Tooth Diet v 1.00 User Guide

Tooth Diet: A software that helps dental providers **perform a dietary assessment** and **give dietary advice** to their patients and improve their oral health.

1 CONTENTS

2 INTRODUCTION

Unhealthy diet has being defined as one of the causes of numerous diseases. Regarding oral health, caries has been directly correlated with sugar consumption. In addition, consumption of elaborated carbohydrates has found to have positive correlation with caries formation. Whereas, studies have proved that low sugar diet leads to lower risk for caries.

Caries is defined as the most popular disease among children and adolescents (60-90%) according to World Health Organization and for this reason its prevention is of major importance.

Despite the high frequency of caries and its evident correlation with diet, dental providers rarely perform a dietary analysis for their patients. Probably the main reason is the lack of time in the dental visits and the fact that there are no tools to help providers analyze the dietary data.

The aim of this software is to help dental providers perform a dietary assessment related to oral health and provide dietary advice for their patients to improve their oral health.

3   PATIENT PROFILES

Each patient should have their own profile. Profiles contain information about the patient (Name, age, medical history, etc. – see Figure 1) as well as all their food items over the period of one week.

3.1   CREATE A NEW PATIENT

To create a new patient, go to File → New Patient, fill out the form that appears (Figure 1) and click 'Add Patient'.

Each patient is registered recording their **name**, **age**, **gender**, **weight** (in kg) and **height** (in cm). Patient's **Body Mass Index** (BMI) is automatically calculated based on the weight and height inputs.

Also any important **medical condition** that modifies dietary advice, such as diabetes, should be selected from the medical history drop list. It should be noted, that the current version of the program cannot provide dietary advice individualized for patients with contributory medical history (ex. diabetes) and the suggestions derived from the software should be used with caution for those patients and always with the consultation of the treating physician.

Finally, in order to assess the caries risk of the patient, the dental provider should record if the patient has clinical presence of **active caries**.
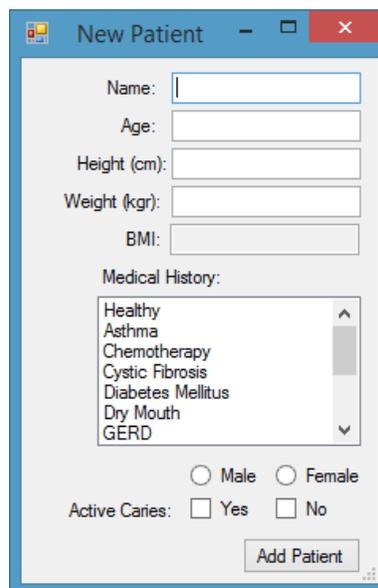
Figure 1: Adding a new patient.

3.2 SAVE PATIENT

To save a patient's data, go to File → Save Patient. If this is a new patient, the system asks you to select a folder in which it will create the corresponding xml file containing the patient's profile. If the patient is not new, the system will update the patient's xml file with the new data.

3.3 LOAD PATIENT

To load the profile of an existing patient, go to File → Load Patient and select the patient's file.

3.4 VIEW PATIENT'S DATA

To view the current patient's data, go to Results → View Patient Data. This will show you the information stored in the patients profile (see for example Figure 2).
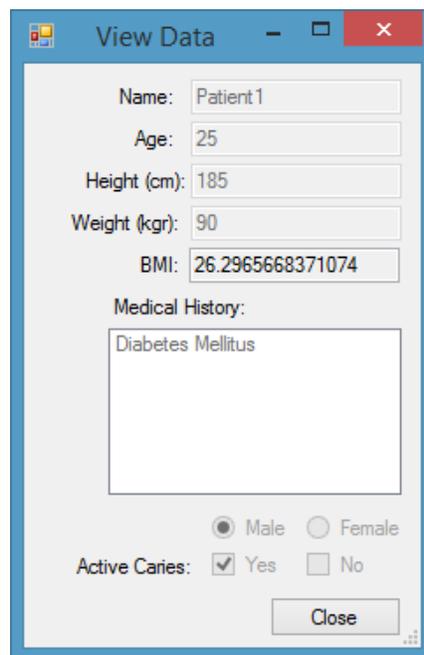
Figure 2: View Patient's Data

4 FOOD ITEMS

In this section we go over the main functions of the program, adding or removing food items from the calendar, and calculating statistics and suggestions for each day of the week. It should be noted here that the current version of the program supports data for up to one week.

