

# Effect of different immersion times and sintering temperatures on translucency of monolithic nanocrystalline zirconia

Ashraf Hussien, Hesham Sabet, M. Wahsh, T. Salah

## Abstract

### Purpose

The objective of the study was to investigate the effect of different immersion times, in coloring liquid, and sintering temperatures on translucency of monolithic nanocrystalline zirconia.

### Materials and methods

Forty five specimens of nanocrystalline zirconia were obtained by cutting InCoris TZI blocks into slices using a stainless steel disc mounted on a custom made milling machine. The slices were divided into three groups (n = 15) according to immersion times (3, 5 and 7 min) then each group was further subdivided into 3 subgroups (n = 5) according to the sintering temperatures (3622°C, 3722°C and 3822°C). CIE-Lab coordinates were measured for each slice against black and white backgrounds using Vita easy shade spectrophotometer and translucency parameter (TP) was calculated. One way analysis of variance combined with a Tukey-post hoc test were used to analyze the data obtained (P = 0.05).

### Results

Results of the present study showed that at temperature 3622°C there was statistically significant decrease in TP between 7 min immersion time and the other two groups, while there was no statistically significant difference in TP using different immersion times at temperatures 3722°C and 3822°C.

### Conclusion

Our results showed that the best translucency was obtained by the combination between lower dipping times and higher sintering holding temperatures.

*Future Dental Journal 2018, June*