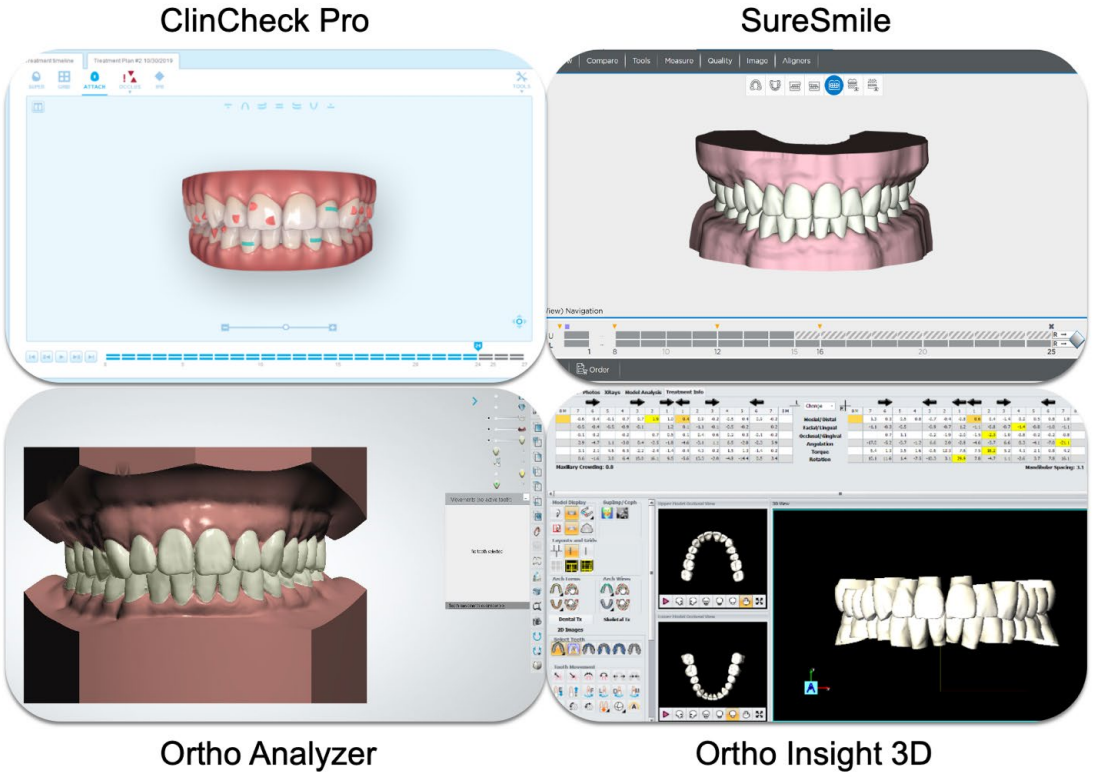
Sample Comparison	Mean (n)	Standard Deviation (n)	p-value
ClinCheck® Pro – SureSmile®	21.17 – 21.20	± 5.20 – ± 5.30	0.970
ClinCheck® Pro – Ortho Insight 3D®	21.17 – 12.96	± 5.20 – ± 4.71	0.000*
ClinCheck® Pro – Ortho Analyzer®	21.17 – 25.76	± 5.20 – ± 12.01	0.461
SureSmile® – Ortho Insight 3D®	21.20 – 12.96	± 5.30 – ± 4.71	0.000*
SureSmile® – Ortho Analyzer®	21.20 – 25.76	± 5.30 – ± 12.01	0.708
Ortho Insight 3D® – Ortho Analyzer®	12.96 – 25.76	± 4.71 – ± 12.01	0.000*

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Table VII: Kruskal-Wallis One-Way Analysis of Variance for Number of Attachments.

Sample Comparison	Mean (n)	Standard Deviation (n)	p-value
ClinCheck® Pro – SureSmile®	13.38 – 7.76	± 3.09 – ± 3.11	0.000*

Figure 1: Replicated Virtual Setups from ClinCheck® Pro, Ortho Analyzer®, SureSmile® and Ortho Insight 3D®.



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Figure 2: Color-coded Maps Outside the Tolerance.
Reference STL (ClinCheck® Pro). Target STL
(Ortho Analyzer®, SureSmile®, Ortho Insight 3D®).

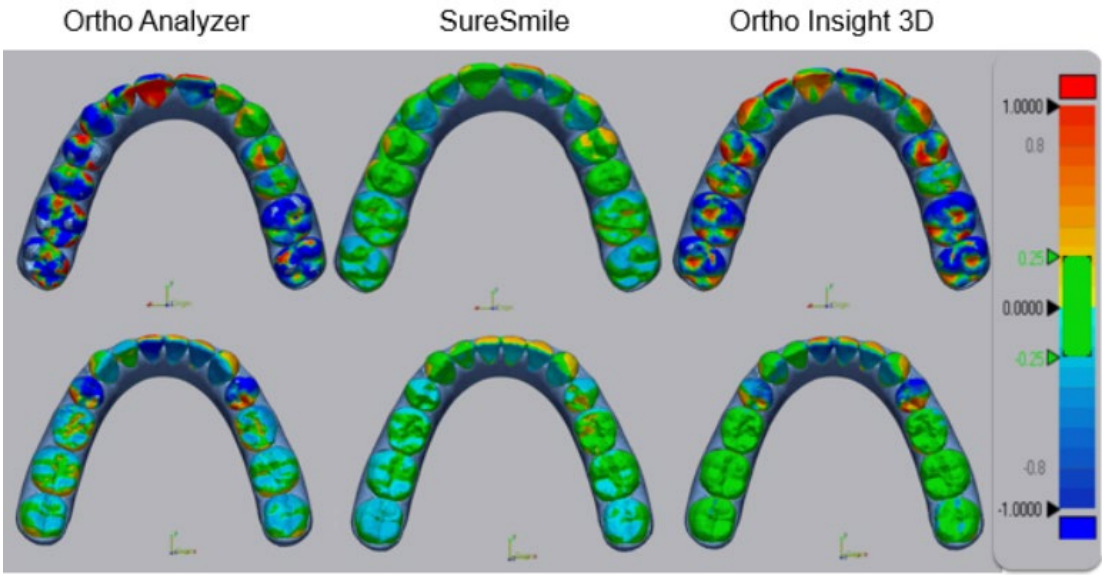
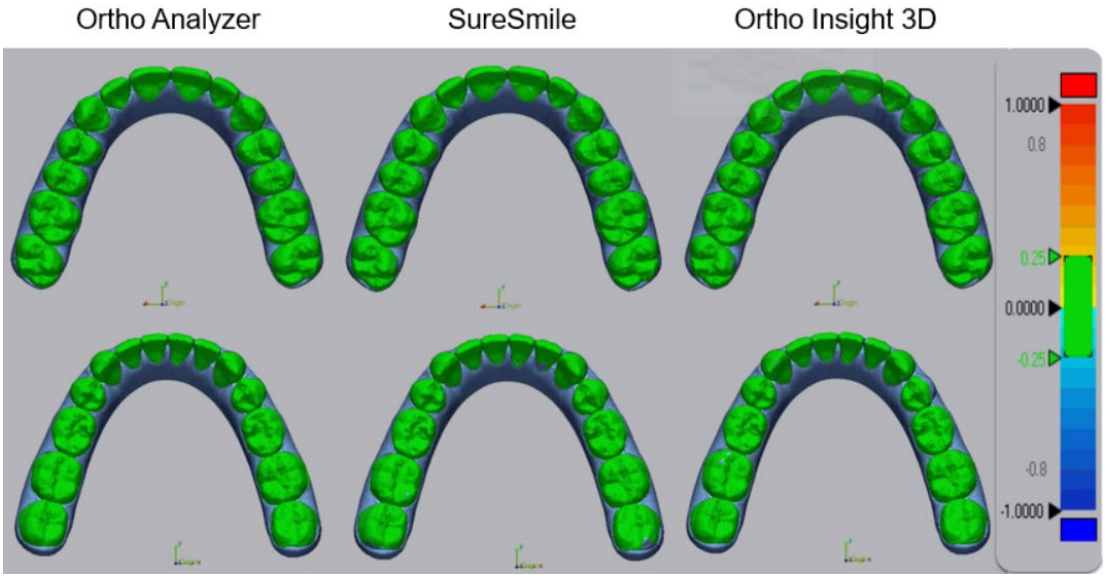
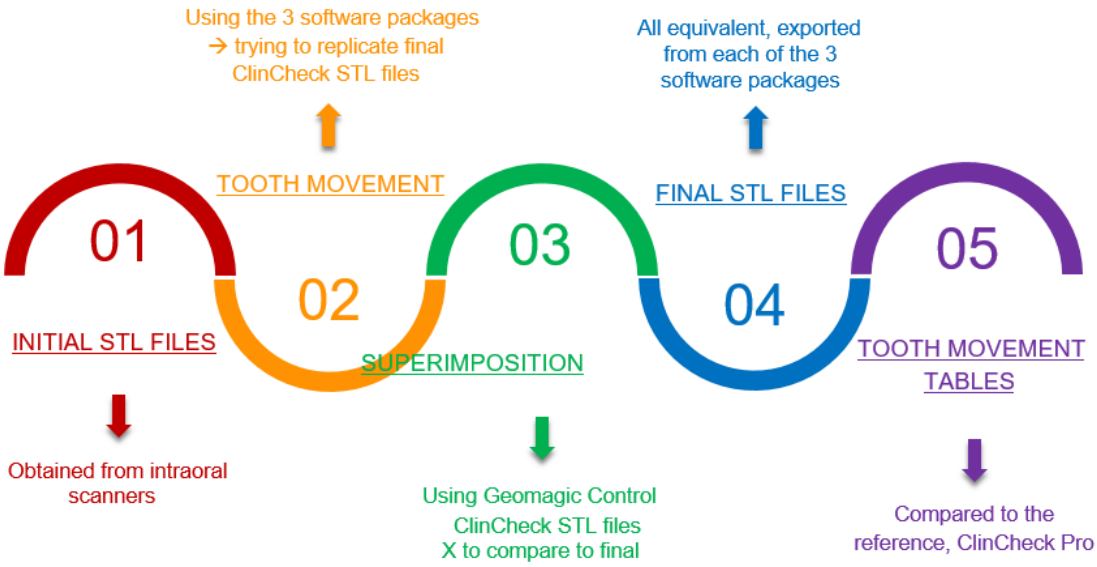


Figure 3: Color-coded Maps Inside the Tolerance.
Reference STL (ClinCheck® Pro). Target STL
(Ortho Analyzer®, SureSmile®, Ortho Insight 3D®).



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Figure 4: The Workflow



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APPENDICES

Appendix A: IRB Approval

IRB Administration Offices
UH IRB Phone: 216.844.1529
CWRU IRB Phone: 216.368.6925

APPROVAL

Principal Investigator:	Juan Palomo
Title:	Comparing different software packages for virtual tooth movement in aligner therapy
IRB Number:	STUDY20201221
Submission Number:	STUDY20201221
IRB Office:	CWRU IRB
Approval Date:	11/16/2020
Effective Date:	11/23/2020
Approval End Date:	N/A
Type of Submission:	Initial Study
Type of Review:	Expedited
Documents Reviewed:	• Waiver of HIPAA Authorization Form, Category: Other; • Thesis Protocol, Category: IRB Protocol;

The IRB reviewed this submission.

- Per Federal regulation, changes MAY NOT be made to any element of the current research without prior IRB approval, except to eliminate an immediate and apparent hazard to subjects enrolled in the study.
- Per Federal regulation, the research may not continue beyond the Approval End date. You must submit a continuing review form 6-8 weeks before this Approval End date in order to maintain IRB approval. Failure to maintain IRB approval is human subjects non-compliance. Please note that even if your study falls into a category that does not require an Approval End date, the institution may require a yearly "check-in" to confirm the status of the study.

***Approval by the IRB does NOT mean that you have permission to start your study. Prior to starting your study, you may be required to obtain (1) a coverage analysis for studies that involve patient care, regardless of source of funding, and/or (2) a contract with the Sponsor of your study or an agreement with any third-party collaborator that may receive UH or CWRU patient information in any format. Please ensure that all required approvals are obtained before initiation of research activity. ***

The UH IRB operates under HHS Federalwide Assurance (FWA) number 00003937 and IRB registration numbers 00000684, 00001691 and 00008600. The CWRU IRB operates under DHHS FWA00004428 and IRB registration number 00000683.

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Appendix B: Abbreviation Key

STL: Stereolithography

CAD/CAM: Computer-Aided Design and Manufacturing

IDB: Indirect Bonding

ICC: Intraclass Correlation Coefficient

CBCT: Cone Beam Computed Tomography

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Appendix C: Tooth Movement Raw Data

ClinCheck Pro 001

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	0.3E	0.3E	0.5E	0.5E	0.3E	0.1E	0.4I	0.5I	0.6I	0.6I	0.1I	0.3E	0.3E	0.4E	0.3E	0.4E
Translation Buccal/Lingual, mm	0	0.3L	0.2L	1.4L	1.0L	0.6L	0.6L	1.0L	1.2L	0.7L	0.7L	1.9L	2.3L	0.2L	0.4L	0
Translation Mesial/Distal, mm	0	0	0.1M	0.2M	0.5M	0.5M	0.5M	0.3M	0.5M	1.0M	0.7M	0.5M	0.3M	0.2M	0	0
Rotation Mesial/Distal	0°	1.2°M	3.3°M	2.6°M	7.0°D	3.4°D	1.9°D	3.0°D	0.4°M	0.5°M	17.9°D	5.5°D	2.4°M	4.2°M	1.6°M	0°
Angulation Mesial/Distal	0°	0.1°M	0.1°D	2.5°D	2.5°M	1.5°M	1.1°D	2.6°M	1.7°D	4.7°M	0.8°D	1.5°M	3.4°D	0.7°D	0.2°M	0°
Inclination Buccal/Lingual	0°	0.2°B	0.8°B	1.4°L	3.0°B	2.4°L	6.6°L	7.8°L	8.1°L	4.5°L	1.0°L	0.1°L	1.8°L	3.2°B	0.6°B	0°

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0.3E	0.3E	0.4E	1.2E	0.7E	0.3I	0.6I	0.6I	0.5I	0.3I	0	0.8E	1.0E	0.4E	0.3E	0.2E
Translation Buccal/Lingual, mm	0	0.5L	0	2.3L	2.2L	2.5L	2.9L	2.8L	2.7L	2.6L	2.0L	1.6L	2.8L	0.5L	0.4L	0
Translation Mesial/Distal, mm	0	0.1M	0.1M	0.4M	0.4M	0.7M	0.6M	0.3M	0.7D	0.1M	0.5M	0.7M	0.4M	0.1D	0	0
Rotation Mesial/Distal	0°	0.9°D	1.7°M	1.1°M	7.7°D	9.2°M	1.1°D	1.8°D	6.0°D	3.3°M	12.5°M	12.0°D	8.4°M	1.8°M	0.8°D	0°
Angulation Mesial/Distal	0°	2.1°M	0.8°D	4.8°D	0.7°D	0.2°D	3.0°M	0.1°M	3.3°D	2.4°D	2.1°M	2.8°D	4.4°D	0.7°D	0.1°M	0°
Inclination Buccal/Lingual	0°	2.7°L	0.8°B	1.9°L	1.8°B	7.5°L	10.7°L	13.9°L	13.1°L	14.6°L	9.1°L	0.9°B	3.3°L	2.3°L	2.9°L	0°

Ortho Analyzer 001

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	-0.3	-0.3	-0.8	-0.8	-0.7	-0.8	-0.3	-0.3	-0.4	-0.3	-0.8	-0.9	-0.8	-0.9	-0.5	-0.7
Translation Forward/Back, mm	-0.1	-0.4	-0.5	-1.9	-1.4	-0.8	0	0.3	0.2	-0.1	-0.7	-1.9	-2	-0.6	-0.5	0
Translation Left/Right, mm	0	0	0.1	0.1	0.6	0.6	0.5	0.3	0.2	0.2	-0.3	0	0.1	-0.2	-0.3	0
Rotation, degrees	0	-2	-3.5	-1.6	6.3	2.6	2.2	2.7	0.7	0	17.7	7.1	-2.7	-6.5	0	0
Angulation, degrees	0	0	0	0	-0.2	0	0.1	0.4	0.1	1	4	1.4	-2	0.3	0	0
Inclination, degrees	0	0	0	0	1.6	0	-5.1	-7.1	-7.9	-3.8	0.2	0.2	-1.1	2.5	0	0

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	-0.6	-0.6	-0.6	-1	-0.3	0	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5	-1.4	-0.3	-0.5	-0.6
Translation Forward/Back, mm	0.5	0.6	0.5	-1.3	-1.2	-0.1	0.6	1	1.2	1.1	-0.2	-1.4	-2.4	-0.5	0	-0.1
Translation Left/Right, mm	1	0.6	0.7	1.6	1.1	0.8	-0.2	-0.9	0.1	1.8	2	2.7	2.1	1.4	1.3	1.4
Rotation, degrees	-1.1	1.8	-1	-0.6	7.5	-8.9	1.1	2	7	-3.1	-12	10.1	-6.5	-2.9	0.4	0.1
Angulation, degrees	0.2	2.7	1.2	-5.3	-0.5	-0.7	2.3	3.2	1.6	-2.8	-4.5	-1.9	-3.5	0.1	1.3	1.3
Inclination, degrees	-0.7	-2.5	1.1	-1.6	1.3	-5.5	-9.8	-13.3	-13.5	-12.4	-5.8	0.7	-3.1	-1.1	-2.5	0.7

SureSmile 001

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0.3	0.3	0.5	0.6	0.4	0.1	-0.4	-0.3	-0.3	-0.6	-0.1	0.3	0.4	0.4	0.3	0.5
Buccal/Lingual, mm	0	-0.3	-0.3	-1.4	-1.2	-0.4	-0.6	-0.9	-1.2	-0.7	-0.7	-1.8	-2.2	-0.4	-0.4	0.1
Mesial/Distal, mm	-0.1	0	0	0.3	0.5	0.5	0.5	0.2	0.5	0.8	0.9	0.7	0.4	0.1	-0.1	-0.1
Rotation Mesial/Distal	0	1	3	3	-7	-3	-2	-3	0	1	-19	-6	2	4	2	0
Angulation Mesial/Distal	0	0	0	-3	3	2	0	2	-4	4	-2	1	-3	-1	2	0
Torque Facial/Lingual	0	0	1	-2	4	-3	-7	-8	-8	-5	0	1	-1	4	1	0

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0.4	0.3	0.4	1	0.5	0.1	0.1	0	0	0.2	0.3	0.6	0.8	0.3	0.3	0.5
Buccal/Lingual, mm	0	-0.5	-0.2	-2.4	-2.3	-2.4	-2.9	-2.4	-2.4	-2.3	-1.6	-1.7	-2.8	-0.4	-0.4	0
Mesial/Distal, mm	-0.1	-0.3	-0.1	0.2	0.4	0.4	0.4	0.3	-0.6	0.1	0.1	0.8	0.2	-0.2	-0.3	-0.1
Rotation Mesial/Distal	0	-1	2	1	-8	9	-1	-2	-6	3	13	-12	8	2	-1	0
Angulation Mesial/Distal	0	2	1	-4	-1	0	0	-1	-2	-2	2	-4	-3	-1	0	0
Torque Facial/Lingual	0	-3	1	-1	2	-7	-10	-13	-13	-14	-10	0	-3	-2	-3	0

Ortho Insight 001

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0.2	0.2	0.6	0.8	0.7	0.4	-0.1	-0.5	-0.2	-0.2	0.5	0.8	0.6	0.5	0.3	0.4
Facial/Lingual, mm	0	-0.4	-0.5	-1.3	-1.6	-0.3	-0.4	-0.5	-0.7	-0.3	-0.8	-1.8	-2	-0.6	-0.6	0
Mesial/Distal, mm	-0.2	-0.1	-0.1	0.5	0.1	0.2	0.5	0.3	0.4	-0.2	-0.4	0.3	1	-0.1	-0.3	-0.4
Rotation, degrees	0	-1.2	-3.3	-2.5	6.7	3	1.8	2.9	-0.4	-1.6	16	5.6	-2	-1.5	1	0
Angulation, degrees	0	0.1	-0.1	-3	2.5	2.7	-0.4	2.9	-1.7	3.9	8.9	1.6	-5	-1.3	0.2	0
Torque, degrees	0	0.2	0.8	-1.4	1.6	-2.4	-6.6	-7.8	-8.1	-4.3	-1.8	-0.7	-1.2	3.3	0.7	0

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0.3	0.4	0.5	1.3	0.8	0.4	0	-0.1	-0.1	0	0.7	1	1.2	0.4	0.3	0.2
Facial/Lingual, mm	-0.1	-0.2	-0.3	-2.2	-2.7	-1.4	-1.4	-1.1	-1.1	-0.4	-0.4	-1.8	-2.5	-0.4	-0.4	-0.3
Mesial/Distal, mm	-0.2	-0.4	0	1	0.1	0.4	-1.2	-0.2	-0.8	-0.1	0.2	0.8	0.9	-0.1	-0.4	-0.3
Rotation, degrees	-1.1	-0.5	-1.6	0.4	7.5	-8.9	0.7	1.2	6.3	-3.1	-11.3	12	-8.4	-1.8	0.8	0
Angulation, degrees	0.5	2.5	-0.8	-6	-0.7	-2	4.2	2	1.3	-2.8	-4.2	-2.8	-4.4	-0.7	0.1	0
Torque, degrees	0	-2.5	0.8	-3	1.9	-7	-10.5	-14.1	-13	-15.2	-9	0.9	-3.3	-2.3	-2.9	0

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ClinCheck Pro 002																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.8E	0.1E	0.2E	0.3E	1.0E	0.8E	0	0.3E	0.5E	1.0E	0.5E	0.2E	0.1E	0.3E	
Translation Buccal/Lingual, mm		0.7B	0.1B	0.8B	0.9B	0.4B	0.1L	0.1L	0.2L	0.2L	0.2B	0.8B	0.9B	0.1L	0.2L	
Translation Mesial/Distal, mm		0.1D	0.2D	0.1D	0	0	0.3D	0.3D	0.2M	0.1M	0.1M	0.1M	0.1M	0.1M	0.1M	
Rotation Mesial/Distal		0.1°M	2.4°M	0°	2.2°D	6.9°M	2.6°D	2.9°D	0.4°M	8.9°D	5.7°M	1.5°M	2.1°D	0.4°D	0.7°M	
Angulation Mesial/Distal		2.1°M	0.7°D	9.4°D	3.5°M	3.5°M	0.4°D	0.2°M	1.7°M	1.5°D	4.2°M	2.3°D	6.3°D	0.7°D	0.1°D	
Inclination Buccal/Lingual		2.8°L	8.2°B	2.5°B	3.9°B	2.2°B	0.8°L	3.3°L	1.2°L	1.7°L	1.3°B	3.7°B	2.8°B	4.9°B	3.6°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.2E	0.4E	0.1E	0.2E	0.7I	1.1I	1.2I	1.1I	1.0I	0.9I	0.6I	0.2I	0	0.2E	
Translation Buccal/Lingual, mm		0.6L	0.6L	0	0.1L	0.6B	0.3B	1.3B	1.3B	0.7B	0.3B	0	0.6B	0.3B	0.2L	
Translation Mesial/Distal, mm		0.5D	0.3D	0.3D	0.3D	0.3M	0.4M	0.3M	0.2D	0.2D	0.1D	0.2D	0.2D	0.1D	0.2D	
Rotation Mesial/Distal		0.4°D	1.1°D	5.0°M	12.5°M	3.4°M	5.1°D	7.1°D	5.9°D	11.2°D	5.4°D	4.1°M	3.7°D	2.3°D	0.7°D	
Angulation Mesial/Distal		2.1°M	3.5°M	2.4°D	9.3°D	5.5°M	2.4°M	1.5°M	0.8°M	4.4°M	2.4°M	6.3°D	2.6°D	2.8°D	0.1°M	
Inclination Buccal/Lingual		0.9°L	4.4°L	0.2°L	0.2°B	2.6°B	0.1°L	2.6°B	0.2°L	1.3°B	1.9°L	2.0°B	1.4°B	0.1°L	0.6°B	
Ortho Analyzer 002																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-1.6	-0.6	-0.4	-0.3	-0.7	-0.3	0.3	0	-0.3	-0.7	-0.6	-0.4	-0.7	-1.2	
Translation Forward/Back, mm		0.6	-1.5	0	0.5	0.5	0.2	-0.1	0.1	0.1	0.7	0.2	0.8	-0.7	0.3	
Translation Left/Right, mm		-0.7	-0.2	0.4	-0.5	-0.3	-0.1	-0.1	0.1	0.1	-0.2	0	0.1	0	-0.1	
Rotation, degrees		0	-1.7	1.2	3.6	-7.6	3	2.8	0	8	-5.6	-2.3	1.6	0.8	0	
Angulation, degrees		2.5	0.3	-1.8	2.9	1.3	0	0	0	0	0.6	0.1	0	-0.1	0	
Inclination, degrees		-2.4	6.6	2.5	1.1	-0.2	0	0	-0.6	0	-0.1	2.3	1.6	4	-2	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-1.9	-1.9	-1.6	-1.4	-0.4	0.1	0.4	0.3	0.1	-0.1	-0.7	-0.9	-1.4	-1.7	
Translation Forward/Back, mm		-0.1	0	0.4	0.2	0.1	-0.1	0.6	0.7	0.1	-0.2	-0.3	0.5	0.7	-0.1	
Translation Left/Right, mm		-0.9	-0.8	-0.6	0.4	-0.5	-0.2	0.2	-0.5	-1	-0.2	0.1	-0.6	-0.4	-0.4	
Rotation, degrees		-0.6	0	-3.1	-14.2	-4.5	1.8	5	7.3	10.5	5.4	-2.5	6.3	1.2	0	
Angulation, degrees		1.7	2.7	0	-6.3	2.1	2.4	-0.1	1.6	4.3	0	-2.7	0	-0.8	0	
Inclination, degrees		0	-2.6	0	0.3	1.4	-0.1	0.7	-0.1	0	0	0.8	0	-1	0.8	

