

# "Evaluation of Effect Of Dietary Advice Along With New Complete Dentures On Nutritional Status In Edentulous Patients"- An In Vivo Study

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## Abstract

**Background:** *The relationship between the oral health and nutritional status in the elderly is complex and controversial. It has been suggested that poor oral health and a decreased ability to chew have a profound influence on food selection, diet and thereby the nutritional status of the individual. Edentulous individuals consume diet that is lower in fruits, vegetables, protein and fiber as compared to dentate individuals due to decrease in ability to chew. If or not a combination of dietary advice along with prosthetic rehabilitation improves dietary intake is still not very clear. So, we are aimed to give dietary advice along with prosthetic treatment and thought of evaluating their nutritional status through OHIP-EDENT, Mini Nutritional Assessment test and serum ferritin levels at baseline, 6 months and 12 months.*

**Method/Outcome:** *A type of observational study in which 25 patients will be recruited after seeing into the inclusion and exclusion criteria and then these patients will be given complete denture prosthesis along with nutritional advice and the outcome will be assessed using OHIP-EDENT, Mini Nutritional Assessment Test and Serum Ferritin levels at baseline six and nine months.*

***Expected Results: Simple dietary advice that can be implemented by a dentist would be more practical in clinical practice than tailored dietary counselling. So, giving simple nutritional advice in combination with new complete denture would improve nutrient intake among edentulous individuals***

***Keywords: Edentulous, Complete denture, Nutritional advice, Serum ferritin, elderly, nutritional status, mini nutritional assessment***

## **INTRODUCTION**

Mastication is the primary function of teeth and masticatory ability is reduced with tooth loss which in turn leads to noxious changes in food habits and thus increases risk of certain systemic diseases

Intake of protein and other nutrients including fiber, vitamins, calcium is significantly lower in edentulous individuals due to consumption of lower amount of raw fruits and vegetables and also other hard and tough food substance.<sup>[1]</sup> Several studies have also shown that there is decreased risk of many diseases like cancer, diabetes, cardiovascular diseases with adequate consumption of proper healthy balance diet including raw fruit and vegetables.<sup>[2]</sup>

Several studies have shown that there is improvement in quality of life of patients with conventional or implant supported complete denture. There is also increase in chewing ability but there is no adequate change in their food habits as required for living a healthy life.<sup>[3]</sup> So in elderly population nutritional assessment becomes crucial because of progressive under nutrition.<sup>[3]</sup>

In this study we will be encouraging patients for healthy eating habits by giving them nutritional advice in addition to complete denture prosthesis.<sup>[1]</sup>

The edentulous patients are already on lesser nutritive diet because of inability to chew.<sup>[4]</sup> This leads to further deterioration of health. The complete denture treatment for such patients definitely improves the chewing ability of patients. The instructions for usage of denture are always given to the patients. At the same time, it is also very significant to provide structured dietary advice for better health of such patients. Hence this study is planned to evaluate whether there is any effect of dietary advice on nutritional status of edentulous patient.<sup>[5]</sup>

### **AIM:**

To evaluate effect of dietary advice along with new complete denture on nutritional status in edentulous patient – An in vivo study

### **OBJECTIVES:**

- 1) To assess nutritional status with mini nutritional assessment test at baseline, after six and twelve months.
- 2) To assess oral health related quality of life using modified OHIP.EDENT at baseline, after six and twelve months.
- 3) To assess serum ferritin levels of the patient at baseline, after six and twelve months<sup>[6]</sup>
- 4) To compare patient's nutritional status at baseline six and twelve months

### **INCLUSION CRITERIA:**

Included subject in this study must:

1. Want both upper and lower complete denture
2. Should accept the instructions & explanations given by operator or outcome assessors
3. be able to follow & react to the questionnaires used in the study
4. have the way to regulate any advised dietary change

### **EXCLUSION CRITERIA:**

A probable subject will be rejected if he/she has:

1. an infectious disease
2. an orofacial motor disorders
3. a psychiatric disorder
4. suffering from dementia
5. any dietary constraint
6. no way to carryout dietary changes

Sample Size: It is 22 but taking into account attrition rate of 10%, It comes out as 25.