4.1 ADDING FOOD ITEMS

There are four steps to adding a new food item:
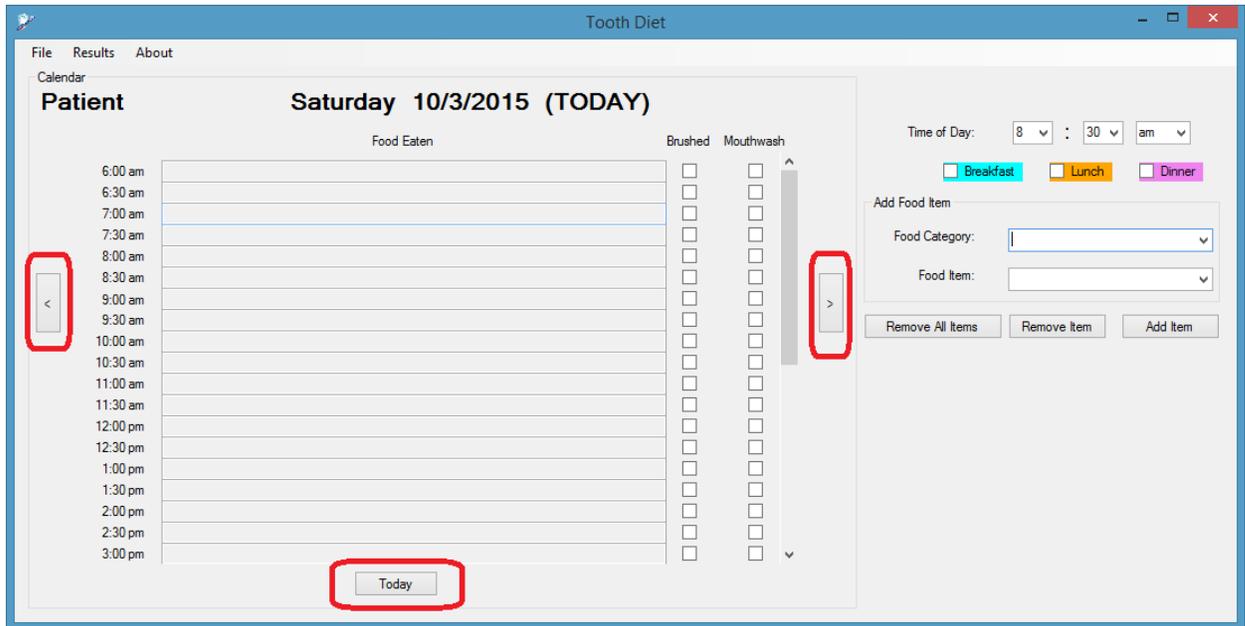
1. Select a **day** (Figure 3).

Figure 3: To select a day of the current week, either click on 'Today' or on the left and right buttons, to go one day earlier or later, respectively.

2. Select a **time** of day from the drop down list or by clicking on the times displayed on the left side of the screen. Also you should identify main meals by selecting '**breakfast', 'lunch' or 'dinner'**. If the food item is a snack do not select any of the above options (Figure 4).
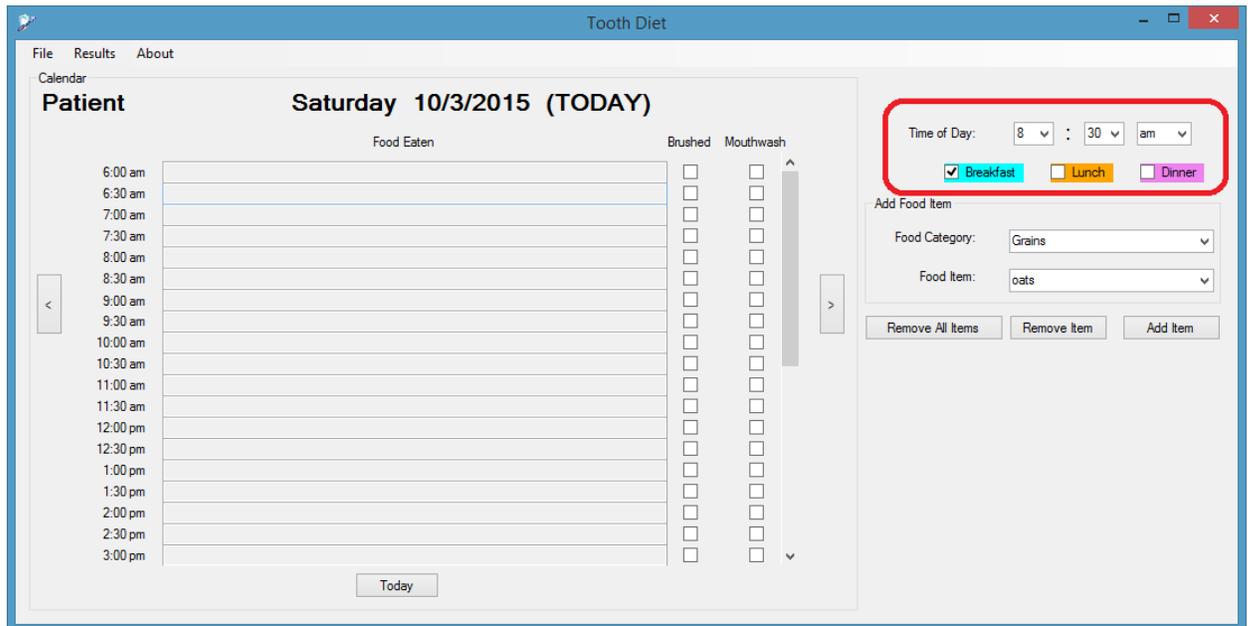