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SureSmile 002																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.7	0.1	0.1	0.3	1	0.8	0	0.4	0.6	1	0.5	0.1	0.1	0.3	
Buccal/Lingual, mm		0.8	-0.1	0.7	0.8	0.6	0.3	-0.2	-0.2	0.1	0.5	0.6	0.8	-0.3	-0.1	
Mesial/Distal, mm		-0.3	-0.2	-0.1	-0.2	-0.2	-0.3	-0.3	0.2	0.1	-0.1	0	0.1	0.1	-0.1	
Rotation Mesial/Distal		0	2	0	-2	7	-3	-2	0	-9	6	2	-2	0	1	
Angulation Mesial/Distal		4	-1	-9	4	3	0	1	0	-2	4	-2	-6	-1	2	
Torque Facial/Lingual		-2	8	2	4	2	-1	-3	-1	-2	1	4	3	5	-4	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.1	0.3	0.2	0.2	-0.7	-1.1	-1.5	-1.3	-1.1	-0.9	-0.5	-0.1	0.1	0.1	
Buccal/Lingual, mm		-0.7	-0.5	0.1	0	0.4	0.2	0.9	1	0.6	0.3	-0.1	0.7	0.4	-0.2	
Mesial/Distal, mm		-0.3	-0.3	-0.1	0.1	0.2	0.4	0.3	-0.2	-0.2	-0.1	0	-0.1	0	0	
Rotation Mesial/Distal		0	-1	5	13	3	-5	-7	-6	-11	-5	4	-4	-2	-1	
Angulation Mesial/Distal		2	3	-2	-11	6	2	-1	1	5	2	-9	-3	-3	0	
Torque Facial/Lingual		-1	-4	0	1	3	0	3	0	1	-2	3	1	0	1	
Ortho Insight 002																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.6	0.2	0.2	0.5	1	0.9	0.1	0.5	0.7	1.1	0.5	0.2	0.4	0.2	
Facial/Lingual, mm		0.9	-1.1	0.2	0.3	0	0.3	0	-0.1	0.3	0.5	0.2	0.3	-0.8	0.4	
Mesial/Distal, mm		-0.7	-0.3	0.9	-0.7	-0.6	-0.4	-0.5	0.1	-0.5	-0.1	0.2	0.9	0.1	-0.2	
Rotation, degrees		-0.3	-2.4	1.5	2.1	-6.6	2.4	3.3	-0.2	8.1	-5.1	-1.5	1.9	0.5	-0.7	
Angulation, degrees		2.1	-0.7	-7.6	4.1	2.5	1.1	2.5	0.8	5.7	0.6	-2.3	-5.5	-1	-0.1	
Torque, degrees		-1.4	8.2	2.7	3.9	2.2	-0.8	-3.4	-1.1	-1.7	1.1	3.7	2.8	4.9	-3.6	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.2	0.5	0.4	0.3	-0.4	-0.8	-1	-0.9	-0.7	-0.7	-0.3	0	0.3	0.1	
Facial/Lingual, mm		-0.4	0.1	0	-0.3	-0.2	0.2	0.7	1.1	0.2	0.7	-0.1	0.6	0.3	-0.2	
Mesial/Distal, mm		-0.5	-0.8	0.4	1.9	-0.5	0.2	0.2	-0.5	-1.2	-0.7	1.1	0	0.1	-0.2	
Rotation, degrees		0.6	1.1	-5	-10.6	-3.8	3.6	7.4	5.6	10.7	5.2	-3.4	4.3	2.3	5.5	
Angulation, degrees		1.4	3.5	-2.4	-11.1	4.9	2.9	3.4	2.6	7.7	3.5	-7.3	-2.8	-2.8	-2.6	
Torque, degrees		-0.9	-4.4	-0.2	2.3	2.9	-0.2	2.6	-0.2	2.6	-1.9	2	1.4	-0.1	0.1	

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ClinCheck Pro 003																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0.4E		0.5E	0.4I	0.5I	0.9I	0.9I	0.8I	0.7E	0.5E		0.2E	0.4E	
Translation Buccal/Lingual, mm		1.0B	0.8B		0.8B	1.0B	0.7B	0.1B	0.2L	0.2B	1.0B	0.7B		0.3B	0	
Translation Mesial/Distal, mm		0	0.2M		0	0.1D	0.2D	0	0.2D	0.3D	0.4D	0		0	0.1D	
Rotation Mesial/Distal		0.7°D	6.5°D		4.4°D	7.5°M	11.0°M	12.9°M	5.1°M	0.9°D	0.1°D	4.9°D		2.9°D	0.1°M	
Angulation Mesial/Distal		0°	2.1°M		1.0°M	0.1°M	4.2°M	2.7°M	0°	0.8°M	1.1°D	8.7°D		1.5°M	5.6°M	
Inclination Buccal/Lingual		5.3°L	1.8°L		5.6°L	0.4°B	4.4°L	1.2°B	0.2°L	1.1°B	4.6°B	1.9°L		3.4°L	11.3°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.3E	0.3I		0.5E	0.2I	0.3I	0.8I	0.7I	0.2I	0	0.4E		0	0.3E	
Translation Buccal/Lingual, mm		0.5B	0.8B		0.1B	1.7B	0.2B	0.3B	0.9B	0.2L	1.2B	0.6B		0.2B	0.2L	
Translation Mesial/Distal, mm		0	0		0.1M	0.1M	0.2D	0.1D	0	0.1D	0.3D	0.1D		0	0	
Rotation Mesial/Distal		0°	3.8°D		9.9°M	12.1°D	5.1°D	0.8°M	6.3°M	1.6°M	6.2°M	3.6°M		1.3°M	0°	
Angulation Mesial/Distal		0°	1.9°D		9.0°D	4.4°D	1.0°D	1.4°D	1.8°M	0.9°M	3.2°D	8.6°D		0.3°D	0°	
Inclination Buccal/Lingual		1.4°B	0.4°L		1.2°L	1.6°B	1.2°L	1.4°B	5.8°B	0.8°L	2.8°B	4.6°B		2.5°L	3.7°L	
Ortho Analyzer 003																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.1	-0.4		-0.5	0.6	0.8	0.8	0.8	0.8	-0.5	-0.9		-0.7	-1.1	
Translation Forward/Back, mm		1.3	0.6		0.9	1	1.4	0.1	-0.4	0.1	0.8	0.8		0.7	1.6	
Translation Left/Right, mm		-0.2	-0.3		0.1	-0.2	-0.1	-0.4	-0.3	-0.1	-0.5	1.4		-0.2	-0.8	
Rotation, degrees		0	5.9		2.7	-7.3	-11.2	-11.9	-4.1	0	0	2.8		3	-1.6	
Angulation, degrees		0	1.5		0.1	0	-0.6	0	0	0	0.7	-7.8		1	6.7	
Inclination, degrees		-3.1	0.2		-1.7	0	-2.8	0	0	0	1.6	-0.4		-1.3	-8.6	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.2	0.2		-1	0.5	0.2	0.5	0.6	0	0	-0.6		0	-0.2	
Translation Forward/Back, mm		0.5	0.8		0	1.6	0.3	0.1	-0.1	0.2	0.6	0.1		0.2	0.2	
Translation Left/Right, mm		0.2	0.2		2.1	-0.3	0	-0.1	0	-0.1	0	1.2		-0.1	-0.1	
Rotation, degrees		0	2		-10.9	11.3	5	0	-4.3	0	-5.1	-5.2		-1.8	0	
Angulation, degrees		0	0		-9.8	0	0.1	0	0.1	0	0	6		0	0	
Inclination, degrees		0	0		0.2	0	-0.6	0	2.5	-1.6	1.5	2.7		0	-1.4	

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SureSmile 003																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.4		0.5	-0.7	-0.9	-0.9	-0.8	-0.8	0.3	0.4		0.3	0.8	
Buccal/Lingual, mm		1.2	0.9		1.2	0.9	0.5	-0.1	-0.5	-0.1	1.1	0.8		0.5	0.3	
Mesial/Distal, mm		0	0.1		0.1	0	-0.2	-0.2	-0.2	-0.3	0.1	0.3		-0.1	-0.2	
Rotation Mesial/Distal		-1	-7		-4	8	11	13	5	-1	0	-5		-3	0	
Angulation Mesial/Distal		2	3		1	-1	4	1	1	1	-2	-9		3	9	
Torque Facial/Lingual		-5	-1		-6	0	-5	2	0	1	5	-3		-3	-11	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	-0.2		0.4	-0.5	-0.3	-0.8	-0.9	-0.1	-0.1	0.5		0.1	0.3	
Buccal/Lingual, mm		0.4	0.9		0.2	1.7	0.3	0.1	0.6	-0.1	1.2	0.5		0.2	-0.2	
Mesial/Distal, mm		0	0.1		0.6	0.1	-0.1	-0.1	0.1	-0.1	0	0.3		0.1	0.2	
Rotation Mesial/Distal		0	-4		10	-12	-5	1	6	2	6	4		1	0	
Angulation Mesial/Distal		0	-2		-9	-3	-1	-1	2	1	-4	-9		0	1	
Torque Facial/Lingual		2	0		-2	2	-2	1	5	0	3	5		-2	-4	
Ortho Insight 003																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.2	0.5		0.8	-0.6	-0.9	-0.9	-0.9	-0.7	0.4	0.3		0.3	0.2	
Facial/Lingual, mm		1.4	0.8		1.3	0.6	1.4	-0.5	-0.3	-0.1	0.6	1.5		1.2	1.9	
Mesial/Distal, mm		0.1	-0.3		-0.5	0.4	-0.5	0.2	-0.4	-0.8	-0.4	1.3		-0.5	-1.1	
Rotation, degrees		1.3	5.9		4.1	-6.7	-10.2	-13.3	-5	0.8	-0.1	4.9		2.3	-0.9	
Angulation, degrees		0.8	4.3		4.3	-3	0	-3.8	-1.7	2.6	0.2	-8.7		3.5	6.5	
Torque, degrees		-4.7	-0.2		-5.5	0.9	-4	1.9	-0.2	1.1	4.6	-3		-3.4	-9.3	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.3	-0.2		0	-0.4	-0.4	-0.7	-0.6	-0.1	-0.1	-0.1		0	0.3	
Facial/Lingual, mm		0.5	1		0.6	1.4	0.5	-0.2	-0.5	-0.2	0.3	0		0.4	0.1	
Mesial/Distal, mm		-0.1	0		1.4	0.3	0	-0.3	-0.2	0	0.2	1.3		0.2	0.1	
Rotation, degrees		0	3.8		-9.5	11.9	4.7	-0.8	-6.2	-1.4	-6.4	-1.1		-1.3	0	
Angulation, degrees		0	-1.9		-9.1	-2	0.7	-1.4	0.9	0.1	-1.7	-8.6		-0.3	0	
Torque, degrees		1.4	-0.4		0.7	1.1	-1.2	1.4	5.8	-1.1	3.2	3.8		-2.5	-3.7	

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ClinCheck Pro 004																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.4E	0.3E	0.2E	0.3E	0.1E	0.5I	1.1I	1.1I	0.1I	0.1E	0.1E	0	0.3E	0.1E	
Translation Buccal/Lingual, mm		1.1B	1.1B	0.1B	0.3L	0.3B	0.5L	0.7L	0.3L	0.3B	0.9B	0.4L	0.5L	0	0.6L	
Translation Mesial/Distal, mm		0.4M	0.2M	0.1M	0.2M	0.1D	0.1M	0.3M	0.4D	0.4D	0.1D	0.2M	0.1M	0.1M	0	
Rotation Mesial/Distal		0.2°M	0.7°D	1.1°D	6.4°D	1.8°D	1.9°D	2.9°D	1.0°D	3.3°M	1.0°D	1.8°D	1.5°M	1.2°M	2.4°D	
Angulation Mesial/Distal		0°	1.8°D	0.2°M	1.4°M	3.5°D	2.7°D	0.1°M	2.2°M	0.3°D	1.1°D	6.7°M	0.8°M	2.5°D	0°	
Inclination Buccal/Lingual		0.7°L	3.1°B	2.9°L	0.6°L	0.5°B	1.9°B	2.5°L	2.7°B	9.6°B	5.1°B	2.1°L	4.4°L	2.9°B	1.6°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.2I	0.1E	0.2I	0.1I	0.4I	0.9I	1.1I	0.9I	0.9I	0.3I	0.2E	0.1I	0.1E	0.5E	
Translation Buccal/Lingual, mm		1.5B	2.1B	1.5B	0.3B	0.1L	0.6L	0.6L	0.3L	0.1B	1.0B	0.3B	1.1B	0.3B	0.1L	
Translation Mesial/Distal, mm		0.1D	0.3D	0	0.5D	0.3D	0.2D	0	0.1D	0.4D	0.1D	0.1D	0.5M	0.3M	0.3M	
Rotation Mesial/Distal		0.1°D	1.7°M	17.6°D	9.4°M	6.5°M	2.3°M	7.2°D	9.0°D	6.6°D	8.6°D	3.9°D	32.0°D	1.2°M	0.8°D	
Angulation Mesial/Distal		0.5°D	0.1°M	0.9°D	7.9°M	0.2°D	2.7°M	0.3°D	0.2°M	2.0°M	4.2°M	9.0°M	3.0°D	0.1°D	1.0°D	
Inclination Buccal/Lingual		0.6°B	0.6°L	4.0°L	1.0°L	0.7°B	1.7°L	0°	3.5°B	3.2°B	4.0°B	0.4°L	2.5°L	1.7°B	0°	
Ortho Analyzer 004																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.2	-0.2	-0.2	-0.4	-0.1	0	0.6	0.7	-0.4	-0.2	-0.4	-0.3	-0.6	-0.2	
Translation Forward/Back, mm		0.6	0.5	-0.2	-0.6	0.1	-1	-0.5	-0.6	-1.1	0.3	-0.4	0.1	0.1	-0.1	
Translation Left/Right, mm		-0.1	-0.1	-0.1	-0.1	-0.4	0.1	0.3	-0.4	-0.5	-0.3	-0.5	0.1	0.5	0.1	
Rotation, degrees		0	0	0	4	2.9	1	3.3	0.6	-2.8	2.9	0	-0.6	0	0	
Angulation, degrees		0	-0.7	0	0	1.2	0	0	0	0.1	-0.1	2.4	-0.3	-2.4	0	
Inclination, degrees		0	1.4	-0.4	0	-0.1	0.9	-2.3	0	6.5	2.6	0	-1.9	1.3	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-1.5	-1.4	-1	-0.8	-0.5	0.2	0.2	0.1	0.1	-0.5	-1.4	-1	-1.5	-2.2	
Translation Forward/Back, mm		1	1.9	1.5	0.5	-0.4	-0.6	-1.4	-1.2	-0.8	0.7	1.1	2.3	0.6	0.7	
Translation Left/Right, mm		-0.3	-0.1	-0.4	-1.4	-0.4	-0.2	0.4	0	-0.9	-0.5	-1.6	-0.3	0.1	-0.1	
Rotation, degrees		0.9	-0.5	13.1	-6.9	-4.6	-3.8	6.7	5.1	4.6	7.2	4.2	29.4	-1.1	0	
Angulation, degrees		0	0	-1	4.7	0	-0.1	-0.2	0.3	2.5	1.2	7.6	0	0	0	
Inclination, degrees		0	-0.8	-3.6	-1.7	0.3	-1.5	2.9	3.3	3.4	2.3	-2.6	-4.2	0.8	0	

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SureSmile 004

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.6	0.3	0.2	0.4	-0.1	-0.5	-1.1	-1.1	-0.4	-0.3	0.1	0.1	0.3	0.3	
Buccal/Lingual, mm		1.1	1	0.3	-0.1	0.3	-0.6	-0.9	-0.6	0.1	0.8	-0.2	-0.3	-0.1	-0.5	
Mesial/Distal, mm		0.5	0.5	0.2	0.3	0.2	0.1	0.3	-0.4	-0.2	0.2	0.2	0.2	0.4	0.2	
Rotation Mesial/Distal		0	-1	-1	-6	-3	-2	-3	-1	3	-1	-2	2	1	-2	
Angulation Mesial/Distal		0	-2	0	4	-6	-3	-1	3	0	0	8	1	-3	0	
Torque Facial/Lingual		0	3	-3	-1	1	2	-3	3	8	3	-2	-4	3	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.1	0	-0.2	-0.1	-0.4	-0.8	-1	-0.9	-0.9	-0.4	0.3	-0.1	0.1	0.5	
Buccal/Lingual, mm		1.5	2.1	1.5	0.5	0	-0.6	-0.6	-0.5	0	0.9	0.5	1.1	0.3	-0.1	
Mesial/Distal, mm		-0.1	-0.1	-0.2	-0.5	-0.2	-0.2	0.1	-0.1	-0.4	-0.2	-0.1	0.4	0.6	0.6	
Rotation Mesial/Distal		0	2	-18	9	7	2	-7	-9	-6	-8	-4	-32	1	-1	
Angulation Mesial/Distal		-1	0	1	8	-1	4	-1	0	2	4	9	-3	0	-1	
Torque Facial/Lingual		1	-1	-4	-3	0	-2	0	4	3	4	0	-5	2	0	

Ortho Insight 004

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.4	0.2	0.2	0.3	-0.1	-0.5	-0.9	-0.8	-0.3	-0.3	0.1	-0.1	0.3	0.1	
Facial/Lingual, mm		1.4	0.8	0.6	-0.1	0.2	-1	-0.7	-1.3	-1.3	-0.4	-0.1	0.2	-0.5	-0.5	
Mesial/Distal, mm		0.3	0.2	0.1	0	0.1	-0.1	0	-0.4	-0.2	0.3	-0.7	0.2	0.3	-0.2	
Rotation, degrees		-0.2	1.4	1.1	6.4	1.7	1.9	2.9	1	-4.9	1.4	1.8	-1.5	-1.2	0.8	
Angulation, degrees		0	-1.8	0.2	1.4	-2.1	-2.2	1.3	1.8	-0.2	-3.4	6.7	0.8	-2.5	2	
Torque, degrees		-0.7	3	-2.9	-0.6	0.5	2.1	-2.5	2.7	9.8	5	-2.1	-4.4	2.9	-0.6	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	-0.2	-0.2	-0.4	-0.9	-0.9	-0.8	-0.9	-0.5	0.2	-0.1	0.1	0.4	
Facial/Lingual, mm		1.3	2.2	2.1	0.8	-0.1	-0.2	-0.6	-0.9	-0.4	0.2	0.9	2.2	0.1	-0.1	
Mesial/Distal, mm		0.2	0.1	0.1	-1.2	0	-0.6	0.1	-0.5	-0.7	-1	-1.5	0.7	0.5	0.6	
Rotation, degrees		0.1	-1.3	17.6	-9.5	-6.5	-2.3	6.9	8.5	6.6	8.6	3.9	30.9	-1.2	0.8	
Angulation, degrees		-0.5	-0.8	-0.9	7.9	-0.2	2.7	0.9	2	2	4.2	9	0.2	-0.1	-1	
Torque, degrees		0.6	-0.7	-4	-2.1	0.7	-3.1	0	3.5	3.2	4	-2.1	-3.9	1.7	0	

ClinCheck Pro 005																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	0.3I	0.1I	0	0.2E	0.3E	0.3E	0.2I	0.3I	0.3I	0.1I	0.5E	0.1I	0.1E	0.2E	0.1I	0
Translation Buccal/Lingual, mm	1.5B	0.8B	0.4L	0.1L	0.1B	0.2B	0.2B	0.5B	0.7B	0.5B	0.1B	0.1B	0.2L	0.5L	0.3B	0.3L
Translation Mesial/Distal, mm	0.4M	0.1M	0.1M	0.3M	0.3M	0.3M	0.2M	0.1M	0.1M	0.4M	0.5M	0.5M	0.3M	0.3M	0.2M	0.1M
Rotation Mesial/Distal	1.5°D	0°	3.0°M	1.5°D	2.1°D	7.0°M	8.1°D	15.0°D	8.0°D	13.6°D	5.3°D	3.5°M	10.2°M	5.0°M	0.7°M	3.5°M
Angulation Mesial/Distal	1.3°D	1.4°D	0.9°D	4.5°D	1.7°M	0.3°M	1.2°M	1.4°D	2.7°D	1.8°D	1.5°D	0.8°D	2.6°D	1.4°D	0.8°D	0.2°M
Inclination Buccal/Lingual	1.7°B	1.9°B	0.6°L	0.6°B	0.7°L	3.6°L	5.0°L	6.7°L	5.0°L	1.8°L	0.2°L	1.1°B	2.9°B	0.7°B	0.7°L	3.1°L
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0.2E	0.1E	0.1I	0.1I	0.2E	0.4I	0.8I	0.3I	0.3I	0.3I	0.3I	0.2I	0.2I	0.2I	0.3E	0.2E
Translation Buccal/Lingual, mm	2.9L	0.1L	0	0.3B	0.6L	0.8L	0.1B	0.4B	0.3B	0.4B	1.4L	0.4L	0.1L	0.5L	0.3L	0.8L
Translation Mesial/Distal, mm	0.3D	0.8M	0.8M	0.8M	0.9M	1.3M	0.9M	0.5M	0.3M	0.4M	0.5M	0.2M	0.2M	0.1M	0	0.2D
Rotation Mesial/Distal	0.5°M	4.6°M	2.0°M	0.2°D	8.3°M	9.7°M	6.4°D	1.8°M	9.8°M	24.7°D	3.2°M	0.7°M	11.1°D	2.1°D	2.5°M	3.5°D
Angulation Mesial/Distal	1.2°D	2.6°D	0.3°D	5.3°D	10.7°D	8.4°D	2.6°D	2.9°D	0.4°D	1.6°M	5.2°D	10.8°D	6.2°D	0.8°D	2.2°D	0.1°D
Inclination Buccal/Lingual	13.1°L	1.0°B	1.1°L	0.6°L	1.3°B	2.0°L	2.1°B	3.3°B	1.2°B	2.9°B	0.7°L	2.9°L	2.7°L	4.1°L	2.9°B	5.1°L
Ortho Analyzer 005																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	-0.1	-0.2	-0.3	-0.5	-0.6	-0.4	0	0.3	0.5	0.1	-0.6	-0.1	-0.3	-0.1	0.1	-0.2
Translation Forward/Back, mm	1.2	0.5	-0.5	-0.5	0.1	0.7	0.7	1.2	1	0.3	0.1	-0.2	-0.8	-0.8	0.4	0
Translation Left/Right, mm	-0.2	-0.1	-0.1	0.7	-0.2	-0.1	-0.7	-1.3	-0.5	-0.3	0.3	0.1	0.4	-0.2	-0.1	-0.2
Rotation, degrees	3.7	0	-3.1	1.3	3.7	-6.6	7	13.5	7	13.6	3.4	-3.5	-10.3	-4.6	-0.8	-4
Angulation, degrees	-1	0	0	-3.8	1.2	-0.1	4.2	6.3	2	2.6	0	0.1	-2	0	0	-0.2
Inclination, degrees	-0.2	1.5	-0.5	0.6	-0.4	-3.2	-4	-4.9	-3.6	-0.1	0	1	2.8	0.6	-0.9	-3.4
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	-0.3	-0.3	0	-0.2	-0.7	-0.4	0.4	0	0.1	0.2	-0.5	-0.3	0	0.1	-0.3	-0.3
Translation Forward/Back, mm	-0.7	-0.3	0.3	0.4	-1.2	-0.6	-0.4	-0.7	-0.1	-0.6	-1.5	0	0.4	-0.1	-0.8	-0.4
Translation Left/Right, mm	-0.1	1.1	0.9	1.6	2.4	2.8	0.9	1	1.2	-1.2	1.2	2.7	0.5	0.1	0	-0.4
Rotation, degrees	-0.2	-7.1	-3.4	0	-13.5	-11.2	6.1	-1.6	-8.9	23	-2.3	0.3	10.4	1.9	-3.1	4.7
Angulation, degrees	-1.3	-2.4	0	-5.3	-10.3	-7	0.3	-2.7	-4.4	7.6	-4.6	-12	-3.4	0	-2.2	0
Inclination, degrees	-13.1	1.1	-1.1	-0.5	3.1	-0.5	1.9	4.4	1.7	4.8	0	-2.2	-3.1	-3.3	3.5	-5.1

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SureSmile 005																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	-0.5	-0.1	0.2	0.4	0.4	0.3	-0.2	-0.5	-0.6	-0.3	0.5	0	0.1	0.2	-0.1	0
Buccal/Lingual, mm	1.4	0.7	-0.4	-0.1	0.2	0.4	0.1	0.4	0.5	0.4	0.4	0.1	-0.3	-0.6	0.2	-0.2
Mesial/Distal, mm	0.2	0.2	0.1	0.4	0.2	0.2	0.1	0.1	0.2	0.4	0.6	0.5	0.4	0.2	0.2	0
Rotation Mesial/Distal	-2	0	3	-2	-2	7	-8	-15	-8	-15	-5	4	7	5	1	4
Angulation Mesial/Distal	-1	-2	-1	-5	2	-3	1	-1	-4	-3	-2	-2	-5	-1	-1	2
Torque Facial/Lingual	0	1	-1	0	0	-4	-5	-7	-5	-2	-1	1	3	1	-1	-2
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	-0.2	0.1	0	-0.1	0.1	-0.4	-0.9	-0.5	-0.5	-0.5	-0.3	-0.2	-0.2	-0.1	0.3	0.2
Buccal/Lingual, mm	-2.3	0	0	0.4	-0.5	-0.8	0	0.2	0.3	0.4	-1.3	-0.3	0	-0.3	-0.4	-0.5
Mesial/Distal, mm	0.4	0.9	0.9	1	1.2	1.5	1	0.5	0.3	0.4	0.8	0.4	0.5	0.2	0.1	0.1
Rotation Mesial/Distal	1	5	2	0	8	3	-7	2	9	-25	2	1	-11	-2	3	-4
Angulation Mesial/Distal	2	-3	0	-6	-10	-10	-3	-3	0	2	-5	-8	-6	-1	-2	2
Torque Facial/Lingual	-13	0	-1	-1	2	-2	2	4	2	2	0	-3	-4	-4	4	-5
Ortho Insight 005																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	-0.5	0	0.3	0.6	0.8	0.4	-0.2	-0.6	-0.3	0	0.9	0.3	0.4	0.4	0	0
Facial/Lingual, mm	1	0.3	-0.5	-0.4	0	0.6	0.5	0.8	0.4	0.5	-0.2	-0.2	-0.8	-0.8	0.3	0.1
Mesial/Distal, mm	0.1	-0.3	-0.3	0.3	-0.5	0.6	-1.2	-0.2	0.4	0.5	0.2	0.2	0.1	-0.1	-0.2	-0.4
Rotation, degrees	2	0	-2.7	1.5	2.1	-6.1	7.4	14.8	7.4	12.7	4.7	-2.9	-10.1	-5	-0.4	-2.1
Angulation, degrees	-3.1	-1.4	-3.2	-4.5	1.7	-5.4	7.1	9.3	3.6	4.3	1.6	-2.8	-2.6	-1.4	-1.7	-2.9
Torque, degrees	1.8	1.9	-0.6	0.6	-0.7	-3.6	-5.9	-6.8	-5	-4.8	-0.6	1	4.3	0.7	-1	-2.9
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0.8	0.3	0.1	-0.1	-0.1	-0.8	-0.9	-0.5	-0.4	-0.5	-0.4	-0.3	-0.1	0	0.1	0.6
Facial/Lingual, mm	-1.5	-0.2	-0.1	0.4	-0.3	-0.9	-0.8	-0.5	-0.5	-0.2	-1.7	-0.4	0	-0.3	-0.8	-0.4
Mesial/Distal, mm	-0.6	0.2	0	1	2	2.5	0.8	0.6	0.8	-0.2	1.2	1.6	0.9	-0.2	0.1	-0.4
Rotation, degrees	-7.2	-5.5	-2.6	1	-5.9	-8.2	6.3	-1.8	-9.3	23.3	-2.9	-0.5	11.8	2.1	-2.5	4.3
Angulation, degrees	5	1.3	2	-5.5	-11.1	-9.8	-1.8	-2.5	-3.6	5.3	-5.3	-11.6	-8.7	-0.8	-2.2	-2.2
Torque, degrees	-12.7	1.1	0.1	-1.1	1.4	-2	2.7	3.3	2.4	2.9	-0.7	-2.9	-2.6	-4.1	2.9	-5.2