Study Design: Prospective observational Study

### **PROCEDURE:**

This is a type of observational study which will be performed in the department of prosthodontics at Sharad Pawar Dental College and Hospital in which the recruitment of patients will be done depending upon the inclusion and exclusion criteria from department OPD and then they will be screened for eligibility. Total of 25 patients will be recruited for dietary intervention group and mini nutritional assessment test and serum ferritin levels will be measured. All the conventional denture steps will be performed and on trial insertion first dietary advice will be given to the patient and again the same dietary advice in written format will be repeated on delivery of prosthesis. Patient will be contacted telephonically every week for motivation to follow recommended diet chart. Patient will be recalled for follow up at 6 and 12 months of denture insertion and both mini nutritional assessment test and serum ferritin levels and modified OHIP-EDENT will be analyzed again.<sup>[7]</sup>

Mini nutritional assessment test and modified OHIP-EDENT will be conducted for all patients by assessors nominated for study. The assessors will not perform complete denture fabrication for the patient.

### **SAMPLE PREPARATION:**

Informed consent from the patient will be taken regarding entire process which involves complete denture preparation and drawing patient's blood sample for assessing serum ferritin levels in patient's body.

## **EXPECTED RESULT:**

Giving simple nutritional advice in combination with new complete denture would improve nutrient intake among edentulous individuals.<sup>[8]</sup>

## **DISCUSSION:**

Yuriko Komagamine et al (2015) studied effect of new complete dentures and simple dietary advice on nutritional status in edentulous patients. In a randomized controlled trial, a total of 70 patients were divided into dietary intervention group and control group with 35 members in each group. The intervention group has been given 1st dietary advice on trial insertion and second dietary advice was given on delivery of new dentures and outcome was assessed on third and 6 months using various methods like assessment of antioxidant capacity, mini nutritional assessment short form.<sup>[2]</sup>

Nagaranjani Prakash et al (2012) conducted study on 94 completely edentulous patients in between 50-80 years and who were in need of complete denture for the first time. Nutritional status of the patients was assessed by him both before and after the treatment. He explained the importance of well-balanced diet and regular nutritional status assessment to the patients during treatment and after after 6 and 9 months the nutritional status of the patients was checked by him using MNA form, then he compared the individual score for each question in the form and total score obtained at baseline with those obtained after 6 and 9 months and concluded that 100% patients are well nourished compare to 83.0% at baseline.<sup>[9]</sup>

J.Bradbury et al (2006) conducted a study on 98 edentulous patients' i.e 49 in each group. It was a 18 months study. All participants were asked to complete a three-day estimated food diary and a questionnaire to perceive the chewing ability. Two one to one counseling sessions with nutritionist and a tailored written package was provided to the patients and control group received normal care only and six weeks after denture replacement patients were again mailed a second food diary and questionnaire and was evaluated by the nutritionist on their visit to the hospital.<sup>[3]</sup>

P.F Allen (2005) conducted a study on 35 patients who has requested replacement of existing complete denture. A questionnaire containing number of validated social resources, oral health related quality of life and nutritional assessment measures was completed by all participants prior and 2 months post treatment. As a result, he concluded in his studies that further efforts are required to promote healthy diet in these individuals and it should not be assumed that this will occur following provision of new denture.<sup>[10]</sup>

Kaumudi J. Joshipura et al (1996) conducted a study on 51,529 male health professionals and concluded that edentulous participants consume less of dietary fibers, carotene, vegetables, fresh pears, apples and carrots and consume more of saturated fat and cholesterol compared to the participants with 25 or more teeth.<sup>[1]</sup>

## **IMPLICATION**

The dietary advice in written format handed to patients may improve overall health status of edentulous patients

## CONCLUSION:

To investigate that simple nutritional advice along with complete denture prosthesis increases health status in edentulous patients, this study can be further extended to check the long-term effect on the patient as this is a short-term study and long-term effects of dietary advice on nutritional status of patients cannot be analyzed in this study

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