The Biblical Chronologist

WHAT HAS BEEN IS REMOTE AND EXCEEDINGLY MYSTERIOUS. WHO CAN DISCOVER IT?
(Ecclesiastes 7:24)

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Dietary Supplementation with NR for the Post-aging Diet: Part 4

Dietary supplementation with pure nicotinamide riboside (NR) in its chloride form at a daily intake of 1,500 milligrams (mg) per day over the past month appears to have overshot the mark, instigating further theoretical development crucial to intelligent use of NR for the mitigation of post-aging diseases.

This issue focuses on results from measurements of NAD+ levels in my blood plasma alone. I have taken far more measurements on myself than on any other volunteer. As a result, the set of these personal measurements paints the most clear picture to the present time of what is going on with NR and its metabolite, NAD+, in the body.

The purpose this issue is to devise a theory capable of explaining my dataset, with the expectation that this new theory will give insight into what the next move should be with NR.

Review

The overarching theoretical framework guiding the present research is presented in the third edition of *Aging: Cause and Cure*.[1] A quick review of the basic theoretical framework is called for in the present context of further theoretical development.

The fundamental theory is the General Theory of Aging.

> **General Theory of Aging:** Aging in all machines of all types is always simply progression of one or more disorders stemming from intrinsic design flaws relative to the machine's present environment.

Biological organisms are seen as extremely complex biological machines within this framework. When discussion is restricted to biological machines alone, as in the present case, the General Theory of Aging reduces to the General Theory of Aging for Biological Organisms.

> **General Theory of Aging for Biological Organisms:** Aging in all organisms of all species is always simply progression of congenital disease.

The advent of Noah's Flood altered Earth's environment, resulting in the loss of two previously unknown vitamins: methylphosphonic acid (MePA) and methylphosphinic acid (MePiA). These newly discovered vitamins are called "the anti-aging vitamins." As with all vitamins, the anti-aging vitamins are essential to human health. Their absence from modern human diets explains why humans die at 70 or 80 years of age today when they lived to 925 years of age on average prior to the Flood. The absence of these two vitamins results in deadly nutritional deficiency diseases which are presently killing humans off way before their life span potential has been realized.

Restoration of these two vitamins to the diet, by use of Dr. Aardsma's Anti-Aging Vitamins dietary supplement, for example, cures these two nutritional deficiency diseases.

Unfortunately, MePiA deficiency disease induces two other diseases: microheteroplasmy (resulting in slow energy starvation of cells) and NAD+ autoimmune disease (resulting in NAD+ deficiency

[1] Gerald E. Aardsma, *Aging: Cause and Cure*, 3rd ed. (Loda, IL: Aardsma Research and Publishing, 2023). www.BiblicalChronologist.org.

