



Glucose + Ketones Guidelines

The ideal numbers for both glucose and ketones will vary depending on several factors such as health, diet and exercise. But this guide will give you an idea of where they should be at in different situations and what to pay attention to.

Fasted State (Morning time)

Glucose: below 86mg/dl

- This is the ideal for someone who incorporates intermittent fasting and follows a healthy balanced diet. If there is insulin resistance or diabetes this number tends to be higher even in a fasted state.

- In those cases you want to aim for a glucose less than 100mg/dl. If you are having higher glucose numbers in a fasted state between 90-120mg/dl it would be good to check with your doctor to see if you require additional support to balance glucose levels. Keep in mind that if you had a meal rich in carbohydrates and/or sugar the night before this number could show up high as a result of that.

Ketones: above 0.7 (to be in ketosis)

- If you are following a ketogenic diet you want to be above 0.7 mmol/l on a fasted state, keep in mind that ketones tend to rise as the day goes by if what you are eating is keto friendly.

Dawn Effect

Early morning release of hormones, primarily cortisol to prepare our body for waking, its a natural part of our circadian rhythms. This means our morning glucose reading may be high and our ketone reading may be low.

Wait at least an hour after waking to test!



What can cause glucose to rise?

- Carbohydrate rich foods (bread, pasta, fruits, grains)
 - This will depend on what you pair it with and the amount, it might be a slow rise (when paired with high fat or high fibre foods) or a fast rise (highly processed and sugary)
- Stress
- Exercise
 - Its a stressor for the body so even when following a ketogenic diet and being in ketosis the body will make glucose from aminoacids in the body. At the same time the body can use ketones as energy as well, a mix of both so dont be discouraged if you test your levels of either glucose or ketones post exercise.

What can cause ketones to rise?

- Fasting
- Exogenous ketones or MCT oils
 - Not a true rise, but it will help with energy levels and satiety.
- Ketogenic diet
 - After following it for a period of time, it varies sometimes it takes a few days of this diet to bring a person into ketosis and sometimes it takes weeks and other additional support if there is insulin resistance and other health conditions involved.

What can cause ketones to drop?

Ketones will drop when we make glucose available for the body to use as fuel. Ketones will rise when we have emptied our glycogen reserves (stored glucose) and the body is forced into using other fuel sources such as ketones, if we give our body glucose then it will start using this energy again and therefore the ketone levels will drop.

When we are under stress (emotional or physical) our body will likely produce glucose as a response even though you might not be giving it the actual glucose rich foods, it will create glucose from aminoacids in the body.

How often should I test?

At the beginning we suggest testing in several occasions to understand how your body react to your meals and what your start up point is. As you move along you can test random days to see where you are at. When doing a block fast whether its water, bone broth or partial fast its highly recommended to track your levels, not only for motivation but to know where you are at and what changes need to be made.

These are the times we typically would suggest testing at the beginning:

1

Morning
(1-2 hours after walking up
and without having any food
or beverages)
- Glucose

2

Before and After your coffee, tea
or morning beverage when on
fasting window to determine if
its breaking your fast
- Glucose

3

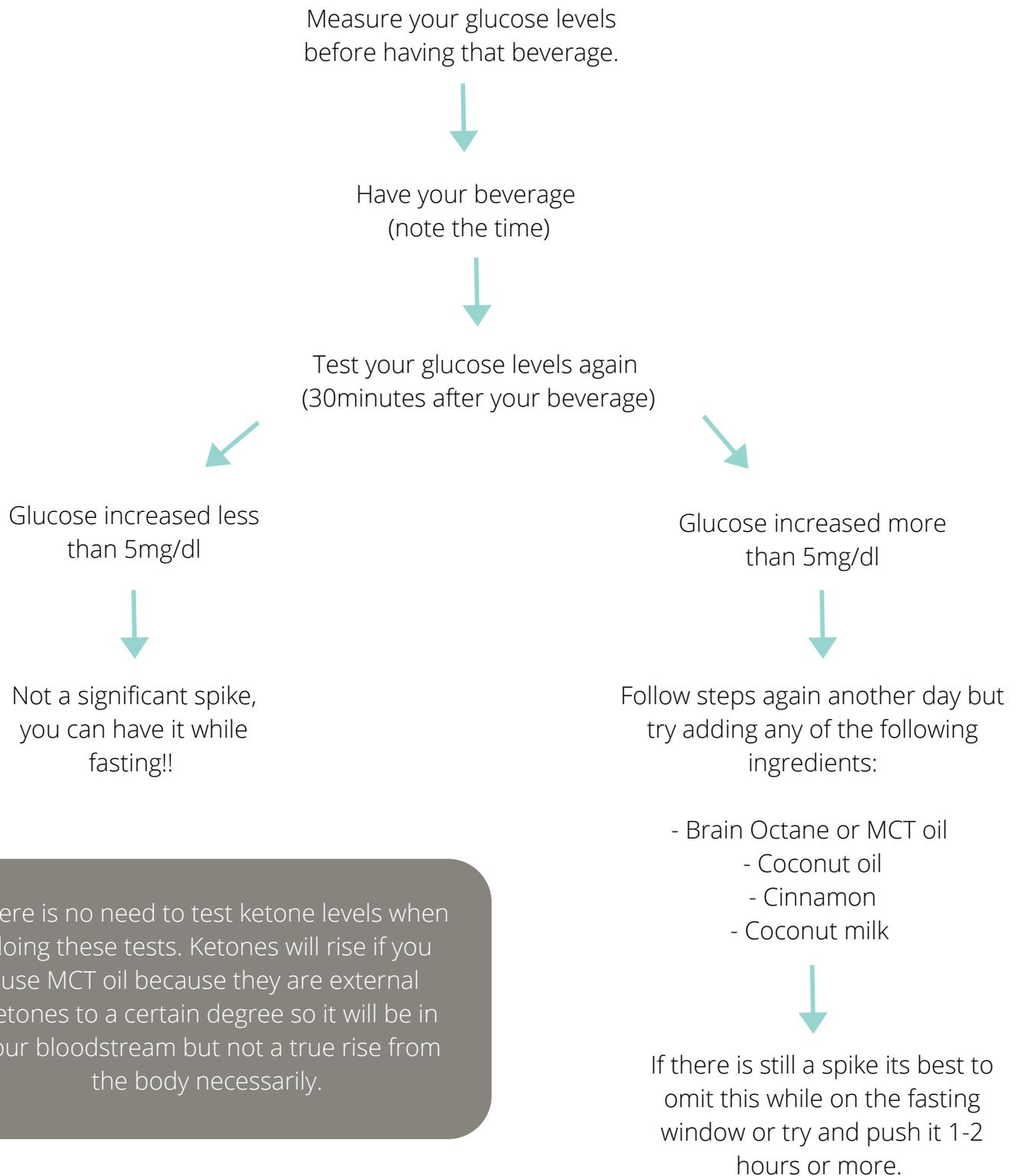
Before your first meal
- Glucose
- Ketones

