

Report Cover

ReCODE Reports™ are generated with a personalized cover page that includes the report date, participant name, practitioner name, and name of the individual who generated the report.

RE·CODE™

PARTICIPANT REPORT

REPORT DATE: AUGUST 19, 2020

PARTICIPANT:

JOHNNY APPLE

GENERATED BY:

APOLLO AVATAR

PHYSICIAN:

DR. APOLLO



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All ReCODE Reports™ include a table of contents that can quickly navigate to specific sections of the report by clicking the page title or page number.



YOUR RECODE REPORT

PARTICIPANT: JOHNNY APPLE
REPORT DATE: AUGUST 19, 2020

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Your Risk Factors

Your ReCODE index provides a snapshot of the participant's current state of cognitive decline and provides a summarized index of his/her current metabolic state made of all six Alzheimer's subtypes. The index provides a visual goal to move each thermometer to an optimal state.

The goal is not simply to normalize metabolic parameters, but rather to optimize them. This personalized list highlights the participant's primary areas of concern.

UNDERSTANDING YOUR RESULTS

YOUR COGNITIVE RISK FACTORS

PARTICIPANT: JOHNNY APPLE REPORT DATE: AUGUST 19, 2020

YOUR RE·CODE INDEX

AUGUST 19, 2020

OPTIMAL NONOPTIMAL

TYPE 3 TOXIC

AUG 19, 2020

Some toxins are "dementogens" – they cause dementia. Examples are some metals such as mercury, some organic toxins such as acrolein, and biotoxins such as mycotoxins (toxins produced by specific molds).

TYPE 1 INFLAMMATION

AUG 19, 2020

Chronic inflammation, whether due to infections or leaky gut or poor diet or other factors, is the key contributor to Type 1 Alzheimer's disease.

TYPE 4 VASCULATURE

AUG 19, 2020

Vascular damage, poor blood flow, and poor oxygenation are important contributors to Type 4 Alzheimer's disease.

TYPE 5 TRAUMATIC

AUG 19, 2020

Head trauma, especially if repeated or severe, increases risk for both Alzheimer's (Type 5) and CTE (chronic traumatic encephalopathy).

TYPE 1.5 GLYCOTOXIC

AUG 19, 2020

Sugar toxicity causes both inflammation and insulin resistance, and therefore contributes to both Type 1 and Type 2 Alzheimer's disease.

TYPE 2 ATROPHIC

AUG 19, 2020

Reduction in hormonal, vitamin, nutrient, or growth factor support drives Type 2 Alzheimer's disease.

KEY METABOLIC CONTRIBUTORS: PRIORITY LIST

<input type="checkbox"/> Homocysteine	<input type="checkbox"/> Vitamin B12	<input type="checkbox"/> LDL particle number
<input type="checkbox"/> Fasting insulin	<input type="checkbox"/> Estradiol	<input type="checkbox"/> HOMA-IR
<input type="checkbox"/> Hemoglobin A1c	<input type="checkbox"/> Progesterone	<input type="checkbox"/> Free copper

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The Six Subtypes

The ReCODE Report measures the level or risk and contributors for all six subtypes. Each page provides a description and contributors of each subtype along with a personalized analysis based on genetic and blood results.

UNDERSTANDING YOUR RESULTS

THE SIX TYPES OF ALZHEIMER'S DISEASE

PARTICIPANT: JOHNNY APPLE REPORT DATE: AUGUST 19, 2020

TYPE
1

INFLAMMATION

Chronic inflammation, whether due to infections, leaky gut, or poor diet or other factors, is the key contributor to Type 1 Alzheimer's disease.

This type is associated with inflammatory markers such as hs-CRP, and the inflammation may be due to infections (often unrecognized) or leaky gut or suboptimal diet or other factors. Risk for type 1 is increased by ApoE4, chronic infections, trans fats, damage to your gut microbiome, and other factors.

Let's see how you are doing with risk for inflammatory Alzheimer's, so that we can minimize this risk.

TYPE
1

Your Results

Your hs-CRP (high sensitivity C-reactive protein, which is a measure of inflammation) was 0.5 mg/l, which is excellent – congratulations, your hs-CRP does not indicate high risk for inflammatory Alzheimer's! This is important, because millions of people suffer from chronic inflammation, and this takes a toll, accelerating our aging (which is often called "inflamm-aging" because inflammation is such a common and important feature of aging), increasing risk for Alzheimer's, and increasing risk for other chronic illnesses such as vascular disease, arthritis, and cancer.