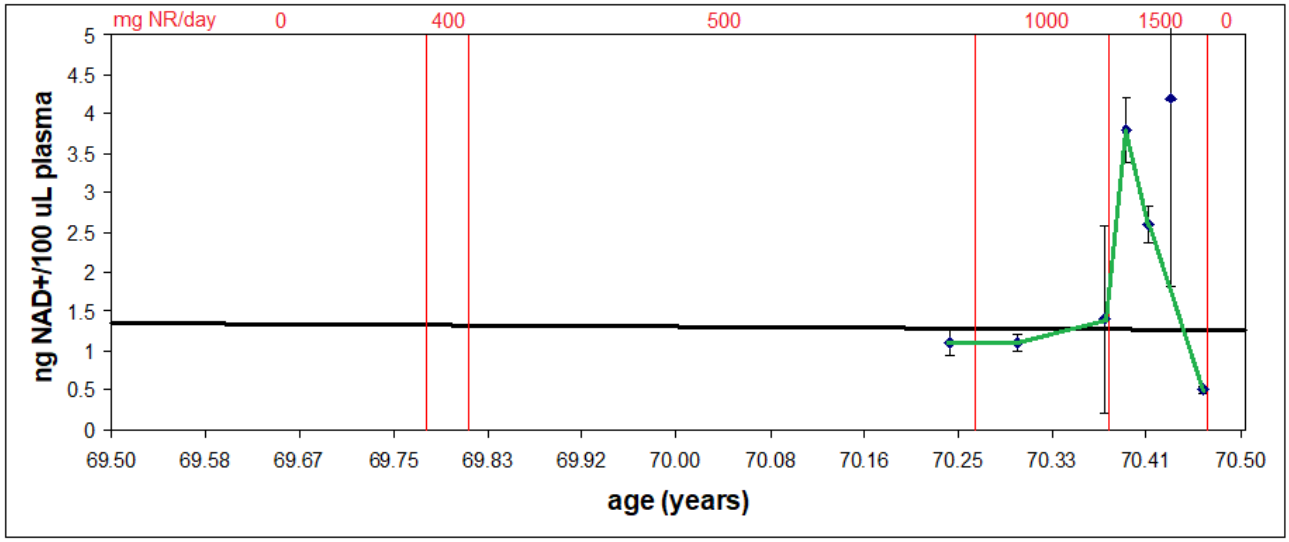

Figure 1: In-house measurements of NAD+ concentration in my blood plasma (blue data points). The heavy, near-horizontal black line represents normal NAD+ levels versus age for individuals supplementing their diets with neither NR nor Dr. Aardsma's Anti-Aging Vitamins. The red vertical lines delimit time intervals having the different daily NR intake amounts shown in red above the graph. The vertical bars shown with the data points are not error bars. They give a visual impression of the quality of the measurement. The green curve connects data points to show the overall behavior of the data. It excludes the poorest-quality data point because it is far from the overall behavior, likely due entirely to the poor quality of the measurement.

disease).[2] Thus, while the two congenital deficiency diseases are cured by adequate dietary supplementation of MePA and MePiA, improving health and life expectancy, three deadly, non-congenital, induced diseases remain (microheteroplasmy, NAD+ autoimmune disease, and NAD+ deficiency disease) after the two aging diseases have been cured.

Left unchecked, these induced diseases will kill the organism all too soon. To achieve pre-Flood life spans, individuals who have previously been afflicted with MePiA deficiency disease need to be treated for these three induced diseases.

This is where dietary supplementation with NR comes in. Remarkably, it holds promise for the mitigation of all three of these remaining diseases.[3]

The Dataset

Figure 1 shows all of the data which have been collected thus far on the concentration of NAD+ in my blood plasma in response to daily NR intake. The first three date points were published last issue. The remaining four points are new this issue.

These new data points show, first of all, that it is possible to obtain youthful NAD+ levels in blood plasma by supplementation with NR. A level of 3 is normal for people near 40 years of age, and a level of 4 is normal for people near 20 years of age. The peak of the green curve in Figure 1 is at 3.8. This shows that a NAD+ level characteristic of individuals in their twenties was restored to me at age 70. This is a significant achievement.

Unfortunately, this youthful level was not maintained. Even though the intake of NR was maintained at 1,500 mg per day, the level of NAD+ in my blood plasma fell back down nearly to zero. This is an important finding. It instigates several points of new theoretical development.

Further Theoretical Development

A New Model

I have previously suggested the model shown in Figure 2 for understanding the flow and distribu-

[2]Gerald E. Aardsma, "Dietary Supplementation with NR for the Post-aging Diet: Part 2," *The Biblical Chronologist* 15.1 (June 10, 2025): 1–6. www.BiblicalChronologist.org.

[3]Gerald E. Aardsma, "Dietary Supplementation with NR for the Post-aging Diet: Part 2," *The Biblical Chronologist* 15.1 (June 10, 2025): 1–6. www.BiblicalChronologist.org.

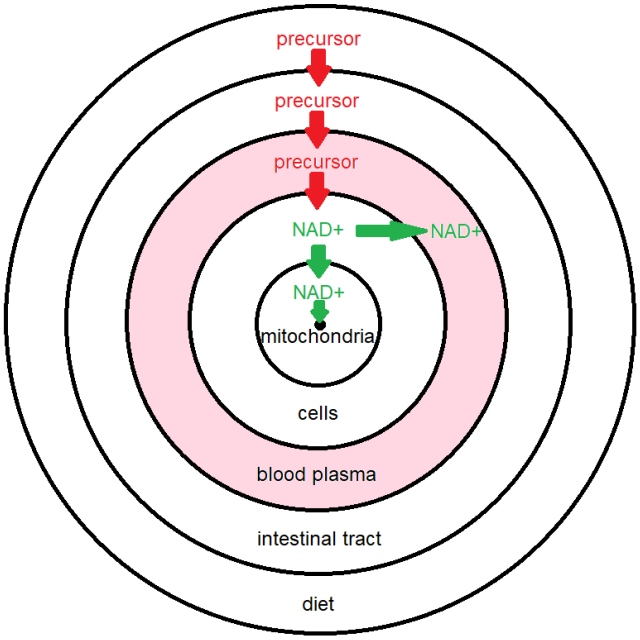

Figure 2: The old model for understanding the flow and distribution of NAD+ and its precursors in the body. The black dot at the center is the NAD+ sink domain.