ClinCheck Pro 006																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0.1E	0.1E	0.1E	0.4I	0.5I	1.2I	1.2I	0.7I	0.1I	0.1E	0.1E	0.3E	0	
Translation Buccal/Lingual, mm		0	0	0	0	0.1L	0.1L	0.6L	0.8L	0.3L	0.6L	0	0	0	0	
Translation Mesial/Distal, mm		0	0	0	0	0.1M	0	0.2M	0.1D	0.2D	0	0	0	0	0	
Rotation Mesial/Distal		0°	0°	0°	0°	0.3°D	5.1°M	0.7°D	1.0°M	1.0°D	4.2°D	0°	0°	0°	0°	
Angulation Mesial/Distal		0°	0°	0°	0°	0.3°D	0.8°M	0.3°D	1.7°D	0.8°D	0.2°D	0°	0°	0°	0°	
Inclination Buccal/Lingual		0°	0°	0°	0°	3.4°B	2.8°B	0.1°B	1.4°L	2.3°B	1.2°B	0°	0°	0°	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0.2E	0.1E	0.1E	0.7I	1.1I	1.5I	1.2I	1.5I	1.3I	0.1E	0.1E	0.1E	0	
Translation Buccal/Lingual, mm		0	0	0	0	0.8B	0.6B	1.1B	0	1.2B	0.7B	0	0	0	0	
Translation Mesial/Distal, mm		0	0	0	0	0.1D	0.3D	0.3D	0.2M	0.1D	0.1D	0	0	0	0	
Rotation Mesial/Distal		0°	0°	0°	0°	3.1°D	2.1°D	2.8°D	11.3°D	4.8°M	7.7°D	0.1°D	0°	0°	0°	
Angulation Mesial/Distal		0°	0°	0°	0°	3.8°M	4.1°M	1.1°M	0.6°D	1.3°M	1.9°M	0°	0°	0°	0°	
Inclination Buccal/Lingual		0°	0°	0°	0°	2.7°B	0.9°B	0.5°L	2.3°L	6.6°B	8.6°B	0°	0°	0°	0°	
Ortho Analyzer 006																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	-0.1	-0.1	-0.1	0.4	0.5	1.2	1.2	0.7	0.1	-0.1	-0.1	-0.3	0	
Translation Forward/Back, mm		0	0	0	0	-0.1	-0.1	-0.6	-0.8	-0.3	-0.6	0	0	0	0	
Translation Left/Right, mm		0	0	0	0	0.1	0	0.2	-0.1	-0.2	0	0	0	0	0	
Rotation, degrees		0	0	0	0	0.3	-5.1	0.7	-1	1	4.2	0	0	0	0	
Angulation, degrees		0	0	0	0	-0.3	0.8	-0.3	-1.7	-0.8	-0.2	0	0	0	0	
Inclination, degrees		0	0	0	0	3.4	2.8	0.1	-1.4	2.3	1.2	0	0	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	-0.2	-0.1	-0.1	0.7	1.1	1.5	1.2	1.5	1.3	-0.1	-0.1	-0.1	0	
Translation Forward/Back, mm		0	0	0	0	0.8	0.6	1.1	0	1.2	0.7	0	0	0	0	
Translation Left/Right, mm		0	0	0	0	-0.1	-0.3	-0.3	0.2	-0.1	-0.1	0	0	0	0	
Rotation, degrees		0	0	0	0	3.1	2.1	2.8	11.3	-4.8	7.7	0.1	0	0	0	
Angulation, degrees		0	0	0	0	3.8	4.1	1.1	-0.6	1.3	1.9	0	0	0	0	
Inclination, degrees		0	0	0	0	2.7	0.9	-0.5	-2.3	6.6	8.6	0	0	0	0	

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SureSmile 006

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0	0.1	0.1	0.1	-0.5	-0.7	-1.2	-1.2	-0.8	-0.1	0.1	0.1	0.2	0	
Buccal/Lingual, mm		0	0	0	0	-0.4	-0.5	-1	-1.2	-0.6	-0.7	0	0	0	0	
Mesial/Distal, mm		0	0	0	0	0.1	-0.2	0.2	-0.1	-0.4	-0.1	0	0	0	0	
Rotation Mesial/Distal		0	0	0	0	0	5	-1	1	-1	-4	0	0	0	0	
Angulation Mesial/Distal		0	0	0	0	0	1	0	-1	1	1	0	0	0	0	
Torque Facial/Lingual		0	0	0	0	3	3	0	-1	2	2	0	0	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0.2	0.1	0.1	-0.7	-1.2	-1.6	-1.2	-1.5	-1.3	0.1	0.1	0.1	0	
Buccal/Lingual, mm		0	0	0	0	0.6	0.3	0.7	-0.2	0.6	0.2	0	0	0	0	
Mesial/Distal, mm		0	0	0	0	-0.2	-0.3	-0.3	0.3	-0.2	-0.2	0	0	0	0	
Rotation Mesial/Distal		0	0	0	0	-3	-1	-2	-11	5	-8	0	0	0	0	
Angulation Mesial/Distal		0	0	0	0	4	4	1	-1	1	2	0	0	0	0	
Torque Facial/Lingual		0	0	0	0	3	1	-1	-3	7	9	0	0	0	0	

Ortho Insight 006

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0	0.1	0.1	0.1	-0.3	-0.5	-1.1	-1.1	-0.6	-0.1	0.1	0.1	0.2	0	
Facial/Lingual, mm		0	0	0	0	-1	-0.7	-0.9	-1	-0.9	-0.7	0	0	0	0	
Mesial/Distal, mm		0	0	0	0	-0.1	0	0.4	0.3	-0.3	0	0	0	0	0	
Rotation, degrees		0	0	0	0	0.3	-4.6	0.7	-1	1	4.1	0	0	0	0	
Angulation, degrees		0	0	0	0	-0.3	-1.8	-0.3	-1.7	-0.8	0.2	0	0	0	0	
Torque, degrees		0	0	0	0	3.4	2.8	0.1	-1	2.3	1.2	0	0	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0.2	0.1	0.1	-1	-1.2	-1.7	-1.2	-1.5	-1.3	0.1	0.1	0.1	0	
Facial/Lingual, mm		0	0	0	0	0.1	0	0.8	0	-0.5	-1.2	0	0	0	0	
Mesial/Distal, mm		0	0	0	0	-0.6	-0.9	-0.5	0.4	-0.2	-0.6	0	0.1	0	0	
Rotation, degrees		0	0	0	0	3.1	2	2.8	10.7	-4.6	7.6	0.1	0	0	0	
Angulation, degrees		0	0	0	0	3.8	4.6	1.1	2	-0.4	2.4	0	0	0	0	
Torque, degrees		0	0	0	0	2.7	0.9	-1.2	-2.3	6.6	8.6	0	0	0	0	

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ClinCheck Pro 007																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0	0.5E	0.7E	0.7E	0.5E	0.1E	0.2E	1.4E	1.0E	0.5E	0.1E	0	0	
Translation Buccal/Lingual, mm		0	0.4L	0.2B	0.8B	0.4B	0.8B	0.1L	0.1L	1.3B	1.3B	1.1B	0	0.4B	0	
Translation Mesial/Distal, mm		0.1M	0	0	0	0.1D	0.2D	0.2D	0	0.6D	0.2M	0.1M	0.1M	0	0	
Rotation Mesial/Distal		0°	4.7°D	9.4°D	0.4°M	5.0°D	7.9°D	8.8°D	15.9°D	6.2°M	10.6°D	3.5°M	6.9°D	2.5°D	0°	
Angulation Mesial/Distal		0°	0°	3.0°M	0.4°M	2.8°M	0.4°M	0.3°M	0.1°M	0.1°M	7.4°M	2.4°M	2.7°M	0.2°D	0°	
Inclination Buccal/Lingual		0°	0.2°L	4.7°L	5.2°L	8.7°B	7.4°B	6.2°B	3.6°B	6.5°B	16.4°B	5.2°L	6.4°L	0.1°L	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	0.2I	0.5I	1.1I	1.6I	1.6I	1.5I	1.2I	0.2E	0.1I	0.2E	0	0	
Translation Buccal/Lingual, mm		0	0.7L	0.1L	0.2L	0.8B	1.8B	1.6B	0.8B	2.5B	1.2L	0.6L	0.3L	0.2L	0	
Translation Mesial/Distal, mm		0	0.4M	0.4M	0.4M	0.1D	0.8D	1.3D	1.6M	0.9M	0.5M	0.2M	0.2M	0.1M	0	
Rotation Mesial/Distal		0°	2.4°D	3.1°D	3.4°M	0.9°D	16.0°D	15.1°D	16.9°D	1.8°M	11.9°D	9.1°M	2.8°M	3.4°M	0°	
Angulation Mesial/Distal		0°	4.9°D	6.4°D	3.2°D	0.3°D	4.6°M	0.5°M	6.2°M	1.5°D	0.7°M	6.6°D	7.9°D	3.1°D	0°	
Inclination Buccal/Lingual		0°	3.7°L	0.6°B	3.4°B	3.2°B	14.5°B	8.2°B	4.3°B	10.3°B	2.3°L	6.4°B	0.4°B	1.9°B	0°	
Ortho Analyzer 007																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.2	-0.2	-0.6	-0.6	-0.7	-0.3	-0.2	-0.1	-1	-1.6	-0.5	-0.3	-0.1	-0.1	
Translation Forward/Back, mm		-0.1	-0.4	0.8	1.7	-1.2	-0.5	-1.6	-1	0.2	-4	1.9	1.5	0.2	0	
Translation Left/Right, mm		-0.1	-0.1	-1.1	-0.1	-0.6	-0.6	-1.2	-0.1	-0.2	-1.2	-0.1	-0.3	0.1	0.2	
Rotation, degrees		0	4.9	10.4	0	5.3	7.2	7.9	16.8	-5.6	7.9	-3	6.9	3.1	0	
Angulation, degrees		0	0	3.7	0	1.2	0.9	3.2	1.8	0.3	5.1	2.1	2.1	0	0	
Inclination, degrees		0	0	-2.5	-3.4	7.2	6.4	5.4	3.4	5.7	18	-3.6	-5.8	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	-0.1	-0.1	0.3	1.2	1.1	1.3	1.4	1	-0.5	-0.1	-0.2	0	0	
Translation Forward/Back, mm		0	0	-0.9	-1.5	-0.9	-2.6	-1	-0.8	0.1	-0.5	-2.1	-0.4	-0.6	0	
Translation Left/Right, mm		0	1.3	1.8	1.5	0.1	-1.1	-0.7	0.3	0.7	0	1.4	1.2	0.1	-0.1	
Rotation, degrees		0	2.3	3.2	-3.4	0.9	15.8	15.2	17	-1.6	11.8	-8.4	-2.8	-2.4	0	
Angulation, degrees		0	-4.5	-6.1	-3.5	0	1.9	-1	4.2	-1.2	1.3	-6.3	-6.4	-1.9	0	
Inclination, degrees		0	-4	2.3	3.3	3.2	15	8.2	6.3	10.2	-2.2	6.7	0.9	1.8	0	

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SureSmile 007

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0	0	0.5	0.6	0.7	0.3	0.2	0.3	1	0.2	0.4	0.1	0	0	0	
Buccal/Lingual, mm	0	-0.4	0.3	0.8	0.3	0.8	-0.2	-0.1	1.6	1.3	1.2	0.1	0.4	0.1		
Mesial/Distal, mm	0	0	0	0	0	-0.4	-0.1	0.1	-0.4	0	0	0	0	0.1		
Rotation Mesial/Distal	0	-5	-9	0	-5	-8	-9	-16	6	-6	4	-7	-3	0		
Angulation Mesial/Distal	0	0	4	0	3	0	-1	1	1	7	2	3	0	0		
Torque Facial/Lingual	0	0	-4	-5	9	8	6	4	6	18	-5	-6	0	0		

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0	-0.1	-0.2	-0.5	-1.1	-1.8	-1.8	-1.6	-1.6	-1.4	-0.2	0.1	0	0	0	
Buccal/Lingual, mm	0	-0.5	0	-0.2	0.7	1.1	1	0.5	2.2	-0.9	-0.4	-0.1	-0.2	0.1		
Mesial/Distal, mm	0.2	0.6	0.6	0.6	0	-1.1	-1.3	1.4	1.1	0.7	0.6	0.5	0.4	0.3		
Rotation Mesial/Distal	0	-2	-3	3	-1	-15	-13	-18	-1	-14	9	3	3	0		
Angulation Mesial/Distal	0	-5	-6	-5	0	0	1	6	0	0	-8	-8	-3	0		
Torque Facial/Lingual	0	-3	1	4	3	15	9	4	10	-3	6	0	1	0		

Ortho Insight 007

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0.1	0.2	0.5	0.8	1.1	0.6	0.6	0.7	1.1	1.2	0.6	0	0.2	0.2		
Facial/Lingual, mm	0.1	-0.1	1.3	1.9	-1.2	-0.1	-0.9	-0.7	0.5	-2.4	1.7	1	0.3	-0.1		
Mesial/Distal, mm	0	0	-0.1	0	-1.3	-0.3	-0.3	-0.3	-0.2	-1.8	-0.6	0	0.3	0.2		
Rotation, degrees	0	4.7	9.3	-0.4	4.5	7.8	9.2	14.2	-6.2	6	-4	6.8	2.5	0		
Angulation, degrees	0	0	4.4	0.4	4.9	0.4	1	6.7	0.1	9.7	4.4	3.1	-0.2	0		
Torque, degrees	0	-0.3	-4.7	-5.2	8.3	6.7	6.2	4.4	6.5	17.2	-5.2	-6.4	-0.1	0		

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0	0.1	0	-0.4	-1	-1.5	-1.5	-1.3	-1.1	0.6	-0.3	0.3	-0.1	0		
Facial/Lingual, mm	0	-0.3	0	-0.7	0	-1.1	-0.1	-0.3	0.4	-0.3	-1.5	-0.4	-0.5	0		
Mesial/Distal, mm	0	0.9	1.4	0.9	-0.1	-1.6	-1.3	0.1	1.3	0.1	2	1.6	0.7	0		
Rotation, degrees	0	4.1	3.2	-3.4	0.9	15.7	14.1	11.4	-1.9	11.8	-8.3	-1.2	-3.3	0		
Angulation, degrees	0	-6.5	-7.5	-3.2	-0.3	6.6	2.2	9.3	-1	1.8	-6.8	-8.4	-3.5	0		
Torque, degrees	0	-3.8	0.6	3.4	3.2	14.5	8.2	5.5	10.3	-2.5	7.6	0.5	1.9	0		

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ClinCheck Pro 008																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	0.5E	0.2E	0.2E		0.2E	0.5E	1.1E	0	0.3I	0.1E	0.1I	0.3E		0.1E	0	0.3E
Translation Buccal/Lingual, mm	0.5B	0.5B	1.0B		0.7B	0.2L	0.1B	0.5L	0.1L	0.3B	0.3B	1.0B		1.0B	0.3B	0.6B
Translation Mesial/Distal, mm	0.1M	0	0.1D		0.2M	0.2M	0	0.1M	0.1D	0	0.1M	0.1M		0.1D	0.2D	0.1M
Rotation Mesial/Distal	0°	0°	0°		11.2°D	11.3°M	19.9°M	0.2°D	6.8°M	10.5°M	3.6°D	5.9°D		2.8°M	0.1°D	0°
Angulation Mesial/Distal	0°	0.1°D	0.1°D		0°	0.8°M	4.3°D	1.4°M	0.5°M	3.8°D	2.2°D	0°		0.2°D	0.4°D	0°
Inclination Buccal/Lingual	0°	0°	0°		0°	3.0°L	3.7°B	7.4°L	4.1°L	1.8°B	3.4°L	0.8°L		0.1°L	0.1°L	0°
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0.1E	0.1E	0.1E		0.2E	0.6I	1.0I	1.3I	1.1I	0.3I	0.5I	0.2E		0.2E	0.2E	0.2E
Translation Buccal/Lingual, mm	0	0	0		0	0.5L	0.4B	0.1B	0.4B	0.2B	1.0B	0.1B		0	0	0
Translation Mesial/Distal, mm	0	0	0		0	0.5M	0.9M	0.7M	0.6D	0.5D	0.2D	0		0	0	0
Rotation Mesial/Distal	0°	0°	0°		0°	30.1°M	10.5°M	7.9°M	1.3°M	9.1°D	5.4°M	1.1°D		0°	0°	0°
Angulation Mesial/Distal	0°	0°	0°		0°	4.2°M	6.2°M	1.2°M	3.9°M	11.0°M	8.5°M	0°		0°	0°	0°
Inclination Buccal/Lingual	0°	0°	0°		0°	1.3°B	3.0°B	2.3°B	2.2°B	3.4°L	3.8°B	0.4°B		0°	0°	0°
Ortho Analyzer 008																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	-0.9	-0.4	-0.5		-0.3	-0.6	1.1	0	0.4	0	0.4	-0.2		0	0	-0.4
Translation Forward/Back, mm	0.5	0.5	1		0.7	0.6	-0.2	1.3	1	0	1.1	1.2		1.2	0.4	0.5
Translation Left/Right, mm	0.2	0	0.1		-0.2	0.3	1.2	-0.1	-0.2	0.7	0.5	0		0.1	0	0.2
Rotation, degrees	0	0	0		10.1	-10	-17.4	-1.3	-6.3	-12.7	2	5.9		-2.9	0	0
Angulation, degrees	0	0	0		1.2	-0.7	-7.1	1.4	-0.9	-4.2	-1.7	0.6		0	0	0
Inclination, degrees	0	0	0		0.8	-2.8	4.4	-6.1	-4	2.4	-3.3	0.2		0	0	0
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0	-0.1	-0.1		-0.2	0	0.9	1.2	1.1	0	0.3	-0.2		-0.2	-0.2	-0.2
Translation Forward/Back, mm	0.2	0.2	0.1		0	-3	-0.5	-0.7	-0.4	0.8	0.4	-0.1		0	0	0
Translation Left/Right, mm	0	-0.1	0		0	0	-0.3	0.4	-1.4	-3.2	-2.7	0		0	-0.1	0
Rotation, degrees	0	0	0		0	-28.4	-9.9	-7.6	-2.4	5.1	-5.8	1.3		0	0	0
Angulation, degrees	0	0	0		0	-1.7	3.8	-0.2	3.9	14.4	9.7	0		0	0	0
Inclination, degrees	0	0	0		0	8.2	2.4	1.8	2.1	-4.2	1.7	0.4		0	0	0

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SureSmile 008

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0.8	0.5	0.3		0.3	0.7	1.1	0.2	-0.3	0.1	-0.2	0.1		0.2	0.2	0.3
Buccal/Lingual, mm	0.5	0.5	0.9		0.6	0	0.3	-0.4	-0.2	0.3	0.3	1.2		1.1	0.4	0.7
Mesial/Distal, mm	-0.1	0	0.1		0.1	0.2	0.1	0.1	-0.3	0	0.1	0		0	-0.2	-0.3
Rotation Mesial/Distal	0	0	0		-11	11	20	0	7	5	-4	-6		3	0	0
Angulation Mesial/Distal	0	0	0		3	-2	-4	1	0	-4	-2	0		0	0	1
Torque Facial/Lingual	0	0	0		1	-4	4	-7	-4	2	-3	-1		0	0	0

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0.1	0.1	0.1		0.2	-0.6	-1	-1.2	-1.1	-0.3	-0.6	0.2		0.2	0.2	0.2
Buccal/Lingual, mm	0.1	0.1	0.1		0.1	-0.5	0.3	0	0.3	0.3	0.8	0.1		0	0	0
Mesial/Distal, mm	0.1	0.1	0.1		0.1	0.4	0.8	0.7	-0.6	-0.6	-0.3	0.2		0.2	0.2	0.2
Rotation Mesial/Distal	0	0	0		-1	31	5	8	1	-9	6	-1		0	0	0
Angulation Mesial/Distal	0	0	0		0	4	6	0	4	11	7	0		0	0	0
Torque Facial/Lingual	0	0	0		0	2	3	2	2	-2	4	0		0	0	0

Ortho Insight 008

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	0.5	0.3	0.3		0.3	0.6	1.1	0.2	-0.3	0.1	0	0.3		0.2	0.1	0
Facial/Lingual, mm	0.7	0.5	0.9		0.6	0.6	-0.6	0.7	0.4	-0.2	0.8	1.2		1	0.3	0.4
Mesial/Distal, mm	-0.2	0	-0.1		-0.1	0.4	2	-0.1	0.4	0.9	0.4	-0.1		-0.3	-0.2	-0.5
Rotation, degrees	0	0	0		11.5	-10.9	-17.4	-0.2	-6.1	-9.1	3.6	5.9		-2.8	0.1	0
Angulation, degrees	0	-0.1	-0.1		1.8	-2.6	-11.5	2.8	-4.4	-8.2	-2.2	0		-0.2	-0.4	0
Torque, degrees	0	0	0		-0.4	-3	4.4	-7.4	-4.2	2.1	-3.4	-0.8		-0.1	-0.1	0

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0.1	0.1	0.1		0.2	-0.6	-1	-1.1	-1	-0.5	-0.7	0.2		0.2	0.2	0.2
Facial/Lingual, mm	0	0	0		0	-1.3	-0.5	-0.3	0	1.4	0.2	0		0	0	0
Mesial/Distal, mm	0	0	0		0	0.5	-0.5	0	-1.2	-1.8	-1.6	0		0	0	0
Rotation, degrees	0	0	0		0	-30.9	-11.7	-7.9	-2.1	5.8	-7.9	1.1		0	0	0
Angulation, degrees	0	0	0		0	4.7	7.5	1.2	3.9	12.4	8.7	0		0	0	0
Torque, degrees	0	0	0		0	1.3	2.4	2.3	2.2	-3.5	3.2	0.4		0	0	0

ClinCheck Pro 009																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.3E	0.4E	0.5E	0.7E	0.2E	0.9E	0.1E	0.1E	0.8E	0.1E	0.6E	0.2E	0.2E	0.2E	
Translation Buccal/Lingual, mm		0.1L	0.9B	1.1B	0.4B	0.1L	0.1B	0.6B	0.6B	0.6B	0.9B	0.2B	1.0B	0.6B	0.1L	
Translation Mesial/Distal, mm		0	0.2M	0	0	0	0.2D	0	0.2M	0	0.2M	0.2M	0.2M	0.2M	0	
Rotation Mesial/Distal		0°	2.6°M	1.0°D	0.7°D	5.5°M	12.8°D	11.5°D	7.9°D	21.0°D	9.9°M	1.5°D	1.2°D	2.7°M	0°	
Angulation Mesial/Distal		0°	1.3°D	0.1°D	0.4°D	0.3°M	0.3°D	0°	1.8°M	1.6°M	3.5°M	1.9°D	0.6°M	0.9°D	0°	
Inclination Buccal/Lingual		1.2°L	1.1°L	2.3°B	3.2°L	0.1°L	0.4°L	8.1°B	7.4°B	4.5°B	2.8°B	0.9°L	5.0°B	2.4°B	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0.1E	0.2E	0	1.2I	0.4I	0	0.1E	0.5I	1.0I	0.1E	0.1E	0	0	
Translation Buccal/Lingual, mm		0	0.7B	0.2L	0.1L	0.5B	1.1B	1.7B	1.4B	2.5B	0.5B	1.5B	0.9B	0.4B	0	
Translation Mesial/Distal, mm		0	0	0	0.2M	0.2M	0.3M	0.3M	0.1D	0	0.2D	0.1M	0.2M	0	0	
Rotation Mesial/Distal		0°	1.0°M	11.3°M	2.7°M	15.1°M	2.5°M	23.9°D	9.9°D	7.5°M	11.0°M	7.9°M	1.6°M	2.2°D	0°	
Angulation Mesial/Distal		0°	0.6°D	0.7°D	3.1°D	3.9°D	2.4°D	4.6°D	1.5°M	0°	6.6°D	2.1°D	9.5°D	0.9°D	0°	
Inclination Buccal/Lingual		1.2°L	0.4°L	2.8°L	0.7°L	0.1°L	2.7°B	0°	0.3°B	7.8°B	1.0°L	0.7°L	7.0°B	0.6°L	1.7°L	
Ortho Analyzer 009																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.3	-0.6	-0.9	-0.9	-0.4	-1.2	-0.8	-0.8	-1.1	-0.4	-1	-0.7	-0.4	-0.3	
Translation Forward/Back, mm		0.3	1.1	0.6	1.2	0	0.1	-2.1	-1.9	-0.5	0	0.2	-0.2	0.1	-0.1	
Translation Left/Right, mm		-0.1	0.3	-0.3	-0.2	0.1	-0.2	0.4	0.4	-0.2	-1.1	0.6	0.2	0.2	0	
Rotation, degrees		0	-2.9	1.1	0.9	-5.9	11.2	12.3	7.6	20.5	-11.3	-0.4	1.1	-2.6	0	
Angulation, degrees		0	-1.5	0	0	-2.4	0.7	-1.6	0.8	2.5	3.5	-1.8	0	0	0	
Inclination, degrees		-1.2	-1.1	2.4	-3.1	0.2	-0.2	8	7.7	4.7	2.3	-0.9	5	2.1	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.2	0	-0.4	-0.3	0.9	0.2	0	-0.2	0.2	0.8	-0.4	-0.7	0	0	
Translation Forward/Back, mm		0.4	1	0.5	0.2	0.1	0	1.4	0.8	0.1	0.2	1.1	-0.9	0.2	0.1	
Translation Left/Right, mm		-0.5	-0.3	-0.5	0.2	0.4	0.2	0	-0.3	0.4	1.2	0.1	1.8	-0.1	-0.2	
Rotation, degrees		0	-1.1	-11.4	-2.6	-13.6	-1.4	23.4	9.7	-7.8	-12.5	-7.9	-0.7	2.2	0	
Angulation, degrees		0	-0.7	-1.3	-3.1	-4.1	-2.4	0.2	3.5	-0.1	-6.4	-2	-9.6	-0.4	0	
Inclination, degrees		-1.2	-0.3	-2.4	-0.5	0.6	2.7	-1.5	0.7	7.2	-0.6	-0.6	7.3	-0.5	-1.2	

