
Linked Works Bolus Calculator User Manual

Installation

This application for iOS device must be downloaded from **Apple Store** by searching Lw Bolus Calculator. English version is 30 days trial. After 30 days, program will ask you to upgrade with In-App Billing in both Apple Store and Google Play. After download, select Open to install iOS App.

This application for Android device can be downloaded from Google Play or from [here](#). After download complete, select agree to install, Lw Bolus Calculator will be installed to your device automatically by selecting accept to install. You can also use USB cable connect your device to your PC or Mac computer. Then download this application and let Android system install for you.

Requirements for Devices

This application required iOS 8.0 or up and Android 4.4 or up to be installed in your device. If your device does not meet this requirement, the application may not work properly. So, we recommend that you should not upgrade your device to meet this requirement.

Basic terms for diabetes and insulin

□ Basal - Carbohydrate Coverage

Approximately 40 - 50% of the total daily dose is to replace insulin overnight, when you are fasting and between meals. This is called background or basal insulin replacement. Then basal or background insulin dose usually is constant from day to day.

- Bolus Insulin

The other 50 - 60% of the total daily insulin does is for carbohydrate coverage and high blood sugar correction. This is called the bolus insulin replacement.

- Insulin to Carbohydrate Ratio (ICR)

The bolus dose for food coverage is prescribed as insulin to carbohydrate ratio. The insulin to carbohydrate ratio represents how many grams of carbohydrate are covered or disposed of by 1 unit of insulin.

Generally speaking, one unit of rapid-acting insulin will dispose of 12-15 grams of carbohydrate. This range can vary from 4-30 grams or more of carbohydrates depending on individual's sensitivity to insulin. Insulin sensitivity can vary according to the time of day, from person to person, and is affected by physical activity and stress.

- High Blood Sugar Correction (Insulin Sensitivity Factor, ISF)

High blood sugar correction also known as Insulin Sensitivity Factor (ISF). The bolus dose for high blood correction is defined as how much one unit of rapid-acting insulin will drop the blood sugar.

Generally, to correct a high blood sugar, one unit of insulin is needed to drop the blood glucose by 50 mg/dl. This drop-in blood sugar can range from 15 - 100 mg/dl or more, depending on individual insulin sensitivities, and other circumstances.

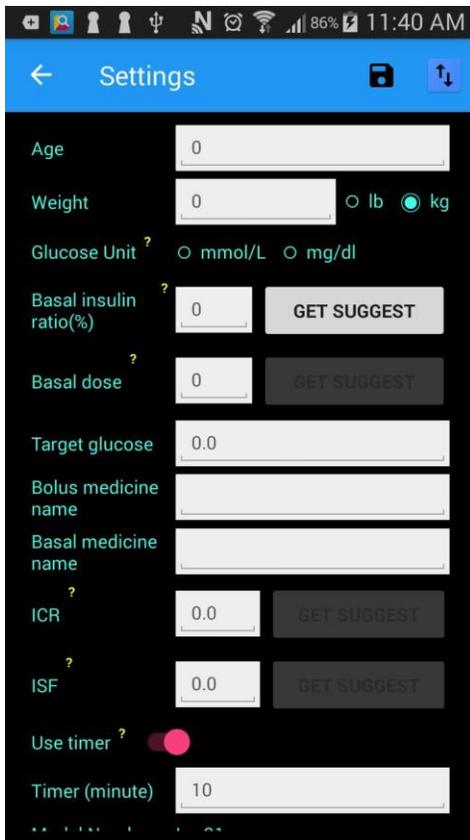
- Activity Deduction

Activity usually lowers your blood sugar and improve insulin sensitivity, which means your body's insulin works better. For this reason, you need an adjustment in your diabetes medication or insulin dose to help prevent the blood sugar from going too low. so, when you plan activity after meal, you need to adjust your activity (%),

