



# Phosphatidylserine: Benefits for Children

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Literature Education Series On Dietary Supplements

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Phosphatidylserine (PS) is quite literally a “brain nutrient.” As a matter of fact, this phospholipid is an integral component in the structure of the brain and spinal cord, and is active at cell membranes (including synaptic membrane zones). A significant amount of published clinical research has demonstrated that PS supplementation supports various cognitive parameters in children, including those with ADHD.<sup>1</sup>

## Children and ADHD

In a pilot study,<sup>2</sup> 15 attention-deficit hyperactivity disorder (ADHD) children 6 to 12 years old who had rarely received medication before, took 200 mg/day of PS in a capsule every day for 2 months. Results showed that after with PS, ADHD symptoms were significantly improved ( $p < 0.01$ ). Significant improvement was also observed in inattention ( $p < 0.01$ ) as well as hyperactivity and impulsiveness ( $p < 0.05$ ). Visual perception was also significantly improved ( $p < 0.001$ ).

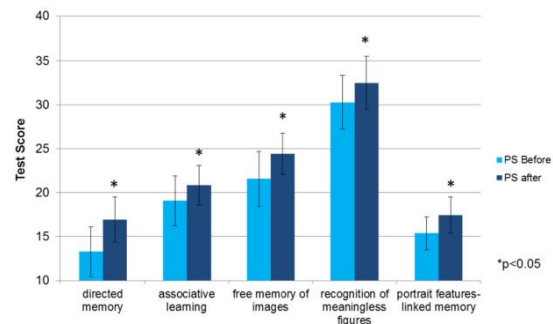
In a randomized, double-blind, placebo-controlled trial,<sup>3</sup> thirty-six children with ADHD, aged 4-14 years, who had not previously received any drug treatment related to ADHD, received placebo ( $n = 17$ ) or 200 mg day PS ( $n = 19$ ) for 2 months. The results were that PS

supplementation resulted in significant improvements in: ADHD ( $P < 0.01$ ), AD ( $P < 0.01$ ) and HD ( $P < 0.01$ ), short-term auditory memory ( $P < 0.05$ ), as well as inattention and impulsivity ( $P < 0.05$ ). No significant differences were in the placebo group. PS was well-tolerated and showed no adverse effects.

In a physician in-office study<sup>4</sup> of 21 consecutive ADHD cases aged 4-19, dietary supplementation with PS benefited greater than 90 percent of the cases. At intakes of 200-300 mg/day of PS for up to four months, attention and learning were most consistently improved.

## Students and cognitive function

To research whether PS may have beneficial effects on memory in learning, 120 students (age 17-18) were randomized to receive either 100 mg of PS in a glass of milk or a placebo (milk without PS) for 40 days.<sup>5</sup> Memory was assessed by clinical memory scale involving a



computerized multimedia method (CM) before and after consumption of milk. Results showed that the PS group experienced significant improvement in memory quotation (MQ) and CM compared to the start of the study, and compared to the placebo group ( $P < 0.05$ ). There

was no significant change of MQ (memory quotation) and CM in placebo group. In conclusion, this study indicates that PS treatment improved cognitive performance in students.

### Conclusion

Give the supportive research, supplementation with 200 mg of PS daily may benefit children with ADHD, and supplementation with 100 mg daily may provide improvements in memory function in learning for students.

### References

<sup>1</sup> Kidd, P.M. 1999, 'A review of nutrients and botanicals in the integrative management of cognitive dysfunction', *Alternative Medicine Review*, vol. 4, no. 3, pp. 144-61.


<sup>2</sup> Hirayama S, Masuda Y, Rabeler R. Effect of phosphatidylserine administration on symptoms of attention-deficit/hyperactivity disorder in children. *AgroFOOD*. 2006; 17(5):16-20.

<sup>3</sup> Hirayama S, Terasawa K, Rabeler R, Hirayama T, Inoue T, Tatsumi Y, Purpura M, Jäger R. The effect of phosphatidylserine administration on memory and symptoms of attention-deficit hyperactivity disorder: a randomised, double-blind, placebo-controlled clinical trial. *J Hum Nutr Diet*. 2014 Apr;27 Suppl 2:284-91.

<sup>4</sup> Kidd P. Attention Deficit/Hyperactivity Disorder (ADHD) in Children: Rationale for Its Integrative Management. *Altern Med Rev* 2000; 5(5):402-428.

<sup>5</sup> Yong T, Qianyong Z, Mantian M, Gang H, Jing W. Research on human memory enhancement by phosphatidylserine fortified milk. *Chongqing Medicine*. 2011;30.003. doi: 10.3969.

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