

# 4LIFE TRANSFER FACTOR AGEPRO™ CHALLENGE

Technical White Paper

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## OBJECTIVE

This informal study compared health and longevity biomarkers and survey results from ten individuals before and after 12 weeks of taking 4Life Transfer Factor AgePro.\*

## BACKGROUND

As humans age, many body systems gradually lose functionality.<sup>1</sup> Many scientists and researchers have investigated the possibility of slowing down the aging process. Mitochondrial dysfunction and cellular senescence are 2 of the 12 hallmarks of aging identified in a 2022 review.<sup>1</sup>

One intriguing biomarker that may protect against mitochondrial dysfunction is NAD+. NAD+ is a co-enzyme created in the body that is required for energy metabolism.<sup>2</sup> NAD+ levels decrease with age, causing an energy deficit, which reduces the body's ability to maintain proper, youthful function.<sup>3</sup> Supplementing with NMN has been shown to increase NAD+ levels in the blood.<sup>4,5</sup>

Understanding cellular senescence may hold additional keys to understanding longevity. When a cell is senescent, it stops dividing and functioning correctly, but it does not die. Senescent cells release signals that attract immune cells to clear them away, but in diseased or damaged tissues, senescent cells can build up, reducing functionality.<sup>6</sup> Some markers that indicate the presence of senescence are senescence-associated beta-galactosidase ( $\beta$  gal) and senescence-associated secretory proteins (SASP). If scientists can reduce cellular senescence, they may be able to improve the way humans age.

4Life Transfer Factor AgePro is a proprietary blend containing NMN and 4Life Transfer Factor®, among other potent ingredients, that is formulated to support an aging immune system.\*

## METHOD

Participants were selected on a volunteer basis from the 4Life Sandy, Utah offices. Five participants were women ages 34–56 and five were men ages 46–61. Everyone was given the 36-Item Short Form Health Survey (SF-36) to determine their self-perception of their health. Blood samples were taken from all participants and sent to a third-party laboratory for analysis of longevity biomarkers. Each participant was given a 12-week supply of 4Life Transfer Factor AgePro and instructed to take two capsules daily. Subjects were also instructed to maintain daily habits, including activity level, medications, and supplements for the 12-week period. After 12 weeks, participants were given the SF-36 again and had their blood drawn for a second analysis at the same third-party lab. Results from before and after supplementation were compared for each participant. Lab results calculated a "W-Index" score, which captured the overall quality of the longevity biomarkers tested.

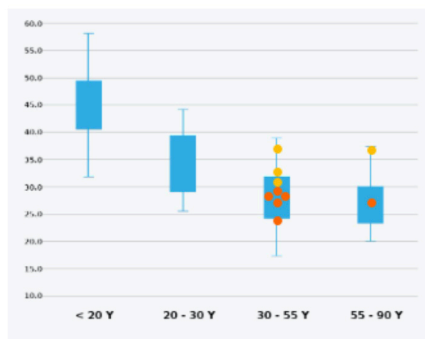
## RESULTS AND DISCUSSION

Seven out of ten participants improved their SF-36 scores overall, which may indicate an improved perception of vitality and general health. Survey scores were also broken down into health categories. Within those categories, five participants improved their vitality score, seven improved their bodily pain score, and eight improved their mental health score.\*

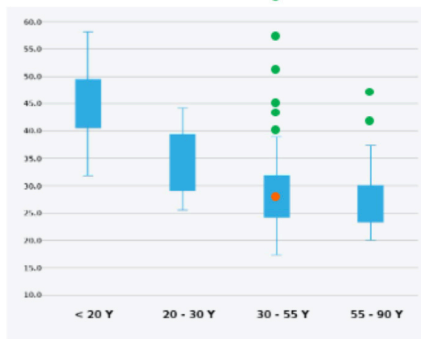
All participants improved their W-Index scores, ranging from 1% to 18% improvement. All ten participants also had increased NAD+ levels in their blood, with improvement ranging from 6% to 147%. Nine out of ten participants raised their blood NAD+ levels from "suboptimal" to "optimal." "Optimal" was defined as levels between 40–100  $\mu$ M.\*

Figure 1 shows before and after NAD+ levels for all participants. Each participant's score was plotted along with a box plot of scores of their age group collected previously by the independent lab.

### BEFORE AGEPRO



### AFTER AGEPRO



After supplementation, nine out of ten individuals exceeded the expected NAD+ levels for their age group.\*

Looking at markers indicating cellular senescence, seven participants improved their  $\beta$  gal scores, while five participants improved one or more of their SASP markers.\*

Before taking 4Life Transfer Factor AgePro, six out of ten participants had optimal levels of longevity marker High Sensitivity C-Reactive Protein (hs-CRP).



After supplementation, five participants improved hs-CRP levels and one moved from "suboptimal" to "optimal." "Optimal" was defined as having values below 1 mg/L.\*<sup>7</sup>

All participants had improved longevity biomarkers, particularly levels of NAD+. Many individuals also experienced improved perception of their overall health, and 80% of participants requested additional product and intend to continue supplementing with 4Life Transfer Factor AgePro.\*

## CONCLUSION

Additional research needs to be conducted on a larger scale and in a more controlled environment to fully understand the benefits of 4Life Transfer Factor AgePro, but this preliminary investigation into the effects of 4Life Transfer Factor AgePro on longevity-linked markers has shown that individuals could benefit from supplementing with 4Life Transfer Factor AgePro for 12 weeks.\*

<sup>1</sup> Hallmarks of aging: An expanding universe (sharepoint.com)

<sup>2</sup> NAD+ metabolism: pathophysiologic mechanisms and therapeutic potential | Signal Transduction and Targeted Therapy (nature.com)NAD+ metabolism: pathophysiologic mechanisms and therapeutic potential (nature.com) <https://www.nature.com/articles/s41392-020-00311-7>

<sup>3</sup> It takes two to tango: NAD+ and sirtuins in aging/longevity control | npj Aging (nature.com) Imai et al. NPJ Aging Mech Dis. 2016;2:16017

<sup>4</sup> Effect of oral administration of nicotinamide mononucleotide on clinical parameters and nicotinamide metabolite levels in healthy Japanese men (jst.go.jp)

<sup>5</sup> The efficacy and safety of  $\beta$ -nicotinamide mononucleotide (NMN) supplementation in healthy middle-aged adults: a randomized, multicenter, double-blind, placebo-controlled, parallel-group, dose-dependent clinical trial - PubMed (nih.gov)

<sup>6</sup> To Stay Young, Kill Zombie Cells | Scientific American

<sup>7</sup> C-reactive protein test - Mayo Clinic

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.