

The use of the lactic acid beverage in space foods

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Purpose

The long-term space stay makes it possible to perform many studies. We think that the development of space foods will develop more in future. The meal management to maintain the health of an astronaut working busily is important. With lactic acid bacterium beverage, we thought that we want to perform the health care of the astronaut. Therefore we decided to check the effect on bowel movement of the lactic acid bacterium beverage.

Method

We assumed ten adult women (average age 20.5 years old) as subjects.

Before experiment start, during two weeks, we took the bowel movement record. We boiled Y Company lactic acid bacterium beverage (40% of calorie off) at 100 degrees during three minutes. During two weeks, we let them consume the lactic acid bacterium beverage which we boiled and recorded the state of the bowel movement. Another two weeks, we let them consume the lactic acid bacterium beverage which we did not boil and recorded the situation of the bowel movement afterwards. After the experiment end, we recorded the situation of the bowel movement during two weeks. The record contents were the "stool frequency" "smell" "shape" and "number of times of the gas".

Result

Before experiment start, we understood that there was not a bowel movement in five of ten people from a 2-week bowel movement record. In particular, three subjects were in a week only 2~3 times bowel movement. As a result of having consumed the lactic acid bacterium beverage which we boiled for two weeks, three subjects were in a week only 2~3 times bowel movement. Seven subjects were bowel movement every day in a week. Every day, eight subjects who consumed the lactic acid bacterium beverage which we did not boil had bowel movement. Another two subjects had 5 to 6 bowel movement a week. After period of this study, during two weeks, we investigated of 10 subjects bowel movement. After stop the examination, the bowel movement has returned as same as before.

Discussion

The oligosaccharide included in the lactic acid bacterium beverage helps an enterobacterial increase. The lactic acid in the lactic acid bacterium beverage helps enteric work lively. However, the action of the lactic acid bacterium is not more active if we do not consume lactic acid bacterium beverage continuously. It is necessary to utilize lactic acid bacterium beverage to let intestinal bacteria act more actively.

Keywords: Lactic acid, Beverage, Space foods

Study on food allergy in space foods

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Purpose:

In space, we have to think about anaphylactic shock to eat space food which include allergen accidentally. We have to know some cases of anaphylactic shock may have result in death. Even if an allergen is not included as raw materials, we cannot deny possibility mixing in a manufacturing process. It is essential to inspect allergen by using an allergic kit because we need to protect our life by the meal which is one of the pleasure in space stay.

Therefore this study inspected allergen in the commercial foods by using allergen identification kit (Morinaga identification raw materials kit). Especially, peanut and soba (backwheat).

Method

We used an allergenic kit made in Morinaga Corporation. The marketing product inspected ten kinds of seasonings, seventeen kinds of food and nine kinds of cake.

Result

Result

We examined peanut first.

Among 20 kinds of food, seven kinds of food matched positive reaction. There is not allergen name but four of 14 kinds of food which were displayed were positive when it might be included in a manufacturing process.

We examined soba next.

Among 20 kinds of food, five kinds of food matched positive reaction. There is not allergen name but two of 15 kinds of food which were displayed were positive when it might be included in a manufacturing process.

discussion

In the cooking with a manufacturing process and future space foods in the spaceship, we think that it is necessary to be careful enough.

Keywords: Allergy, Space foods, Seasoning

The low GI food is suitable for space foods

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Purpose

We became able to stay in the space for a long term. The offer of the meal appropriate to the active mass in the space is necessary. Therefore a menu offer to become the meal contents which are hard to go up of the blood sugar level is necessary. Metabolic syndrome becomes the problem on the earth. It is necessary to inform how it is important that we prevent hyperglycemia after a meal widely. Similarly, in the space, you should consume the meal which is hard to go up of the blood sugar level. It is important that we do disease prevention. Therefore in this study, we made a menu (low GL food menu) which was hard to go up of the blood sugar level using food (low GI food) which was hard to go up of the blood sugar level.

Method

We collected low GI foods. We put low GI food together and made the low GL food menu which was hard to go up of the blood sugar level. We use this menu and we measured blood sugar level by using peripheral blood. We checked our menu which is really became the low GL by using peripheral blood. We check our blood sugar level by using Kit (product made in Terumo Corporation), before eating this food and after 15 minutes, 30 minutes, 45 minutes, 60 minutes, 90 minutes and 120 minutes. In addition, I performed the sugar load examination with glucose. We compared a low GL level between the actual value and the calculated value.

Result

In the GL level, the actual value is higher than calculation. In addition, cooking method was very important to make low GL menu. When we make soft food and eat it, our blood sugar level become high easily. Because when we make stew softly, the GL level of the actual survey became higher.

Discussion

We think that it is desirable to perform by using low GI food to make low GL menu. And we think that the cooking method is very important to low GL menu. The space food must be good balance diet. By feeling of satisfaction and slow digestion and slow absorption, it is possible to prevent a sudden rise of the blood sugar level.

Keywords: Low GI, Low GL, Blood sugar level, Diabetes

Importance of the menu making by using the blood sugar level in space foods

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Purpose

Now, the long-term stay in the space is possible. The importance of the meal has been understood by many people. We think that the space food study is made more and more in future. Therefore, in this study, we try to make balanced diet menus for space food.

Furthermore, we make the healthy universal space foods that blood sugar level is hard to rise.

Method

We made a balance menu. We measured our blood sugar level by using a blood sugar level measurement kit made in Terumo Corporation. We measured blood sugar level by using peripheral blood (before eating and after 15 minutes, 30minutes, 45minutes, 60minutes, 90minutes and 120 minutes). In addition, we performed the sugar load examination with glucose. We compared these level and confirmed whether it became the low GL food menu. The food used low GI food as much as possible.

Result

We understood that it was necessary for the low GI food to think about staple food first. When we eat unpolished rice + 30% wheat, blood sugar level is more lower than we eat polished rice. We was able to keep blood sugar level low by controlling quantity of glucide among the whole menu. We increased dietary fibers and was able to lower blood sugar level by using vinegar and oil.

Discussion

The making of menu increasing dietary fibers will be more necessary in future. We would like to study about the effect of oil and the vinegar more. We want to make the universal balance space foods menu for everyone in the world.

Keywords: Low GI, Low GL, Blood sugar level, Menu