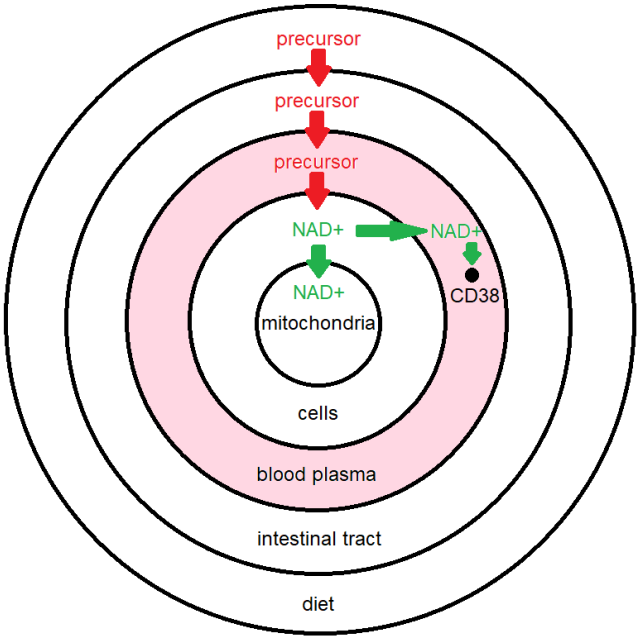

Figure 3: The new model for understanding the flow and distribution of NAD+ and its precursors in the body. The black dot representing the NAD+ sink domain has been moved out of the mitochondria domain and into the blood plasma domain. CD38 is a NADase enzyme. It acts as a sink for NAD+, destroying the NAD+ molecule.

tion of NAD+ in the body.[4] The latest data on my NAD+ levels (Figure 1) prompt replacement of this old model with the new model shown in Figure 3.

The new data show fairly rapid destruction of NAD+, and this rapid destruction was not accompanied by any general decline in health. These observations imply that NAD+, while being removed from blood plasma, is not significantly changed in cells. Thus, the blood plasma appears to be the first domain to experience loss of NAD+, and this implies that the NAD+ sink must be located there.

The new model identifies the sink as due to the CD38 NADase enzyme. This enzyme is present throughout the body, including in mitochondria, but it is mainly present in blood plasma, attached to the surface of immune cells.

A Design Flaw

I suggest that the location of the NAD+ sink primarily in the blood plasma domain is an example of "one or more disorders stemming from intrinsic design flaws relative to the machine's present environment" specified in the General Theory of Aging. When I introduced the old model I explained:

> [I]t does not seem to make good sense, from a design perspective, for the immune response targeting NAD+ to be a whole-body response. Rather, it seems to make most sense for the destruction of NAD+ to be localized within the mitochondria, to interfere as little as possible with the other physiological roles played by NAD+. This theoretical consideration is the reason I have placed the NAD+ sink domain inside the mitochondria domain in my conceptual model.[5]

While not a design flaw relative to the original (pre-Flood) environment, this appears as a design flaw relative to the current (post-Flood) environment. In the current environment, it guarantees that the primary problem—lack of MePiA

[4]Gerald E. Aardsma, "Dietary Supplementation with NR for the Post-aging Diet: Part 2," *The Biblical Chronologist* 15.1 (June 10, 2025): 4. www.BiblicalChronologist.org.

[5]Gerald E. Aardsma, "Dietary Supplementation with NR for the Post-aging Diet: Part 2," *The Biblical Chronologist* 15.1 (June 10, 2025): 5. www.BiblicalChronologist.org.

and consequent ROS damage—which is happening in the mitochondria will interfere with much else which is happening outside the mitochondria by disturbing NAD+ levels not just in the mitochondria but throughout the organism.

This design flaw is "relative to the machine's present environment." The present environment is not the human body's original native environment. The original native environment was the pre-Flood environment. This environment was lost because of the Flood. The Flood destroyed the source of the anti-aging vitamins,[6] changing the environment. The human body was not designed to operate in an environment lacking vitamins MePA and MePiA. Fortunately, human bodies are able to survive in this present environment for 70 or 80 years, or humans might now be extinct.

A New Understanding of NAD+ Autoimmune Disease

The observed decline of NAD+ in my blood plasma yields new insight into the nature of NAD+ autoimmune disease. It implies that the autoimmune destruction of NAD+ which pertains at present is a perversion of an initial immune response design feature.

