The rationale of having minimal preparation and having ceramic veneers cemented to enamel in order for the most predictable bonding is well documented. It is also seen that still a lot of practitioners worldwide prepare the tooth with the tooth as the starting point. There is a significant benefit in bleaching which one must not ignore as well. The fundamentals of minimal and step by step tooth preparation are highlighted keeping in mind the preservation of the tooth tissues is presented following contemporary protocols into consideration.
Diastemas were present in upper anteriors in a healthy adult patient. The Canines are in Class 1 and healthy periodontium was seen. The patient wants the diastemas to be closed and also for the teeth to appear brighter. Impressions are made and diagnostic photographs taken. A face bow record is done and sent to the laboratory with instructions given for a wax up with four indirect ceramic veneers as the desired treatment outcome.

Fig. 1

Fig. 2
Occlusal View of the initial situation
The patient is given home bleaching as for two weeks with 10% Carbamide Peroxide to be carried out for 2 hours a day. This makes the tooth shade lighter. For every colour change desired one needs 0.2mm of ceramic. If the right protocols are followed the teeth can be lightened needing less tooth preparation for the final result there by preserving tooth tissue.

A mock up is done using a Silicone Index that is made from the Wax Up Models using Temporary crown and Bridge Material( Protemp 4, 3M Espe). This is adjusted and it is ensured that it has the same measurements as that of the wax up model. If this is not insured then it can lead to a discrepancy in the final tooth preparation. The clinical situation is judged and records are made to ensure that the final outcome. If there are any alterations to shape and size they can be done at this point in time and can also be recorded again to communicate with the patient and also the laboratory.
There are different designs for finish lines on the incisal edge, but the most conservative and predictable for the restoration is the butt joint. Incisal reduction should be 1.5mm of the mock up. To ensure no undercuts the incisal edge is reduced at an obtuse angle to the long axis of the tooth. The reduction should be done with a goal that the veneer will be cemented horizontally and not vertically as a crown is.
A depth cutting diamond is used to ensure reduction no more then 0.5mm in any plane on the mock up. Either the whole mock up can be coloured as shown or after the initial depth grooves, the bottom of these grooves can be coloured for contrast with a pencil.
Fig. 7 In the Middle of the tooth as in the incisal plane the initial reduction is kept to 0.5mm of the mock up.
Then the diamond is moved in the same way to the cervical 1/3rds of the tooth. On the side of caution this reduction should be no more then 0.2mm as the enamel is very thin in the cervical area. Instead of a depth cutting diamond drill like the one shown a round diamond could be used for this area.

The initial reduction is ensured in 3 planes and then these are all joined together through the mock up. In ensuring that one does through the mock up, in places/areas where there is addition required the enamel is preserved using this method.
Use preparation guides to ensure adequate reduction for ceramic and modify accordingly.
Use preparation guides to ensure adequate reduction for ceramic and modify accordingly.
Finish lines are placed supragingivally or equigingivally. In case one is closing diastemas the interproximal finish lines are created palatal to the interproximal contact zones.
Finish lines are placed supragingivally or equigingivally. In case one is closing diastemas the interproximal finish lines are created palatal to the interproximal contact zones.
Ensure smooth finish lines and surfaces, using 40 micron diamond abrasives on high torque/reduction hand piece, followed by polishing disks (Soflex, 3M Espe) and polishing rubbers used for composite resin restorations. A smooth surface ensures less stress under the veneer and also a more uniform film thickness of cement. This also leads to better adhesion. Double retraction was used for gingival tissue management. Then a Polyether Silicone Impression (Impregum, 3M Espe) was used to make the final impression. Then temporary veneers (Protemp 4, 3M Espe) were made using the silicone index that was used to fabricate the mock up. Its adjusted and polished. The impressions and all relevant models with the appropriate work sheet was sent to the laboratory. Four Feldspathic Ceramic Veneers were fabricated and received in the office after a few days. The veneers were tried after removing the temporaries and then prepared for bonding.
A rubber dam was placed for adequate isolation. Teflon tape was placed mesial to the canines for them not to get etched. Floss Ties were placed above the finish lines to ensure proper placement of the veneers. The surface of the prepared tooth is cleaned of any resin that might have been left before as a result of the temporary veneers.
32 % Phosphoric Acid (Scotchbond, 3M Espe) is applied to the teeth for 20 to 30 seconds in case the surface is enamel. It is then rinsed off and the teeth are dried with a high vacuum suction.
Bonding agent (Single Bond, 3M Espe) was applied to the teeth according to the manufacturer's instructions. After the multiple coat application, the solvent in the bonding agent is eliminated by blowing on the bonding agent. Do not polymerize the bonding agent.
Fig. 17  Four Feldspathic ceramic veneers fabricated using the refractory die technique, cemented with light cure resin cement (RelyX Veneer Cement, 3M Espe). The excess cement was cleaned using the appropriate protocols. This ensured a successful esthetic outcome and preservation of the tooth tissues.

Careful treatment planning, bleaching teeth before doing ceramic veneers and then preparing through the mock up following the contour of the teeth will result in the best bonding between ceramic and the tooth tissues.