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SureSmile 009																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.4	0.4	0.6	0.8	0.3	1	0.1	0.1	0.8	0	0.7	0.3	0.3	0.3	
Buccal/Lingual, mm		0	0.9	1.1	0.5	0.1	0.4	0.4	0.4	0.7	0.9	0.3	0.9	0.6	0	
Mesial/Distal, mm		0	0.2	0.1	0	-0.3	-0.1	0	0.2	0	0	0.4	0.2	0.2	0	
Rotation Mesial/Distal		0	3	-1	-1	6	-13	-12	-8	-21	10	-2	-1	3	0	
Angulation Mesial/Distal		0	-2	0	0	-1	0	0	2	2	4	-2	1	-1	0	
Torque Facial/Lingual		-1	-1	3	-2	0	-1	8	7	5	2	0	5	2	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.2	0	0.2	0.2	-1.2	-0.5	-0.2	-0.1	-0.8	-0.9	0.3	0.1	0	-0.2	
Buccal/Lingual, mm		0	0.7	0	0.1	0.3	1.1	1.8	1.5	2.2	0.4	1.5	0.8	0.5	0.1	
Mesial/Distal, mm		0.1	0.1	0.1	0.4	0.2	0.3	0.3	-0.1	-0.1	0	0	0.3	0.2	0.1	
Rotation Mesial/Distal		0	1	11	2	15	3	-24	-10	8	11	8	-1	-2	0	
Angulation Mesial/Distal		-1	-1	-1	-3	-4	-2	-5	2	0	-8	-2	-11	-1	-1	
Torque Facial/Lingual		-1	-1	-3	-1	0	1	-2	-1	7	-1	-1	7	0	-1	
Ortho Insight 009																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.4	0.5	0.6	0.2	0.7	0.5	0.5	0.6	-0.1	0.5	0.1	0.2	0.2	
Facial/Lingual, mm		0	1	0.7	0.9	0.2	0.7	-0.6	-0.5	0	0.8	0.6	0.4	0.6	0.2	
Mesial/Distal, mm		0.2	0.5	0.2	0.4	0.1	-0.7	0.4	0	-0.5	-0.1	0.8	0.3	0.6	0.2	
Rotation, degrees		0	-2.6	1	0.7	-5.3	13.9	10.9	7.5	22	-9.9	1.5	1.2	-2.6	0	
Angulation, degrees		0	-1.3	-0.1	-0.4	-0.6	7.1	2.8	3.6	7	2.5	-1.9	0.6	-0.9	0	
Torque, degrees		-1.2	-1.1	2.3	-3.2	-0.1	-0.4	8.1	7.4	4.4	2.8	-0.9	5	2.4	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.1	0.1	0.4	0.3	-1.3	-0.3	-0.2	0	-0.5	-0.8	0.4	-0.1	0	-0.1	
Facial/Lingual, mm		0.1	0.6	0.5	0	0.3	0.1	1.6	1	0.5	0.3	1.4	-0.6	0.3	0.1	
Mesial/Distal, mm		-0.6	-0.5	0	0.5	1.3	0.4	-0.4	-0.3	0.1	1.4	0.3	1.5	0	-0.2	
Rotation, degrees		0	-1	-11.3	-2.6	-14	-3	24.2	9.9	-7.5	-10.9	-7.9	0.8	2.5	0	
Angulation, degrees		0	-0.6	-0.7	-4.2	-8.8	-3.3	5.2	4	0	-8.5	-2.1	-12.2	-1.8	0	
Torque, degrees		-1.2	-0.4	-2.8	-0.7	-0.2	2.7	0	0.3	7.8	-0.5	-0.7	6.3	-0.6	-1.7	

ClinCheck Pro 010																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		1.5I	1.9I	1.9I	1.7I	0.1I	0.3I	1.1I	1.3I	0.2I	0.4I	1.2I	1.4I	1.1I	0	
Translation Buccal/Lingual, mm		0.1B	1.6B	1.8B	3.2B	2.4B	2.2B	0.5B	0.3B	1.2B	1.7B	2.8B	1.3B	1.4B	1.0B	
Translation Mesial/Distal, mm		0.4M	0.4M	1.2M	0.4M	0.5D	1.1D	1.0D	0.4M	0.1M	0.2M	1.0M	1.0M	0.8M	0.5M	
Rotation Mesial/Distal		2.6°D	6.0°M	3.6°D	14.3°M	9.8°M	7.6°M	17.5°M	25.1°M	14.7°M	15.8°M	3.0°M	5.9°M	2.4°M	8.7°D	
Angulation Mesial/Distal		7.2°M	0.6°D	5.2°M	7.3°M	1.2°M	6.2°M	6.6°M	3.4°M	4.7°M	5.2°M	1.2°M	3.6°M	0.4°D	0.3°M	
Inclination Buccal/Lingual		16.0°L	11.2°L	9.6°L	5.6°B	4.8°B	5.4°B	13.5°B	17.2°B	8.7°B	7.8°B	4.7°B	6.2°L	6.2°L	2.5°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.7E	1.9E	2.2E	1.2E	0.2I	0.5I	0.4I	0.1I	0.1I	1.3E	0.7E	1.1E	1.2E	0.2I	0.5E
Translation Buccal/Lingual, mm		0.1B	0.8B	1.9B	1.4B	2.3B	1.8B	0.5L	0.4B	2.1B	1.0L	1.7B	2.2B	0.5B	0.9B	1.3L
Translation Mesial/Distal, mm		0.3M	0.3M	0.2M	0.3M	0.6D	1.7D	1.1D	0.6M	0.9M	0.1D	1.7D	1.0D	1.2D	1.5D	2.0D
Rotation Mesial/Distal		5.6°M	4.3°D	8.2°D	2.8°M	1.6°M	14.5°M	18.6°M	6.5°M	12.1°M	9.4°D	9.9°M	24.5°D	3.6°D	11.0°M	0.7°D
Angulation Mesial/Distal		11.5°D	4.0°D	5.7°M	1.8°M	6.5°M	0.4°D	4.1°D	9.2°M	7.8°M	12.9°M	6.0°D	0.3°M	8.2°D	8.8°D	0.5°M
Inclination Buccal/Lingual		23.4°B	12.6°B	16.9°B	15.6°B	15.6°B	15.5°B	5.2°B	9.0°B	11.6°B	2.9°B	18.7°B	11.2°B	10.8°B	16.1°B	0.1°B
Ortho Analyzer 010																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-1.8	-0.7	0	0.6	-0.1	0.2	-0.1	0	-0.2	-0.3	0.8	-0.4	-1.5	-3.8	
Translation Forward/Back, mm		0.4	2.3	2.8	0.8	-0.4	-0.7	-4.7	-5	-1.6	-1.1	2.1	3.6	4.2	1.6	
Translation Left/Right, mm		-1.9	-0.1	-1.6	-1.7	-1	-1.5	-4.4	-4	-1.3	-2.3	-1.1	-1	0.2	-0.4	
Rotation, degrees		3.2	-3.1	4.4	-13.4	-8.7	-6.8	-17.6	-27.1	-15.9	-19.5	-3.1	-7.7	-2.3	8.6	
Angulation, degrees		16.5	2.8	10	10.3	2.8	3.3	12.2	11.7	3.9	6.6	5.5	7.8	2.7	4	
Inclination, degrees		-12	-11.4	-9	3.3	5.6	8.4	17.3	18	11.7	9.3	5.4	-4.5	-5.7	-0.1	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-2	-2.3	-2.1	-1.4	0	0.2	-0.2	-0.7	-0.7	-2.3	-0.5	-1.7	-1.4	-0.2	0.3
Translation Forward/Back, mm		-4.9	-1.8	-1.3	-2.7	-2.7	-1.6	-1.4	-1.1	0.1	-0.7	-1.8	0.5	-0.5	-0.9	-0.1
Translation Left/Right, mm		2.2	1.1	-0.2	-0.1	-1.5	-1.3	-0.3	-1.8	-1.8	-4.2	0.2	-0.3	0.6	-0.1	-1.6
Rotation, degrees		-2.7	5.4	8.8	-1.4	0	-14	-18.2	-8.5	-13.2	4.4	-10.8	24.8	2.8	-10.7	9.2
Angulation, degrees		-12.6	-4.1	4.3	3.6	5.2	1	-3.3	8.5	11.4	15	-3	-7.5	-8.9	-6.4	0.6
Inclination, degrees		24.1	12.9	16.8	15.5	15.8	13.8	5.4	7.7	8.7	3.2	19.4	7.4	11.1	16.5	-4.5

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SureSmile 010																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-1.3	-1.7	-1.8	-1.9	-0.8	-0.6	-0.8	-1	-0.3	-0.6	-0.9	-1.1	-0.8	0.1	
Buccal/Lingual, mm		0.6	2	2.1	2.8	2.4	2.5	0.1	-0.2	1.2	1.6	2.9	1.8	1.9	1.4	
Mesial/Distal, mm		0.5	0.7	0.7	0.5	0.4	-0.6	-1.3	0.2	0.4	1	1.1	1	0.9	0.5	
Rotation Mesial/Distal		-3	6	-2	15	10	9	21	26	14	14	3	6	2	-9	
Angulation Mesial/Distal		8	0	8	5	0	9	6	3	7	3	-1	4	1	0	
Torque Facial/Lingual		-16	-11	-8	6	5	3	13	15	8	6	5	-5	-6	-2	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	2.1	2.4	1.2	-0.2	-0.5	-0.2	0	-0.2	1.5	0.6	1.2	1.2	0	
Buccal/Lingual, mm		-0.3	0.6	1.9	1.5	2.2	1.8	-0.4	0.3	1.8	-0.9	1.5	1.8	0.4	0.5	
Mesial/Distal, mm		0.7	0.6	0.8	0.2	-1	-1.6	-1.2	0.5	0.8	0	-1.9	-1	-0.9	-1	
Rotation Mesial/Distal		5	-4	-8	2	3	18	20	7	12	-8	10	-24	-4	11	
Angulation Mesial/Distal		-7	-1	8	0	4	0	-4	9	8	13	-9	1	-6	-4	
Torque Facial/Lingual		24	13	16	16	16	14	5	8	12	5	19	10	13	17	
Ortho Insight 010																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-1.7	-1.5	-1.8	-1.7	-0.6	-0.4	-0.5	-0.6	0	-0.4	-1	-1.2	-0.7	0	
Facial/Lingual, mm		2.2	3.1	3.3	1.9	1.6	2.1	-1.7	-2.8	0.7	0.3	2.5	2.6	2.9	1.9	
Mesial/Distal, mm		0.2	1.2	0.2	-0.4	0.4	-1.3	-1.8	0.1	-0.3	0.3	1.3	1	1.6	1.3	
Rotation, degrees		1.6	-5.8	2.9	-14.2	-9.3	-7.3	-17.4	-24.4	-16.1	-15.5	-2.9	-5.4	-2.9	6.8	
Angulation, degrees		10.3	-1.5	6.8	6.3	-2.2	3.4	1.9	-2.8	3	-0.6	1.2	3.5	-0.4	4.2	
Torque, degrees		-15.1	-11.2	-9.2	5.9	4.8	6.9	13.8	19.2	10.7	9.8	5.2	-3.7	-6.2	-2.1	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.2	2.4	2.3	1.2	-0.2	0	0.3	0.4	0.4	1.6	1.4	2.4	2.3	0.9	1.9
Facial/Lingual, mm		-2.9	-0.5	0.1	0	0.6	0.4	-0.5	-0.8	-0.6	-1.1	-1.7	-0.3	-1.4	-1.4	-0.7
Mesial/Distal, mm		1.4	0.2	-1.3	-0.5	-2.6	-2.6	-2.3	0.7	0.6	-1.9	0.4	0.3	1	0.7	-0.6
Rotation, degrees		0.2	6.3	8.3	-3.1	-3	-14.5	-18.6	-10	-15.8	8.1	-10.5	25.6	3.7	-10.9	0.3
Angulation, degrees		-9.1	-4.3	5.7	5.1	8.4	-0.4	-5	9.6	11.4	16	-0.6	-3.4	-8	-3.5	-1.3
Torque, degrees		24.4	13.5	18.3	16.1	16.8	18.6	8.9	9	11	2.3	20.6	11.2	12.4	16.3	-3.4

CliCheck Pro 011																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.1E	0.3E	0	0.1E	0.4E	0.6E	0.1E	0	0.8E	0.3E	0	0.3I	0.1E	0.1E	
Translation Buccal/Lingual, mm		0	1.0B	1.9B	1.9B	0.8B	0.2B	0.4B	0.2B	0.7L	1.1B	2.3B	2.1B	1.3B	0.5B	
Translation Mesial/Distal, mm		0.6M	0.5M	0.2M	0	0.2D	0.2D	0.2D	0.1M	0	0.7D	0.4D	0.1D	0	0.1D	
Rotation Mesial/Distal		4.6°D	9.9°D	11.6°D	6.9°M	3.8°M	2.6°M	6.8°D	8.2°D	19.2°M	38.0°M	13.3°M	1.3°D	6.9°D	4.2°D	
Angulation Mesial/Distal		0.9°D	3.1°M	2.2°D	0.9°M	7.4°M	3.0°M	1.1°M	1.5°M	0.1°M	5.4°M	1.2°M	3.3°M	0.6°D	1.1°D	
Inclination Buccal/Lingual		1.1°L	3.1°B	7.7°L	5.0°L	5.5°B	0.8°L	0.2°L	0.8°L	3.4°L	12.1°B	5.0°L	13.1°L	1.7°B	0.6°B	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.1E	0.1E	0	0.4E	0.1E	0.4I	0.3I	0.2I	0.6I	0.4E	1.9E	1.1E	0.4E	0	
Translation Buccal/Lingual, mm		0.5L	0.5B	1.5B	0.6B	0.3L	0.1L	0.3B	0.3B	0.7L	1.2L	0.6B	0.4B	0.3B	0.1B	
Translation Mesial/Distal, mm		0.4M	0.5M	0.5M	0.7M	0.2M	0.7M	1.3M	1.1D	0.8D	1.3D	0.8D	0.8D	0.4D	0.4D	
Rotation Mesial/Distal		0.9°D	0.5°D	1.9°D	26.1°D	5.4°D	24.5°D	24.0°D	14.2°D	7.9°D	3.1°D	36.9°D	2.9°M	3.1°D	0.7°M	
Angulation Mesial/Distal		0.3°M	0.7°D	3.9°D	9.3°M	6.8°M	3.6°M	7.1°M	4.2°D	4.9°D	5.8°M	8.0°M	3.6°D	3.1°M	2.0°M	
Inclination Buccal/Lingual		0.6°B	1.7°B	12.5°B	12.3°B	1.3°B	3.4°B	1.8°B	3.9°B	1.9°B	1.5°L	18.1°B	6.8°B	2.3°B	1.2°B	
Ortho Analyzer 011																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-2.1	-2.1	-1.4	-1.1	-1.2	-0.6	0.2	0.4	-0.7	-0.5	-0.4	-0.9	-0.9	-1.6	
Translation Forward/Back, mm		-0.4	-0.6	3.2	3.2	-0.7	0.2	0.2	0	0.4	0.4	3.9	4.8	0.5	-0.1	
Translation Left/Right, mm		0.9	-0.7	-0.4	-0.8	-3.3	-1	-0.5	-0.2	-0.1	-3.9	-0.1	-1.5	-0.7	-0.1	
Rotation, degrees		4.4	10	11.4	-6.9	-5.8	-2.4	6.4	8.9	-17	-41.6	-13.1	1	7	4.3	
Angulation, degrees		1.5	3.5	-0.6	2.3	9.3	3	1.6	1.6	-2.3	9.8	0.9	5.4	1.8	0.7	
Inclination, degrees		-1.1	5.5	-7.8	-5.3	4.9	0.4	0.8	0.4	-2.8	4.6	-5.4	-12.5	4.3	3.3	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.2	-0.2	-0.1	-0.9	-0.2	0.2	0	-0.1	0.1	-1.1	-2.8	-1.6	-0.7	-0.4	
Translation Forward/Back, mm		-0.9	0.1	-1.2	-1.9	0.5	-0.6	-0.3	-0.1	-0.8	-0.7	-1.6	-0.3	0.2	0.6	
Translation Left/Right, mm		0.2	0.3	0.8	-0.9	-1.8	-0.6	-1.9	0.9	1.5	-2.2	1.6	0.5	-0.1	0.1	
Rotation, degrees		0.8	1.6	3.4	28.3	5.6	25.8	24	14	7.9	1.3	35.3	-3	3.1	-2.1	
Angulation, degrees		0.3	-0.6	-2	7	6.8	4.1	8.8	-3.9	-4.5	6.9	-5.1	-3.2	3.1	2	
Inclination, degrees		0.7	1.8	12	12.7	-0.6	4.6	5.7	3.1	1.3	-0.8	13.3	7	2.7	1.1	

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SureSmile 011

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.4	0.3	0.2	0.3	0.3	0.6	0.1	0.1	1.2	0.2	0.3	0.1	0.1	0.2	
Buccal/Lingual, mm		0	1	1.8	1.8	0.8	0.3	0.4	0.1	-0.2	1.1	2.5	2.1	1.3	0.7	
Mesial/Distal, mm		0.6	0.2	0	-0.1	-0.2	-0.1	-0.2	0.1	-0.1	-0.3	-0.5	-0.4	-0.3	-0.3	
Rotation Mesial/Distal		-5	-10	-12	7	6	3	-7	-8	20	38	13	-1	-7	-4	
Angulation Mesial/Distal		-2	2	0	0	8	3	1	2	0	5	0	4	-1	-2	
Torque Facial/Lingual		-1	3	-8	-4	2	-1	0	-1	-3	7	-5	-13	2	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0.2	0.2	0.4	0	-0.4	-0.4	-0.3	-0.6	0.4	1.9	1.1	0.5	0.1	
Buccal/Lingual, mm		-0.6	0.1	1.5	0.6	-0.3	-0.1	0.2	0.2	-0.8	-1.4	-0.3	0.3	0.3	0.2	
Mesial/Distal, mm		0.3	0.6	0.9	0.5	0.3	0.9	1.2	-1.1	-0.8	-1.1	-1.2	-0.7	-0.4	-0.4	
Rotation Mesial/Distal		-1	-1	-2	-26	-5	-25	-25	-14	-8	-2	-35	3	-3	1	
Angulation Mesial/Distal		1	0	-1	7	8	5	9	-4	-5	6	2	-4	5	3	
Torque Facial/Lingual		2	2	13	14	3	5	1	4	2	1	21	7	2	1	

Ortho Insight 011

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.3	0.1	0.2	0.6	0.6	0	0	0.8	-0.2	0.1	0	-0.1	0	
Facial/Lingual, mm		-0.1	0.5	2.6	2.4	-0.3	0.4	0.1	0	0.3	0.4	3.2	4.1	1.2	0.7	
Mesial/Distal, mm		0.7	-0.1	0.7	0	-1.6	-0.6	0.1	-0.1	-0.3	-0.1	-0.9	-1.7	-0.5	-0.2	
Rotation, degrees		4.6	9.9	11.6	-6.9	-3.7	-2.6	6.7	7.8	-18.5	-37.8	-13.3	1	6.5	4.2	
Angulation, degrees		-0.9	3.1	-2.2	0.9	6.3	3	2.5	2.8	-6	-6.6	1.2	6.8	0.6	-1.1	
Torque, degrees		-1.1	3.1	-7.7	-5	6.1	-0.8	-0.2	-0.1	-0.1	14.1	-5	-13.1	1.7	0.6	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.1	0.1	-0.1	0.4	0	0	0	0.2	0	0.9	1.6	1.1	0.4	0	
Facial/Lingual, mm		-0.7	-0.1	-0.5	-1.5	-0.6	-0.3	0.5	-0.3	-0.9	-0.6	-2	-0.4	0.1	0.1	
Mesial/Distal, mm		0.8	0.8	1.1	0.1	-0.5	0.7	0.5	-1	-0.7	-2.4	-2.2	-0.4	-0.9	-0.9	
Rotation, degrees		1.8	0.9	1.8	25.2	5.5	24	23.4	14.2	8.4	3.1	38.4	-0.7	3.9	-0.7	
Angulation, degrees		-2.5	-1.6	-4.9	-0.2	6.8	5.1	10.2	-4	-4.9	5	-3.9	-5.2	1.4	2	
Torque, degrees		0.5	1.6	12.5	12.2	0.7	5.7	4.5	3.9	1.4	-1.4	16.9	6.7	2.3	1.2	

ClinCheck Pro 012																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.5E	0.4E	0.1E	0.4E	0.5E	0.6E	0.2I	0.5I	0.5E	0.5E	0.1I	0.1E	0.4E	0.6E	
Translation Buccal/Lingual, mm		0	0.5B	0.7B	0.9B	0.8B	0.9B	1.0B	1.2B	1.1L	1.6B	1.2B	0.2B	0.4B	0.3B	
Translation Mesial/Distal, mm		0	0	0	0	0.1D	0.7D	0.5D	0.8M	0.2M	0.2D	0.3M	0	0.1M	0.3M	
Rotation Mesial/Distal		0.5°D	3.3°D	10.4°D	4.7°D	16.4°D	4.7°D	21.5°D	17.0°D	10.5°M	1.3°D	8.7°D	0.8°M	1.2°D	1.7°D	
Angulation Mesial/Distal		0.7°M	1.0°D	1.3°M	0.7°M	2.5°D	4.6°M	1.4°D	0.5°D	0.3°M	0.1°M	3.0°M	1.2°M	0.9°D	0.7°M	
Inclination Buccal/Lingual		0.7°L	0.3°L	2.8°B	0.3°L	1.8°B	0.5°B	2.5°B	5.4°B	9.7°L	0.9°L	0.6°B	0°	0.4°L	0.1°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0.3I	0	0	0.5E	0.1E	0.8E	0.8E	0.8E	0.9E	0.6E	0.1E	0.1I	0	
Translation Buccal/Lingual, mm		0.5L	0.5B	0.1B	0.7L	1.1L	1.7B	1.0B	1.9B	0.4B	1.1B	0.5B	0.4L	0.5B	0.1B	
Translation Mesial/Distal, mm		0.4D	0.3D	0.3D	0.2D	0.3M	1.4M	1.0M	0.5D	0.6D	0.3D	0.1D	0.1D	0.2D	0.2D	
Rotation Mesial/Distal		3.4°D	4.3°D	0.2°M	4.8°D	18.0°M	3.0°M	9.6°D	13.2°D	15.8°M	19.7°M	10.4°D	0°	1.6°D	3.8°D	
Angulation Mesial/Distal		2.1°M	0.5°D	7.7°D	6.3°D	6.7°D	0°	1.4°D	3.4°M	3.3°D	2.3°M	1.7°D	7.2°D	0.4°M	2.1°M	
Inclination Buccal/Lingual		1.1°B	1.9°B	1.2°L	2.4°L	1.5°L	9.2°B	4.1°B	11.1°B	2.1°B	6.1°B	2.6°L	4.9°L	0.9°B	2.3°B	
Ortho Analyzer 012																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.6	-0.7	-0.5	-0.8	-0.5	-0.6	0	0.4	-0.9	-0.1	-0.2	-0.4	-0.6	-0.7	
Translation Forward/Back, mm		0	0.3	-0.2	0.5	0	0.6	-0.2	-0.3	1	2.2	0.8	0.2	0.4	0.3	
Translation Left/Right, mm		0	0	-0.3	0.1	-0.3	-1.9	-0.7	1	0.1	-0.6	-0.7	-0.4	-0.1	0	
Rotation, degrees		0.5	3.3	10.5	4.8	16.2	3.2	21.1	17	-9.4	1.2	8.6	-0.7	1.4	1.6	
Angulation, degrees		0.6	-0.9	0.8	-1.3	0.9	5.7	2.6	-1.4	-4.4	0.1	2.7	1.2	-0.7	0.7	
Inclination, degrees		-0.7	-0.3	2.9	0.4	2.1	1	3	5.1	-9	-2.8	1.4	0	-0.5	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.2	0.3	-0.2	0	-1	-0.1	-0.9	-0.9	-0.8	-0.9	-0.8	-0.6	-0.2	-0.1	
Translation Forward/Back, mm		-0.5	0.2	0.6	0.3	-1.6	-0.6	0.8	-0.1	0.1	-0.1	1.1	0.5	0.1	-0.6	
Translation Left/Right, mm		-0.9	-0.2	1.1	1	1.4	1.4	0.9	-0.2	0.4	-0.3	0.5	1.9	0.2	-0.3	
Rotation, degrees		3.4	4.2	-0.1	5.1	-17.5	-2.8	10.3	12.2	-15.7	-20.9	10.5	0.3	1.5	3.7	
Angulation, degrees		2.1	-0.6	-7.5	-6	-8.5	0.5	-2.2	0.8	-2.7	3.1	-1.2	-7.2	0	2.1	
Inclination, degrees		1.2	1.9	-1.3	-2.6	4.6	9.2	3.8	11.6	2.9	5.5	-2.7	-4.6	1	2.5	

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SureSmile 012

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.5	0.5	0.2	0.5	0.5	0.5	-0.2	-0.5	1.3	0.2	0	0.4	0.5	0.7	
Buccal/Lingual, mm		0.3	0.7	0.6	0.9	0.8	1.1	0.4	0.5	-0.6	1.7	1	0.2	0.4	0.4	
Mesial/Distal, mm		-0.1	0	-0.1	0	0	-0.8	-0.3	0.8	0.1	-0.1	0	-0.1	0	0.1	
Rotation Mesial/Distal		-1	-3	-9	-5	-16	-2	-22	-19	5	-1	-9	1	-1	-2	
Angulation Mesial/Distal		1	-1	2	0	1	4	0	-1	-4	-1	3	0	-1	-1	
Torque Facial/Lingual		-1	-1	3	0	2	-1	3	5	-10	-3	0	0	-1	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.3	-0.2	0	0.1	0.8	-0.1	0.7	0.6	0.8	0.9	0.7	0.2	0.1	-0.1	
Buccal/Lingual, mm		-0.5	0.6	0.2	-0.6	-1	1.5	1.1	1.7	0.4	1	0.5	-0.5	0.3	0	
Mesial/Distal, mm		-0.5	-0.4	-0.4	-0.1	0.4	1.2	1	-0.5	-0.6	-0.5	-0.3	-0.1	-0.3	-0.3	
Rotation Mesial/Distal		-4	-4	0	-5	17	1	-11	-13	16	21	-9	0	-2	-4	
Angulation Mesial/Distal		3	-1	-8	-7	-8	-1	-3	3	-3	2	0	-8	1	2	
Torque Facial/Lingual		1	2	-1	-3	-2	9	4	10	2	6	-3	-5	1	2	