The initial design feature—CD38 on immune cells—I suggest, was intended to keep NAD+ levels from becoming too high for the mitochondria to be able to cope with. Specifically, too high NAD+ levels have potential to ramp up phosphorylative oxidation to the point where it overwhelms available MePiA, thus causing unacceptable levels of ROS damage to the mitochondria.

This immune function was designed to protect mitochondria from unacceptable levels of damage. The perversion of this immune function entered in when the environment was changed by the Flood, resulting in zero MePiA. That change meant that *all* phosphorylative oxidation would thenceforth produce unacceptable levels of ROS damage, constantly triggering this immune response. Thus this immune response, designed to protect the mitochondria, became an autoimmune disease which actively destroys NAD+ needed by other processes outside of the mitochondria, to the overall detriment of the organism.

This chain of reasoning supplies an explanation of the present observations on my blood plasma level response to high intakes of NR shown in Figure 1. It implies that, even though MePiA is appropriately present in my mitochondria due to supplementation of my diet with Dr. Aardsma's Anti-Aging Vitamins for some years now, excessive production of NAD+ due to the recent 1,500 mg NR per day intake overwhelmed available MePiA, triggering the natural immune function to destroy NAD+, as it was originally designed to do.

Fundamentally, this is good news. Said simply, it means that the mitochondria protection system has gotten back to normal. (This does not mean that the mitochondria themselves have gotten back to normal.) It means that MePiA is present in the mitochondria, doing its anti-ROS-damage job. Otherwise, there would have been little if any increase in my blood plasma levels of NAD+. NR intake would simply have boosted NAD+ in cells and mitochondria, thus exacerbating wild-fire damage to mitochondria, and this would immediately have triggered more NAD+ autoimmune reaction—more CD38, creating a larger NAD+ sink—resulting in no youthful spike of NAD+ in my blood plasma.

This, in turn, says that the introduction of MePiA into the diet cures not only MePiA deficiency disease but also NAD+ autoimmune disease. Unfortunately, the effects of NAD+ autoimmune disease remain because the old immunity persists. That is, even though new, additional CD38 is no longer being generated once MePiA has been restored, the old CD38 is still present, destroying NAD+. Inclusion of NR in the diet mitigates this simply by overwhelming the old, now-unnecessary, excess CD38.

The decline in my NAD+ level was not due to ongoing NAD+ autoimmune disease. It was due to a restored healthy immune response to excessive NAD+.

NR Intake Strategy

Unfortunately, such artificial stimulation of the healthy immune response adds its own load of new CD38 to the existing load of old CD38. Said an-

[6] Gerald E. Aardsma, *Aging: Cause and Cure*, 3rd ed. (Loda, IL: Aardsma Research and Publishing, 2023). www.BiblicalChronologist.org.

other way, it makes the NAD+ sink larger. This implies that were I to carry on with a daily intake of 1500 mg NR, the NAD+ sink would grow to the point where my NAD+ level would become permanently youthful without triggering the normal, healthy immune response to excess NAD+ any longer.

But, clearly, this is not the best strategy. The best strategy calls for NR intake to be kept high enough to sustain youthful levels of NAD+ in the blood plasma of the individual, but below the level which triggers the natural immune response to excess NAD+, so that the NAD+ sink is not enlarged. This minimizes the expense of daily NR consumption, and it allows the NAD+ sink slowly to shrink should this turn out to be possible.

Conclusion

It appears that my optimum daily intake at present will be somewhere between 1,000 and 1,500 mg NR per day. Clearly, younger individuals will have a lower optimum daily intake than older individuals. The current research objective is to make further measurements on myself and a small number of volunteers to see whether a simple formula can be worked out for recommended daily intake of NR versus the age of first use of Dr. Aardsma's Anti-Aging Vitamins. ◇

The Biblical Chronologist is written and edited by Gerald E. Aardsma, a Ph.D. scientist (nuclear physics) with special background in radioisotopic dating methods such as radiocarbon. *The Biblical Chronologist* has a fourfold purpose:

1. to encourage, enrich, and strengthen the faith of conservative Christians through instruction in biblical chronology and its many implications,
2. to foster informed, up-to-date, scholarly research in this vital field,
3. to communicate current developments and discoveries stemming from biblical chronology in an easily understood manner, and
4. to advance the growth of knowledge via a proper integration of ancient biblical and modern scientific data and principles.

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