THE STUDY USING OF COLOSTRUM MILK AND EDAMAME TO INCREASE HUMAN GROWTH HORMONE

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Abstract: From many years, researchers try to solve problems involves examining the solution of human aging phase. Growth Hormone (GH) is a hormone inside our body that known can regenerate and stimulates cell growth. Growth hormone levels decline as we grow older as a result, gene stops working and our bodies are less capable of repairing damage cells. Nowadays, it is believed that Growth Hormone releaser can be obtain from external sources, a natural source. Colostrum milk is a first milk that produced by mammals during pregnancy. It is a thick yellow liquid and rich in carbohydrates, protein, and antibodies to help keep the newborn healthy. It is also full of antibodies and immunoglobulins that can help protect newborns as they come into our world of bacteria and viruses. With the help of Edamame, that is one of the biggest vitamin B sources and amino acids, both of this external sources of ingredients will help to increase Growth Hormone (GH) inside human body. This research was done by give a subject (human) treatment and observe their physical reaction and Growth Hormone level. From the test conducted, subjects body shows a positive reaction such as healthier according to the health observation. For the HGH level, subjects showed an increase of HGH in the test result that conducted in laboratories. Hence, the treatment of using colostrum milk and edamame with additional ingredients (royal jelly, carrot, zinc tablet) still needs to be develop and deeply study in the future.

Keywords: Colostrum, Human Growth Hormone, Royal Jelly, Edamame

1. Introduction

Aging is a normal and natural process that everyone must undergo at his or her own time and pace. The aging process during an individual’s lifespan. We are all involved with the aging process and none can escape it. The changes aging individuals experience are not a harmful experience.

The body naturally produces growth hormone (HGH or simply GH) in the pituitary gland, and, as its name implies, is responsible for cell growth and regeneration of human tissue. Entering the age of 30, the HGH levels inside our body are decrease into 20 percent from the peak of HGH levels during the childhood, and after the age of 30, they continue to decline at about 12 to 15 percent per decade, and often much more. By the time most of us are 30 years old, our bodies no longer produce enough HGH to repair all of the damage that is occurring in our bodies. As our HGH levels continue to decline, the damage that we call aging continues to accelerate. (Emanuelson, 2013)

Human Growth Hormone is a hormone inside our body that stimulates growth and regeneration of cells. GH function can help to slowing the aging rate of process that happens in human in their old ages and helps to regenerate the cells in the body. Many researchers try to find the way to make the aging rate of human slow. One of the methods is to find a natural sources of substance that can act as a growth factor to increase growth hormone. To increasing growth hormone, sources were searched and researchers found that one of the source is colostrum.

Colostrum is a thick yellow fluid, rich in protein, growth factors, and immune factors. It is secreted by the mammary glands of all female mammals during the first few days of lataction. Colostrum contains many natural nutrients such as immunoglobulin, growth factors, antibodies,
vitamins, minerals, enzymes, amino acids, and other special substances that are designed to prime the body to face a lifetime of invasion by various microorganisms and environmental toxins bent on destruction (Minton, 2009). In this study we want to use a colostrum milk from female goat. It is natural resource of safer and cheaper sources to stimulate Human Growth Hormone.

Edamame is a Japanese name for sweet and green soybeans. Aside from being a great source of protein, Edamame is concluded as a green bean that is a source of many B Vitamin. Not only great source of B vitamins but also iron, folate, potassium, magnesium, and many phytoneutrients. Most of the B vitamins have been recognized as coenzymes. Coenzymes will act as catalyst for the creation of Human Growth Hormone.

With these two natural ingredients, Colostrum and Edamame, this research will have an experiment to find a way to stimulate Human Growth Hormone.

The objective of this research is also to demonstrate that there is genuine impact of colostrum can help enhancing the development hormone in the body inside aging person is the biggest motivation behind this research. In addition, the research will see the blend of colostrum and Vitamin B that picked up from Edamame is effective to maintain healthy body of aging person and makes the feel younger. This study is also to help for further experiment from Colostrum that has many benefits for body’s health in Food and Pharmaceutical Industrial to make a product that use Colostrum Milk in the future.

2. Literature Review

2.1. Colostrum Milk

Colostrum milk is a form of milk produced by the mammary glands in late pregnancy and continues through the early few days of breast feeding. It is thick in consistency, yellowish to orange in colour and sticky in nature.

