

Study of How GABA Reduces People's Mental Stress

Abstract

Our purpose is to decrease the suicide rate in Iwate by reducing people's stress.

Iwate prefecture has the second highest suicide rate in Japan. In 2015, 297 people died of suicide². In 2003, 527 people died of suicide². The suicide rate tends to decrease every year, but the suicide rate is still high, compared to other prefectures. There are many reasons for this, for example, health- or family-related stress. Then, we thought if we could reduce people's stress, we could lower the suicide rate in Iwate.

To show the effect of GABA, we carried out one survey and one experiment.

Survey

<Table1> shows the result of a survey we carried out. We asked the third graders in this school about what kind of stress they usually feel. The "external-physical stress" is stress caused by outside conditions such as weather, noise, and allergies. The "internal-physical stress" is stress caused by our inside conditions such as lack of sleep and irregular life. The social stress is what is caused by our social communication such as in schools, at home, and human relationships. The psychological stress is caused by our feelings such as the feeling of anxiety and failure.

Analysis

From this result, more than half of the students felt internal-physical stress and the social stress. This result is worse than we expected. So we thought that this situation should be improved. To change environmental factors may be difficult. But we could change internal factors by ourselves. It's up to our own actions. We could reduce our stress by ourselves. We also looked for the easy way for us, high school students, who are always busy with club activities and studies to reduce our stress. And finally we found the way.

Mental balance chocolate GABA is a product which was released on the market, <Picture1>. It is chocolate that contains nutrients called GABA. It is said that it has some effect on reducing blood pressure, and stabilizing people's mental health.

Can GABA really reduce Ichikousei's stress?

We decided to carry out one experiment.

Experiment

Next, we carried out a test to inspect the efficacy of GABA. The tools for this procedure are mental balance chocolate “GABA” and salivary amylase monitor<Picture2>. There are five steps to this process. First, we inspected the quantity of amylase when we are at a normal state. Second, we will observe any changes to amylase quantity when we are stressed out by various stressors. Third, we inspected the quantity of amylase after being stressed out. Fourth, we take GABA. Last, thirty minutes after taking GABA, we inspected the quantity of amylase and compared it to the previous data.

Results

Please look at <Table2>.

The stressors we used for this procedure are as follows.

First stressor is sitting down silently for 10 minutes(①). Second stressor is hearing noise³ for 10 minutes(②). Third stressor is sitting down silently for 10 minutes with the eyes closed(③). Fourth stressor is walking with the eyes closed(④). Fifth stressor is studying math for 30 minutes(⑤).

In ③, ④, and ⑤, the figure increased. ② showed same level. In ①, the figure decreased. Decreasing of Quantity of Amylase (KIU/L) means the person’s stress was reduced. We found that individual differences were great.

Conclusion

From these surveys, we can say the following three things. Firstly, from first survey, there are many students who feel that they are stressed in school life. Second, the factors are various such as human relationships, mistakes, extreme temperatures (too hot or too cold) etc... Third, although there are some individual differences, in most cases GABA reduces our stress.

We will tell you about our future research plan based on what we learned from our first conclusion,

- Many students feel that they are stressed in everyday school life.

So we want to do future research on how to live our daily lives better while reducing stress.

From the third conclusion,

- GABA reduces our stress.

So we want to find out the best way to take GABA efficiently.

Acknowledgement

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References

Questionnaire for 3rd grade at Morioka Daiichi High School, November, 2016

Present Situation of Suicide in Iwate, www.pref.iwate.jp/fukushi/ryouiku/037393.html

Stress Column for People of Today, <http://mind-edit.info/index.html>

Music for Destroying Human Mind, <https://youtu.be/HfQEmgliA1M>

Effectiveness of GABA, <http://monclerindre.com/gaba-633.htm>

National Institute of Health and Nutrition, www.nutritio.net/healthfood/FMPro%3

Glico brand site www.glico.com/jp/product/chocolate/gaba/

<Table1>

Q. What kind of stress do you usually feel?

External physical stress	e.g. Weather Noise Allergy	96/254
Internal physical stress	e.g. Lack of sleep Irregular life	168/254
Social stress	e.g. School Home Human relationships	132/254
Psychological stress	e.g. Feeling of anxiety failure	112/254

<Pictue1>

<Picture2>



<Table2>

▽Result▽

※Quantity of amylase (KIU/L)

Stressor	Normal	After being stressed out	30 minutes later when GABA was taken
Sit down silently for 10 minutes	12	36	2
Hear noises for 10 minutes	6	6	34
Sit down silently for 10 minutes with the eyes covered	19	2	3
Walk with the eyes covered	32	7	18
Study math for 30 minutes	15	9	13

¹Morioka Daiichi High School, Morioka, Iwate, Japan, ² *Present Situation of Suicide in Iwate*, www.pref.iwate.jp/fukushi/ryouiku/037393.html, ³Music for Destroying Human Mind, <https://youtu.be/HfQEmgliA1M>