Ortho Insight 012

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.6	0.4	0.1	0.3	0.1	0.2	-0.6	-0.7	0.1	-0.4	-0.3	0.1	0.3	0.5	
Facial/Lingual, mm		0.3	0.6	0.2	1.1	0.7	1.2	0.9	0	1.1	2.1	1.2	0.5	0.6	0.8	
Mesial/Distal, mm		0.2	0.5	0.3	0.3	0.8	-1.1	-1	0.5	0.8	0	-0.1	-0.1	0.3	0.1	
Rotation, degrees		0.5	3.3	10.3	4.7	16.1	4.6	21.5	17.2	-9.2	1.4	8.7	-0.8	1.2	1.7	
Angulation, degrees		0.7	-1	1.3	0.7	1.5	5.5	10.7	5.8	-7.9	-0.9	3	1.2	-0.9	0.7	
Torque, degrees		-0.7	-1.1	2.8	-1	0	0.5	2.6	5.4	-8.7	-0.9	0.6	0	-0.4	-0.1	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		-0.2	-0.1	0.3	0.3	1	0.3	1	1	0.7	0.9	0.9	0.4	0.2	0	
Facial/Lingual, mm		-0.9	0	0.2	-0.4	-0.6	0.2	1.2	0.8	0.9	0.8	1.1	0.5	0.5	-0.1	
Mesial/Distal, mm		-0.8	-0.2	0.8	0.6	2.1	1.7	0.8	-1	0.9	0.2	0.1	1	-0.3	-0.5	
Rotation, degrees		3.9	5.1	0.9	4.8	-18	-2.8	9.2	13	-14.3	-19.8	10.3	0	1.6	3.8	
Angulation, degrees		0.8	-2.7	-8	-6.3	-8.2	-1.5	3	5.3	-11.4	0.5	-1.5	-7.2	0.4	2.1	
Torque, degrees		1.1	1.8	-1.2	-1.8	1.2	9.2	1.5	11	2	6.1	-3.4	-3.9	0.9	2.3	

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ClinCheck Pro 013																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm			0.4E	0.1I	0.6I	0.4I	0.6I	0.5I	0.5I	0.2I	0.1E	0.3I	0.3I	0.2I	0.2E	
Translation Buccal/Lingual, mm			0.2L	0.8B	1.2B	0.6B	0	0.4B	0.2B	1.8B	1.0B	0.1B	0	0.1L	0.3L	
Translation Mesial/Distal, mm			0	0.2M	0.1M	0.2M	0.1D	0	0.1M	0.2M	0.6M	0.6M	0.5M	0.5M	0.3M	
Rotation Mesial/Distal			0.8°M	0.4°D	0.1°M	12.0°D	3.7°D	3.5°D	6.2°D	1.8°M	6.2°D	2.2°M	3.4°D	2.3°M	1.9°D	
Angulation Mesial/Distal			1.2°D	0.1°M	5.3°D	1.3°D	3.5°D	2.0°D	3.7°D	1.7°M	9.0°D	3.3°M	2.6°D	1.0°D	3.0°M	
Inclination Buccal/Lingual			2.0°L	6.3°L	5.0°L	0.1°L	8.7°L	4.6°L	4.6°L	9.1°B	0.6°L	3.1°B	5.9°L	0.6°L	0.8°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm			0.3I	0.4I	0.3E	0.2I	0.6I	0.6I	0.7I	1.3I	1.0I	0.2E	0.1E	0	0.1I	
Translation Buccal/Lingual, mm			0.4L	1.4B	0.8B	0.2L	1.3L	2.2L	2.0L	2.5L	1.9L	0.2B	0.9B	0	0.5B	
Translation Mesial/Distal, mm			0.4D	0.2D	0	1.0D	0.8D	0.6D	0.2M	0.3M	0.1M	0	0	0.3D	0.4D	
Rotation Mesial/Distal			1.9°D	17.0°D	20.4°D	13.0°M	16.1°M	16.6°D	23.7°D	5.0°M	15.5°M	0.3°M	2.6°D	3.1°D	0.4°D	
Angulation Mesial/Distal			0.2°D	14.4°D	7.0°D	3.3°D	3.7°M	2.4°D	7.7°D	2.8°D	2.7°D	4.3°D	4.7°D	4.2°M	2.6°D	
Inclination Buccal/Lingual			3.3°B	0.3°B	7.5°L	15.4°L	17.4°L	26.5°L	22.8°L	16.8°L	15.2°L	3.7°L	0.9°L	3.2°L	1.8°L	
Ortho Analyzer 013																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm			-0.7	-0.1	0.4	0.4	0.5	0.4	0.4	0.4	0.1	0.1	0.1	0.1	-0.3	
Translation Forward/Back, mm			0	1.9	2.2	0.1	1.6	1.4	1.3	-0.7	1.4	-0.5	1.3	0.1	-0.1	
Translation Left/Right, mm			0	0.1	0.7	-0.2	0.5	0.7	0.6	-0.4	2.4	-0.4	0.6	0.4	-0.4	
Rotation, degrees			-0.8	0.2	0.3	12.1	5.1	3.8	6.3	-1.6	9.1	-2.2	3.5	-2.3	1.9	
Angulation, degrees			-1.2	0	-3.6	1.4	-1.5	-1.7	-1.2	1.9	-6.7	3.4	-2.1	-1	2.9	
Inclination, degrees			-1.9	-6.3	-5	0.3	-8.7	-4.6	-4.9	9.1	-1.4	3.4	-6	-0.5	-0.8	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm			0.3	0.1	-0.1	0.4	0.4	-0.7	-0.5	0.4	0.3	-0.1	-0.2	-0.4	-0.2	
Translation Forward/Back, mm			-1.9	1.8	1.9	2.6	2.4	3.6	2.7	1.6	2.2	1.6	1.6	1.3	1.5	
Translation Left/Right, mm			0.2	2.1	0.9	2.1	-0.4	-2	-2.2	0.4	2.6	0.5	-0.1	-1.8	-0.5	
Rotation, degrees			2.7	17.1	18.7	-13.4	-17.1	15.8	20.6	-4	-15	0.8	3	3	0	
Angulation, degrees			-0.2	-13.5	-2.3	-12.5	-1.4	14.3	13.4	-3.9	-15.4	-5.6	-4.5	5.3	-2.6	
Inclination, degrees			5.6	-5.6	-8.9	-12.1	-17.6	-23.9	-21.9	-16.4	-11.6	-3.8	-1.2	-2.9	-1.7	

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SureSmile 013

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm			0.4	0	-0.6	-0.5	-0.6	-0.5	-0.5	-0.6	-0.2	-0.2	-0.1	0	0.2	
Buccal/Lingual, mm			-0.1	0.9	1.3	0.5	0.1	0.2	0.1	1.3	1	0	0.3	-0.1	-0.2	
Mesial/Distal, mm			0.1	0.2	0.2	0.1	0	0	0.3	0.1	0.8	0.5	0.6	0.5	0.3	
Rotation Mesial/Distal			1	0	0	-12	-4	-4	-7	2	-7	2	-3	2	2	
Angulation Mesial/Distal			-1	0	-4	0	-5	-2	-3	2	-8	3	-3	-1	3	
Torque Facial/Lingual			-2	-6	-4	0	-9	-5	-5	9	-1	3	-7	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm			-0.2	-0.6	0.1	-0.4	-0.3	-0.1	-0.4	-0.3	-0.7	-0.2	-0.1	0	0.1	
Buccal/Lingual, mm			-0.5	1.3	0.7	-0.1	-1.2	-1.7	-1.5	-2.6	-1.7	0.1	0.9	0.2	0.5	
Mesial/Distal, mm			-0.7	0	-0.6	-1.1	-1.1	-0.6	0.6	0.2	0	-0.3	-0.1	-0.7	-0.5	
Rotation Mesial/Distal			-3	-17	-17	14	18	-16	-24	5	16	1	-3	-3	0	
Angulation Mesial/Distal			1	-15	-4	-2	4	1	-6	-4	-6	-4	-4	4	-2	
Torque Facial/Lingual			3	1	-8	-15	-17	-27	-23	-17	-15	-4	-1	-3	-1	

Ortho Insight 013

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm			0.5	0.3	0.1	0.3	-0.1	0.2	0.1	0.5	0.5	0.5	0.3	0.2	0.2	
Facial/Lingual, mm			-0.4	1.4	1.6	0	0.2	0.1	0.3	-0.3	0.7	-0.7	0.6	0.1	-0.2	
Mesial/Distal, mm			-0.3	-0.5	0.3	-0.3	0.3	0.6	0.6	-0.5	0.9	-0.6	0.1	0.1	-0.6	
Rotation, degrees			-0.4	0.4	-0.1	11.8	3.8	3.6	5.9	-2	5.9	-2.2	3.4	-1.8	2.4	
Angulation, degrees			-2.7	0.1	-5.3	1.2	-2.9	-2	1.3	0.3	-3.2	3.3	-2.6	-2.2	1.3	
Torque, degrees			-1.9	-6.3	-6.6	-2.2	-8.7	-6.3	-7.2	8.6	-1.9	3.1	-5.5	-1.5	-0.7	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm			0	-0.1	0.3	0.2	-0.4	-0.5	-0.8	-0.6	-1	0.5	0.3	0.2	-0.1	
Facial/Lingual, mm			-1.3	1.5	1.7	2.4	1.5	1.2	0.8	-2.2	-1.1	-0.3	0.2	-0.3	0.5	
Mesial/Distal, mm			-2.1	0.4	-0.7	-1.1	-2.2	-1.8	6.4	1.4	1.3	0.2	0	-1.5	-0.5	
Rotation, degrees			2.8	18.9	18.9	-13.4	-15.8	17.5	23.6	-4.6	-14.8	-0.3	2.6	1.6	1.3	
Angulation, degrees			-2	-14	-0.7	-9	-5.7	11.9	10.5	-8.8	-14.8	-5.2	-4.7	4.6	-4.5	
Torque, degrees			3.2	-6.9	-12	-12.5	-17	-26.5	-21.7	-15.8	-9.2	-3.7	-1.6	-3.1	-1.9	

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ClinCheck Pro 014																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.2E	0.2E	0.8E	0.5E	1.1E	1.2E	1.4E	1.4E	0.3E	0.6E	0.5E	0.8E	0.4E	0.1E	
Translation Buccal/Lingual, mm		0	0	0.6B	0.9B	0.7B	0.3B	0.2B	0.6L	0.2B	0.6B	1.5B	0.9B	0.4B	0	
Translation Mesial/Distal, mm		0	0	0.4M	0.4M	0.5M	0.1M	0.2D	0.3M	0.2D	0.1D	0.1M	0.1M	0.1M	0	
Rotation Mesial/Distal		0°	1.1°M	12.2°D	18.0°D	31.5°D	2.1°M	0.5°M	7.9°D	2.7°D	6.0°M	0.5°M	4.0°D	0.3°D	0°	
Angulation Mesial/Distal		0°	0.3°M	3.3°M	3.9°M	4.9°M	1.8°M	1.5°M	1.5°D	0.8°M	1.7°M	2.3°M	3.6°M	0°	0°	
Inclination Buccal/Lingual		0°	0°	3.1°B	2.4°B	3.2°B	0°	1.2°B	2.2°B	0.5°B	1.4°B	6.8°B	3.8°B	0.7°B	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.1E	0.2E	0.4E	0.8E	0.1I	0.2E	0.6E	0.5E	0	0.5I	0.4E	0.8E	0.3E	0.1E	
Translation Buccal/Lingual, mm		0	0.4L	0.1L	0.1B	0.4B	0.6L	1.3L	1.3L	0.4L	1.0B	0.7B	0.5B	0.7L	0	
Translation Mesial/Distal, mm		0	0.1M	0.3M	0.2M	0.6D	1.0D	0.1D	0.4D	0.6D	0.2D	0.5M	0.5M	0.2M	0	
Rotation Mesial/Distal		0°	0.6°M	6.0°D	0.9°M	5.6°M	2.6°M	43.5°D	20.7°D	0.6°D	6.1°D	6.6°M	6.7°D	0.7°M	0°	
Angulation Mesial/Distal		0°	0°	4.7°D	3.0°D	3.8°D	4.9°D	1.5°M	0.9°D	1.4°D	2.0°D	0.9°D	0.6°M	0.3°D	0°	
Inclination Buccal/Lingual		0°	1.1°L	5.3°L	3.4°L	3.0°B	0.7°B	0.8°L	0.5°L	2.8°B	5.9°B	6.1°L	3.5°L	3.4°L	0°	
Ortho Analyzer 014																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.2	-0.2	-0.8	-0.5	-1.1	-1.2	-1.4	-1.4	-0.3	-0.6	-0.5	-0.8	-0.4	-0.1	
Translation Forward/Back, mm		0	0	0.6	0.9	0.7	0.3	0.2	-0.6	0.2	0.6	1.5	0.9	0.4	0	
Translation Left/Right, mm		0	0	0.4	0.4	0.5	0.1	-0.2	0.3	-0.2	-0.1	0.1	0.1	0.1	0	
Rotation, degrees		0	-1.1	12.2	18	31.5	-2.1	-0.5	7.9	2.7	-6	-0.5	4	0.3	0	
Angulation, degrees		0	0.3	3.3	3.9	4.9	1.8	1.5	-1.5	0.8	1.7	2.3	3.6	0	0	
Inclination, degrees		0	0	3.1	2.4	3.2	0	1.2	2.2	0.5	1.4	6.8	3.8	0.7	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.1	-0.2	-0.4	-0.8	0.1	-0.2	-0.6	-0.5	0	0.5	-0.4	-0.8	-0.3	-0.1	
Translation Forward/Back, mm		0	-0.4	-0.1	0.1	0.4	-0.6	-1.3	-1.3	-0.4	1	0.7	0.5	-0.7	0	
Translation Left/Right, mm		0	0.1	0.3	0.2	-0.6	-1	-0.1	-0.4	-0.6	-0.2	0.5	0.5	0.2	0	
Rotation, degrees		0	-0.6	0.6	-0.9	-5.6	-2.6	43.5	20.7	0.6	6.1	-6.6	6.7	-0.7	0	
Angulation, degrees		0	0	-4.7	-3	-3.8	-4.9	1.5	-0.9	-1.4	-2	-0.9	0.6	-0.3	0	
Inclination, degrees		0	-1.1	-5.3	-3.4	3	0.7	-0.8	-0.5	2.8	5.9	-6.1	-3.5	-3.4	0	

SureSmile 014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.4	0.9	0.7	1.1	1.3	1.7	2	0.5	0.7	0.6	0.8	0.4	0.2	
Buccal/Lingual, mm		0	-0.1	0.6	0.7	0.7	0.7	0.6	-0.3	0.1	0.7	1.4	0.9	0.5	0	
Mesial/Distal, mm		0	-0.1	0.2	0.3	0.4	0	-0.2	0.2	-0.3	-0.2	-0.2	-0.2	-0.2	0	
Rotation Mesial/Distal		0	1	-12	-18	-32	2	1	-8	-3	6	1	-4	0	0	
Angulation Mesial/Distal		0	0	3	5	7	4	2	-2	1	2	1	5	0	0	
Torque Facial/Lingual		0	-1	3	2	4	0	1	2	1	1	7	4	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.2	0.2	0.3	0.7	-0.2	0.3	0.9	0.7	0	-0.7	0.4	0.8	0.2	0.1	
Buccal/Lingual, mm		0	-0.5	-0.2	0.1	0.3	-0.6	-1.1	-1.2	-0.4	0.7	0.8	0.4	-0.7	0	
Mesial/Distal, mm		0	0	0.5	0.4	-0.5	-1	-0.1	-0.3	-0.5	-0.2	0.5	0.7	0	0	
Rotation Mesial/Distal		0	1	-6	1	6	3	-44	-21	0	-6	6	-7	1	0	
Angulation Mesial/Distal		0	0	-5	-3	-4	-5	1	-1	-2	-2	-2	1	-1	0	
Torque Facial/Lingual		0	-1	-6	-3	3	1	0	0	3	6	-6	-4	-3	0	

Ortho Insight 014

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.4	0.9	0.7	1	1.2	1.4	1.9	0.4	0.4	0.4	0.8	0.3	0	
Facial/Lingual, mm		-0.1	-0.1	0.2	0.6	0.8	0.8	0.6	-0.5	0.4	0.7	0.7	0.6	0.5	0	
Mesial/Distal, mm		0.2	0.1	0.1	-0.5	-2.3	0.1	-0.3	0.1	-0.2	-0.2	-0.6	-0.7	0	0	
Rotation, degrees		0	-1.1	12.2	17.5	28.7	-2.1	-0.5	7.9	2.7	-6	-0.9	3.6	0.3	0	
Angulation, degrees		0	0.3	2.5	7.7	16.3	1.8	1.5	2.3	1.3	0	4.2	5.7	0	0	
Torque, degrees		0	0	3.1	2.6	7	0	1.2	2.2	0.5	1.4	5.7	3.4	0.7	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	0.3	0.7	-0.4	0.4	0.9	0.6	0.2	-0.8	0.4	0.9	0.4	0.2	
Facial/Lingual, mm		0.1	-0.2	0.6	0.6	-0.2	-0.5	-1.1	-0.6	-0.5	-0.4	1.8	1.2	-0.4	-0.1	
Mesial/Distal, mm		0.1	0.2	0.9	0.8	0.5	-0.6	-0.5	-0.6	-0.6	-0.1	0.7	0.2	0.3	0	
Rotation, degrees		0	-0.6	6	-0.9	-5.6	-2.9	41.6	19.3	0.7	6.1	-6.4	6.8	-0.7	0	
Angulation, degrees		0	0	-4.7	-3	-4.2	-3.2	16.1	6.4	-1.2	-1.5	-1.9	-1.2	-0.3	0	
Torque, degrees		0	-1.1	-4.6	-2.9	3	0.7	6.7	0.2	2.1	5.9	-6.1	-5.5	-3.4	0	

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ClinCheck Pro 015																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0.2E	0.1I	0.3I	0.3I	0.7E	0.8E	0.1I	0.1E	0.3E	0.1E	0.3E	0	0	
Translation Buccal/Lingual, mm		0	0.1L	0.1L	0	0.4L	0.2L	0.6B	0.1L	0.2B	0	0.1L	0.1L	0.2L	0.1L	
Translation Mesial/Distal, mm		0.1M	0.1M	0.3M	0.5M	0.5M	0.6M	0.5M	0.5D	0.5D	0.3D	0.1M	0	0.2M	0.3M	
Rotation Mesial/Distal		0.2°D	3.7°M	3.1°D	6.4°D	15.5°D	13.9°D	7.5°D	5.7°M	11.9°D	2.5°M	4.1°M	14.4°M	0.1°D	3.7°D	
Angulation Mesial/Distal		4.2°M	4.1°D	1.1°M	3.0°D	3.9°D	7.5°D	6.0°D	3.2°D	8.0°D	2.9°M	6.5°M	2.6°D	1.8°D	5.0°M	
Inclination Buccal/Lingual		3.0°B	1.4°B	4.1°B	6.6°B	0.9°L	0.2°B	0.4°B	0.1°L	6.2°B	0.3°L	2.2°B	0.4°B	0.3°B	0.8°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	0.5E	0.6I	0.7I	2.5I	2.3I	1.8I	2.3I	0.7I	0.4I	0	0	0	
Translation Buccal/Lingual, mm		0	0.5L	0	0.1L	0.6L	1.6B	2.2B	0.3B	2.3B	0.1B	0.7L	0.5L	0.9L	0.4L	
Translation Mesial/Distal, mm		0.5D	0.2D	0.1D	0.1D	0.3D	0.1D	0.8D	0.1D	0.5D	0.4D	0	0	0	0.3D	
Rotation Mesial/Distal		0.1°D	9.1°D	1.4°D	7.5°M	9.0°M	4.2°D	29.6°D	7.7°D	4.8°M	1.1°D	2.6°M	3.5°D	4.4°D	3.9°D	
Angulation Mesial/Distal		9.4°D	3.5°D	3.7°D	1.2°D	3.1°M	2.0°M	2.9°D	2.3°D	2.4°D	5.7°M	0.3°M	3.2°D	3.6°D	11.2°D	
Inclination Buccal/Lingual		11.3°B	2.8°B	4.7°B	1.6°B	0.8°B	11.9°B	9.9°B	7.5°B	16.2°B	3.9°B	4.1°B	2.5°B	0.4°B	6.7°B	
Ortho Analyzer 015																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.2	-0.2	-0.1	0.1	0.2	-0.9	-0.6	-0.2	-0.3	-0.4	-0.4	-0.4	-0.1	-0.1	
Translation Forward/Back, mm		-0.5	-0.2	-0.9	-1.5	-0.3	0.3	0.7	-0.4	-1	-0.1	-0.6	-0.4	-0.2	0.2	
Translation Left/Right, mm		-1	0.4	-0.2	0.8	0.5	2.4	1.5	0.6	1.4	-1.1	-1.3	0.3	0.4	-0.6	
Rotation, degrees		0.1	-3.7	3.1	6.8	16.4	18.9	9.4	-4.3	13	-3.7	-4	-14.3	0	3.7	
Angulation, degrees		4.2	-4.1	0.9	-3.8	0.4	-6.9	-4.2	-4.2	-6.9	2.8	6.6	-2.5	-1.8	5	
Inclination, degrees		3	1.3	4.2	6.8	-0.8	-1.5	-0.1	0.4	4.8	-0.5	1.8	0.9	0.3	-0.3	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.5	-0.1	-0.8	0.3	0	1.8	2.2	1.1	1.7	0.1	-0.2	-0.4	-0.2	-0.5	
Translation Forward/Back, mm		-1.5	-0.7	-0.6	-0.4	-0.7	-1.8	-1.1	-1.5	-2	-0.9	-1.6	-0.7	-0.9	-1.7	
Translation Left/Right, mm		1.3	1.1	1.1°M	0.7	-0.7	-0.3	-1.2	-0.1	0.2	-1.4	0	0.8	0.8	2	
Rotation, degrees		0.9	9	1.4	-7.5	-9.1	4.4	28.6	7.2	-3.7	0.8	-2.5	3.5	4.5	4	
Angulation, degrees		-9.5	-3.9	-4.4	-2.6	1.8	0.8	0.2	0.8	-2.6	5.1	0.2	-4.5	-3.5	-12.6	
Inclination, degrees		11.4	2.2	4.8	1.9	0.4	11.4	9.8	6.2	15.7	4.1	4.1	2.2	0.2	5.9	

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SureSmile 015

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.2	-0.1	-0.3	-0.3	0.7	0.5	0	0.1	0.4	0.1	0.3	0	0	
Buccal/Lingual, mm		-0.1	-0.1	-0.2	-0.3	-0.5	0.1	0.8	-0.3	-0.1	0	-0.2	-0.1	-0.2	0	
Mesial/Distal, mm		-0.2	0.2	0.1	0.5	0.7	0.8	0.7	-0.4	-0.3	-0.5	-0.1	0.1	0.2	0.1	
Rotation Mesial/Distal		0	4	-3	-6	-18	-17	-8	6	-13	4	4	14	0	-4	
Angulation Mesial/Distal		4	-5	2	-3	-3	-7	-6	-3	-7	1	6	-3	-2	5	
Torque Facial/Lingual		3	1	4	7	0	1	-1	0	6	0	2	0	0	-1	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.1	0	0.5	-0.6	-0.6	-2.6	-2.4	-1.8	-2.3	-0.6	-0.5	0	-0.1	0	
Buccal/Lingual, mm		-0.2	-0.5	0.1	0.1	-0.5	1.2	1.6	-0.2	1.8	0	-0.8	-0.4	-0.8	-0.6	
Mesial/Distal, mm		0.1	0.3	0.3	0.1	-0.1	-0.1	-0.6	0.1	-0.7	-0.4	0.2	0.2	0.3	0.5	
Rotation Mesial/Distal		0	-9	-2	8	9	-4	-30	-8	5	-1	3	-4	-4	-4	
Angulation Mesial/Distal		-11	-4	-5	-1	3	2	-2	-4	-4	6	0	-3	-4	-13	
Torque Facial/Lingual		11	3	5	2	2	12	9	7	16	4	4	3	0	5	

Ortho Insight 015

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-0.1	0.2	0	-0.2	0	0.7	0.5	0.1	0.4	0.6	0.2	0.3	-0.1	-0.2	
Facial/Lingual, mm		-0.5	-0.4	-0.5	-0.9	-0.1	0	1.2	0.1	-1.1	-0.1	-0.5	-0.2	0	0.2	
Mesial/Distal, mm		-0.6	0.4	-0.1	0.7	0.7	1.9	1	0.4	0.9	-0.2	-0.6	0.4	0.9	-0.2	
Rotation, degrees		0.6	-1.6	3	6.4	15	16.1	9.5	-5.6	13.3	-2	-4.8	-14.4	0.5	3.4	
Angulation, degrees		2.9	-4.7	1.1	-3	0.4	-2.5	-1.8	-4.6	-3.1	1.1	6.5	-2.8	-2.3	5.9	
Torque, degrees		3.1	2.1	4.6	6.5	-2.2	-2.4	-1.4	-0.4	4.3	0.2	1.5	1.3	-1.4	0.2	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0.7	1.1	0	-0.2	-1.9	-2	-1.5	-2.3	-1	-0.8	-0.2	-0.2	-0.8	
Facial/Lingual, mm		-1.1	-0.3	-0.5	0	-0.9	-0.7	1.2	-1.1	-0.8	-0.7	-1.4	-0.8	-1	-1.1	
Mesial/Distal, mm		1.3	0.3	0.6	0.8	-0.7	-0.4	-0.8	0.6	0.4	-1.4	0.2	0.5	0.8	1.8	
Rotation, degrees		10.1	11.6	1.4	-7.5	-10.3	3.1	29.9	7.8	-4.7	1.1	-2.6	3.7	7.8	16.1	
Angulation, degrees		-17	-5.2	-3.7	-1.2	6.6	2	-2.9	-4.6	-3.7	6.6	0.3	-4.1	-7	-21.1	
Torque, degrees		6.4	1.3	3.5	1.6	-0.6	12.3	7.6	7.5	16.2	5.2	4.1	2.1	0.8	4.2	