The information in the treatment section will help you to keep this inflammation low for years to come, thus helping to prevent further cognitive decline. This includes keeping your gut healthy – avoiding "leaky gut" – keeping your oral health good (pathogens from dental disease, such as *P. gingivalis*, increase risk for Alzheimer's disease), treating pathogens you may get from ticks (such as *Borrelia* or *Ehrlichia*), treating viral outbreaks such as Herpes, and avoiding exposure to inflammatory toxins such as those from specific molds. The "B7" section offers the best approaches for staying healthy and avoiding chronic inflammation and its associated risks.

Although not quite as predictive of inflammation-related disease as hs-CRP, there are other markers that complement hs-CRP, such as A/G ratio (albumin to globulin ratio) and homocysteine. Your A/G ratio was 2.2 : 1, and the goal is to see this at 1.8 or above. High homocysteine may also be associated with inflammation, although it is most reflective of methylation (which is important in many processes, including detoxification pathways). The goal for homocysteine is 7 micromolar or lower. Your homocysteine was 10.7 uM.

In addition to these laboratory tests, your genetics can also influence your risk for Alzheimer's disease. The great news is that, although your genetics may influence your risk, this can be countered very successfully. As an example, regular exercise reduces the risk of the most common genetic risk factor, which is ApoE4, back to normal.

So, let's look at your most important genetic risk factor: ApoE4. Each of us may have 0, 1, or 2 copies of ApoE4, and this is associated with low, moderate, or high risk for Alzheimer's disease. **Please remember that none of these guarantees that you won't get Alzheimer's or that you will, so even if you have 2 copies, being on a reversal program should allow you to start the reversal of your cognitive decline** – indeed, there is a wonderful site – ApoE4.info – at which over 3000 individuals from all over the world, all ApoE4+, share information and share their best practices. Most of these individuals are on some variation of ReCODE or PreCODE.

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Where Do I Start?

ReCODE reports include a personalized starting point for all individuals on the protocol.



UNDERSTANDING YOUR RESULTS

WHERE DO I START?

PARTICIPANT: JOHNNY APPLE REPORT DATE: AUGUST 19, 2020

STEP
1

Achieve insulin sensitivity and mild ketosis, 1 to 4mM beta-hydroxybutyrate by ketone meter, or 7-40 ACES on breathalyzer (Biosense).

Ketosis is the production of ketones by which you metabolize your body's fats to use as energy, instead of using sugar or other carbohydrates. Ketosis has several mechanisms to enhance cognitive function. The instructions for how to do this are included in your overall program.

Your goal is to work up to a minimum 12-hour daily fast, including at least 3 hours before bedtime utilizing the "KetoFLEX 12/3" diet emphasizing healthy fats.

Combining a long daily fast with the recommended diet and exercise 5-6 times per week may be enough to reach your ketosis goal. If you are having difficulty either fasting, transitionally (a month or two to start is often helpful) consider the use of MCT oil or ketone salts or esters to help you extend your fast and reach your desired level of ketosis. Your physician and health coach can guide you with tips to how to optimize your ketosis, which in turn will support your optimal brain function. Use your ketone meter to monitor your progress.

STEP
2

Enhance methylation to reduce homocysteine.

Homocysteine is an important contributor to Alzheimer's disease and vascular inflammation, and reducing your homocysteine is one of the key goals of your program. This is accomplished with the synaptic support items listed in your program.

STEP
3

Optimize hormonal support for your brain.

Your profile indicates that optimal hormonal support will be key for cognition, and therefore it is recommended that you consult your physician about the ideal hormonal support.

STEP
4

Optimize vitamin B12 level.

Insufficient vitamin B12 is a contributor to cognitive decline, and somewhat surprisingly, even "low normal" levels of B12 can contribute to cognitive loss. Some of us who have reduced gastric acid (stomach acid) – such as those who take proton pump inhibitors for reflux – do not absorb vitamin B12 or several other key nutrients, so we may need to supplement B12 for best cognitive function. Furthermore, there are multiple forms of B12 to take, such as methyl-B12, hydroxo-B12, and adenosyl-B12. Optimizing B12 levels, and using the right type(s) of B12, are key to optimizing cognition.

STEP
5

Minimize exposure to dementogens.

There are many contributors to cognitive decline: just as we are exposed to many carcinogens (cancer-causing chemicals), we are also exposed to dementogens, such as specific toxic metals, organic solvents, pesticides, mycotoxins (toxins produced by mold species), and some medications, among others. Proton pump inhibitors (PPIs), often taken for reflux (GERD, or gastroesophageal reflux disorder), may reduce our absorption of critical nutrients for brain function, such as zinc and vitamin B12. Statins may reduce cholesterol, which is critical for brain structure, too far. Anesthetic agents, some antidepressants, some antihistamines, benzodiazepines, some pain killers (like opiates), and anticonvulsants (seizure drugs), are all drugs that affect cognition and can contribute to reduced cognitive ability.