depends on how much activity you will take. For example, normally you take a 15 minutes walking after every meal, but one time you want to walk half hour, so you should adjust your activity to 75% or so. for more precise, consult with your doctor or diabetes team. The Default 100% activity is for your normal situations. But if you plan take more or stronger activities during 2-4 hours after meal, you need to adjust activity value down. Activity usually lowers your blood sugar and improve insulin sensitivity, which means your body's insulin works better. For this reason, you need an adjustment in your diabetes medication or insulin dose to help prevent the blood sugar from going too low. so, when you plan activity after meal, you need to adjust your activity (%), depends on how much activity you will take. For example, normally you take a 15 minutes walking after every meal, but one time you want to walk half hour, so you should adjust your activity to 75% or so. for more precise, consult with your doctor or diabetes team. The Default 100% activity is for your normal situations. But if you plan take more or stronger activities during 2-4 hours after meal, you need to adjust activity value down. Activity usually lowers your blood sugar and improve insulin sensitivity, which means your body's insulin works better. For this reason, you need an adjustment in your diabetes medication or insulin dose to help prevent the blood sugar from going too low. so, when you plan activity after meal, you need to adjust your activity (%), depends on how much activity you will take. For example, normally you take a 15 minutes walking after every meal, but one time you want to walk half hour, so you should adjust your activity to 75% or so. for more precise, consult with your doctor or diabetes team. The Default 100% activity is for your normal situations. But if you plan take more or stronger activities during 2-4 hours after meal, you need to adjust activity value down.

- Glucose Test Unit

The glucose unit that you use will affect bolus dose calculation. You should keep assistance with from time to time, day to day.



The unit should keep the same as your blood sugar monitoring unit as well.

Settings

At home page, click Setting icon  to get to Setting page. Settings simplify data entry in Home page. After setup the settings, it will automatically fill into home page.

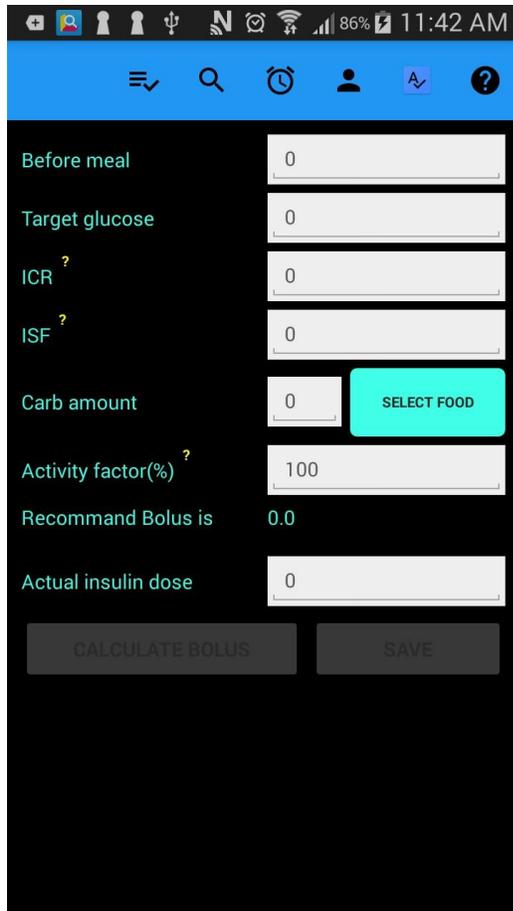
This setting includes **individual insulin to carbohydrate ratio (ICR), insulin sensitivity factor (ISF), and basal**

insulin recommendations. However, it is recommended that you consult your specialist or medical team because these recommendations apply only to the majority of patients, not all diabetics. Each diabetic may be different, even if the same

individual. Enter all the data and click GET SUGGEST button to get the suggested value we provided to you or directly enter your own value. Then click  on the top of the page to save data to your local device database. These parameters, including ICR and ISF values, are automatically fill to the relevant fields when you go back to the HOME page and at start up time. The user age and weight are used to figure out recommended ICR and ISF values for you. If you want to use recommend values you have to enter your age and weight.

Home Page

You've probably counted calories, but calculating carbohydrates may be a new challenge for most people, but it's the key to this program to manage your bolus dose. Lw Bolus Calculator helps you to manage your bolus dose for every single meal. To achieve this all you have to do with Lw Bolus Calculator are entering your food name and weight



that you want to eat, this application will help you to find out how many grams of net carbohydrates in your food and calculate the amount of insulin you need to inject.

If you already configured your settings as previous section, the ICR, ISF and Target glucose fields are automatically filled for you at start up time. The activity field is set to 100% by default, if you will have stronger activity than your usual do, you need to reduce it. You need to test your blood sugar level before calculating your bolus dose and enter the value in the Before meal field.

The next step is entering your food by clicking the Select Food button or clicking icon  on top of the home page. Alternatively, you can

find your food by searching , for detail see next section.

Let's take an example. It is assumed that you are ready to eat 200 grams of **steamed** rice and 300 grams of eggplant. There are two ways in Lw Bolus Calculator to determine how many grams net carbohydrates contained in these foods. You can use the search method or from the food category search method.

First let's take a look at searching method.