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ClinCheck Pro 016																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.2I	0.3I		0.1I	2.1E	2.2E	1.5E	1.9E	2.3E	2.0E	0.4I		0.2I	0.1I	
Translation Buccal/Lingual, mm		0.1L	1.4B		2.7B	1.5B	0.2B	1.2L	1.0L	0.4B	1.6B	1.9B		1.2B	0.3B	
Translation Mesial/Distal, mm		0	0.4M		0.5M	0.1D	0.5D	0.1D	0.6D	0.8D	0.3D	0.4M		0.5M	0.2M	
Rotation Mesial/Distal		0.1°D	9.4°D		9.0°D	5.6°M	7.6°M	13.8°M	11.3°M	12.3°M	2.5°M	9.7°D		7.7°D	1.0°D	
Angulation Mesial/Distal		0.7°M	1.7°D		6.6°D	1.9°D	5.7°M	3.9°M	2.8°M	4.4°M	1.0°M	1.8°D		2.7°D	0.2°M	
Inclination Buccal/Lingual		2.1°L	0.4°L		6.6°B	8.2°B	1.0°L	3.4°B	1.2°B	5.3°B	7.1°B	1.5°B		1.4°B	0.6°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.4E	0.5E		0.4E	0.4E	0.4E	0	0	0.2I	0.1I	0.5E		0.4E	0.2E	
Translation Buccal/Lingual, mm		0.7L	0.6B		3.0B	0.6B	1.1L	1.1L	0.2L	1.7L	0.2B	0.9B		0.3B	0.6L	
Translation Mesial/Distal, mm		0.1D	0		0.2M	0.2D	0.2D	0.1D	0.3D	0.4D	1.1D	0.3D		0.3D	0.2D	
Rotation Mesial/Distal		0.4°D	1.5°D		3.8°D	7.8°M	4.4°M	18.4°D	26.2°D	6.2°D	13.8°M	1.2°D		0.4°D	0.3°M	
Angulation Mesial/Distal		1.0°M	2.1°M		0.5°D	2.4°M	1.2°M	2.0°D	2.0°D	0.9°M	5.4°M	1.4°D		2.2°M	0.2°M	
Inclination Buccal/Lingual		2.2°L	0.7°B		9.6°B	7.3°B	1.7°B	4.8°L	2.2°B	1.0°B	2.4°B	1.0°B		0.4°B	1.8°L	
Ortho Analyzer 016																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.1	0		0	-2.2	-2	-1.4	-1.8	-2.2	-1.6	0.7		0.2	-0.1	
Translation Forward/Back, mm		0.1	1.6		1.6	0.2	1.3	-1.2	-0.5	0	0.3	1.4		0.8	0.6	
Translation Left/Right, mm		-0.3	0.2		1.1	-0.3	-1.5	-1.9	-1.2	-0.8	-0.6	0.1		0.9	0.3	
Rotation, degrees		0	10.4		8.7	-5.7	-7.7	-13.7	-11.2	-12.9	-3.1	9.6		7.6	0.8	
Angulation, degrees		0.7	-1.7		-7.5	-0.3	5.4	4.4	1.7	2.4	2.4	0.1		-1.6	0.3	
Inclination, degrees		-2.1	-0.4		5.5	8.3	-3	2.4	0.9	4.9	7	1.6		2.9	-0.6	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.4	-0.6		-0.8	-0.6	-0.6	-0.4	-0.1	-0.3	0.2	-0.4		-0.7	-0.3	
Translation Forward/Back, mm		-0.7	0.3		1.4	-0.9	-1.1	0.4	-1	-1.6	0.3	1.2		0.7	0.2	
Translation Left/Right, mm		0	-0.1		0.6	-0.8	-0.2	-0.8	-0.8	-0.8	-2.1	0.1		-0.5	0	
Rotation, degrees		0.4	1.9		5	-8.6	-6.4	18.6	26.2	5.6	-13.7	1.2		0.3	-0.2	
Angulation, degrees		1	2		-1.1	3.3	0.6	5.7	3.8	1.8	4	-1.4		2.3	0.1	
Inclination, degrees		-2.2	0.7		9.6	6.9	1.7	-4	4.4	0.9	1.6	1.1		0.4	-1.8	

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SureSmile 016

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0	-0.1		-0.3	2.1	2.5	2.2	2.5	2.7	2.1	-0.2		0.2	0.4	
Buccal/Lingual, mm		-0.2	1.2		2.3	1.8	0.7	-1.1	-0.6	0.8	1.9	1.6		1.2	0.3	
Mesial/Distal, mm		-0.3	0		0.1	0.2	-0.5	-0.2	-0.7	-0.8	-0.1	-0.2		0.1	-0.1	
Rotation Mesial/Distal		0	-9		-10	5	8	14	12	14	3	-10		-8	-1	
Angulation Mesial/Distal		1	-2		-6	-2	5	1	1	4	1	-2		-3	0	
Torque Facial/Lingual		-2	-1		6	8	-1	4	1	4	6	1		1	-1	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	0.5		0.8	0.3	0.6	0.2	-0.1	0	-0.2	0.4		0.5	0.2	
Buccal/Lingual, mm		-0.8	0.6		2.7	0.7	-0.9	-0.9	-0.3	-1.7	0.3	0.8		0.2	-0.5	
Mesial/Distal, mm		0.1	-0.2		0	-0.2	-0.2	-0.1	-0.1	-0.6	-1	-0.3		-0.4	-0.1	
Rotation Mesial/Distal		0	-2		-4	8	5	-18	-26	-5	14	-1		0	0	
Angulation Mesial/Distal		2	2		-1	2	1	-3	-1	0	5	-1		3	1	
Torque Facial/Lingual		-2	1		10	5	2	-5	2	1	1	1		0	-2	

Ortho Insight 016

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-0.2	-0.2		-0.8	1.6	2.1	1.7	2.1	2.1	1.4	-0.7		-0.2	-0.1	
Facial/Lingual, mm		0.1	1.4		1.8	0.8	1.4	-1.1	-0.7	0.3	0.5	1.2		0.9	0.2	
Mesial/Distal, mm		-0.6	0		0.4	0	-0.8	-1.5	-0.7	-0.5	-0.3	0.3		0.5	0	
Rotation, degrees		0.2	9.2		8.4	-5.6	-7.7	-14.1	-11.8	-12.8	-2.2	9.7		7.7	1	
Angulation, degrees		0.7	-0.8		-6.6	-1.9	2.2	0.5	0.6	2.5	1	-1.8		-2.7	0.2	
Torque, degrees		-2.5	0.5		2.9	8.2	-2.2	3.4	1.2	5	7.8	1.5		1.4	-0.6	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	0.5		0.4	0	0.7	0	-0.2	0.2	-0.1	0.3		0.3	0.2	
Facial/Lingual, mm		-0.3	0.8		2.1	0	-0.2	0.8	0.6	-1.4	0.1	0.7		0.2	-0.3	
Mesial/Distal, mm		0.2	0		0	0.1	-0.8	-0.6	0	-0.2	-0.7	0.8		0.1	0.5	
Rotation, degrees		0.4	1.5		3.9	-8	-4.4	19.1	26.8	6.2	-13.8	1.2		0.4	-0.3	
Angulation, degrees		1	2.1		-1.4	0.4	1.2	6.3	6.4	0.9	3.7	-1.4		2.2	0.2	
Torque, degrees		-2.2	0.7		9.6	7.3	1.7	-4.8	2.3	1	2.4	1		0.4	-1.8	

ClinCheck Pro 017																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.6E	0.5E	0.5E	1.2E	0.9E	0.3E	0.3I	0.6E	1.5E	1.7E	1.3E	0.5E	0.5E	0.5E	0.2E
Translation Buccal/Lingual, mm		0.5B	0.6B	1.4B	2.0B	1.6B	0.5B	0.4L	0.3L	2.1B	1.4B	3.6B	2.3B	1.4B	0.1B	0
Translation Mesial/Distal, mm		0.1M	0	0.1D	0.2D	0.4D	0.6D	0.5D	0.5D	0.5D	0.1M	0.1M	0.2D	0.1D	0.2D	0.3D
Rotation Mesial/Distal		0°	3.5°D	3.6°D	4.0°D	16.7°D	13.3°D	26.0°M	28.3°M	0.9°M	11.3°D	4.1°M	0.3°D	1.0°D	0.3°D	0°
Angulation Mesial/Distal		0.1°M	1.1°D	6.3°D	1.9°D	3.2°M	5.5°M	1.8°D	3.5°M	7.9°M	2.8°M	7.5°D	2.3°D	1.1°D	0.9°D	0°
Inclination Buccal/Lingual		0°	3.6°L	0.7°B	5.3°B	4.8°B	7.1°B	7.0°B	1.7°B	3.0°B	2.1°B	10.1°B	2.5°L	7.3°L	3.3°L	0.1°B
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0	0.5E	0.5E	0	0.5E	0.4I	0.6E	0.1I	0.4E	0	0.5I	0.4E	0.5E	0.5E	0.5E	0
Translation Buccal/Lingual, mm	0	0.1L	0.1B	0.7B	0.5B	1.6B	1.1B	0	0.2L	0.3L	1.0B	0.2L	1.0L	0.8L	0.3L	0
Translation Mesial/Distal, mm	0	0.1M	0.3M	0.6M	0.6M	0.4D	0.9D	0.8D	0.6M	0.4M	0.3M	0.7M	0.5M	0.3M	0.2M	0
Rotation Mesial/Distal	0°	6.0°M	0.6°D	12.4°D	17.4°D	1.3°M	7.9°D	1.8°M	2.8°M	1.6°M	20.2°M	29.9°D	6.1°D	3.1°M	4.9°M	0°
Angulation Mesial/Distal	0°	2.0°D	1.5°D	5.4°D	1.6°D	2.7°D	1.2°M	2.1°M	2.9°M	5.2°M	2.3°D	0.1°D	0.1°M	1.5°D	3.2°D	0°
Inclination Buccal/Lingual	0°	0.1°L	0.8°B	6.4°L	1.7°L	1.6°B	0.2°L	0.4°L	1.5°L	2.3°L	3.4°B	0.2°L	1.8°L	0.2°L	0.7°B	0°
Ortho Analyzer 017																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.5	-0.6	-0.5	-1	-0.7	-0.8	-0.4	-1.1	-1.4	-1.7	-1.6	-0.8	-0.7	-0.6	
Translation Forward/Back, mm		0.8	1.3	1.4	1.2	0.4	-1.3	-2.4	-0.1	1.8	1.2	1.4	2.7	2.7	0.6	
Translation Left/Right, mm		0.2	0.1	0.9	0.2	-1.9	-1.9	0.2	0.2	-1.5	-0.4	1.3	0.1	0	0	
Rotation, degrees		0	4.3	3.5	3.9	15.4	12.4	-25.8	-28.2	-2.3	10.4	-4.7	0.3	1	0.3	
Angulation, degrees		0	-0.9	-6.4	-2.3	5.5	5.5	-4.1	-3.3	7.6	3.1	-6.7	-2.2	-1	-0.8	
Inclination, degrees		-0.2	-3.4	0.3	5.1	6.7	8.4	9.7	1.9	2.4	2.7	10.7	-2.5	-7.3	-3.4	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	0	-0.5	-0.8	-0.5	-1	0.1	-0.7	-0.6	-0.9	-0.7	0.1	-0.8	-0.7	-0.6	-0.4	0
Translation Forward/Back, mm	0	-0.4	-0.3	1.8	0.7	0.8	0.7	-0.2	0.1	-0.1	-0.1	0.1	-0.6	-0.7	-0.4	0
Translation Left/Right, mm	0	0	0.2	1	0.7	0.7	-1.5	-0.6	0.1	-1.1	0.6	0.4	0.2	0.1	0	0
Rotation, degrees	0	-6.1	0.6	10.8	17.3	-1.3	8	-1.6	-2.9	-1.9	-20.6	29.1	6	-3.2	-4.9	0
Angulation, degrees	0	-2	-1.4	-3.9	-1	-3.1	3.1	-0.1	1	5.2	-2	0	0.2	-1.4	-1.8	0
Inclination, degrees	0	0.2	0.7	-7.5	-2.1	1.7	0.1	-0.4	-1.6	-2.2	4.2	0	-1.8	0.1	0.9	0

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SureSmile 017																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.4	0.6	0.5	1	0.7	0.8	0.6	1.5	1.2	1.6	1	0.8	0.8	0.8	0.2
Buccal/Lingual, mm		0.8	0.8	1.5	2	1.4	0.3	-0.8	0.1	2.3	1.7	3.4	2.3	1.5	0.1	0
Mesial/Distal, mm		0	0	0.1	-0.3	-0.9	-0.9	-0.5	-0.7	-0.8	0.1	0.1	0.3	0	-0.4	-0.3
Rotation Mesial/Distal		0	-4	-4	-4	-17	-12	26	30	3	-11	4	0	-1	0	0
Angulation Mesial/Distal		0	-1	-6	-2	2	5	-5	3	8	4	-8	-3	-2	-1	0
Torque Facial/Lingual		0	-3	2	5	8	7	7	0	2	2	8	-3	-8	-3	-1
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0	0.5	0.6	0.2	0.6	-0.6	0.2	-0.1	0.5	0	-0.5	0.4	0.5	0.4	0.5	0
Buccal/Lingual, mm	0	-0.2	0	0.8	0.5	1.4	1.2	-0.1	0	-0.4	0.8	-0.1	-1	-0.9	-0.4	0
Mesial/Distal, mm	0	0.2	0.3	0.5	0.4	-0.2	-0.9	-0.9	0.6	0.4	0.5	0.6	0.5	0.4	0.3	0
Rotation Mesial/Distal	0	6	-1	-12	-17	1	-7	4	3	1	15	-30	-6	3	5	0
Angulation Mesial/Distal	0	-2	-1	-5	-1	-3	1	2	2	3	-4	1	0	-2	-4	0
Torque Facial/Lingual	0	-1	1	-9	-2	2	0	0	-2	-2	3	2	-2	0	1	0
Ortho Insight 017																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.7	0.6	0.5	0.9	0.4	0.5	0.5	1	1.1	1.5	0.8	0.5	0.6	0.8	0.5
Facial/Lingual, mm		0.9	1.3	1.2	1.2	1.4	0	-1.7	-0.4	2.4	1.6	2	2.5	2.1	0.2	-0.1
Mesial/Distal, mm		-0.1	0.1	0.8	-0.2	-1.5	-2	-0.4	-0.6	-1.2	-0.4	1	0.3	-0.2	-0.4	-0.4
Rotation, degrees		0	3.5	3.6	3.9	15.3	11.2	-23	-26	-4.7	10.4	-1.9	0.3	0.7	1.7	3.8
Angulation, degrees		0.1	-1.1	-6.3	-1	9.1	8.7	-11.5	-8.8	8.7	7.3	-7.9	-2.3	-0.1	-0.4	0.4
Torque, degrees		0	-3.6	0.7	5.3	5.7	7.2	9.7	4.8	3.6	-0.3	10	-2.5	-7.3	-3.1	-1.3
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	0	0.4	0.5	0.2	0.5	-0.7	0	-0.1	0.4	0.1	-0.5	0.5	0.6	0.5	0.4	0
Facial/Lingual, mm	0	0	-0.1	1.6	0.2	0.9	1.1	-0.3	0	0.1	-0.4	-0.3	-0.6	-0.8	-0.4	0
Mesial/Distal, mm	0	0.4	0.3	0.8	0.8	0.5	-0.7	-2.3	-0.2	-0.6	0.9	0.4	0.2	0.6	0.6	0
Rotation, degrees	0	-6	0.6	12.4	17.4	-1.2	7.5	-1.8	-2.8	-2.7	-21.2	30.5	5.8	-3.1	-5.2	0
Angulation, degrees	0	-2	-1.5	-5.4	-1.6	-3.7	2.9	2.1	2.9	5	-4.3	-2.8	0.2	-1.5	-1.7	0
Torque, degrees	0	-0.1	0.8	-6.4	-1.7	0.9	1.3	-0.7	-1.5	-2.3	6	-2.4	-3.6	-0.2	1.8	0

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ClinCheck Pro 018																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0.1I	0.1I	0	0.1E	0	0.2E	0.6I	0.2I	0.3I	0.1I	0.2I	0	0	
Translation Buccal/Lingual, mm		0.3L	0.4B	0	0.3L	0.7L	0.3L	0.1L	0.3B	0.4L	0.4L	0	0.1B	0.2B	0.1L	
Translation Mesial/Distal, mm		0.1D	0	0.1M	0.1M	0.1M	0.2M	0.5M	0.5D	0.2D	0	0.3M	0.4M	0.1M	0.1M	
Rotation Mesial/Distal		0.7°D	2.4°D	2.9°D	2.2°M	1.0°D	4.0°D	10.9°D	12.6°D	7.7°M	12.9°M	13.3°M	2.4°M	1.0°M	0.2°D	
Angulation Mesial/Distal		0.2°D	0.5°D	5.0°M	4.9°M	10.4°M	6.7°M	0.1°D	6.0°D	3.2°M	8.7°M	8.9°M	9.7°M	1.8°D	0.1°M	
Inclination Buccal/Lingual		2.4°L	0.4°L	5.1°B	8.8°B	10.3°B	18.0°B	12.4°B	18.6°B	19.0°B	10.2°B	9.4°B	6.1°B	1.7°L	1.0°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.1E	0.1I	0	0.4I	1.6I	1.7I	1.1I	1.0I	1.2I	1.2I	0.1E	0.1E	0.1E	0.1E	
Translation Buccal/Lingual, mm		0.1L	0.9B	0.5B	0.7L	0.4B	0.8B	0.8B	0.9B	0.3B	0.5B	0.4L	0.6B	0.4B	0.1B	
Translation Mesial/Distal, mm		0.4D	0.3D	0.4D	0.3D	0.3M	0.2M	0.3M	0	0	0.1M	0	0.2D	0.1D	0.1D	
Rotation Mesial/Distal		1.4°D	0.3°M	4.1°M	10.4°M	2.5°M	1.7°D	9.9°D	10.0°D	10.1°D	0.1°D	4.1°D	2.2°M	0.9°D	2.8°D	
Angulation Mesial/Distal		0.6°M	0.8°M	0.7°M	7.4°D	0.5°M	0°	2.7°D	2.7°D	0.5°M	0.2°M	5.6°D	0.8°M	0.4°M	1.0°M	
Inclination Buccal/Lingual		0.5°B	0.2°B	1.4°L	1.3°L	1.1°B	2.5°B	4.3°B	6.3°B	0.2°B	1.4°B	2.1°B	0°	1.0°B	1.8°B	
Ortho Analyzer 018																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0	-0.1	-0.1	-1	-1	-0.7	-0.6	-1	-0.4	-0.3	0	-0.1	-0.1	
Translation Forward/Back, mm		-0.1	0.4	-1.1	-1.9	-2.8	-3.7	-3.2	-4.6	-3.9	-2	-1.5	-0.6	0.7	0.3	
Translation Left/Right, mm		0	0.1	-0.7	-0.9	-1.9	-0.5	0.7	1.7	-1.1	-2.6	-1.9	-1.2	0.6	0.4	
Rotation, degrees		0.7	2.3	3.1	-1.8	2	5.1	10.8	12.1	-10.7	-14.8	-14	-1.9	-1.1	0.2	
Angulation, degrees		0	-0.4	4.7	5.2	10.4	4.9	0.5	-7.3	4.1	9.6	10.8	10	-1.8	0	
Inclination, degrees		-2.4	-0.5	5.4	8.7	10.5	18.4	12.5	17.5	18.7	7.9	7.3	5.7	-1.6	-1	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.2	0	-0.1	0	1.3	1.4	0.9	0.6	0.7	0.9	-0.7	-0.2	-0.1	-0.2	
Translation Forward/Back, mm		-0.1	0.7	0.9	-0.5	-0.1	-0.3	0.2	-0.5	0.1	0	-0.6	0.8	0.4	-0.2	
Translation Left/Right, mm		-0.3	-0.4	-0.4	1.1	0.3	0.4	1.1	0.3	0.2	0.2	1.3	-0.1	-0.2	-0.5	
Rotation, degrees		1.5	-0.3	-4.1	-10.3	-2.6	1.9	10	10.2	10.6	0	4.1	-2.3	1.2	2.7	
Angulation, degrees		0.6	0.8	0.5	-7.5	0.5	-0.1	-3.1	-0.6	0.5	-0.7	-5.6	0.9	0.4	1	
Inclination, degrees		0.5	0.3	-1.4	-0.1	1.1	2.4	2	6.2	0.1	1.4	1.7	0	1	1.8	

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SureSmile 018																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0	-0.1	0.1	0.3	0.2	0.2	-0.6	-0.1	-0.2	-0.2	-0.2	0.1	0.3	
Buccal/Lingual, mm		-0.2	0.4	-0.1	-0.6	-0.9	-0.5	-0.1	-0.2	-0.6	-0.5	-0.2	0.1	0.4	0.1	
Mesial/Distal, mm		0.2	0.5	0.3	0.2	0.3	0.3	0.7	-0.3	-0.1	-0.3	0.1	0.7	0.7	0.5	
Rotation Mesial/Distal		-1	-2	-3	2	-1	-3	-12	-14	9	14	13	2	1	0	
Angulation Mesial/Distal		0	-1	5	5	5	7	1	-4	3	9	7	4	-2	2	
Torque Facial/Lingual		-2	0	6	10	10	19	12	18	19	8	11	6	-1	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.7	0.3	0.3	0	-1.4	-1.5	-0.9	-0.9	-0.8	-0.9	0.6	0.5	0.6	0.7	
Buccal/Lingual, mm		-0.1	0.9	0.6	-0.5	0.3	0.6	0.6	0.7	0.3	0.5	-0.2	0.7	0.5	0.2	
Mesial/Distal, mm		-0.3	-0.2	-0.3	0.2	0.4	0.2	0.3	0.3	0.2	0.2	0.3	0	0.1	0.1	
Rotation Mesial/Distal		-1	0	4	7	2	-2	-10	-9	-8	-2	-4	2	-1	-3	
Angulation Mesial/Distal		1	1	1	-8	1	1	-2	-3	2	0	-5	1	0	1	
Torque Facial/Lingual		0	0	-2	-2	1	3	4	6	0	1	2	0	1	2	
Ortho Insight 018																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	-0.1	-0.1	-0.2	0.1	0.4	0.4	0	0.2	-0.1	-0.3	0.2	0.4	0.6	
Facial/Lingual, mm		0.2	0.8	-0.5	-1.2	-2	-2.1	-1	-2.3	-2.5	-2.1	-1.7	-0.3	0.9	0.7	
Mesial/Distal, mm		0.4	0.4	-0.3	-0.2	-0.5	-1.9	0.1	1.1	-0.3	-0.3	0.8	0.5	1.7	1.5	
Rotation, degrees		0.7	1.9	3.2	-2.5	0.8	3.9	12.7	13	-9.8	-16.6	-17.3	-5.3	-1.1	0.2	
Angulation, degrees		-0.2	0.8	4.9	6.7	4.1	6.6	1.4	-1.5	2.7	8.1	11.6	9.8	-1.6	0.1	
Torque, degrees		-2.4	0.6	6.7	8.8	11.7	21	13.1	18.6	19.3	10.6	10	6.5	-1.7	-1	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	0.2	0.1	-1	-1.1	-0.6	-0.4	-0.6	-0.7	0.7	0.4	0.2	0.1	
Facial/Lingual, mm		-0.3	0.9	0.8	-0.2	0	-0.1	0.3	-0.3	0	0.1	-0.6	0.7	0.4	0.1	
Mesial/Distal, mm		-0.3	-0.3	-0.3	1.1	0.5	0.2	0.4	0.7	0.2	0.2	0.9	-0.2	-0.1	-0.1	
Rotation, degrees		1.7	0	-3.3	-4.6	-2.3	1.7	9.1	9.2	5.5	0.2	6.2	-2	1.1	2.1	
Angulation, degrees		-0.1	-0.6	-0.8	-9.2	-1.1	0	0.3	-1.9	0.5	-0.9	-7.5	0.3	-0.5	-0.7	
Torque, degrees		0.4	0.2	-2.9	-3.2	0.1	2.5	1.8	6.6	0.5	1.4	1.5	0	1	0.4	

ClinCheck Pro 019																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	0.2I	0.2E	0.5E		0.6E	0.4E	0.8E	0.1I	0.3I	0.9E	0.6E	0.8E		0.5E	0.2E	0.3I
Translation Buccal/Lingual, mm	0.2B	0.1B	0.9B		0.9B	1.3B	0.4B	0.1L	0.4L	0.6B	0.8B	0.7B		0.7B	0.1B	0.1B
Translation Mesial/Distal, mm	0.2D	0.1D	0		0.2D	0.5D	0.6D	0.3D	0.1M	0.1D	0.6M	0.5M		0.6M	0.4M	0.3M
Rotation Mesial/Distal	1.0°M	2.0°D	0.9°D		0°	13.7°M	6.1°D	6.3°D	5.9°D	4.2°M	31.4°M	3.4°M		6.8°D	2.1°D	0.1°D
Angulation Mesial/Distal	2.9°M	1.6°D	2.5°D		4.0°D	3.2°D	2.8°M	1.5°M	2.8°D	1.1°D	0.9°D	1.0°D		0.2°M	1.2°M	2.3°D
Inclination Buccal/Lingual	7.8°L	1.2°L	4.9°B		0°	9.4°B	1.8°B	0.3°L	0.5°B	1.4°L	7.2°B	10.5°B		2.7°B	5.6°L	7.9°L
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	1.2E	0.5E	0.6E		0.7E	0.2I	0.4I	0.1I	0.2I	0.4I	0.7I	0.5E		1.2E	0.8E	1.0E
Translation Buccal/Lingual, mm	0.1B	0.1B	0.8B		0.9B	1.3B	0.2B	0.2B	0.1L	0.4B	1.1B	1.1B		0.1B	0.5L	0.8L
Translation Mesial/Distal, mm	0.4D	0	0.1M		0.3M	0.5D	0.8D	0.7D	0.6M	0.5M	0.4M	1.0M		0.9M	0.8M	0.7M
Rotation Mesial/Distal	1.7°D	1.4°D	0.5°M		9.0°D	0.1°M	4.3°D	0.9°M	2.4°D	0.9°D	9.3°M	10.6°D		1.0°D	0.4°D	0.9°D
Angulation Mesial/Distal	2.7°M	6.0°D	7.0°D		6.8°D	5.9°D	0.6°M	0.2°M	1.4°D	2.7°D	2.0°D	0.2°M		3.8°D	4.6°D	2.1°M
Inclination Buccal/Lingual	0°	3.0°B	0.7°L		3.0°B	3.5°L	10.0°L	8.8°L	10.3°L	3.8°L	2.1°L	8.9°B		6.8°L	0.8°B	5.5°L
Ortho Analyzer 019																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm	0	-0.5	-0.8		-0.7	-0.7	-0.8	0	0.2	-0.6	-0.7	-0.8		-0.4	-0.2	0.2
Translation Forward/Back, mm	1.6	0.4	0.1		1	-0.9	0.3	-0.2	-0.4	1.4	0.5	-1.2		0.4	1.3	1.3
Translation Left/Right, mm	-0.3	0.4	0.7		0.8	0.2	-1.4	-0.9	0.4	0.6	0.8	0.8		0.7	0.3	0.8
Rotation, degrees	-1.2	2.1	0.7		0	-13.9	4.8	6.2	7.1	-4.5	-31	-3.4		6.8	2.2	0.2
Angulation, degrees	2.8	-1.5	-2.6		-4	-2.1	3.8	2.9	-1	-2.1	-2	-0.4		-0.3	1	-2.2
Inclination, degrees	-7.8	-1.3	4.8		0	9.4	1.9	0.9	0.4	-1.2	2.5	10.6		2.6	-5.4	-8
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm	-1.4	-0.8	-0.9		-1	0.4	0.1	-0.1	-0.1	0.2	0.7	-0.9		-1.4	-1	-0.9
Translation Forward/Back, mm	-0.1	-0.2	0.8		0.5	1.9	2.4	1.9	1.9	1.1	1.2	-0.6		1.6	-0.6	-0.6
Translation Left/Right, mm	-0.6	0.8	1.4		2.2	1.7	-0.8	-0.4	0.7	0.2	1.5	0.7		1.3	1.2	0.2
Rotation, degrees	1.7	0.8	-1.3		8.7	0.2	2.2	-0.9	2.5	0.9	-9.3	10.5		2.2	0.4	0.8
Angulation, degrees	2.8	-6.1	-7		-7.1	-6.7	1.2	0	-1.9	-0.4	-5	-1.6		-3.7	-4.6	2.1
Inclination, degrees	0.1	2.6	-0.7		1.8	-3.5	-9.9	-8.8	-10.3	-3.8	-1.3	8.7		-6.8	0.8	-5.5