Understanding Your Results: B7

The ReCODE Report provides a detailed outline of seven foundational strategies that work together to create neuroplasticity, called the Bredesen Seven or B7.



UNDERSTANDING YOUR RESULTS YOUR RECODE JOURNEY

PARTICIPANT: JOHNNY APPLE REPORT DATE: AUGUST 19, 2020

Introducing the Bredesen 7

The best way to reverse cognitive decline is to combine the personalized aspects of your ReCODE report, which has identified potential future drivers of cognitive decline, with the Bredesen Seven (or B7), the seven foundational strategies that work together to create neuroplasticity – the ability of the brain to establish, maintain, prune, and modify synaptic connections. Each of the strategies alone has the ability to promote neuroplasticity, but when practiced together they create powerful synergy. More extensive information on the B7 can be found in the guides to which you have access on apollohealthco.com.



Nutrition: Nutrition plays a remarkably important role in the reversal of cognitive decline. The goal is to utilize nutrition to support brain health by creating insulin sensitivity, increasing energy (via ketosis), reducing inflammation, improving vascular health, promoting autophagy, and more.



Exercise: Exercise has many mechanisms by which it supports cognition. It increases your brain-derived-neurotrophic factor (BDNF), increases cerebral blood flow and oxygenation. Additionally, it reduces overall stress, optimizes body mass index (BMI), improves insulin sensitivity, and optimizes overall brain and body physiology in numerous ways.



Sleep: Sleep enhances our ability to focus, learn, and memorize. It is critical that oxygenation be appropriate during sleep (96-98% saturation is optimal) with the overall goal of 7-8 hours of quality restorative sleep each night.



Stress: Stress, especially chronic stress, can be a key contributor to cognitive decline. While stress is unavoidable, you can learn to control your reaction to it by adopting daily stress management practices. Additionally, consider including mindfulness – the ability to be fully present in a non-judgmental manner – to aid in the incorporation of the B7 strategies.



Brain Stimulation: Brain Stimulation becomes even more important as we age to create neuroplasticity – the ability of the brain to establish, maintain, prune, and modify synaptic connections. This remodeling of our brains occurs throughout our lives in response to social and mental stimuli.



Detox: Detox is a multi-step process that involves avoiding “dementogens,” chemical agents that contribute to Alzheimer’s disease, as well as identifying and addressing current exposures while optimizing detoxification pathways to create resilience.



Supplements: Supplements can support numerous mechanisms to optimize your biochemistry. While they are “supplemental” to the overall program, they can be an important contributor to healing, especially if you’re suffering from a specific nutritional deficiency that affects your cognitive health.



Your Suggested Plan: Supplements & Personalized Alternatives

Each report includes a personalized list of recommended supplements by LifeSeasons. For individuals who would like to take their preferred brand of supplements or do not have access to the LifeSeasons formulation may purchase the supplements listed in the Personalized Supplement Alternatives.



YOUR SUGGESTED PLAN

PARTICIPANT: JOHNNY APPLE
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7. SUPPLEMENTS



The goal of all of the 7 parts of the "B7" is to create the very neurochemistry that supports the production and maintenance of synapses, the critical connections in our brains. If we optimize the various parameters in the B7, we should be able to make and maintain these synapses for decades to come. As you've already read, diet, exercise, sleep, stress management, brain stimulation, and detoxification are all important and powerful. Adding to these is supplementation, and while the effective use of supplements is critical to best outcomes, please remember these are, by definition, supplementary. Thus they are meant to be used with the other members of the B7, and in such a setting, they provide effective synaptic support.

In order to keep pill and capsule numbers to a minimum, we have worked with LifeSeasons to synthesize a supplement solution for you. We suggest individuals on the protocol to include the ReCODE Core Kit in their supplement regimen. The ReCODE Core Kit includes a Morning Balance, Evening Balance, Daily Multivitamin, Daily Probiotics, Daily OMEGA-3, and Daily Antioxidants. In addition, depending on your subtyping, we recommend additional subtype formulas in your personalized protocol (below).

If you are currently taking medications such as blood thinners, please consult with your physician before starting supplements.

ReCODE Core Kit

ReCODE Morning Balance

Suggested Use: In the morning, mix two level scoops with water and drink.

ReCODE Morning Balance contains ingredients that have been shown to promote cognition and memory by providing signaling and trophic support. Exogenous ketones are included to fuel energy production and endurance. Soluble dietary fiber and probiotics help sustain gut health and immunity. Various nutrients support a healthy vascular system and natural energy.