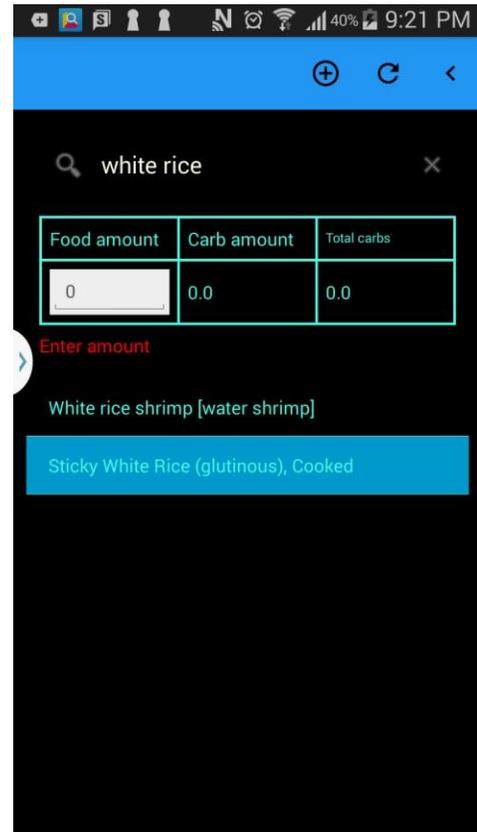
Find Food by Searching

Click Search  at the top of the home page and enter RICE in the search bar. Click Search on your keyboard. You can see a list of search results in the lower portion. Then select the RICE (steamed) in the list. A dialog will pop up and shows you the detail in the RICE (steamed). Click Close button in the popup box. Notice that the food unit you selected must match the food unit in this popup.

Enter 200 (in this example the unit is gram) in the **Food amount** box and click Add button  on the top of the page. The net carbohydrates in your food will be filled in the **Total carbs** column.

Do the same to the eggplant. You can repeat these as many times as you want. It has no limitation. As long as you click the  button to a food, the net carbohydrate will be cumulated in the **Total carbs**. If you think you made something wrong, you can click the clear button  to clear the **Total carbs** and start over. In the end the **Total carbs** column will show you the total grams of net carbohydrate in all food you selected.

Click the navigation button , bring you back to Home page and automatically fill the total NET CARBOHYDRATES to the CARB AMOUNT.



Find Food by Food Category

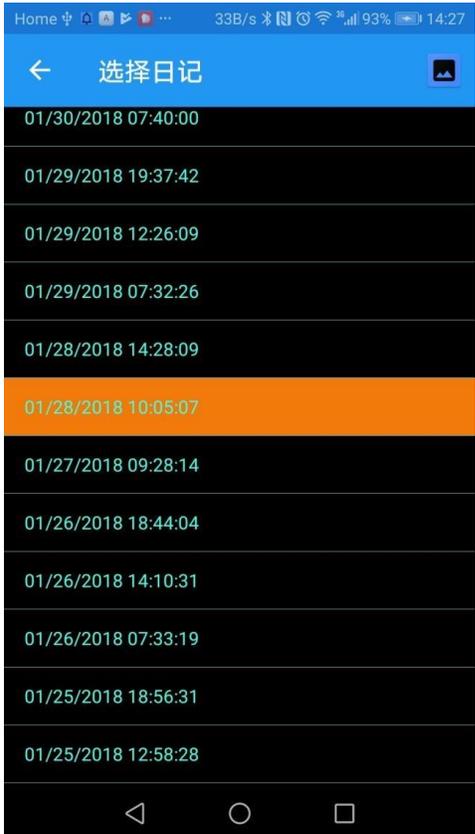
To find your food with Food Category, click  button. This will take you to food category list page. From there select a category your food belongs to. This will pop up a dialog shows you more information about your selected food category. Click SELECT to select it, **CANCEL** to ignore it. If Click OK button, it will show you all food classified for this category.

Select the food in the food list, this will pop up a dialog shows more information about your selected food including food amount, amount unit and carbohydrate, fiber, and more. Notice that the food amount unit should match you entering food in Food Amount box. You need a scale to measure your food amount.

