The End of Alzheimer's: The First Program to Prevent and Reverse Cognitive Decline

Types of Alzheimer's Disease

	Characteristics	Comments

Type 1 – Inflammatory **(hot)**	• Begins with loss of ability to store new information; long term memories, ability to speak, calculate and write are kept
	• Due to inflammation
	• Responds most quickly to ReCode protocol
		• Tends to run in family; occurs more often in people who carry one or two ApoE4 alleles.
		• Symptom onset dependent on copies of ApoE4 carried
		  ○ One copy – late 40s/50s
		  ○ Two copies – late 50s/60s
		  ○ No copies – 60s-70s

Type 2 – Atrophic **(cold)**	• Begins with loss of ability to store new information; long term memories, ability to speak, calculate and write are kept • No evidence of inflammation. • Due to overall support for brain synapses drying up	• Tends to run in family; occurs more often in people who carry one or two ApoE4 alleles • Symptom onset also dependent on copies of ApoE4 carried, but usually occurs one decade later than Type 1
Type 1.5 – Glycotoxic **(sweet)**	• Combination of Type 1 and 2 • Due to inflammation and reduced brain support for synapses	• Glucose levels always high • Insulin resistance leading to reduced brain support
Type 3 – Toxic **(vile)**	• Begins with problems involving numbers, speech or organizing - e.g., problems with calculating tips, finding the right words, spelling/reading. Transitions into losing simple and complex memories	• Does not typically run in the family – not affected by ApoE4 • Symptoms typically beginning in late 40s to early 60s

Cognoscopy

Consider Alzheimer's disease to be like a "leaky roof" with 36 holes. Pharmaceuticals do a good job of plugging **ONE** of those holes, but with 35 other holes, or causes, plugging just one hole isn't enough. Before trying to prevent Alzheimer's disease, you must first pinpoint where you stand in terms of inflammation, reduced brain support, or other toxic compounds that may cause your Alzheimer's disease. Enter the Cognoscopy- tests that can aid you in personalizing your prevention or recovery plan.

- Homocysteine
- Vitamins B_6, B_{12}, and Folate
- Fasting Insulin, glucose, and A1c
- C-Reactive Protein (hs-CRP)
- Albumin to Globulin Ratio (A/G ratio)
- Ratio of Omega-6 to Omega-3
- IL-6 and TNFα
- Vitamin D_3
- Thyroid function tests
- Estrogens and Progesterone
- Testosterone
- Cortisol, pregnenolone, and DHEA
- Copper:Zinc ratio
- Magnesium
- Selenium and Glutathione
- Mercury
- Sleep apnea
- Cholesterol and LDL
- Vitamin E and B_1
- GI Permeability (Leaky gut)
- Blood-Brain Barrier Permeability
- Gluten Sensitivity
- Autoantibodies
- Toxins (dementogens)
- Exposure to mitochondrial damaging agents
- Body Mass Index
- Genetics
- Brain Imaging
- Quantitative Neuro Testing
- Lifestyle considerations

ReCODE Protocol (Reversing COgnitive DEcline)

Even though there are countless reasons why cognitive decline happens, it comes down these five key points which can be applied to every patient

1. **Insulin resistance**
2. **Inflammation/infections**
3. **Hormone, nutrient, and trophic factor optimization**
4. **Toxins (chemical, biological and physical)**
5. **Restoration and protection of lost (or dysfunctional) synapses**

Intervention	Comments (Note – This is solely an overview. Refer to book for full descriptions)
Diet: Ketoflex 12/3	• "Keto"- meaning ketosis; mild ketosis is best for keeping cognitive function and occurs when your body runs out of carbs and has to break down fat for energy • "flex" – meaning flexitarian diet which is a diet with an emphasis on vegetables. Some fish, poultry and meat are fine • "12/3" – refers to fasting times to help induce ketosis. (12 hours between the end of dinner, and the next day's first meal. 3 hours minimum between the end of dinner and bedtime)
Exercise	• Reduces insulin resistance and stress; increases brain synapse support
Sleep	• Prevent sleep apnea; Sleep improves brain synapse support
Stress reduction	• Reduces cognitive decline, especially in Type 3 Alzheimer's
Brain Training	• Computer based mental exercises designed to improve cognitive function
MCT oil	• Used to restore insulin sensitivity, decrease carb cravings, and induce ketosis
Curcumin	• Prevents inflammation
Herbal Supplementation	• The following herbal supplements to support synaptic function – Ashwagandha, bacopa monnieri, Gotu Kola, Hericium, Rhodiola, Shankhpushpi, triphala, guduchi
Magnesium	• Optimizes brain cell function
Vitamins and Supplements for Cognitive Protection	• Ubiquinol (for mitochondrial support), PQQ 10-20, Resveratol, Nicotinamide riboside, Vitamin D and Vitamin K, Vitamin E
Detoxification	• If metals or biotoxins identified (mercury, mold, etc.,) start detoxification protocol • Glutathione, cholestyramine, intranasal vasoactive intestinal peptide, or guggul to increase elimination of toxins
Pro/Pre-Biotics	• Fix leaky gut; reduces inflammation, improves nutrient absorption, enhances immune system
Bioidentical Hormone Replacement Therapy	• Thyroid , Estradiol/Progesterone (for women), testosterone, cortisol, pregnenolone and DHEA to prevent cognitive decline and optimize brain function
SPMs	• Stands for "specialized pro-resolving mediators" to resolve inflammation
Methylcobalamine, methylfolate	• Decreases homocysteine levels to provide synapse support, and decrease inflammation
Insulin sensitivity	• Alpha-lipoic acid, N-acetylcysteine, cinnamon, berberine, metformin
Improve Copper:Zinc Ratio	• Zinc picolinate, alpha-lipoic acid, N-acetylcysteine, P5P, Manganese, Vitamin C
SAM-e or folate	• For depression
Huperzine A	• Consider if memory is not the primary problem – only after 3 months of ReCODE protocol, and not on donepezil
CIRs evaluation	• Stands for chronic inflammatory response syndrome
Antibiotics or antivirals	• For specific infections
Medication Stewardship	• Minimize or discontinue medications that may interfere with cognitive function. (e.g., statins, PPIs, benzodiazepines, etc.,)

Reference: Bredesen D. The End of Alzheimer's, The First Program to Prevent and Reverse Cognitive Decline. Penguin; 2017.
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