Figure 4: To select a time of day, select the hour, am or pm and indicate whether the meal is considered breakfast, lunch or dinner.

3. Select a **Food Category** and **Food Item**. There are nine options for Food Categories (Grains, Fruit, Vegetables, Protein, Dairy, Oil & Sauces, Beverages, Sweets and Preset Meals). To add a food item, select a food category and then a specific food item. Food items are in alphabetical order (Figure 5).
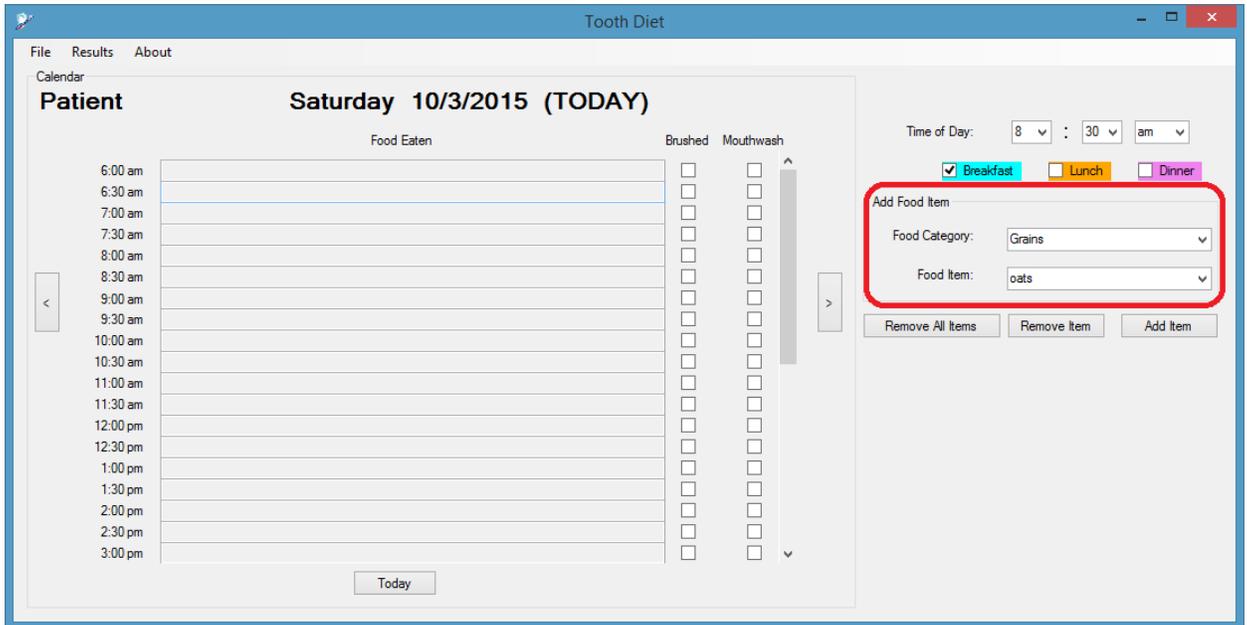