ReCODE Evening Balance

Suggested Use: In the evening, mix two level scoops with water and drink.

ReCODE Evening Balance contains ingredients that have been shown to reduce stress and promote sleep, cognition, and memory by providing signaling and trophic support. It was designed to support the brain's neurotransmission systems and to reduce stress and promote sleep, while helping to sustain gut health and immunity.



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Your Suggested Plan: Hormone Therapy

The Bredesen Protocol incorporates physician-supported hormone therapy to achieve optimal hormone levels to support brain structure and function. Note, bio-identical hormone replacement therapies should preferably be conducted with a physician specialized in bio-identical hormone replacement.



YOUR SUGGESTED PLAN

PARTICIPANT: JOHNNY APPLE
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HORMONE THERAPY

Please consult with your physician, preferably an expert in bio-identical hormone replacement, on possible hormone replacement therapies.

- Replacement should be bio-identical.
- **Target progesterone level for 1-10.**
Progesterone is usually started at 100mg orally each night.
- **Target estradiol level for 80-200.**
Estradiol should not be taken orally. Best is trans-vaginal or transdermal, following levels. Estradiol can be with or without estriol (Estradiol + estriol is best). Important to monitor carefully for side effects by doing regular mammography and Ob-Gyn examinations.
- Retest **DHEA-Sulfate** in 3-6 months.
- Talk with practitioner about **Thyroid** (Armour or NP Thyroid or Westroid or Naturethroid) 60mg;
Check basal body temperature or Thyroflex.

Avoid sudden withdrawal of HRT.
When planning withdrawal, do so very gradually, over 6-12 months.



Why This is Important

Optimal hormone levels support brain structure and function, and enhance the ability to make and store new memories, as well as inhibiting degeneration.

Your Suggested Plan: Recommended Reading

Dr. Bredesen and the Apollo Health medical team have curated a specific list of books that can be a valuable reference to support cognition.

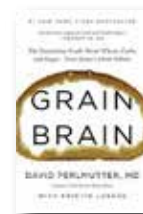
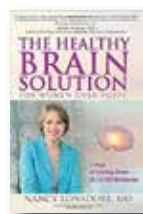
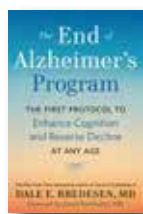
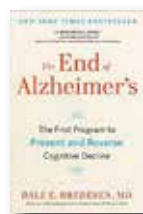


YOUR SUGGESTED PLAN

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Recommended Reading

Preventing cognitive decline is now possible – it is happening in thousands of people every day – and this goes hand in hand with optimizing cognition. A finely tuned brain will bring you all sorts of dividends for many years to come, and this simply means getting several different systems to work together as a network – from nutrition to exercise to sleep to growth factors to brain training, and so on. The books listed here are excellent, readable references to support cognition for decades to come. In addition to general references for cognition, we list specific titles for those who are at risk for a specific subtype of cognitive decline, such as toxic (Type 3) or vascular (Type 4).



- [The End of Alzheimer's](#) by Dr. Dale Bredesen
- [The End of Alzheimer's Program](#) by Dr. Dale Bredesen (with Julie Gregory and Dr. Aida Lasheen Bredesen) *Pre-order August 18, 2020
- [The UltraMind Solution](#) by Dr. Mark Hyman
- [FOOD: What the Heck Should I Eat?](#) by Dr. Mark Hyman
- [FOOD: What the Heck Should I Cook?](#) by Dr. Mark Hyman
- [Grain Brain](#) by Dr. David Perlmutter
- [Brain Maker](#) by Dr. David Perlmutter
- [The Brain Body Diet](#) by Dr. Sara Gottfried
- [The Healthy Brain Solution for Women Over Forty](#) by Dr. Nancy Lonsdorf
- [Fat for Fuel](#) by Dr. Joseph Mercola
- [KetoFast](#) by Dr. Joseph Mercola
- [The Longevity Diet](#) by Dr. Valter Longo (Keep the overall concept of KetoFLEX 12/3 in mind)
- [Ketotarian](#) by Dr. Will Cole
- [31-Day Food Revolution](#) by Ocean Robbins (Keep the overall concept of KetoFLEX 12/3 in mind)
- [How Not to Die](#) by Michael Greger (Keep the overall concept of KetoFLEX 12/3 in mind)
- [Super Immunity](#) by Joel Fuhrman (Keep the overall concept of KetoFLEX 12/3 in mind)

Report Data

If recommended tests are incomplete, missing tests will be itemized and suggested.

