Reversing the effects of memory loss (based on the article 'Reversal of cognitive decline: A novel therapeutic program' Dale E.Bredesen)

Scientists at UCLA applied a multi faceted, individualised treatment programme to a small group of individuals who had been diagnosed with memory loss associated with Alzheimers disease and other cognitive impairment disorders. After following the programme for 3-6 months, 9 of the 10 patients showed significant improvement in cognitive ability with sustained improvement over time. (The 1 patient showing no improvement had very late stage Alzheimers.)

The research is "based on the hypothesis that Alzheimers results from an imbalance in an extensive plasticity network, and that the therapy should address as many of the network components as possible, with the idea that a combination may create an effect that is more than the sum of the effects of many monotherapeutics" .

The patients followed the programme for 3 months after which time, measurable improvement s in memory and cognitive ability were noted. For example,

"A 67-year-old woman presented with two years of progressive memory loss. She held a demanding job that involved preparing analytical reports and travelling widely, but found herself no longer able to analyze data or prepare the reports, and therefore was forced to consider leaving her job. She noted that when she would read, by the time she reached the bottom of a page she would have to start at the top once again, since she was unable to remember the material she had just read. She was no longer able to remember numbers, and had to write down even 4-digit numbers to remember them. She also began to have trouble navigating on the road: even on familiar roads, she would become lost trying to figure out where to enter or exit the road. She also noticed that she would mix up the names of her pets, and forget where the light switches were in her home of years.

She began the programme and was able to adhere to some but not all of the protocol components. Nonetheless, after three months she noted that all of her symptoms had abated: she was able to navigate without problems, remember telephone numbers without difficulty, prepare reports and do all of her work without difficulty, read and retain information, and, overall, she became asymptomatic. She noted that her memory was now better than it had been in many years. On one occasion, she developed an acute viral illness, discontinued the program, and noticed a decline, which reversed when she reinstated the program. Two and one-half years later, now age 70, she remains asymptomatic and continues to work full-time.

As noted above, and following an extended discussion of the components of the therapeutic program, the patient began on some but not all of the system: (1) she eliminated all simple carbohydrates, leading to a weight loss of 20 pounds; (2) she eliminated gluten and processed food from her diet, and increased vegetables, fruits, and non-farmed fish; (3) in order to reduce stress, she began yoga, and ultimately became a yoga instructor; (4) as a second measure to reduce the stress of her job, she began to meditate for 20 minutes twice per day; [5] she took melatonin 0.5mg po qhs; (6) she increased her sleep from 4-5 hours per night to 7-8 hours per night; (7) she took methylcobalamin 1mg each day; (8) she took vitamin D3 2000IU each day; (9) she took fish oil 2000mg each day; (10) she took CoQ_{10} 200mg each day; (11) she optimized her oral hygiene using an electric flosser and electric toothbrush; (12) following discussion with her primary care provider, she reinstated HRT (hormone replacement therapy) that had been discontinued following the WHI

report in 2002; (13) she fasted for a minimum of 12 hours between dinner and breakfast, and for a minimum of three hours between dinner and bedtime; (14) she exercised for a minimum of 30 minutes, 4-6 days per week."

In essence the programme involves a combination of the following:

(1). Fasting for a minimum of three hours between dinner and bedtime, and for a minimum of 12 hours between dinner and breakfast;

(2) Eliminating simple carbohydrates and processed foods

(3) Increased consumption of vegetables and fruits, and limited consumption of fish to non-farmed, and meat to occasional grass-fed beef or organic chicken

(4) Probiotics for GI health

(5) Coconut oil

(6) Exercise several times a week and yoga to reduce stress

(7) Melatonin if necessary, to allow 8 hours of sleep per night

(8) Herbs such as Bacopa monniera 250mg, Ashwagandha 500mg, and turmeric 400mg each day;

(9) Vitamins: Methylcobalamin(B12), methyltetrahydrofolate (folic acid), and pyridoxine-5-phosphate (B6)

(10) Citicoline

(11) Vitamin C, vitamin D3, vitamin E, CoQ_{10}, Zn picolinate (zinc), and α-lipoic acid(antioxidant)

(12) DHA (omega 3) and EPA (omega 3)

Full report at http://www.impactaging.com/papers/v6/n9/full/100690.html

The complete programme is as follows:

Goal	**Approach**	**Rationale and References**
Optimize diet: minimize simple CHO, minimize inflammation.	Patients given choice of several low glycemic, low inflammatory, low grain diets.	Minimize inflammation, minimize insulin resistance.
Enhance autophagy, ketogenesis	Fast 12 hr each night, including 3 hr prior to bedtime.	Reduce insulin levels, reduce Aβ.
Reduce stress	Personalized—yoga or meditation or music, etc.	Reduction of cortisol, CRF, stress axis.
Optimize sleep	8 hr sleep per night; melatonin 0.5mg po qhs; Trp 500mg po 3x/wk if awakening. Exclude sleep apnea.	[36]
Exercise	30-60' per day, 4-6 days/wk	[37, 38]

Brain stimulation	Posit or related	[39]
Homocysteine <7	Me-B12, MTHF, P5P; TMG if necessary	[40]
Serum B12 >500	Me-B12	[41]
CRP <1.0; A/G >1.5	Anti-inflammatory diet; curcumin; DHA/EPA; optimize hygiene	Critical role of inflammation in AD
Fasting insulin <7; HgbA1c <5.5	Diet as above	Type II diabetes-AD relationship
Hormone balance	Optimize fT3, fT4, E2, T, progesterone, pregnenolone, cortisol	[5, 42]
GI health	Repair if needed; prebiotics and probiotics	Avoid inflammation, autoimmunity
Reduction of Aβ	Curcumin, Ashwagandha	[43-45]
Cognitive enhancement	Bacopa monniera, MgT	[46, 47]
25OH-D3 = 50-100ng/ml	Vitamins D3, K2	[48]
Increase NGF	H. erinaceus or ALCAR	[49, 50]
Provide synaptic structural components	Citicoline, DHA	[51].
Optimize antioxidants	Mixed tocopherols and tocotrienols, Se, blueberries, NAC, ascorbate, α-lipoic acid	[52]
Optimize Zn:fCu ratio	Depends on values obtained	[53]
Ensure nocturnal oxygenation	Exclude or treat sleep apnea	[54]
Optimize mitochondrial function	CoQ or ubiquinol, α-lipoic acid, PQQ, NAC, ALCAR, Se, Zn, resveratrol, ascorbate, thiamine	[55]
Increase focus	Pantothenic acid	Acetylcholine synthesis requirement
Increase SirT1 function	Resveratrol	[32]
Exclude heavy metal toxicity	Evaluate Hg, Pb, Cd; chelate if indicated	CNS effects of heavy metals
MCT effects	Coconut oil or Axona	[56]

CHO, carbohydrates; Hg, mercury; Pb, lead; Cd, cadmium; MCT, medium chain triglycerides; PQQ, polyquinoline quinone; NAC, N-acetyl cysteine; CoQ, coenzyme Q; ALCAR, acetyl-L-carnitine; DHA, docosahexaenoic acid; MgT, magnesium threonate; fT3, free triiodothyronine; fT4, free thyroxine; E2, estradiol; T, testosterone; Me-B12, methylcobalamin; MTHF, methyltetrahydrofolate; P5P, pyridoxal-5-phosphate; TMG, trimethylglycine; Trp, tryptophan