

Targeted Cultivation of Generosity Associated With Selective Change in CCI™ Generosity Factor and GlycanAge Measures

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Abstract

This preliminary clinical case report describes a 54-year-old Hispanic woman in good general health, taking no medications, who completed pre- and post-intervention assessments using the Centenarian Consciousness Index (CCI™) and GlycanAge. At baseline, the participant's chronological age was 54, while GlycanAge estimated biological age at 74. Following a seven-month clinical protocol specifically directed toward cultivating CCI Generosity, biological age declined from 74 to 71, and Glycan Youth increased from the 22nd to the 51st percentile. CCI Generosity improved from 6th to 2nd among the eight CCI factors, with individual Generosity increasing from 85.0% to 92.8% and age-range Generosity increasing from 72.7% to 86.3%. No meaningful changes were observed in the other CCI factors or other GlycanAge markers. The case does not establish causality, but the selective convergence of the targeted psychological factor and selected biological-age measures, surrounded by stability in non-target variables, supports further prospective investigation.

Operational Terms

CCI Generosity: Graceful offering without quid pro quo.

Glycan Youth: A GlycanAge marker reflecting the presence of two galactose molecules on IgG glycans. These structures are associated with a more anti-inflammatory IgG glycosylation profile and are called “Youth” because they are most abundant earlier in life (Parekh et al., 1988). Decline in IgG galactosylation has been associated with higher risk of future rheumatoid arthritis diagnosis (Gudelj et al., 2018) and is observed more often in older populations and several inflammatory or metabolic conditions.

Case Description

The participant was a 54-year-old Hispanic woman in good general health and taking no medications at the time of baseline and follow-up assessment. At baseline, GlycanAge estimated her biological age at 74 years. Her baseline CCI Generosity ranked 6th among the eight CCI factors, with an individual Generosity score of 85.0% and an age-range Generosity score of 72.7%. Her baseline Glycan Youth percentile was 22.

Intervention

The participant completed a seven-month clinical protocol specifically designed to cultivate Generosity. The intervention was not designed as a generalized psychological wellness protocol but as a targeted cultivation of one CCI emotional factor.

The participant was instructed to maintain her existing lifestyle without making changes to exercise or other usual activities during the intervention period. On Mondays, Wednesdays, and Fridays, she was instructed specifically to cultivate Generosity by engaging in actions that would allow her to sense generosity toward herself or another person, to embody the resulting feeling of generosity, and to become consciously aware of that embodied experience. No other psychological or lifestyle intervention was prescribed.

The purpose of this repeated practice, within the biocognitive and CCI framework, was to cultivate Generosity as an increasingly available default mode of responding: not merely performing generous

acts, but repeatedly sensing, embodying, and becoming aware of the experience of generosity toward self or other. This was intended to cultivate what the CCI framework identifies as Generosity consciousness, a characteristic observed prominently in centenarians.

Pre/Post Findings

Measure	Pre	Post	Change
Chronological age	54	54	No change
GlycanAge biological age	74	71	-3 years
Glycan Youth percentile	22	51	+29 percentile points
CCI Generosity rank	6th	2nd	+4 positions
CCI Generosity individual score	85.0%	92.8%	+7.8 points
CCI Generosity age-range score	72.7%	86.3%	+13.6 points

No meaningful changes occurred in the seven other CCI factors, and no meaningful changes were observed in the other GlycanAge markers.

Selective Stability Across Repeated Measurement

A central feature of this case is the stability of non-target variables across both assessment systems. On repeated CCI testing, the seven CCI factors not targeted by the intervention remained essentially unchanged, while Generosity showed a marked increase. On repeated GlycanAge assessment, other measured markers remained stable while biological age declined, and Glycan Youth improved.

This pattern provides a within-case comparison. The findings do not establish formal test-retest reliability, which requires appropriate psychometric analysis across a sample. However, within this case, the broad stability of non-target variables makes generalized retest fluctuation, nonspecific score inflation, or broad instrument drift a less plausible explanation for the observed selective changes.

