SDM
College of Dental Sciences & Hospital
Dhavalnagar, Sattur, Dharwad - 580009, Karnataka, INDIA
Recognised by Dental Council of India, New Delhi

SHRI
DHARMASTHALA
MANJUNATHESHWARA
UNIVERSITY

A COMPARATIVE EVALUATION OF WEAR RESISTANCE OF INDIRECT RESIN COMPOSITES AND ALL CERAMIC MATERIAL AGAINST NATURAL TEETH

By

Dr. Rachana Hiremath

Dissertation Submitted to the
Shri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka.

In partial fulfillment
of the requirements for the degree of

Master of Dental Surgery (M.D.S)

in

Prosthodontics

Under the guidance of
Dr. Lekha K
Department of Prosthodontics

Shri Dharmasthala Manjunatheshawara
College of Dental sciences and Hosiptal

Sattur, Dharwad

2019-2021

Shri Dharmasthala Manjunatheshwara
University, Dharwad, Karnataka

ABSTRACT

Background and objectives:

Indirect resin composite materials and all ceramic materials are the most widely used restorative materials due to their excellent esthetic property. Wear that occurs between the enamel of teeth and restorative material is an important criterion for selection of restorative materials.

The purpose of this study is to comparatively evaluate the wear resistance of indirect resin composites and all ceramic material against natural tooth

Objectives:

1. To evaluate the wear resistance of indirect resin composite(ceramage) against natural tooth.

2. To evaluate the wear resistance of all ceramic material (IPS e-max CAD) against natural tooth.

3. To compare the wear resistance of indirect resin composite and all ceramic material against

Methodology:

Total 20 samples with each 10 samples of all ceramic material (IPS e-max CAD) and indirect resin composites(ceramage) with dimension of 12×2mm were

fabricated. The two-body wear testing was carried out at 5000 cycles, 1kg load and 350rpm.The weight of the samples was checked using precision weight balance before and after two-body wear testing. Weight loss of each specimen was calculated. Wear % was calculated using the formula:

% Wear = Initial Weight - Weight After Abrasion / Initial Weight x 100

Results:

The data was tabulated and subjected to statistical analysis. The mean and standard deviation was calculated for each group and subjected to test. The independent t test was performed for comparison between the groups.

The results of comparison of all ceramic material and indirect resin composite are statistically significant for wear resistance as p value is less than 0.05

Conclusion:

Thus, within the limitations of the study it was concluded that the results of comparison of indirect resin composite and all ceramic material showed that all ceramic material showed more wear resistance when compared to indirect resin composite.

Keywords: Enamel, indirect composite, all ceramic, wear resistance, weight loss