The definition of colostrum milk is the first milk that is produce during the first two days after mammals deliver a newborn that has so many nutrition such as immunoglobulins, antimicrobial peptides and other bioactive molecules including growth factors. Colostrum plays an important role in the nutrition, growth and development and also contributes to the immunologic defense of neonates. (Shrinivas, 2010)

Colostrum has been called the promise of life which contain abundance nutrition like all the immune and growth factors that insure health and vitality are transferred from the mother to the newborn. From research it is shows that colostrum can act as the one supplement that has an ability to perform many of the functions of human growth hormone inside body. (Minton, 2009)

2.2. Edamame

Vitamin B plays an important role for the stimulation of HGH (Human Growth Hormone). It will act as a coenzyme that can catalyse the HGH along with the colostrum milk. In this research, Edamame Beans is chosen as the sources of B Vitamin.

Edamame is know for common as young soya bean , a green vegetable that harvested at the peel of ripening right before it reaches the hardening time. The Edamame word is referred to “Beans on Branches” and it grows in cluster on bushy branches. To keep maintain its freshness and natural flavor, it is parboiled and quick frozen. In East Asia, this young soybean has been used for more than two thousand years as a primary sources of protein.

2.3. Carrot

Carrot is well known as a root vegetable that has many benefits for health in away that carrots have numerous content of vitamins and minerals. Carrot is also well source of Vitamin A, Vitamin A is a group of antioxidant compounds that play an important role in vision, bone growth and health of the immune system. Vitamin A converted from Beta Carotene that is one group of natural chemicals known as Carotenoids. Carotenoids plays an important role as an antioxidant. (EJ Johnson, 2002) The antioxidant potential of carotenoids is of particular significance to human health.
2.4. **Royal Jelly**

Worker bees are known to harvest their nutritious royal jelly. Royal jelly is processed by worker bees, which is done through the buzz during the first three days of their lives. This purpose is to encourage growth of the worker bees. Before queen bees were formed, larvae feed on royal jelly. Throughout the life of the queen bee, it eats on the royal jelly exclusively. Royal Jelly contains more than a few nutrients such as protein, mineral and vitamins which cures different sicknesses.

Royal Jelly is a natural product with high contents of nutrients for the skin. It enhances the skin metabolism and delays skin aging. It is popularly known as complex nutrient rich in B vitamins and Amino Acids. The two most abundant Amino Acid inside Royal Jelly is Aspartic Acid and Proline that is essential for skin regeneration and tissue growth. Vitamins of the B group is also contributed to skin health and cell renewal processes.

2.5. **Zinc**

Zinc is a metal that is called as “essential trace element” because very small amounts of zinc are necessary for human health.

Zinc is needed for the proper growth and maintenance of the human body. It is found in several systems and biological reactions, and it is needed for immune function, wound healing, blood clotting, thyroid function, and much more. Meats, seafood, dairy products, nuts, legumes, and whole grains offer relatively high levels of zinc.

Zinc plays a key role in maintaining vision, and it is present in high concentrations in the eye. Zinc deficiency can alter vision, and severe deficiency can cause changes in the retina (the back of the eye where an image is focused). Zinc works as a catalyst and helps to regenerate Human Growth Hormone. Specifically, the growth hormone that are secreted by pituitary gland is responsive to zinc status (Macdonald, 2000)

2.6. **Human Growth Hormone**

Growth Hormone or GH is a HGH (Human Growth Hormone) or Human Growth Hormone is actually polypeptide hormone consist of 191 amino acids with a molecular weight of 22 k Da that is synthesized by the cells called Somatotrof in Anterior. (Ratnayanti, 2012). It is a hormone that are produced inside our body by pituitary gland and secreted into the blood stream. Growth Hormone (GH) production is controlled by a complex set of hormones produced in the hypothalamus of the brain and in the intestinal tract and pancreas. It is produced by all human beings, and the highest levels was produced during childhood. HGH is constantly released by glands Pituitary since from our childhood and throughout the life of our body will need it for the growth of the body (Emanuelsen, 2013). Growth Hormone is one of the most important hormones inside human body because it is the hormone that identifies the growth of bodies, affects human bones, skeletal muscle, maintaining health as well as tissue and organ vital body as well as play roles in numerous areas throughout the body.

