



ALL A B C D E F G I K L M N O P Q

R S T V Z

BioPQQ Clinical Evidence

Food Style

Nakano M, et al. Effect of pyrroloquinoline quinone (PQQ) on mental status of middle-aged and elderly persons. 2009;13(7):50-3.

Topic:

Does PQQ improve cognitive function and fight stress in middle-aged and elderly adults? Is it safe?

Background:

Few functional foods with clinically recognized benefits on cerebral function are available. Could foods containing PQQ and CoQ10 fill this gap for aging populations?

Study Type:

Human intervention trial

Study Design:

Double-blind, placebo-controlled, parallel group comparative study. Subjects consumed foods containing PQQ only, PQQ plus CoQ10, or placebo foods for 12 weeks. Cognitive effects were tested using word memorization, recall and other cerebral tests. Stress

effects were tested by measuring oxidative stress and mental stress markers. Tests were administered at the beginning of the study and at 4, 8 and 12 weeks.

Subjects:

71 healthy adults (29 men and 42 women) aged 45-65 years, without evidence of dementia.

Dosage:

20 mg PQQ + 300 mg CoQ10

Results:

- Both the PQQ group and the PQQ/CoQ10 group showed significant improvement in the word memorization and recall task.
- Only the PQQ/CoQ10 group showed significant improvement on some sections of the Stroop test (a test of directed attention).
- The PQQ group showed an improvement tendency and the PQQ/CoQ10 group showed significant improvement in different sections of the CogHealth test.
- Researchers also found a tendency of stress reduction but only a mild one.
- No safety issues were found.

Conclusion:

From these results, it is presumed that intake of PQQ-containing foods will improve some of high-level cerebral functions including attention and discriminating and processing abilities, and PQQ/CoQ10 will have more of this effect.

Medical Consultation and New Remedies

Koikeda T, NereNo M, and Masuda K. Pyrroloquinoline quinone disodium salt improves higher brain function. 2011. 48(5):1.

Topic:

What are the effects of PQQ and CoQ10 on memory and other higher brain functions?

Background:

Many older adults experience problems with memory and other cognitive functions, but are these declines inevitable? Can PQQ and CoQ10 help?

Study Type:

Human clinical intervention trial

Study Design:

Placebo-controlled, double-blind, three-group parallel study. Subjects took PQQ alone, PQQ with CoQ10, or placebo for 24 weeks. They were evaluated using the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS).

Subjects:

65 Japanese subjects, aged 50-70 years, with forgetfulness

Dosage:

20 mg PQQ and 100 mg CoQ10/day, for 24 weeks

Results:

Researchers found that PQQ taken either alone or in combination with CoQ10 has the potential to prevent, or even reverse, the decline in cognitive function caused by the aging process and oxidative stress.

Conclusion:

PQQ was found to improve not only immediate memory, but also other higher brain

functions such as spatial awareness. The effects of PQQ were enhanced when the substance was used with CoQ10.

PQQ Mechanism of Action:

PQQ improves memory, spatial awareness, and attention span by facilitating nerve regeneration and enhancing nerve growth factor (a protein that promotes the growth, maintenance, and survival of nerve cells). PQQ helps mitochondria increase in numbers and efficiency so they can help brain cells function more efficiently.

The increased synthesis of mitochondria is caused by the activation of two proteins that regulate the expression of genes and the formation of mitochondria: cAMP response element-binding protein (CREB) and peroxisome proliferator-activated receptor-coactivator-1 (PGC-1).