Matcha Saves the Day

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Although sugary cookies are usually deemed unhealthy, Keiko Unno and colleagues conducted a study in which the effect of matcha cookies on university students and mice revealed that they can play a role in lessening stress.

Imagine taking a sip of ice-cold lemonade on a hot day. The refreshing feeling would make one feel good on a summer day. Similarly, imagine being able to destress by doing something as easy as eating delicious cookies. Keiko Unno and colleagues explored the possibilities of matcha's properties being able to destress individuals. They gave matcha to the subjects and recorded their effects on stressful participants.

The researchers used mice models as well as university students as participants to compare different dosages of matcha. The methods for measuring matcha were high-performance liquid chromatography (HPLC), mice model, and double-blind randomized controlled trial for the participants. Mice were kept under similar conditions and given different amounts of matcha; their behaviors were observed. Similarly, 19 university students were given matcha cookies, and 17 were given placebo-matcha. All participants answered questionnaires after each day's practice for 15 days. While studying the university students, the researchers measured salivary α- amylase (sAA) as a stress marker to assess the stress response.

Matcha is similar to green tea but with greater quality and made into a powder from the tea leaves (Ikegaya et al. 1984). A specific amount of matcha can contain Theanine which shows great stress-reducing properties (Kakuda et al. 2000). It is important to acquire an adequate amount of matcha for stress relief because differences in quantities affect the efficiency (Anan 1974). Also, caffeine is one of the factors that antagonize the function of theanine, so there must be a precise ratio (CE/TA) between the two in order to achieve the stress-relieving quantities.

Past studies have identified that ingestion of theanine suppresses psychosocial stress in mice (Unno et al. 2013). They investigated mice under stressful conditions and measured the stress response with adrenal gland observations. The researchers found that daily doses of theanine worked to block the effects of caffeine. Therefore, the idea that theanine prevents and relieves stress through hypothalamic-pituitary-adrenal activity was supported (Unno et al. 2013). By this same notion, researchers can reasonably assume that food with great amounts of theanine, such as matcha, can be beneficial to people that don't drink green tea often due to theanine's stress relieving qualities.

Moreover, with the introduction of caffeine in goods, there must be a balance with adequate amounts of theanine (Unno et al. 2016). Since green tea has similar properties to matcha, the researchers investigated the effects of drinking green tea with lowered caffeine and enriched theanine. Unno et al. (2016) found that drinking green tea exhibits anti-stress effects, and theanine abolishes the counter-effect of caffeine. Thus, the overexpression of theanine over caffeine can promote stress relief, and this can be an effective stress reliever for individuals that don't intake green tea often.

The researchers chose the mice and university students to observe the effect of green tea and matcha on their stress levels (Unno et al. 2018). Mice models are easier to manipulate because they are more accessible and easier to handle. They tried to connect this study to humans, and they did this by studying students as well. They used a self-report system by having them fill out a questionnaire describing their stress levels. This study was helpful because it allowed for the results to generalize to a broader population.

Keiko Unno and colleagues find that giving matcha with a CE/TA ratio exceeding 10 could not rid of physiological and psychological stress in the mice model. However, a CE/TA ratio of around 2 displayed a remarkable reduction in stress in the mice model. Participants in the study consumed 4.5g of a test or placebo matcha daily; the CE/TA ratio was 1.79 in the test matcha. They found that daily ingestion of the provided match lowered their stress levels.

The findings show that CE/TA ratios of the tea are essential for the subduing of stress. The study with the university students demonstrated that a ratio of 1.79 was sufficient for the relief of stress in the morning. Theanine inhibits the excitatory influence of caffeine, and other factors that work with theanine also regulate the nervous system.

Theanine reduces the ability for glutamate, an excitatory neurotransmitter, to be formed. When studying the mice after the intake of matcha, they found that GABA, an inhibitory neurotransmitter, had increased, and glutamate was reduced. This means that the presence of theanine may play a role in the balance between GABA and glutamate.

The work of these researchers aimed to discover a connection between matcha intake and stress levels. They found that a precise amount of matcha intake can relieve stress in university students. This revelation raises questions about future potential studies, such as examining the effect of matcha under more stressful conditions. Additionally, it would be helpful to study whether lower amounts of matcha can reduce stress and have an older range of participants partake in a similar study.

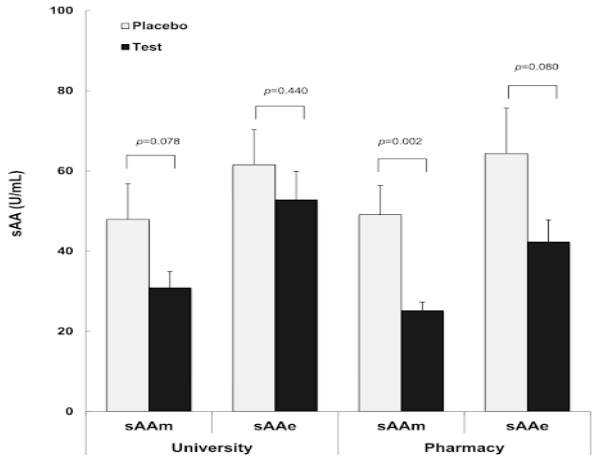

Figure 1: The graph above shows the sAA (salivary α amylase), which was used to measure stress levels, as a function of the two study groups, university and pharmacy students. The white bars are the placebo group and the black bar shows the experimental (matcha test) group. The sAAm and sAAe aim to express the salivary α amylase in the morning and evening, respectively.