Below are the table of growth hormone concentration in young and old age. From the table it shows that growth hormone secretion decrease with age

![Figure 1](Representative Growth Hormone level in young and old age (ng/ml) (Khan et.al, 2002))
Below are also the table references of normal values of growth hormone. The result can be slightly different from another reference since there are various results from another laboratory. Random growth hormone (GH) levels in a healthy person range as follows:

<table>
<thead>
<tr>
<th>Table 1 Growth Hormone Level in Human</th>
<th>Source: e-medicine.medscape.com</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>&lt; 5ng/mL</td>
</tr>
<tr>
<td>Women</td>
<td>&lt; 10ng/mL</td>
</tr>
<tr>
<td>Children</td>
<td>0-20ng/mL</td>
</tr>
<tr>
<td>Newborn</td>
<td>5-40ng/mL</td>
</tr>
</tbody>
</table>

The growth hormone test can be conducted in laboratory by taking the subject’s blood and will undergo several processed to be measured. Before taking the HGH test, the subject is strongly recommended to fasting for about minimum of 10 hours so the result will be more accurately.

3. Methods

The methods will be divided into 4 phases. Preparation phase, Feeding Phase, Observation Phase and Laboratory Activity Phase.

**Preparation phase** is the phase to find and obtain all of the materials and equipment needed. This materials and equipment can be found and bought in Indonesia.

**Feeding phase** is the phase when this research began. Before this research was started, the data of the Human Growth Hormone of the subject must be collected so it can be compared during and after the research is done. To explore the Human Growth Hormone level, a laboratory activity is needed, the blood samples will be taken and the HGH will be measured using Human Growth Hormone Kit.

Feeding phase is a phase where the subjects (people) will be feed with the mixture of Colostrum milk, Edamame beans, Carrot, Royal Jelly and Zinc Tablets. The people will be given same concentration for feeding. Feeding will be conducted for 3 months. Every week each subjects will be given the samples of each concentration.

Below is the composition of the concentration. The concentration is made for feeding phase per 1 week.

<table>
<thead>
<tr>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 ml Colostrum Milk</td>
</tr>
<tr>
<td>250 gr Edamame</td>
</tr>
<tr>
<td>250 gr Carrots</td>
</tr>
<tr>
<td>50 ml Royal Jelly</td>
</tr>
<tr>
<td>3 pcs Zinc Tablets</td>
</tr>
</tbody>
</table>

**Observation** will be started before and during the feeding phase is conducted. This observation is also to see the development of human’s health and response to the feeding phase. This also to collect the data that needed for the physical data result of the research.

**Laboratory Test.** Activity HGH level will be test by taken a blood sample from the subject (human) to see if there is any difference of Human Growth Hormone increases by using Human Growth Hormone Test kit.

**Analytical Method**

The method of analyzing in this research can be divided into two types, quantitative analysis and qualitative analysis. The qualitative analysis is for checking the growth hormone (GH) concentration from the serum taken from the subject’s blood to indicates the level of the growth hormone before and after the subjects have been treated with the treatment. Whereas for the qualitative analysis is used to analyzed the condition and reaction of the subjects during treated by the treatment.

**Experimental Procedure**
The colostrum milk, edamame beans, royal jelly, carrots and zinc tablets were weighed according to the composition of each treatment. The edamame beans were boiled approximately 15 minutes and peeled. The carrot was grated into small pieces. The edamame and carrot was mixed with water. It is way to smoothen the blending of edamame and carrot. The edamame and carrot was blend first until very smooth for approximately 5 minutes. The remaining ingredients such as colostrum milk, royal jelly and zinc tablets were added after the blend of carrot and edamame were smoothed. The whole ingredients were blended again into smoothes. The mixing operation was conducted using a home blender for blending foods.

Analytical Procedure

Blood Test

The blood serum was taken to assay the HGH concentration of subject. The following HGH analysis conducted using DRG® HGH (Human Growth Hormone) (EIA-3552) in Food Technology Laboratory Swiss German University.

4. Result And Discussion

4.1. Qualitative analysis

The analysis of the subject is to observe based on their health and weight during treated with the treatment.

4.1.1. Health

During the experiment, there is no complaining from the subjects that gets the treatment about their health. During the humid temperature and rainy, there are no report from the subjects that they are catching cold. They are also reported to have more energy to do activities during day, and feel more comfortable during sleep in the night.