Figure 5: To add a food item, select a food category and then a specific food item.
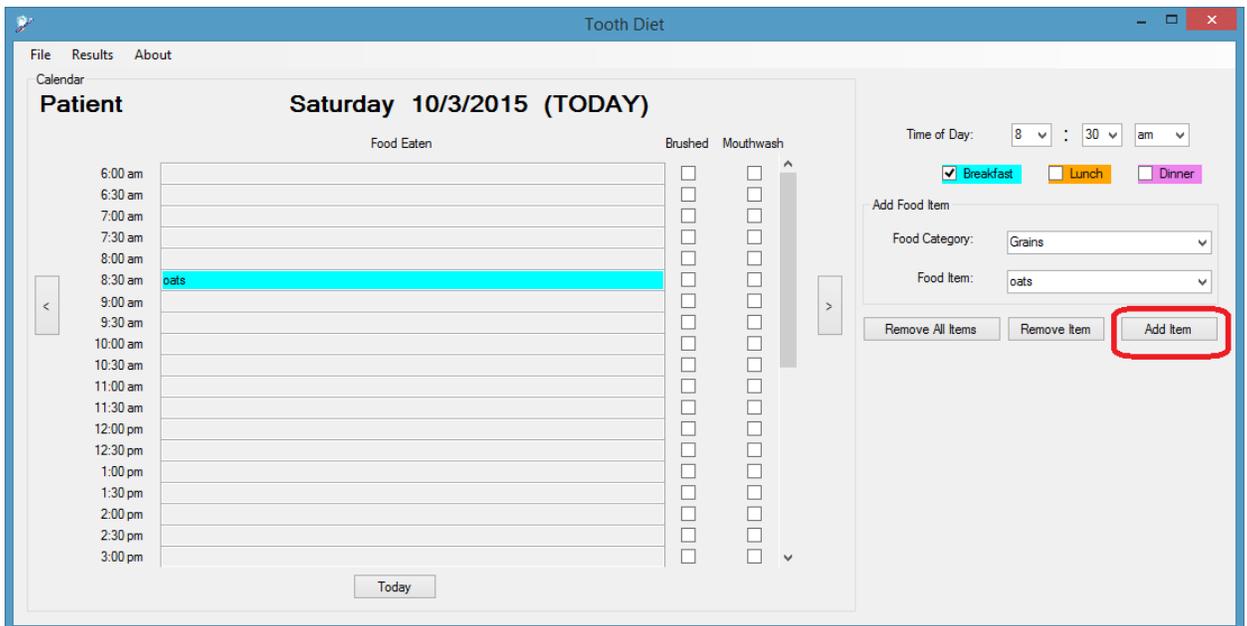
4. Click 'Add Item' (Figure 6).

Figure 6: When all selections are made, click on 'Add Item'.

4.2   REMOVING FOOD ITEMS

To remove a food item, the process is similar to that of adding food items. The only difference is that you need to click on the 'Remove Item' button. To remove all items simply click on the 'Remove All Items' button (Figure 7).
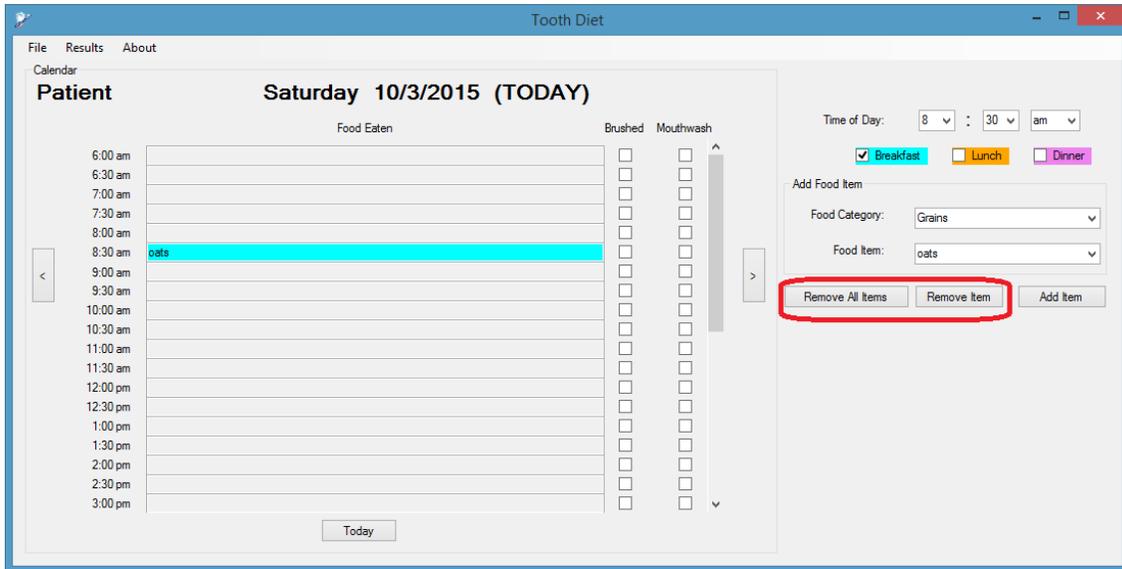

Figure 7: Removing a single item, or all items.