Log

When click the Save button in Home page, the data you entered will be saved to your local db and can be review any time you want. Log has two meanings, Log list and log

detail. Click Log icon  on top of Home page, lead you to log list page which

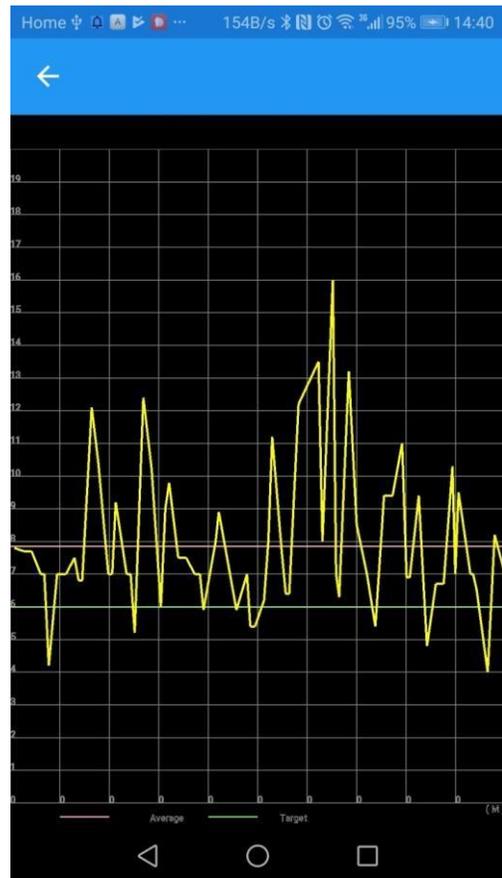


lists all you saved logs. You can present these data to your doctor or diabetes team members without writing log in paper. Tab on an individual item in the log list will lead you to log detail that show all your data entered and those data from your settings are present to you.

Blood glucose trends

Blood glucose trends is another way to review

your blood glucose history in graphics. This trends graphics shows glucose level of before meals.



Icons

Understanding icons are a way to grasp how to use this app. Here is a list of icons used in Lw Bolus calculator app.



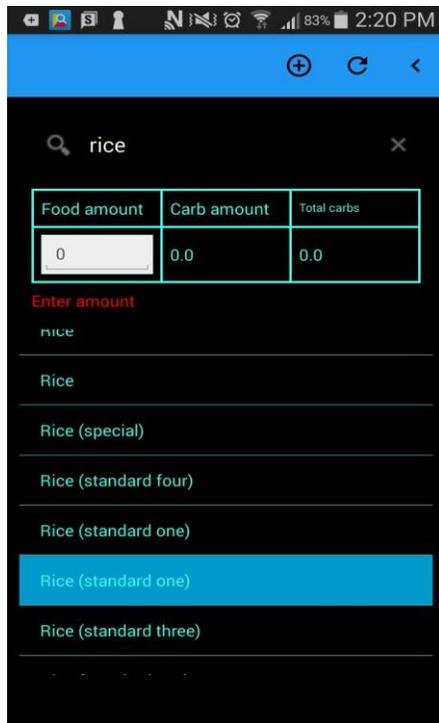
- Food category
- Search food by food name
- View log list.

-  • Settings.
-  • Help.
-  • Add food to your meal food collection.
-  • Remove all food in meal food collection.
-  • Save changes
-  • Navigate to previous page.
-  • Blood glucose trends

Customize your own recipe with YOUR FOOD COLLECTION

Using YOUR FOOD COLLECTION food category gives you more convenient in entering your food nutrition. Here is an example of using YOUR FOOD COLLECTION to define your own food nutrition and keep in app for you to reuse.

Except for single person, most time making food is for whole family meaning the food your plan to eat is a portion of cooked food. This leads to unknown food amount **and cannot find the food from our system**. Don' t worry, we have solution for you. For example, you and your family would like to make fried rice for about 4 family people with 500 grams raw rice and three raw eggs. The three raw eggs are 196 grams weight. After cooking the fried rice has 1100 g in total. You only take 200 grams from the cooked fried rice as an example. Follow these steps to get net carbohydrates in your 200 fried rice.



• Before cooking, you have to figure out how many net carbohydrates in 500 g rice and three eggs.

In

HOME page tap  button. Enter rice in to the search bar box and hit Search button on your device keyboard.

• In the rice list, select Rice (standard one) in

this example.

• In the Food amount box, enter 500.