Interpretation

The case is notable for the specificity of the observed pattern. The clinical protocol targeted Generosity; Generosity was the only CCI factor showing meaningful improvement; and selected GlycanAge outcomes improved during the same period while other markers remained stable. This selective convergence suggests that the psychological and biological changes may be related, although causality cannot be inferred from a single case.

The intervention was specifically constructed to move beyond isolated acts of generosity toward repeated embodied cultivation of Generosity as a default mode of responding. Within the CCI framework, this distinction is important: the target was not simply generous behavior, but the recurrent sensing, embodiment, and conscious awareness of generosity toward self or other. The intended construct was therefore Generosity consciousness rather than the frequency of generous acts alone.

The interpretation is situated within a biocognitive framework in which meaning-making and lived psychological processes are considered in relation to biological regulation and aging (Martinez, 2001, 2026).

Potential Operational Hypothesis

The selective improvement in Glycan Youth observed following cultivation of CCI Generosity raises a potential neuroendocrine-immune hypothesis. Generosity has been experimentally associated with the oxytocin system. In a randomized placebo-controlled study, administration of oxytocin increased generosity by approximately 80% in an interpersonal economic task, with the authors distinguishing this effect from a generalized increase in altruistic behavior (Zak et al., 2007). In a separate randomized study, oxytocin increased the amount donated by participants who chose to give to charity by 48% relative to placebo (Barraza et al., 2011).

Evidence involving endogenous oxytocin provides an additional connection. Barraza and Zak (2009) reported that experimentally elicited empathy was associated with a 47% increase in oxytocin from baseline and that greater empathy was associated with greater subsequent generosity toward strangers. These findings suggest an association among affiliative emotional processes, endogenous oxytocin activity, and generous behavior.

A potentially relevant immunological bridge has emerged more recently. Human plasma IgG has been identified as a natural carrier of oxytocin; approximately 60% of circulating oxytocin was reported to be IgG-bound, and oxytocin-binding IgG can modulate oxytocin receptor signaling (Lahaye & Fetissov, 2024). This finding establishes a direct biological relationship between the oxytocin system and IgG, although it does not demonstrate that oxytocin regulates IgG galactosylation.

Independently, IgG galactosylation is an established age-sensitive characteristic. Digalactosylated IgG structures are more abundant earlier in life and decline with aging, whereas agalactosylated structures increase with age (Parekh et al., 1988). Reduced IgG galactosylation has also been associated with inflammatory disease risk (Gudelj et al., 2018).

Taken together, these separate findings suggest a testable mechanistic hypothesis: the cultivation of Generosity may engage affiliative neuroendocrine processes involving oxytocin, which may interface with IgG biology and potentially influence inflammatory regulation and IgG glycosylation. The present case does not establish this pathway, and there is currently no evidence demonstrating that cultivating Generosity causes oxytocin-mediated changes in IgG galactosylation. However, the convergence of a selective increase in CCI Generosity with a selective increase in Glycan Youth provides a rationale for prospectively examining this potential neuroendocrine-immune pathway.

Limitations

This is a single clinical case and cannot establish causality, population-level association, or formal test-retest reliability. Potential confounding variables were not experimentally controlled. The participant's good health and absence of medication use reduce, but do not eliminate, the possibility that changes were attributable to treatment of an active medical condition or medication effects. The biological mechanism linking cultivated Generosity with changes in glycan-based aging measures was not examined.

Conclusion

In a 54-year-old Hispanic woman in good health and taking no medications, a seven-month protocol designed to cultivate CCI Generosity was associated with selective improvement in Generosity and concurrent improvement in selected GlycanAge outcomes. The combination of targeted psychological change, selective biological change, and stability across non-target variables supports prospective research into whether specific longevity-associated emotional dispositions may be associated with measurable changes in biological aging.

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