4.3   ORAL HYGIENE & FLUORIDE

It is known that caries is a multifactorial disease. Thus, it is important to take into account the oral hygiene practices of the patient and his exposure to fluoride when calculating the oral pH and his caries risk. For this reason, there is the option to mark if the patient **brushed** his teeth or used a **mouthwash AFTER** the snack or meal, by checking the box on the right of the diary (Figure 8).
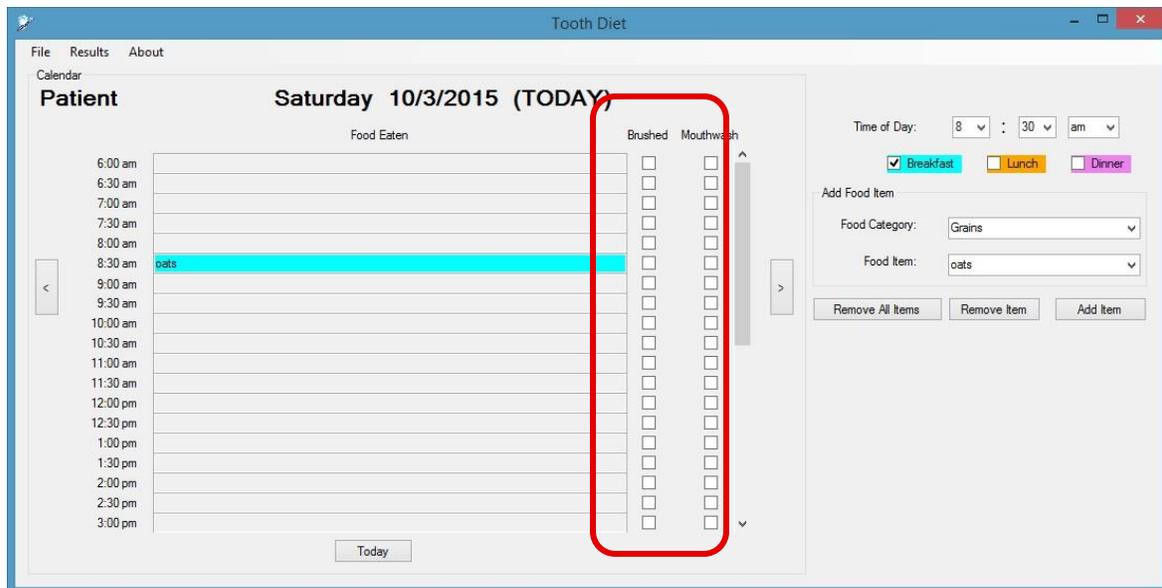

Figure 8: Indicating if patient brushed or used a mouthwash after the meal/snack

5 RESULTS

When data have been input into the software, data analysis can be performed.