• Click  add button on top of the

page. A net carbohydrate 382.5g

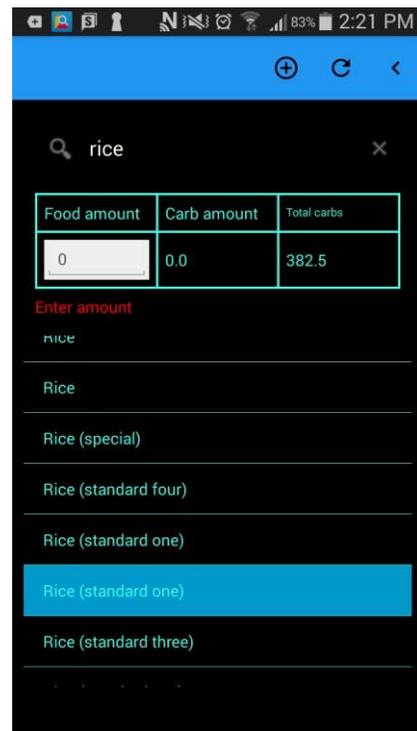
is added to the Total

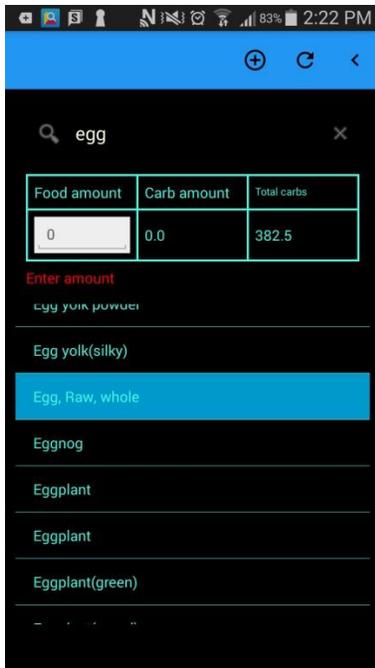
carbs box.

• Clear the search box and enter egg this time.

Select Egg, Raw whole this time.

• Enter 196 in the Food amount box then click



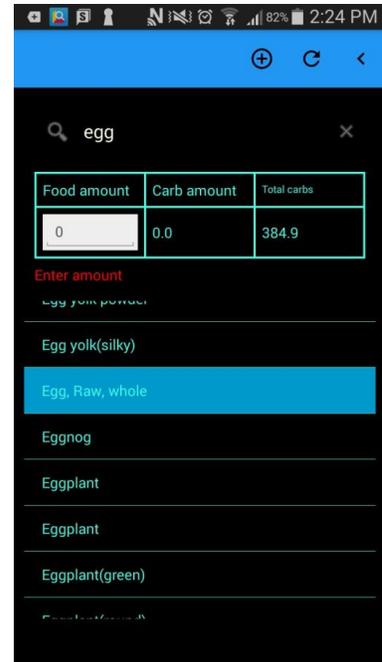


- The **Total carbs** shows the total net carbohydrates and that will be used to create your own nutrition.

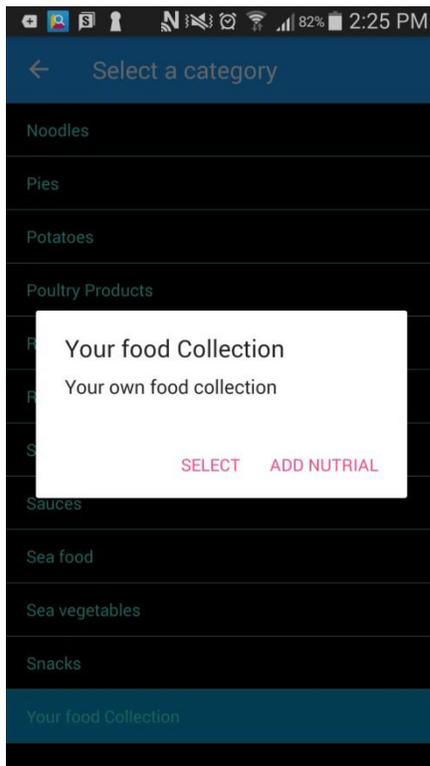
- After you finishing cook, get it total net weight, as example this is 1110g.

- Next, we add this information to YOUR FOOD COLLECTION.

- Click button and scroll down to find out YOUR FOOD COLLECTION. Tap this item



and select ADD NUTRITION button. And fill food nutrition form.



Food amount = 1100 grams

Total net carbohydrate = 384.9

Fiber = 0

Because it is net carbohydrates, food fiber is already considered in net carbohydrates.

Click SAVE button on the bottom. Your own food nutrition is created in your food collection.

Next time, when you want take your own food

click button and scroll down to find out YOUR FOOD

COLLECTION.

Food name My fried rice

Food amount 1110

Amount Unit gram

Carbohydrate 384.9

Fibre 0

Sugar Alcohols 0

Description

SAVE BACK

Select MY FRIED RICE, in food amount box type amount of your choice on top of the HOME. The net carbohydrates will be displayed on the Total carbs.

Click  to add to your meal collection.

If you have more other food for the meal, you can add in the same way. Then hit CALCULATE BOLUS button, you' ll get recommended bolus dose.

Do the same way, you can create your own nutrition as many as you want.