

Biological Age Reversal Through Integrative Treatment and CD34+ Stem Cell Therapy: A Quantitative Analysis

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Objective

To quantify the biological age reversal effect of a two-phase integrative protocol involving (a) holistic treatment and (b) CD34+ stem cell therapy with MIRACELL, as reflected in changes in PhenoAge scores across 42 patients.

Methodology

A total of 42 patients underwent the following protocol:

- Patients were retrospectively selected from the clinic's total patient cohort between February 2023 and June 2025, based on eligibility criteria and the availability of complete blood panels required for PhenoAge calculation.

1. Phase 1 – Holistic Treatment (3–6 months)

- Included nutritional intervention, lifestyle modification, conventional pharmacology, and complementary-alternative remedies (e.g., homeopathy, herbal and vitamin supplements).
- Biological age assessed before and after via the PhenoAge biomarker.

2. Phase 2 – CD34+ Stem Cell Therapy with MIRACELL (3–6 months)

- All prior treatments were continued unchanged.
- CD34+ autologous stem cells were administered via SMART M-CELL 2 by MIRACELL.
- PhenoAge was reassessed post-therapy.

PhenoAge is an advanced biological age metric derived from a composite algorithm of standard blood biomarkers (including albumin, creatinine, glucose, lymphocyte percentage, mean cell volume, red cell distribution width, alkaline phosphatase, white blood cell count, and C-reactive protein). It reflects the functional and physiological aging process more accurately than chronological age and is associated with morbidity and mortality risk.

Results

Descriptive Statistics

Measure	Original Age (OA)	PhenoAge-1 (PA1)	PhenoAge-2 (PA2)
Mean	58.33 yrs	53.93 yrs	50.48 yrs
Standard Deviation	10.02	8.78	8.55
Minimum	37	36	34
25th Percentile	52	50	47.25
Count	42	42	42

Biological Age Reduction (Mean Benefit)

- OA to PA1 (Holistic Treatment Only): -4.40 years
- PA1 to PA2 (CD34+ Therapy): -3.45 years
- OA to PA2 (Total Rejuvenation): -7.86 years

Statistical Analysis

Paired t-tests (Two-Tailed, n = 42):

Comparison	t-Statistic	p-Value	Significance
OA vs. PA1	5.95	5.12×10^{-7}	Yes
PA1 vs. PA2	8.08	5.16×10^{-10}	Yes
OA vs. PA2	10.20	8.10×10^{-13}	Yes

All comparisons were statistically significant with $p < 0.000001$, confirming the reliability of the observed biological age reductions.

Conclusion

This study demonstrates that:

- A holistic, integrative approach alone can significantly reduce biological age by over 4.4 years within six months.
- The addition of CD34+ stem cell therapy with MIRACELL further amplifies the effect by an additional 3.45 years.
- The total biological rejuvenation averages 7.86 years, as objectively measured through PhenoAge.

These findings support the synergistic efficacy of combining lifestyle and systemic regenerative medicine for anti-aging and disease prevention.