5.1 STATISTICS

This function uses the data entered in the diary (over the period of one week) to estimate the change of the **oral pH** over the course of a day (6:00am to 24:00pm). The graph becomes more accurate as more data becomes available for each day. More specifically, each food item has a predefined cariogenic risk and this, along with whether the patient brushed his teeth or used a mouthwash, is taken into account when estimating the oral pH. The critical pH is marked by a red line, indicating the time that the mouth was exposed to acid and thus could form cavities during a day (Figure 9).
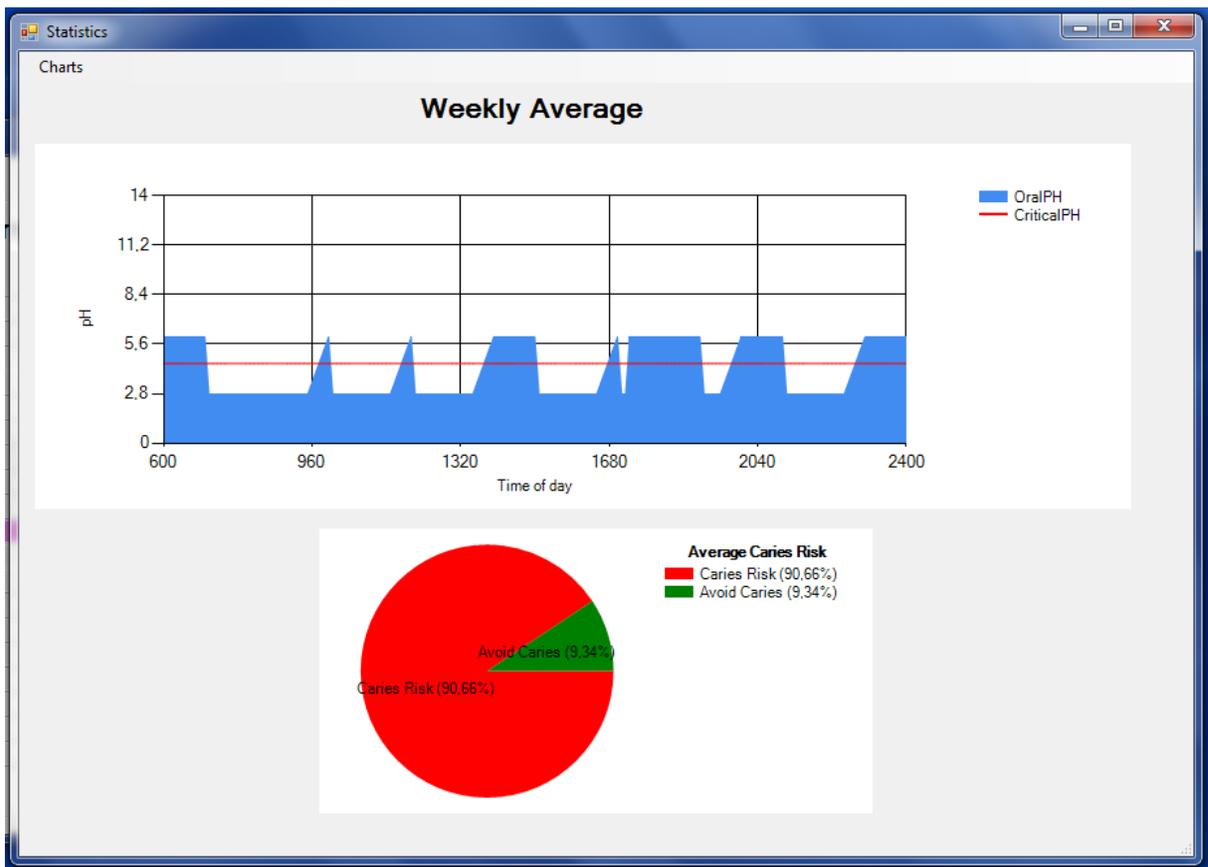

Figure 9: Oral pH graph showing patient how long his mouth was exposed to acid and caries risk pie chart.

In addition, a pie chart indicating the **caries risk** of the patient if this type of diet is followed every day/week is also provided. This software is not intended to be used as a caries risk tool. The purpose of the pie chart is to alarm the patient on the cariogenicity of his diet and be used as an educative tool to motivate changes to his diet. Patient's clinical presence of active caries, oral hygiene, fluoride exposure and diet are taking into consideration for the formation of the pie chart (Figure 9).

From the 'Charts' menu, you can choose to save or print the results.

5.2 SUGGESTIONS

This function provides an **overview** of the patient's day, with respect to their diet, and sugar content is calculated based on predefined values for each food item (Figure 10).

The program then **suggests alternative healthier dietary choices** and adjusts the **number of meals** if necessary to prevent snacking. For example, if the patient had 8 meals in a day, food items will be grouped so that the suggested number of meals will be reduced to 5 (Figure 10).

Warnings are also displayed according to the patient's BMI (Figure 10).

From the 'Suggestions' menu, you can choose to save or print the results.

Figure 10: Overview of daily dietary choices and specific suggestions to alter the dietary choices

6 RUNNING TOOTH DIET ON LINUX AND MAC

While there is no direct support for Linux or Mac currently, there are ways to run the program in both operating systems.

6.1 LINUX

Wine is a program that allows Windows executables to run on Linux, and can be downloaded for free from here: https://www.winehq.org/

6.2 MAC OS

WineBottler is a program that allows Windows applications to run on Mac, and can be downloaded for free from here: http://winebottler.kronenberg.org/

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