4

1-hour after your first meal
- Glucose

After your coffee, tea, lemon water, fatty drink, etc

This is for those that do intermittent fasting but still have some kind of beverage in that fasting window. In order to enjoy the benefits of the intermittent fasting we want to make sure its not spiking the glucose. The following steps will help you navigate this topic and give you things to try and see if we can avoid that spike.



There is no need to test ketone levels when doing these tests. Ketones will rise if you use MCT oil because they are external ketones to a certain degree so it will be in your bloodstream but not a true rise from the body necessarily.

Before your first meal (breaking your fast)

Glucose: We take the reading at this point to have a baseline of where we are at and to see how our body reacts to the food we are about to eat and see if changes need to be made to that meal in the future. This number should be lower than your morning glucose, as the day goes by glucose levels should be lower if following a ketogenic diet and trying to get into ketosis.

There is no real ideal range at this time but lets try and aim to less or equal to 87mg/dl.

Ketones: We take this reading to see if our ketones have risen as we have more fasting hours, this should be higher than your morning reading, above 0.7mmol/l. When doing 24 hour fasts, this number should come up quite a bit when comparing to the morning results. The more fasting hours the higher ketones you should be getting, please note the factors that influence

After a meal (1-hour after)

Glucose: It depends on your glucose prior to the meal (you could also use your fasting glucose as reference) and what you eat.

- If following a ketogenic diet you don't want your glucose to increase more than 10-15mg/dl. For example, if you have a fasting glucose of 85mg/dl you should aim for your 1 hour post meal to be 95mg/dl or less. This will give you a chance to adjust your meals and see what needs to change in order to avoid spiking the glucose as much as this could be affecting your ability to get into ketosis.

- If following a regular diet where carbohydrates are involved the glucose levels one hour post meal should be lower than 130mg/dl.

Ketones: No need to test at this time.

When doing a Water Fast

When doing a water, bone broth or partial fast we are aiming to go into autophagy. Autophagy is the process by which the body starts cleaning out damaged cells and unnecessary or dysfunctional components. Its a natural mechanism that will go into high gear while fasting. In order to get to that point researchers say that we need to get a ratio of 1:1 (ketones:glucose) or higher. To get ratios we need both glucose and ketones in the same units , so here is how we do that:

mg/dl --> mmol/l = **divide** the mg/dl by 18

Example : Glucose = 80mg/dl
= 80/18
= 4.4 mmol/l



This means that in order to be in autophagy with those glucose levels my ketones should be at least 4.4mmol/l

mmol/l --> mg/dl = **multiply** mmol/l by 18

When to test:

- Morning (1-2 hours after waking up)
- Before going to bed

What to expect:

- Glucose should be going down and ketones should rise as the day goes by.
- If really active, exercising there might be an increase in glucose and a decrease in ketones.



Ketones = 0.7-10 mmol/dl
Glucose = 40-86 mg/dl



This is just a reference and a wide range, some peoples glucose could go lower than 40mg/dl and be totally fine but we want to air on the side of caution so if you go below that its best to check with your doctor. The same goes for the ketones, generally people would stay between 1-6 mmol/dl but it will vary quite a bit, its important to go by your symptoms and also by the ratio, as long as its 1:1 (ketones:glucose) or higher everything should be okay.

The more days you fast the lower glucose and higher ketones numbers, that should be the tendency. Keep in mind there are factors that influence both glucose and ketones, refer to the beginning of this handout.