CASE STUDY

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Thought Leading Natural Health

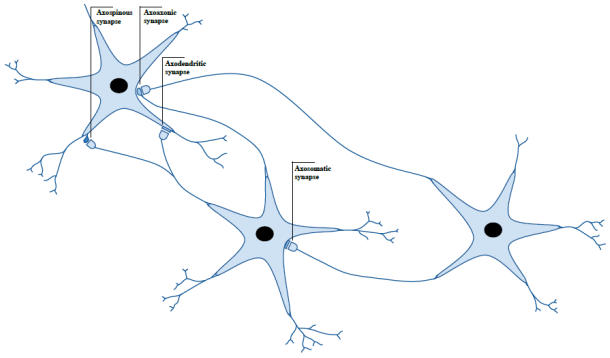
Increasing brain plasticity with bacopa (CDRI 08)

Company
Soho Flordis International (SFI)

Problem/opportunity
Our previous studies administering BACOPA EXTRACT CDRI 08 (KeenMind®) showed an improvement in cognition, particularly domains that are associated with normal cognitive ageing (memory and processing speed), however not much has been reported in humans about the mechanisms involved in this cognitive enhancement. A recent animal study showed that bacopa increased learning by increasing synaptic plasticity and the density of dendrites in the rat hippocampus (in this study treatment with bacopa increased the number of neuronal connections in the areas of the rat brain associated with learning). Therefore, we wanted to translate this finding and explore brain mechanisms of bacopa (KeenMind® CDRI 08) in the healthy elderly.

Solution
We conducted a unique trial in which all participants (aged 55 years and older) were asked to complete cognitive training for 12 weeks. Half of the participants were asked to consume 320 mg of KeenMind® CDRI 08 daily for 3 months and half were asked to consume matching placebo. All participants completed Magnetic Resonance Imaging (Diffusion tensor imaging (DTI) and neurite orientation dispersion and density imaging (NODDI) in gray (GM) and white matter (WM) was measured at baseline and at 12 weeks.

Our role
We conceived a study to test the idea that KeenMind® CDRI 08 would increase synaptic plasticity in older participants. We designed and conducted the trial, carried out the trial, analysed the results and published the data.



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Outcomes

As a pilot study there were very interesting results that included an increase in accuracy on some of the cognitive tasks in the KeenMind® CDRI 08 group. In terms of the neuroimaging data exploratory neuroimaging analysis showed increased WM mean diffusivity (MD) and GM dispersion of neurites (orientation dispersion index, ODI) and decreased WM fractional anisotropy (FA) and GM neurite density (ND) in the KeenMind® CDRI 08 group. These results may indicate an increase in network complexity (through higher dendritic branching) accompanied by dendritic pruning to enhance network efficiency. Whilst a pilot study, this is one of the first studies of its type with a plant-based extract to examine in vivo measures of brain connectivity and plasticity.

The methodology used offers industry a great opportunity to develop new extracts that may improve brain plasticity in older citizens or in people with compromised brain connectivity.

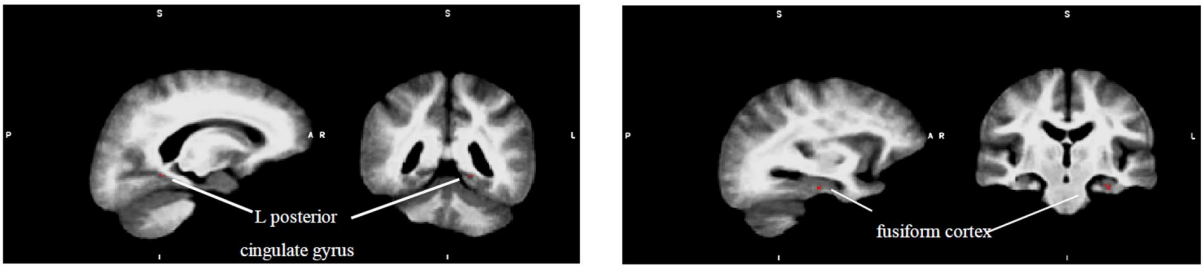

Figure 3. Clusters showing significant (p<.01, uncorrected) differences in the change of neurite density and neurite dispersion from baseline to three months between treatment and placebo group. Voxels in red indicates a decrease in neurite density and an increase in neurite dispersion in the treatment group compared to the placebo group after 12 weeks.

References

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Tags

Bacopa, KeenMind®, CDRI 08, Soho Flordis International, SFI, neuroimaging, cognitive training, clinical trial