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SureSmile 019

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	-0.2	0.4	0.6		0.5	0.2	0.8	0	-0.1	0.6	0.3	0.7		0.4	0.3	-0.2
Buccal/Lingual, mm	0.2	0.2	0.7		0.9	1.1	0.7	-0.4	-0.8	0.8	0.9	0.5		0.5	0.2	0.2
Mesial/Distal, mm	-0.3	-0.3	0.1		-0.2	-0.4	-0.7	-0.4	0.2	0	0.6	0.4		0.6	0.2	0.3
Rotation Mesial/Distal	0	-2	-1		0	14	-5	-5	-6	4	31	3		-7	-2	-1
Angulation Mesial/Distal	3	-2	-2		-3	-5	3	2	-2	-1	-4	-2		1	1	-2
Torque Facial/Lingual	-8	-1	5		0	9	2	0	1	-1	2	9		3	-6	-7

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	1.4	0.7	0.9		0.9	-0.4	-0.4	-0.3	-0.2	-0.4	-0.8	0.7		1.4	0.8	0.7
Buccal/Lingual, mm	-0.2	0	0.7		1	1.3	0.3	0.4	0.1	0.2	0.7	1		-0.1	-0.5	-0.8
Mesial/Distal, mm	-0.2	-0.1	0.1		0.2	-0.2	-0.8	-0.7	0.6	0.5	0.6	0.7		1	0.8	0.9
Rotation Mesial/Distal	-2	-1	1		-9	0	-3	2	-3	-2	8	-7		-1	0	-1
Angulation Mesial/Distal	3	-6	-7		-6	-7	1	1	-1	-5	-3	0		-4	-5	2
Torque Facial/Lingual	0	3	-1		3	-3	-13	-9	-10	-4	-2	9		-7	0	-7

Ortho Insight 019

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm	-0.3	0.4	0.7		0.5	0.2	0.8	-0.1	-0.1	0.5	0.4	0.5		0.6	0.4	-0.2
Facial/Lingual, mm	0.9	0.4	0.4		1	0	0.7	-0.3	-1	0.9	0.4	-0.7		0.1	0.8	0.6
Mesial/Distal, mm	-0.8	-0.1	0		0	0	-1	-1.4	-0.1	0.4	0.3	0.6		0.3	-0.1	0.4
Rotation, degrees	-1	2	1.1		0.1	-10.4	6	6.2	6.2	-4.1	-27.7	-2.7		6.8	2	2.3
Angulation, degrees	2.9	-1.6	-2.5		-2.6	-7.3	3.8	4	0.3	-1.6	-5.6	-1		0.2	2.4	-3.1
Torque, degrees	-7.8	-1.2	4.9		0	9.5	1.8	0.4	0.5	-1.1	12	9.5		2.7	-5.6	-7.1

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm	1.2	0.4	1.4		1.2	-0.1	-0.2	0.1	0	0.2	-0.2	1.1		2	0.8	0.8
Facial/Lingual, mm	-0.3	-0.4	0.6		0.4	1.4	1.7	0.4	0.5	0.2	0.7	-0.5		0.5	-0.8	-0.9
Mesial/Distal, mm	-0.9	0.5	0.8		0.9	1	-1.5	-2.2	1.2	0.8	0.8	0.3		0.7	0.9	0.1
Rotation, degrees	2.1	2	3.6		9.2	-0.2	4.1	-1.1	2.7	1.2	-0.7	9.8		2.8	0.7	-2.5
Angulation, degrees	0.9	-8.6	-10.2		-7.8	-7	5.2	2	-0.5	-2.6	-4.8	-2.8		-6.1	-6.4	3.5
Torque, degrees	-0.1	3	-0.4		1.4	-5.1	-11.8	-8.8	-11.1	-5.1	-2.5	6.4		-6.8	0.8	-5.2

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ClinCheck Pro 020																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0.1E	0.2I	0.4I	0.2E	1.4E	0.7E	0.6E	0.7E	0.9E	0.1I	0.1E	0	0	
Translation Buccal/Lingual, mm		0.1B	0.7B	0.1B	0.4B	1.1B	0.4B	1.4B	1.0B	2.1B	0.1L	0.6B	0.4B	0.3B	0	
Translation Mesial/Distal, mm		0	0.2M	0.1M	0.3M	0	0.1D	0.3D	0.5M	0.4M	0.4M	0.1M	0	0.1M	0	
Rotation Mesial/Distal		0.2°D	1.9°M	1.3°M	6.7°D	3.9°D	23.8°D	11.6°D	11.4°D	3.9°M	18.4°D	2.2°D	1.1°M	0.5°D	0.1°M	
Angulation Mesial/Distal		0.1°M	0.5°M	0.2°D	1.9°M	2.5°D	0.4°M	2.0°M	3.6°M	1.4°M	2.8°M	1.3°D	1.9°M	1.1°D	0.1°M	
Inclination Buccal/Lingual		0.6°B	1.6°B	3.0°L	3.4°B	2.1°B	0.8°L	7.9°B	6.5°B	11.3°B	1.2°L	3.8°B	2.5°L	0.7°B	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.1E	0.1E	0.3E	0.6E	1.4E	1.5E	1.4E	1.3E	1.2E	1.1E	0.1E	0.2E	0	0.1E	
Translation Buccal/Lingual, mm		0.1L	0	0.1L	0.6B	0.2B	1.4B	0.3B	0.5B	0.7B	0.2L	0.1B	0	0	0	
Translation Mesial/Distal, mm		0	0	0	0.1D	0.1M	0.3M	0.4M	0.3D	0.2D	0.1M	0	0	0	0	
Rotation Mesial/Distal		0.1°D	1.7°M	0.8°D	11.3°M	17.0°M	5.7°D	0.7°D	1.6°M	7.3°D	7.7°D	1.3°M	3.7°M	0.3°M	0.2°D	
Angulation Mesial/Distal		0.1°M	0°	1.5°D	4.5°D	3.5°D	1.6°M	2.4°M	1.2°D	1.3°M	3.4°D	5.4°D	1.2°M	1.8°M	0.1°M	
Inclination Buccal/Lingual		0.4°L	0.1°L	2.0°B	3.1°B	0.8°L	8.0°B	2.5°B	3.3°B	1.0°L	4.0°L	4.3°B	0.2°L	1.5°L	0.2°L	
Ortho Analyzer 020																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	-0.3	0.1	0.1	-0.2	-1.3	-0.7	-0.7	-1.1	-1.2	-0.1	-0.3	-0.2	-0.1	
Translation Forward/Back, mm		0	0.5	0.7	-0.3	0.6	0.5	-1	0	-0.1	-0.8	0.3	-0.4	0.3	0	
Translation Left/Right, mm		0	0	0	-0.2	0.4	-0.8	-1	0	-0.1	-0.8	0.3	-0.4	0.3	0	
Rotation, degrees		0.2	-1.9	-1.2	6.9	3.8	23.7	11.1	9.8	-5.7	18.5	2.2	-1.1	0.5	0	
Angulation, degrees		0	0.5	-0.1	1.5	-2.6	3	1.4	2.1	1.1	5.7	-1.5	1.8	-1.1	0	
Inclination, degrees		0.6	1.6	-2.9	3.7	2	0.5	8.1	7	11.2	1	3.8	-2.5	0.7	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	-0.3	-0.7	-1.1	-1.9	-1.7	-1.8	-1.7	-1.5	-1.6	-0.7	-0.7	-0.2	-0.1	
Translation Forward/Back, mm		-0.2	0	-0.5	-0.2	0.3	-0.2	0.1	0.1	1.3	1.3	-0.8	0.1	0.4	0.1	
Translation Left/Right, mm		-0.1	0	0.3	0.4	1.3	0.3	0.1	-0.1	-0.9	0.4	0.9	-0.5	-0.6	-0.1	
Rotation, degrees		0	-1.6	0.6	-11.3	-17	5.7	0.7	-1.6	7.2	7.7	-1.4	-3.7	-0.2	0	
Angulation, degrees		0	0	-1.5	-2.7	-5.4	0.7	2.4	-1.2	3	-0.9	-5.3	1.2	1.8	0	
Inclination, degrees		-0.4	0	2	3.7	0.8	8.1	2.6	3.3	-1.5	-4.1	4.4	-0.3	-1.5	0	

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SureSmile 020																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-0.1	0.1	-0.1	-0.3	0.1	1.3	0.4	0.6	0.2	1.2	0	0.2	0.1	0	
Buccal/Lingual, mm		0.1	0.6	0.1	0.1	1	1	1.2	0.9	1.9	0.2	0.4	0.4	0.2	0	
Mesial/Distal, mm		-0.1	0.1	0	0.1	0	-0.1	-0.3	0.4	0.2	0.3	-0.1	-0.2	0	-0.1	
Rotation Mesial/Distal		0	2	1	-7	-4	-25	-11	-10	4	-18	-2	1	-1	0	
Angulation Mesial/Distal		0	0	0	1	-3	1	2	4	1	4	-2	2	-1	-1	
Torque Facial/Lingual		0	2	-4	3	1	-1	7	7	11	-1	3	-3	1	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0.2	0.5	0.9	1.5	1.4	1.5	1.3	1.2	1.3	0.3	0.3	0	0	
Buccal/Lingual, mm		-0.1	0	-0.2	0.4	0.3	1.5	0.5	0.6	0.8	-0.1	-0.1	-0.1	0	0.2	
Mesial/Distal, mm		-0.2	-0.3	-0.1	-0.1	0.1	0.2	0.4	-0.3	-0.2	0.1	-0.1	-0.3	-0.4	-0.3	
Rotation Mesial/Distal		0	2	-1	11	17	-6	-1	2	-7	-8	1	4	0	0	
Angulation Mesial/Distal		0	0	-2	-5	-4	1	2	-1	1	-3	-6	1	2	-1	
Torque Facial/Lingual		0	0	2	3	-1	8	3	3	-1	-4	4	0	-2	0	
Ortho Insight 020																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.2	-0.2	-0.3	0	1	0.6	0.6	0.5	0.9	-0.1	0.1	0	0	
Facial/Lingual, mm		0	0.4	0.6	-0.3	0.6	1.4	0.5	0.3	0.6	0.5	0	0.9	0.2	-0.1	
Mesial/Distal, mm		0.3	0.6	0.4	0.2	1	-0.5	-0.3	-0.3	-0.3	0.2	0.3	-0.4	0.4	0	
Rotation, degrees		0.2	-1.3	-1.3	6.6	3.9	24	10.4	10.3	-3.8	17.8	2.2	-1.4	1	-0.1	
Angulation, degrees		0.1	-2.1	-0.2	2.9	-2.5	10.4	4.5	7	1.1	6.3	-1.3	3.4	-2.7	0.1	
Torque, degrees		0.6	1.7	-3	3.4	2.1	-0.8	7.8	6.5	11.3	-1.1	3.8	-2.5	0.8	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.1	0.6	1	1.2	2.2	2.2	2.3	2.1	1.6	1.8	0.6	0.6	0.3	-0.1	
Facial/Lingual, mm		-0.1	0	-0.6	0.2	0.9	0.6	0.6	0.7	1	0.9	-0.7	-0.3	0.1	0	
Mesial/Distal, mm		-0.1	-0.3	0.1	0.5	0.3	-0.6	-0.5	0.3	0.1	1.2	0.6	-0.2	-0.4	-0.2	
Rotation, degrees		0.3	-1.7	0.8	-11.3	-16.9	5.1	0.1	-1	7.3	7.8	-1.2	-3	-0.3	0.2	
Angulation, degrees		-1.5	0	-1.5	-4.5	-3.5	5	4.4	-3.1	1.3	-3.3	-5.1	1	1.8	0.1	
Torque, degrees		-0.5	-0.1	2	3.1	0.4	6.6	0.6	1.4	-1	-5.7	3.7	2.1	-1.5	-0.2	

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ClinCheck Pro 021																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.2E	0.1E	0.1E	0.8E	0.9E	0.8E	1.1E	1.0E	1.1E	1.0E	0.4E	0.1E	0.1E	0.1E	
Translation Buccal/Lingual, mm		0.6B	0.5B	1.3B	1.0B	0.1B	0.3L	1.1L	1.3L	0.3L	0	0.6B	0.3B	0.5L	0.2B	
Translation Mesial/Distal, mm		0.1M	0.4D	0.1D	0.5D	0.7D	0.7D	0.5D	0.2M	0	0	0.2M	0.2M	0.1M	0.1M	
Rotation Mesial/Distal		7.5°D	5.1°D	11.1°D	0.6°M	6.0°M	1.2°D	1.8°D	0.3°M	4.2°M	0.2°D	2.4°M	5.3°D	1.8°D	5.0°M	
Angulation Mesial/Distal		1.2°D	0.5°M	0.9°M	5.2°M	6.3°M	3.1°M	1.1°M	1.8°M	1.6°M	5.7°M	0.6°M	2.9°M	0.7°M	0.2°M	
Inclination Buccal/Lingual		9.5°L	4.8°L	0.6°L	1.6°B	0.9°L	1.5°B	1.0°B	0.9°B	3.0°B	1.7°B	2.3°B	2.1°B	1.1°L	3.8°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.6E	0.4E	0	0.3I	0.4I	0.4I	0	0.2E	0.4I	0.5I	0.3I	0.2E	0.1E	0.3E	
Translation Buccal/Lingual, mm		0.4L	0.3B	0.6B	0.4B	1.2L	1.8L	2.2L	2.0L	1.5L	1.1L	0.3L	0.4L	0.9L	1.3L	
Translation Mesial/Distal, mm		0.1D	0	0.1M	0.5D	0.3D	0.2D	0.1M	0.2D	0.2D	0.4D	0.4D	0	0.1D	0.1D	
Rotation Mesial/Distal		4.1°M	0.1°D	4.3°D	7.3°M	18.9°M	7.0°M	1.4°M	4.3°M	11.1°M	10.9°M	2.0°D	20.7°D	5.3°D	2.3°M	
Angulation Mesial/Distal		0°	0.3°D	1.7°D	0.6°M	4.8°M	1.2°D	2.5°D	0.5°M	0°	8.6°M	0.9°M	1.0°M	0.1°D	0.1°M	
Inclination Buccal/Lingual		2.0°L	3.5°L	1.8°L	8.8°L	0.4°B	0.9°B	0.1°L	4.2°L	0.7°B	2.1°L	0.5°L	0.6°L	2.7°L	5.0°L	
Ortho Analyzer 021																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.5	-0.1	-0.1	-0.9	-0.9	-0.7	-1.1	-1	-1.1	-1.1	-0.3	-0.2	-0.2	-0.2	
Translation Forward/Back, mm		2.5	1.2	0.8	0.7	0.9	-0.3	-0.8	-1	-0.5	0	0.1	0	-0.1	1.1	
Translation Left/Right, mm		-0.6	-0.5	-0.4	-1.5	-2.3	-1.4	-0.8	0.4	0.1	-1.2	0.3	-0.1	0.3	0.5	
Rotation, degrees		7.8	5.2	11.1	-0.6	-6.1	1.3	1.8	-0.3	-4.2	0.2	-2.4	5.4	1.8	-5	
Angulation, degrees		3.1	1	0.5	5.2	6.2	3.3	1.1	0	0.5	5.7	0.8	2.8	0.7	-0.1	
Inclination, degrees		-10.2	-4.8	1.6	1.5	-1.6	1.6	1.1	0.9	3	1.8	2.3	2.4	-1.1	-3.7	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.8	-0.5	0.2	0.6	0.2	0	-0.6	-0.4	0.4	0.3	0.5	-0.1	-0.3	-0.5	
Translation Forward/Back, mm		-0.2	0.9	0.9	2.3	-1.5	-1.7	-1.3	0	-0.9	0.9	0.5	0.2	0.5	0.5	
Translation Left/Right, mm		0.5	0.8	1.2	0.8	0.2	0.9	1.2	-0.4	-0.2	-3.1	-0.4	0.4	0.5	0.3	
Rotation, degrees		-4	0	4.3	-7.5	-18.9	-6.9	-1.4	-4.2	-11	-10.9	2.1	20.5	5.2	-2.3	
Angulation, degrees		-0.1	-0.3	-1.6	-2.6	-1.7	-2.6	-2.6	-1.7	-2.7	8	1	0.9	0.2	-0.2	
Inclination, degrees		-2.1	-3.4	-1.9	-8.5	1.1	1.2	0.1	-4.1	1.2	-3.7	-0.4	0.3	-2.7	-5	

SureSmile 021

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.4	0.1	0.1	0.8	0.9	0.8	1.4	1.4	1.1	1	0.3	0.1	0.2	0.1	
Buccal/Lingual, mm		0.6	0.5	1.2	0.8	0.3	-0.2	-0.9	-1	-0.1	0.2	0.4	0.3	-0.5	0.2	
Mesial/Distal, mm		-0.3	-0.6	-0.6	-0.8	-0.8	-0.7	-0.5	0.2	-0.1	-0.2	-0.2	-0.1	0	-0.2	
Rotation Mesial/Distal		-8	-5	-11	1	6	0	-2	0	4	0	2	-5	-2	5	
Angulation Mesial/Distal		1	1	1	5	6	3	1	1	2	8	1	3	1	1	
Torque Facial/Lingual		-10	-5	-1	2	-2	2	1	1	3	2	2	3	-1	-4	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.7	0.4	0	-0.6	-0.6	-0.4	0.2	0.2	-0.4	-0.6	-0.6	0.1	0	0.2	
Buccal/Lingual, mm		-0.3	0.4	0.7	0.6	-1.2	-1.9	-2.1	-1.9	-1.6	-1.1	-0.3	-0.5	-0.9	-1.3	
Mesial/Distal, mm		0	0	0.1	-0.4	-0.7	-0.1	0.1	-0.1	-0.2	-0.9	-0.5	0	0.1	0	
Rotation Mesial/Distal		4	0	-4	7	20	7	1	4	11	1	-2	-21	-5	2	
Angulation Mesial/Distal		1	0	-1	1	3	-1	-3	1	-2	9	1	2	1	1	
Torque Facial/Lingual		-3	-3	-2	-9	0	1	0	-4	2	-2	-1	-1	-2	-5	

Ortho Insight 021

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		-0.3	-0.1	0.1	0.9	0.9	0.8	1.2	1.2	1.1	1	0.2	0.1	0	-0.4	
Facial/Lingual, mm		1.6	1.1	1.1	0.6	1.1	0.3	-0.1	-0.7	-0.4	0.2	0.5	-0.1	0.1	1.1	
Mesial/Distal, mm		-0.2	-0.4	-0.5	-1.2	-1.8	-1.1	-1.4	0.2	-0.3	-0.6	0.2	0.1	0.4	0	
Rotation, degrees		6.6	3.8	11.1	-0.6	-6.1	1.3	2	-0.3	-4.1	0.2	-2.4	5.1	1.4	-3.6	
Angulation, degrees		4.2	2.7	0.9	5.2	6.9	3.4	3.5	1	1.6	5.7	0.6	3.6	1.5	-0.3	
Torque, degrees		-7.1	-5	-0.6	1.6	-0.9	2.2	1	0.2	4.5	1.7	2.3	3.6	-1.2	-6.3	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.6	0.3	-0.2	-0.4	-0.5	-0.2	0.2	0.2	-0.4	-0.7	-0.7	0.1	0	0.4	
Facial/Lingual, mm		-0.2	0.5	0.5	1.6	-1.7	-2.3	-2.1	-1.3	-1.9	-1.1	-0.3	-0.4	-0.5	-0.6	
Mesial/Distal, mm		-0.2	-0.6	0.1	-0.5	-1	-0.8	0	0.8	-0.1	-3.4	-0.8	-1	0	-0.1	
Rotation, degrees		-4.8	-1	4.3	-7.3	-17.4	-6.5	-1.7	-3.2	-10.9	-13.7	2	16.4	4.9	-3.5	
Angulation, degrees		2.2	2.2	-1.7	0.6	-0.8	-3.1	-1.5	-5.8	-1.7	9.1	0.9	3.4	0	3	
Torque, degrees		-1.7	-3.2	-1.8	-8.8	2.4	1.8	-1	-4.2	1.4	-2.1	-0.5	-2	-4.1	-4.8	

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ClinCheck Pro 022																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.3E	0.2E	0.3E	0.4E	0.1E	0.7E	0.4I	0.1E	0.6E	0.4E	0.2E	0.1E	0.2E	0.3E	
Translation Buccal/Lingual, mm		0	0.4B	1.0B	1.7B	1.0B	0.7B	0.3B	0.2B	0.2B	0.9B	1.0B	0.5B	0.2B	0	
Translation Mesial/Distal, mm		0.1M	0	0.1M	0.1M	0	0.2D	0	0.1D	0.1D	0.1D	0.1D	0	0	0	
Rotation Mesial/Distal		0°	4.9°D	5.5°D	3.8°D	7.0°M	18.6°M	21.9°D	2.0°D	27.6°M	11.9°M	7.5°M	3.4°M	2.8°D	0°	
Angulation Mesial/Distal		0°	0.4°D	2.5°M	1.8°M	0.9°M	2.1°M	2.2°D	3.3°M	2.2°M	4.6°M	3.6°M	1.6°M	0°	0°	
Inclination Buccal/Lingual		0.8°L	0.5°B	2.2°L	4.8°B	7.7°B	4.9°B	8.6°B	7.0°B	0.7°L	5.2°B	4.6°B	3.0°L	1.4°B	2.3°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.2E	0.2E	0.5E	0.4E	0.4E	0.1E	0.1E	0.1I	0.2I	0.1E	0.3E	0.3E	0.1E	0.1E	
Translation Buccal/Lingual, mm		0	0.5B	1.1B	1.2B	0.5B	0.1L	1.5B	0.6B	0.1B	0.5B	0.8B	0.6B	0.3B	0.2L	
Translation Mesial/Distal, mm		0.1D	0	0.1D	0.3D	0.2D	0.2D	0.2D	0.1M	0.1D	0.2D	0	0.1M	0	0	
Rotation Mesial/Distal		2.9°D	1.6°M	0.2°D	4.8°M	12.9°M	8.9°D	19.9°D	20.4°D	11.9°D	1.4°M	7.8°D	4.4°D	0.3°D	0°	
Angulation Mesial/Distal		0°	0.5°D	6.4°D	1.3°M	0.7°D	0.3°D	0.5°D	0.4°D	1.3°M	0°	2.4°M	5.5°D	0.2°D	0°	
Inclination Buccal/Lingual		4.0°B	2.4°B	2.8°B	2.5°B	2.2°B	1.8°B	8.7°B	3.3°B	1.9°L	2.2°B	2.2°L	1.3°B	1.4°B	12.4°B	
Ortho Analyzer 022																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.3	-0.2	-0.4	-0.5	-0.4	-0.8	-0.1	-0.6	-0.7	-0.7	-0.4	-0.2	-0.2	-0.4	
Translation Forward/Back, mm		-0.1	0.2	1	0.5	-1.2	0.2	-1.4	-1.7	1.1	0.3	0.4	1.2	0.1	0.6	
Translation Left/Right, mm		-0.1	0.3	-0.3	-0.2	-0.6	-0.8	2.9	-1	-1.1	-2.1	-1.2	-0.7	-0.4	-0.3	
Rotation, degrees		0	5	5.4	3.9	-6.9	-18.6	22	2.2	-27.6	-11.6	-7.4	-3.4	4.4	0.6	
Angulation, degrees		0	-1.8	1.3	1.5	1.2	1.3	-7.3	2.9	-1.1	5.4	4.1	1.4	-0.1	0	
Inclination, degrees		-0.8	0.3	-2.1	4.8	7.6	1.8	6.3	7.2	-1.4	4.2	4.1	-3.1	1.4	-2.4	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.3	-0.3	-0.5	-0.4	-0.5	-0.5	-0.4	-0.1	0.1	-0.2	-0.3	-0.2	0	-0.3	
Translation Forward/Back, mm		-0.5	0.2	0.8	0.8	0.1	-0.4	-0.3	-0.4	0.6	-0.1	1	0.4	-0.1	-2.6	
Translation Left/Right, mm		-0.2	0	1.1	-0.6	0.3	0	-0.3	0.2	-0.8	0.2	-0.9	1	-0.1	-0.2	
Rotation, degrees		2.8	-1.7	1.2	-4.8	-12.8	9	19.5	20.4	11.8	-1.5	7.8	4.4	0.2	0	
Angulation, degrees		-0.2	-0.4	-6.3	1.4	-2.6	-0.2	-0.1	1	3.7	-2	2.6	-5.6	-0.3	0	
Inclination, degrees		4	2.4	2.8	2.7	2.9	1.2	8.2	3.9	-2.7	2.3	-1.8	0.8	1.4	12.4	

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SureSmile 022																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.3	0.3	0.3	0	0.6	-0.2	0.2	0.6	0.3	0.2	0.1	0.2	0.3	
Buccal/Lingual, mm		0.2	0.5	1.1	1.6	0.8	0.8	-0.4	0	0.4	1	0.8	0.6	0.2	0	
Mesial/Distal, mm		0.1	0	-0.2	-0.1	0	-0.1	0.1	-0.1	0	0	-0.1	0	0.1	0	
Rotation Mesial/Distal		0	-5	-5	-3	6	19	-22	-2	28	12	8	3	-3	0	
Angulation Mesial/Distal		0	0	2	3	1	2	-2	4	2	4	4	2	0	0	
Torque Facial/Lingual		-1	1	-2	5	8	1	9	7	-1	4	6	-3	1	-2	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.3	0.3	0.5	0.4	0.3	0.1	-0.1	-0.3	-0.2	0	0.3	0.3	0.1	0.1	
Buccal/Lingual, mm		-0.1	0.4	1.1	1.2	0.7	0	1.2	0.3	0.1	0.5	0.9	0.6	0.2	-0.7	
Mesial/Distal, mm		0	0	0.1	-0.2	-0.2	-0.2	-0.2	0.2	0	-0.1	0	0.3	0	0.2	
Rotation Mesial/Distal		-3	2	0	4	14	-9	-20	-20	-12	2	-8	-4	0	-1	
Angulation Mesial/Distal		-1	-1	-6	1	-2	0	-1	0	1	0	2	-5	0	-4	
Torque Facial/Lingual		5	2	2	2	1	2	9	3	-2	2	-2	1	2	13	
Ortho Insight 022																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.2	0.2	0.3	-0.2	0.2	-0.4	0.3	0.3	0.5	0.2	0.1	0.2	0.3	
Facial/Lingual, mm		0.2	0.4	1.5	1.1	0.1	1	-0.1	-0.4	1.7	0.4	0.1	1	0.2	0.6	
Mesial/Distal, mm		0	0	-0.5	-0.4	-0.2	0.7	-0.8	-0.5	1.3	-0.4	-0.1	0.2	0.4	0.4	
Rotation, degrees		0	4.9	5.5	3.8	-6.9	-17.7	21.7	0.7	-26.3	-12.3	-7.9	-3.4	2.8	0	
Angulation, degrees		0	-0.4	2.9	1.8	0.4	-6.5	4.4	4.6	-5.8	3.8	3.6	1.6	0	0	
Torque, degrees		-0.8	0.5	-1.6	4.8	7.7	5.2	7.4	6	1.1	6.1	4.6	-3	1.4	-2.3	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.1	0.2	0.4	0.5	0.3	0.1	0	0	-0.3	0.1	0.4	0.2	0.1	-0.7	
Facial/Lingual, mm		-0.3	0.4	0.9	1.1	0.5	0	0.4	0.2	0.7	0	1	0.3	0	-1.9	
Mesial/Distal, mm		-0.1	0.1	0.8	-0.3	-0.1	-0.4	-0.3	0.7	-0.2	-0.3	-0.6	0.7	0.1	0.4	
Rotation, degrees		2.8	-1.6	2.1	-4.8	-13	8.2	19.4	19.8	11.4	-1.5	7.8	4.4	0.3	4.5	
Angulation, degrees		-0.2	-0.5	-6.9	1.3	-0.1	2.6	2.2	1.9	3.9	0.7	2.4	-5.5	-0.2	-4.3	
Torque, degrees		3.4	2.4	2.8	2.5	2.2	1.8	8.7	3.7	-2	2.2	-2.2	1.3	1.4	12.3	