When the treatment stops for a week (to look at the reaction of the subject without treatment), it is recorded that the subject feels a few differences when there is a treatment. One of the differences is the sleeping hours (regular bedtime). This is because during the treatment, the subjects often feel sleepy and more comfortable when sleeping, hence affecting a better sleep quality which can be felt when waking up the next day. The subjects are reported to feel sleepy in the noon, and sleep earlier than usual sleeping hours. They reported to have a deep sleep rather than usual. Studies shows that people that have deep sleep or SWS (slow wave sleep) secretes more GH than people who had sleep deprived (Davidson, 1991). It also claimed that when the subject receives a treatment, the subject feels that the body is more fit and energized. However, if the subject does not receive any treatment, the subject felt more easily tired and exhausting than usual during the treatment.

4.2. Quantitative Analysis

4.2.1. Growth Hormone Analysis

The Growth Hormone level can be measured by using ELISA enzyme-linked immune absorbent assay method. Below are the data of the concentration of HGH.

Laboratory Data
Table 1: Subjects HGH Concentration before treatment (week 1)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Concentration (ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>47 years old</td>
<td>4.37</td>
</tr>
<tr>
<td>Subject 2</td>
<td>46 years old</td>
<td>5.2</td>
</tr>
<tr>
<td>Subject 3</td>
<td>59 years old</td>
<td>3.39</td>
</tr>
<tr>
<td>Subject 4</td>
<td>42 years old</td>
<td>3.18</td>
</tr>
<tr>
<td>Subject 5</td>
<td>52 years old</td>
<td>4.97</td>
</tr>
</tbody>
</table>

Table 2: Subjects HGH Concentration after last treatment (week 9)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Concentration (ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>47 years old</td>
<td>5.39</td>
</tr>
<tr>
<td>Subject 2</td>
<td>46 years old</td>
<td>6.38</td>
</tr>
<tr>
<td>Subject 3</td>
<td>59 years old</td>
<td>3.95</td>
</tr>
<tr>
<td>Subject 4</td>
<td>42 years old</td>
<td>4.43</td>
</tr>
<tr>
<td>Subject 5</td>
<td>52 years old</td>
<td>5.93</td>
</tr>
</tbody>
</table>

The comparison data HGH increased from week 1 to week 9 treatment

Subject 1 : 23.34 %
Subject 2 : 22.69 %
Subject 3 : 16.51 %
Subject 4 : 28.21 %
Subject 5 : 19.31 %

Results around : 16.51 – 28.21 %

4.3. Growth Hormone Analysis Discussion

From all of the data collected, the HGH concentration amount before and after the treatment can be compared from the first laboratory data and second laboratory data.

From the laboratory data, the subjects that received the treatment shows an increased. But the results are only around 16.51-28.21% due only had treatment for 9 weeks.

From the data that can be conclude several things.

First, age doesn’t determine the HGH level inside human body, because subject 3 whose 59 years old have a higher HGH level than subject 4 whose only 42 years old. This is could be due to genetic, health and lifestyle issues.

Second, subject 4 shows the highest increase among of all of the subject. Subject 4 is the highest. This is could be that younger age can have more positive response to the treatment.

Third, different people make different response to the concentration. Not all of them have the same percentage of increase. But all of the people had increases the HGH level inside their body.

Lastly, the following experiment must conduct at least for more than 3 months. More time will be needed for the stabilization of HGH inside the human body. According to the result that are not very significance high, another test still needs to be conducted, and studies of analyzing blood serum to determine HGH level needs to be studied deeply.

5. Conclusion

Observation Result

The observation of the subjects shows a great result since the subjects have a good response to the treatment. The subjects that have given the treatment shows to be healthier during the observation. During the treatment phase, the subjects also confirm not to have any issue of health or sickness (except
for subject 3 who has allergic to eat beans when is too many and can trigger the cough). The subjects also reported to have a deep sleep than usual. From the health data it can be concluded that the subjects shown to have a positive effect from the treatment given. Besides from health, the eating appetite of the subject also shows an increase. The subjects also reported to feel fresh and energetic compare before treatment was conducted.

**Growth Hormone Result**

Based on the result from the research, from first laboratory data, the growth hormone of the subject shows an increase within only 9 weeks of treatment.

### 6. Recommendation

The recommendation that can be given to improve the result of the research are:

1. More subjects for both treatment and non-treatment (controlled subject) are needed for the experiment to increase the effectiveness of the research.
2. This research still need a longer time treatment phase to ensure the growth hormone level during treatment are more significant and stable.
3. This research still needs to be develop and conduct further deeper study.

### Acknowledgment

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