Each report will be provided with the next suggested testing interval.



REPORT DATA

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You and your practitioner may also wish to consider the following tests:

- Glutathione (uM)



REMINDER

YOUR NEXT LAB TESTS SHOULD BE COMPLETED AFTER SIX MONTHS

2021-01-14

The following pages include all of your lab results, genetic results, and assessments utilized to generate your ReCODE Report. If available, each result will include a color code indicating whether the result is within the ReCODE Target range, the raw value with units, reported date of the result, and the source of the result.

Target ranges are color coded Green, Gold, and Red. Green results meet the ReCODE Target range, Gold results are within the normal reference range defined by the Apollo Health lab, and Red results are outside of normal range. Please note, these ranges and values may not match your preferred lab's reference ranges. If you are not using the Apollo Health lab and the lab test is significantly different, the ranges and ReCODE algorithm may be inaccurate, so it is important to make sure that compatible lab tests are used.

Please note that best outcomes require bringing lab values not simply to the minimum "normal" levels, but to optimal functional levels—this is well documented, for example, with homocysteine and B12. Please consult with a trained ReCODE Practitioner as these defined ranges are set as guidelines.

Your results may be sourced from various data sources, which may include Apollo Health's partnered lab, trained ReCODE Practitioners, or conducted assessments. Each result will be labeled with a data source, if available.

MEDICAL ADVICE, DIAGNOSIS AND TREATMENT BASED ON ANY REPORTED TARGET RANGES AND VALUES ARE AT THE SOLE DISCRETION OF A TRAINED RECODE PRACTITIONER OR YOUR PHYSICIAN.

Please consult with your trained ReCODE Practitioner regarding retesting procedures.

Raw Results

The Raw Results section lists and categorizes all of the individual's lab results, genetic tests, and health questionnaire responses. Each result will include the value, protocol recommended range, the date the result was recorded, and the source of the result. In addition, each result will be highlighted with a colored indicator identifying optimal, suboptimal, or abnormal results.

RAW RESULTS		PARTICIPANT: JOHNNY APPLE REPORT DATE: AUGUST 19, 2020			CONSULT YOUR PHYSICIAN WITH ANY QUESTIONS LEGEND: OPTIMAL FOR RECODE - SUBOPTIMAL - ABNORMAL	
TEST	REPORT VALUE	TARGET RANGES	DATE	SOURCE		
General Health						
Age	68		2020-8-19	Avatar		
Sex	Male		2020-8-19	Avatar		
Basal Body Temperature	98 deg. F		2020-8-19	Avatar		
BMI	● 24	18-25	2020-8-19	Avatar		
Systolic Blood Pressure	98		2020-8-19	Avatar		
Diastolic Blood Pressure	95		2020-8-19	Avatar		
Assessments						
AQ-21-score	● 25		2020-8-19	self-reported		
CNS Verbal Memory	● Average		2020-8-19			
CNS Psychomotor Speed	● Average		2020-8-19			
CNS Processing Speed	● Above Ave.		2020-8-19			
CNS Executive Function	● Low		2020-8-19			
CNS Social Acuity	● Average		2020-8-19			
CNS Reasoning	● Above Ave.		2020-8-19			
CNS Simple Attention	● Very Low		2020-8-19			
CNS Motor Speed	● Low Ave.		2020-8-19			
MoCA score	● 28	28-30	2020-8-19	Avatar		
Personal History						
Onset of Cognitive Decline	1913-12-31		2020-8-19	Avatar		
Family History of Dementia	No		2020-8-19	Avatar		
Diabetes	No		2020-8-19	Avatar		
Simple Carbohydrates in Diet	● No		2020-8-19	Avatar		
Depression	● No		2020-8-19	Avatar		
Episodes of Aggressive Behavior	● No		2020-8-19	Avatar		
History of Concussions	● No		2020-8-19	Avatar		
History of Head Trauma	● No		2020-8-19	Avatar		
Vomiting After Head Trauma	● No		2020-8-19	Avatar		
Loss of Consciousness	● Yes		2020-8-19	Avatar		
Alcohol Related Withdrawal or Seizures	No		2020-8-19	Avatar		
Illicit Drug Use	No		2020-8-19	Avatar		
Anti-Testosterone Medication	No		2020-8-19	Avatar		
History of Heart Attack or Angina	No		2020-8-19	Avatar		
History of Hypertension	No		2020-8-19	Avatar		
History of Peripheral Vascular Disease	No		2020-8-19	Avatar		
Hysterectomy Before 41	No		2020-8-19	Avatar		
Hysterectomy Before 52	No		2020-8-19	Avatar		