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ClinCheck 023																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.8E	0.2E	0.2E	0.2E	0	0.2I	0	0.1E	0.6E	0.6E	0.2E	0.8E	0.5E	0.7E	
Translation Buccal/Lingual, mm		0.7L	0	0	0.1L	0.2B	0	0	0	0	0.8B	0	0	0	0.7L	
Translation Mesial/Distal, mm		0.5D	0.1D	0.2M	0.3M	0.1M	0.3M	0.4M	0.4D	0.4D	0.2D	0	0	0.1D	0.4D	
Rotation Mesial/Distal		5.3°M	9.4°M	3.3°M	1.6°D	2.6°D	8.3°M	1.5°D	0.2°D	7.1°M	0.5°D	2.8°M	2.8°M	4.8°M	1.0°M	
Angulation Mesial/Distal		6.1°M	2.6°M	3.8°M	3.2°M	2.2°D	1.7°M	3.3°D	2.4°M	0.6°D	0.3°M	3.0°M	0.2°M	2.7°M	4.3°M	
Inclination Buccal/Lingual		20.3°L	5.1°L	5.1°L	1.4°B	2.9°B	6.2°L	5.0°L	0.5°B	2.2°B	3.1°B	6.2°L	0.7°B	4.6°L	5.9°L	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0.3E	0.1I	0	0.3I	0.5I	0.3I	0.5I	0	0.1E	0.1I	0	0.3I	0.2I	0.5E	
Translation Buccal/Lingual, mm		0	0	0	0	0.7B	0.6L	0.1L	1.0L	1.0L	0.5B	0	0	0	0.1L	
Translation Mesial/Distal, mm		0.4M	0	0	0	0.2D	0.5D	0.8D	0.6M	0.6M	0.3M	0.4M	0.4M	0.2M	0.2M	
Rotation Mesial/Distal		8.8°M	0.7°M	1.3°D	3.0°D	8.4°M	8.3°M	6.7°D	9.4°M	10.8°D	11.8°M	7.4°D	0.6°D	4.3°M	6.9°M	
Angulation Mesial/Distal		20.0°M	1.4°M	2.3°M	0.9°M	5.2°D	0.3°D	2.8°D	3.8°D	0.4°M	8.2°D	2.0°D	2.7°D	0.6°D	5.1°M	
Inclination Buccal/Lingual		0°	0.4°L	1.3°B	0.8°L	5.3°B	1.1°L	1.8°L	2.6°L	0.3°B	3.6°B	0.1°B	0.7°L	0.9°B	0°	
Ortho Analyzer 023																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-1.4	-0.5	-0.5	-0.7	-0.6	-0.5	-0.6	-0.8	-1.2	-1	-0.8	-1.2	-0.7	-0.8	
Translation Forward/Back, mm		1.8	1	0.8	-0.5	-0.9	1.4	1.3	-0.5	-0.7	-0.3	1.1	-0.4	0.6	0	
Translation Left/Right, mm		-1.2	-0.7	-0.9	-0.7	0.4	-0.1	1.2	-0.9	-0.1	-0.5	-0.8	-0.2	-0.8	-1.1	
Rotation, degrees		-5.5	-9.6	-3.4	1.7	2.6	-8.4	1.6	0	-7.1	0.5	-2.9	-2.9	-5	-0.3	
Angulation, degrees		4.5	1.6	3.5	3.2	-2.3	-1.2	-3.1	2.3	-2	0	2.8	0	2.3	2.6	
Inclination, degrees		-20.8	-6	-5.3	1.5	2.7	-7.4	-6	-0.1	1.9	3.1	-6.3	0.7	-4.7	-6	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		-0.9	-0.2	-0.4	0	0.2	0	0.4	-0.2	-0.5	-0.1	0	0.2	0.1	-0.6	
Translation Forward/Back, mm		0.3	0	-0.2	0.1	-1.2	-0.3	0.4	-0.4	-0.7	-0.9	0.5	0.5	0.1	0.2	
Translation Left/Right, mm		-2.5	0	-0.1	0.3	1.2	-0.1	0.1	0.8	0.4	2.7	0.7	0.9	0.4	-0.6	
Rotation, degrees		-13.8	-0.7	1.3	3	-8.7	-8.3	6.8	-8.4	10.9	-9.7	7.4	0.5	-4.3	-6.7	
Angulation, degrees		16	1.3	2.2	0.9	-4.4	-0.8	-1.1	-4.1	0.7	-9.7	-2	-2.7	-0.5	5.1	
Inclination, degrees		-2.1	-0.4	0.7	-0.8	6	-0.9	-1.9	-2	0.4	5.8	-0.2	-0.7	0.9	-0.6	

SureSmile 023

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.8	0.3	0.3	0.3	0.1	-0.1	0	0.3	0.7	0.4	0.4	0.9	0.6	0.8	
Buccal/Lingual, mm		-0.1	0.2	0.1	-0.1	0.1	-0.1	0	-0.1	0.3	0.7	0.2	0.1	0.3	-0.5	
Mesial/Distal, mm		-0.8	-0.3	-0.1	0.1	0	0.1	0.3	-0.5	-0.2	-0.1	-0.1	0.1	-0.2	-0.4	
Rotation Mesial/Distal		5	9	3	-2	-3	8	-2	1	7	-1	3	3	5	1	
Angulation Mesial/Distal		8	2	4	3	-2	-1	-3	3	-1	-2	3	0	3	6	
Torque Facial/Lingual		-20	-5	-5	1	3	-6	-5	1	2	3	-6	1	-5	-5	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	-0.1	0.1	-0.3	-0.6	-0.1	-0.5	0.2	0.6	-0.2	0	-0.3	-0.1	0.6	
Buccal/Lingual, mm		0.1	0	0	0.1	0.5	-0.5	-0.1	-0.8	-0.9	0.4	0.1	0.2	0	-0.2	
Mesial/Distal, mm		-0.3	0.1	0	0.1	0	-0.5	-0.6	0.7	0.5	0.5	0.5	0.4	0.4	0.1	
Rotation Mesial/Distal		9	1	-1	-3	8	9	-7	8	-12	11	-8	-1	4	7	
Angulation Mesial/Distal		21	1	2	1	-5	0	-3	-4	-1	-8	-3	-3	0	5	
Torque Facial/Lingual		0	0	1	-1	5	-1	-2	-2	0	4	0	-1	1	0	

Ortho Insight 023

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.3	0.4	0.2	0.3	0	-0.8	-0.7	-0.1	0.6	0.4	0.2	1	0.7	0.9	
Facial/Lingual, mm		1.4	0.5	0.9	-0.2	-0.3	1.3	0.6	0.5	0.2	0.3	1.3	0.3	0.9	0.2	
Mesial/Distal, mm		-1.4	-0.2	-0.3	0	0.8	0.6	1.5	-0.5	0.1	0.2	-0.3	0.3	-0.4	-1	
Rotation, degrees		-5	-8.9	-3.3	1.6	3.7	-7.4	1.5	0.2	-6.5	0.8	-2.8	-2.8	-5.2	-1.5	
Angulation, degrees		6.2	1.5	3.8	3.2	-2.1	-2	-3.3	2.4	-3.1	0.3	3	0.2	3.6	5.7	
Torque, degrees		-20.3	-5.1	-5.1	1.4	3	-6.2	-4.3	0.5	3.8	4.5	-6.2	0.7	-4.6	-6	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0.4	-0.2	0	-0.3	-0.7	-0.2	-0.7	0.1	0.4	-0.5	0	-0.4	-0.2	0.5	
Facial/Lingual, mm		0.2	0.2	-0.2	0.1	-0.6	-0.5	0.1	-0.4	-0.6	-0.5	0.1	0.3	-0.1	-0.3	
Mesial/Distal, mm		-1.9	0	-0.1	0.1	0.8	-0.1	0.3	1	-0.5	2.2	0.2	0.6	0.3	-0.6	
Rotation, degrees		-22.8	-1	1.3	3	-8.8	-7.7	4.3	-8.5	10.1	-8.3	7.4	1.5	-4.4	-11.5	
Angulation, degrees		23.9	2.2	2.3	0.9	-3.4	-3.2	-2.7	-6.7	6.5	-10.7	-2	-3	-0.2	9.5	
Torque, degrees		-1.8	-0.4	1.3	-0.8	6.5	-1.1	-1.9	-2.6	0.2	6	0.1	-0.7	0.9	-1.8	

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ClinCheck Pro 024																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0	0.1I	0.4E	0	0.5I	0.2I	0.8I	0.7I	0.2I	0.3E	0.1E	0	0	
Translation Buccal/Lingual, mm		0	0	0.2L	0.3B	0.3L	0	0.1L	0.3L	0.5B	1.0B	0.8B	0.5B	0	0	
Translation Mesial/Distal, mm		0	0	0	0.2M	0.4M	0.5M	0.3M	0.3D	0.3D	0	0.2M	0	0	0	
Rotation Mesial/Distal		0°	0°	5.0°D	5.9°D	19.3°D	4.6°M	5.0°D	4.3°D	6.6°M	6.8°D	6.3°D	1.7°D	0°	0°	
Angulation Mesial/Distal		0°	0°	1.1°M	0.7°M	2.8°M	2.9°M	2.2°D	3.9°D	3.6°M	10.2°M	6.5°M	1.7°M	0°	0°	
Inclination Buccal/Lingual		0°	0°	1.0°L	2.0°B	0.8°L	2.8°L	0.9°L	0.3°B	0°	4.3°B	1.4°L	2.3°B	0°	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	0.2E	0.2I	0.3I	0.3E	0.6E	0.7E	0.8E	0.9E	0.4E	0	0	0	
Translation Buccal/Lingual, mm		0	0	0.3L	0.6B	2.0B	0	1.6B	0.5B	2.2B	0.6B	1.2B	0.8B	0	0	
Translation Mesial/Distal, mm		0	0	0.1M	0.2M	0.3D	0.6D	0.1M	0.2D	0.1M	0.5D	0	0.4M	0	0	
Rotation Mesial/Distal		0°	0°	0.5°M	0°	6.4°M	23.0°M	5.9°D	17.2°M	13.1°M	35.8°M	3.3°M	15.2°D	0°	0°	
Angulation Mesial/Distal		0°	0°	10.5°D	8.1°D	6.7°D	7.1°D	3.0°D	0.5°D	3.9°M	9.1°D	5.5°D	7.3°D	0°	0°	
Inclination Buccal/Lingual		0°	0°	5.2°L	5.5°B	1.5°B	6.7°L	1.4°B	4.0°L	2.7°B	0.3°L	5.0°B	0.5°B	0°	0°	
Ortho Analyzer 024																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0	0	0.2	-0.3	0	0.6	0.3	0.8	1	0	-0.2	-0.2	0	0	
Translation Forward/Back, mm		0	0	-0.1	0.1	-0.4	0.7	0.3	-0.4	0.3	-0.5	0.9	0	0	0	
Translation Left/Right, mm		0	0	-0.2	0.1	-1.1	-0.4	0.4	1.2	-0.5	-2.8	-1.5	-0.1	0	0	
Rotation, degrees		0	0	5	5.9	19.2	-4.6	4.9	4.4	-6.7	3.1	6.3	1.7	0	0	
Angulation, degrees		0	0	1.2	0.5	6.9	2.7	-0.8	-3.9	1.4	12.2	9.1	1.7	0	0	
Inclination, degrees		0	0	-0.6	2	1.5	-2.9	-1	0	-0.2	5.7	-0.5	2.3	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	-1	-0.7	-0.3	-1.3	-1	-1.4	-1.3	-1.6	-1	-0.5	0	0	
Translation Forward/Back, mm		0	0	0.6	-0.9	1.3	1	1.6	1.1	1.6	0.5	0.3	1.7	0	0	
Translation Left/Right, mm		0	0	1.8	2	1.4	2.2	0.1	0.8	0.1	1.2	1	1.1	0	0	
Rotation, degrees		0	0	0	2.3	-6.5	-20.3	5.7	-17.2	-12.9	-35.4	-3.4	15.4	0	0	
Angulation, degrees		0	0	-10.5	-8.7	-8.7	-16.1	0.6	-7.9	0.5	-12.5	-6.7	-6.4	0	0	
Inclination, degrees		0	0	-5.2	6.7	2.5	-4.7	-1.4	-3.7	2.1	5.1	5.5	-4.6	0	0	

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0	0	-0.2	0.3	0	-0.6	-0.3	-0.6	-0.9	-0.6	0.3	0.1	0	0	
Buccal/Lingual, mm		0	0	-0.3	0.3	-0.4	-0.2	-0.1	-0.7	0	0.6	0.7	0.5	0	0	
Mesial/Distal, mm		0	0	0.1	0.3	0.3	0.2	0.4	-0.1	-0.4	-0.4	0	0	0	0	
Rotation Mesial/Distal		0	0	-5	-6	-19	5	-6	-5	8	-3	-6	-2	0	0	
Angulation Mesial/Distal		0	0	1	1	6	3	-1	-4	4	10	7	3	0	0	
Torque Facial/Lingual		0	0	-1	2	-1	-3	-1	0	0	2	-1	2	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	0.4	0	-0.3	0.6	0.3	0.8	0.3	1.2	0.6	0.2	0	0	
Buccal/Lingual, mm		0	0	-0.2	0.4	1.8	0.4	1.6	0.9	2	0.8	1.1	0.7	0	0	
Mesial/Distal, mm		0	0	0.2	0.1	-0.5	-0.5	0.2	-0.1	-0.1	-0.4	-0.1	0.2	0	0	
Rotation Mesial/Distal		0	0	1	0	6	23	-6	17	13	34	3	-15	0	0	
Angulation Mesial/Distal		0	0	-11	-9	-8	-9	-3	-1	3	-16	-7	-8	0	0	
Torque Facial/Lingual		0	0	-5	6	1	-9	1	-6	3	-3	5	-2	0	0	

Ortho Insight 024

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0	0	-0.1	0.4	0.2	-0.6	-0.2	-0.4	-0.8	-0.1	0.2	0.2	0	0	
Facial/Lingual, mm		0	0	-0.2	-0.2	0.4	0	-0.3	-0.7	0.2	0.2	0.9	0.1	0	0	
Mesial/Distal, mm		0	0	-0.4	0.1	-2	0.7	0.7	-0.3	-0.8	-2.8	-0.9	-0.4	0	0	
Rotation, degrees		0	0	4.8	5.9	15	-5	5	4.6	-6.6	1.9	6.3	1.7	0	0	
Angulation, degrees		0	0	2.7	0.7	14.4	-3	0.5	-0.3	0.5	13.5	6.5	1.7	0	0	
Torque, degrees		0	0	-1	2	-1.5	-2.7	-0.9	0.3	0	3.2	-1.4	2.3	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	0.5	-0.1	-0.3	0	0.4	0.5	0.2	0.8	0.5	0.3	0	0	
Facial/Lingual, mm		0	0	0.8	-0.3	1.6	1.6	1.2	1.6	2.4	-0.3	0.5	1.6	0	0	
Mesial/Distal, mm		0	0	1.3	1.4	1.7	1	1.1	1	0.5	4.6	0.8	1.4	0	0	
Rotation, degrees		0	0	-0.8	0.5	-5.1	-21.9	5.8	-17.3	-13.3	-27.5	-3.3	16.1	0	0	
Angulation, degrees		0	0	-9.1	-9.6	-9.5	-16.9	-1.8	-9.8	-1.7	-20.9	-5.5	-7.5	0	0	
Torque, degrees		0	0	-6.5	5.5	1.6	-3.5	1.4	-4	-0.1	11	5.2	-3.5	0	0	

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ClinCheck Pro 025																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		0.1E	0.1E	0.1E	0	0.2I	0	0.4E	0.2I	0.2E	0.5I	0.3E	0.2E	0.3E	0.3E	
Translation Buccal/Lingual, mm		0	0	0.6B	0	0.3L	0.2L	0.2B	0.5L	0.3B	0	0.7B	0.3B	0	0	
Translation Mesial/Distal, mm		0	0	0	0	0.1M	0.2M	0	0.1M	0.1M	0.1M	0.1D	0	0	0	
Rotation Mesial/Distal		0°	0°	0.4°M	0.6°M	9.5°D	1.9°D	0.9°D	0.3°M	6.7°D	7.4°D	0.9°M	0°	0°	0°	
Angulation Mesial/Distal		0°	0°	0°	0.1°M	2.7°D	0.1°D	0.6°D	1.7°D	0.1°D	0.4°M	4.5°M	0°	0°	0°	
Inclination Buccal/Lingual		0°	0°	0.2°L	0.5°L	1.2°L	2.2°B	0.2°L	3.4°L	1.3°B	0.1°B	1.8°B	0°	0°	0°	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	0	0.1E	0.9I	0.8I	0.6I	1.4I	1.1I	0.7I	0.1I	0.2I	0	0	
Translation Buccal/Lingual, mm		0	0	0.5B	0.7L	1.3B	0.2B	0.1L	1.1B	0.2B	1.3B	0.8B	0.9B	0	0	
Translation Mesial/Distal, mm		0	0	0.1M	0.3M	0.3D	0.1M	0.2M	0.9D	1.1D	0.7D	0.3M	0.2M	0	0	
Rotation Mesial/Distal		0°	0°	5.4°D	11.8°D	22.2°M	26.4°D	23.8°M	7.8°D	19.4°M	12.4°M	19.1°D	29.1°D	0°	0°	
Angulation Mesial/Distal		0°	0°	4.6°D	0.4°M	0.8°D	0.6°M	2.1°D	5.7°D	4.4°D	0.7°M	0.6°D	5.6°D	0°	0°	
Inclination Buccal/Lingual		0°	0°	3.2°B	9.5°L	5.1°B	0.8°B	1.2°L	7.2°B	0.2°B	0.3°B	5.4°L	1.1°L	0°	0°	
Ortho Analyzer 025																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Extrusion/Intrusion, mm		-0.2	-0.2	-0.2	0.1	0.1	0	-0.2	0	-0.2	0.4	-0.4	-0.4	-0.5	-0.5	
Translation Forward/Back, mm		0	0	0.6	0.1	-0.1	-0.7	0.2	0.7	0	0	0.3	0.3	0	0	
Translation Left/Right, mm		0	0	0.1	-0.1	0.4	0.2	0.1	0.6	0.2	0	-1.2	0	0	0	
Rotation, degrees		0	0	-0.4	-0.7	9.6	1.9	0.8	-0.3	6.8	7.4	-0.7	0	0	0	
Angulation, degrees		0	0	0	0	-0.4	-0.1	0	-1.6	-0.2	0.7	4.6	0	0	0	
Inclination, degrees		0	0	-0.3	-0.5	-1.3	2.2	0	-3.4	1.3	0.1	1.8	0	0	0	
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Extrusion/Intrusion, mm		0	0	-0.2	-0.5	0.5	0.3	0	1	0.7	0.7	-0.1	0.1	0	0	
Translation Forward/Back, mm		0	0	-0.1	1.3	-0.1	-0.5	-0.6	-1	-0.4	1.1	2	1.5	0	0	
Translation Left/Right, mm		0	0	1.3	-0.2	-0.3	-1.7	1.7	0.4	0.9	-0.4	-1.1	-0.3	0	0	
Rotation, degrees		0	0	5.7	11.6	-22.2	26.1	-23.9	8.6	-17.9	-12.6	19.2	29.2	0	0	
Angulation, degrees		0	0	-6.1	3.3	0.7	8.4	-7.1	-5.2	-8.6	-1.2	4.1	0.2	0	0	
Inclination, degrees		0	0	2.7	-9	5.3	2.4	0.2	3.9	2.9	0.6	-4.2	-2.3	0	0	

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SureSmile 025

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.1	0	0	0	0.2	0.3	0.2	0.1	-0.4	0.3	0.2	0.3	0.3	
Buccal/Lingual, mm		0	0	0.6	0	-0.4	-0.2	0.4	-0.5	0.4	-0.3	0.7	0.3	0	0	
Mesial/Distal, mm		0	0	0	0	0.1	0.2	0	0.1	0.2	-0.1	-0.2	-0.1	0	0	
Rotation Mesial/Distal		0	0	0	1	-10	-3	-1	0	-7	-7	1	0	0	0	
Angulation Mesial/Distal		0	0	0	0	-1	0	-1	-2	0	1	0	2	0	0	
Torque Facial/Lingual		0	0	0	-1	-1	2	0	-3	1	0	2	0	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	0	0.1	-1.1	-1	-0.6	-1.7	-1.2	-1.1	-0.2	-0.3	0	0	
Buccal/Lingual, mm		0	0	0.5	-0.4	1.1	-0.2	-0.4	0.2	0	1.2	1	0.8	0	0	
Mesial/Distal, mm		0	0	0.1	0.4	0	0.1	0.4	-0.9	-1	-0.7	0.3	0.5	0	0	
Rotation Mesial/Distal		0	0	-7	-12	22	-26	23	-8	22	13	-19	-29	0	0	
Angulation Mesial/Distal		0	0	-2	0	-1	1	-2	-6	-4	1	-1	-4	0	0	
Torque Facial/Lingual		0	0	3	-9	5	-2	1	7	0	0	-5	-2	0	0	

Ortho Insight 025

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Occlusal/Gingival, mm		0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.3	-0.3	0.4	0.3	0.3	0.3	
Facial/Lingual, mm		0	0	0.7	0	-0.5	-0.4	0.2	0	-0.2	-0.4	0.3	0.3	0	0	
Mesial/Distal, mm		0	0	0.1	-0.1	0.5	0.4	0.2	-0.3	0.4	0.1	-0.9	-0.1	0	0	
Rotation, degrees		0	0	-0.4	-0.6	8.5	1.8	0.9	-0.5	6.6	7.3	-0.9	0	0	0	
Angulation, degrees		0	0	0	0.1	0.4	-0.1	-0.6	0.6	0.6	1	4.5	0	0	0	
Torque, degrees		0	0	-0.2	-0.5	-1	1.5	-0.2	-3.4	1.3	0.1	1.8	0	0	0	

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Occlusal/Gingival, mm		0	0	-0.1	0.4	-0.8	-0.8	-0.4	-1.1	-0.7	-0.7	0.2	-0.1	0	0	
Facial/Lingual, mm		0	0	0	1.2	0.2	0.2	-0.4	-0.7	-0.4	0.7	1.9	1	0	0	
Mesial/Distal, mm		0	0	0.2	-0.1	0.5	-1.1	0.7	0.3	0	-0.9	0.2	0.5	0	0	
Rotation, degrees		0	0	5.4	11.8	-21.6	25.5	-22.5	7.5	-18.7	-12.3	19.1	29.1	0	0	
Angulation, degrees		0	0	-4.6	0.4	-4.4	12.3	-12.8	-3.6	-9.7	0.7	-0.6	-5.6	0	0	
Torque, degrees		0	0	3.2	-10.4	6.4	2.7	1.8	5.6	2.9	1.8	-5.4	-1.1	0	0	

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Appendix D: Number of Aligners Raw Data

Patient ID Aligners	Software ID Aligners	Number of Maxillary Aligners	Number of Mandibular Aligners
1	1	11	14
2	1	14	14
3	1	16	16
4	1	18	18
5	1	29	29
6	1	16	16
7	1	24	24
8	1	18	18
9	1	16	18
10	1	38	29
11	1	30	30
12	1	25	25
13	1	21	25
14	1	21	21
15	1	24	24
16	1	21	21
17	1	19	17
18	1	27	27
19	1	20	20
20	1	15	15
21	1	18	18
22	1	20	20
23	1	24	24
24	1	29	29
25	1	9	17
1	2	15	15
2	2	16	16
3	2	39	39
4	2	15	15
5	2	20	20
6	2	16	16
7	2	20	20
8	2	19	19

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8	2	19	19
9	2	12	12
10	2	52	52
11	2	28	28
12	2	14	14
13	2	24	24
14	2	21	21
15	2	33	33
16	2	38	38
17	2	34	34
18	2	55	55
19	2	21	21
20	2	18	18
21	2	26	26
22	2	21	21
23	2	18	18
24	2	46	46
25	2	23	23
1	3	13	16
2	3	9	15
3	3	8	15
4	3	9	19
5	3	11	25
6	3	7	17
7	3	14	19
8	3	10	18
9	3	10	17
10	3	20	26
11	3	17	31
12	3	10	21
13	3	26	27
14	3	13	30
15	3	17	25
16	3	9	18

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17	3	10	22
18	3	17	17
19	3	10	17
20	3	10	21
21	3	14	18
22	3	10	14
23	3	20	26
24	3	19	32
25	3	11	24
1	4	14	13
2	4	13	9
3	4	12	8
4	4	13	9
5	4	10	11
6	4	11	7
7	4	12	14
8	4	19	10
9	4	16	10
10	4	22	20
11	4	23	17
12	4	17	10
13	4	12	26
14	4	24	13
15	4	15	17
16	4	28	9
17	4	25	10
18	4	20	17
19	4	19	10
20	4	24	10
21	4	16	14
22	4	18	10
23	4	31	20
24	4	13	19
25	4	7	11

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Appendix E: Number of Attachments Raw Data

Patient ID Attachments	Software ID Attachments	Total Number of Attachments
1	1	12
2	1	13
3	1	13
4	1	11
5	1	12
6	1	16
7	1	17
8	1	7
9	1	13
10	1	18
11	1	13
12	1	14
13	1	10
14	1	13
15	1	14
16	1	13
17	1	17
18	1	10
19	1	14
20	1	13
21	1	19
22	1	8
23	1	18
24	1	15
25	1	11

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1	2	7
2	2	8
3	2	2
4	2	7
5	2	2
6	2	4
7	2	9
8	2	6
9	2	12
10	2	9
11	2	10
12	2	10
13	2	6
14	2	13
15	2	8
16	2	11
17	2	13
18	2	6
19	2	7
20	2	10
21	2	11
22	2	4
23	2	4
24	2	8
25	2	7

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Candidate for the degree Master of

Science in Dentistry.

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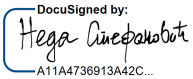
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