

# The Science Behind the Powerful Benefits of Having a Purpose

Purpose in life is one of the main components of Quality of Life.

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**W**hy are we here and what are we living for? At some point in life we find ourselves asking questions that are often inspired by our deep thoughts, aspirations, and goals. Establishing and pursuing a sense of purpose in life can have powerful beneficial effects on both our brain and our body. Purpose is defined as deriving meaning from daily experiences, having goals that are attainable, and a sense that life is important and worth living.

At our NeuroGrow Brain Fitness Center, we incorporate “purpose in life” in our treatment program. In this multidisciplinary program, elderly patients first see a neurologist to help identify the causes for their cognitive decline with aging and receive treatment of those conditions aggressively, along with sessions for cognitive stimulation, neurofeedback, and brain coaching. In the coaching sessions, they describe and receive encouragement about what motivates them to attain better memory, attention, or organizational skills. This seemingly simple intervention has had profound outcomes for our patients.

For example, one of our patients with cognitive decline was a 73-year-old woman who was brought to us for evaluation of Alzheimer’s disease. Her work-up revealed that along with sleep apnea, depression, and taking several sedative pain medications, she had lost her sense of purpose in life. Her retirement had taken away the sense of joy she had when she was helping people as a nurse. We treated her medical conditions and started her in our Brain Fitness Program. We often reminded her that if she worked hard during her training sessions, she could perhaps return to doing what she loved. Knowing that she could re-engage in the purpose in her life gave her motivation to excel in the program. After three months, she was able to obtain a part-time job at a local medical center.

Purpose in life is one of the main components of positive wellbeing. It is commonly measured by a series of questions developed by Ryff and colleagues called Ryff’s Scales of

Psychological Well-Being.<sup>1</sup> These questions include, “How do you view your life? Is there meaning in your life? Do you set goals for yourself? Do you feel like you are able to reach those goals?” People who score their sense of purpose highly in this questionnaire appear to have better cognitive function, longevity, sleep, cardiovascular fitness, and mood. Below we have highlighted some of the studies that provide scientific evidence for the biological benefits of having a purpose in life.

## ALZHEIMER’S DISEASE

Alzheimer’s disease is one of the most important public health issues of our time, and having a purpose in life may lessen the risk and symptoms in this debilitating condition. Recent studies at Rush University in Chicago show that elderly with a positive sense of purpose in life may be able to reduce their cognitive decline by 50 percent;<sup>2</sup> in fact, elderly who score in the 90th percentile are 2.4 times less likely to develop Alzheimer’s disease, as compared to those who score in the 10th percentile. They found similar results for patients with mild cognitive impairment. This association persisted even after adjustments were made for negative affect, neuroticism, and chronic medical conditions. Another study conducted at the University of Stirling, UK found that positive well-being which includes a sense of purpose in life had significant associations with gray matter volume in the insular cortex.<sup>3</sup> Those with a high score had less cortical atrophy.

Dr. Michelle Carlson and her colleagues at Johns Hopkins

### PRACTICAL POINTERS

Examining the link between valuing life and post-mortem changes in the brain reveals that having a purpose in life is associated with a 50 percent reduction in the number of macroscopic cerebral infarcts.

recently examined the importance of civic engagement, a prominent feature of having a purpose in life, in a prospective randomized study.<sup>4</sup> They assigned a group of elderly to participate in a tutoring program for children in underprivileged elementary schools in Baltimore. These elderly individuals took pleasure and experienced a meaningful satisfaction in helping children improve their academic performance. They underwent brain MRIs and cognitive evaluation at the beginning, at one year, and at two years. As compared with the control group, the “civic engagement” group had better cognitive function and their hippocampus had less atrophy. In fact, some elderly men in the intervention group had expanded the volume of their hippocampus by 1.6 percent.<sup>4</sup>

## STROKES

Increasing evidence suggests that having purpose can serve as a powerful intervention to reduce the burden of stroke. Findings from a study conducted at the University of Michigan indicated that finding meaning in life is associated with a 22 percent reduced risk of clinical strokes.<sup>5</sup> Another study of older adults with a high sense of purpose showed that they are better able to recover their cognitive function after a stroke.<sup>6</sup> Examining the link between valuing life and post-mortem changes in the brain reveals that having a purpose in life is associated with a 50 percent reduction in the number of macroscopic cerebral infarcts.<sup>7</sup> The factor that mediates this strong protective effect can be attributed to better blood pressure, better cardiovascular condition, and/or better sleep.

## SLEEP

Between 40 and 70 percent of older adults have some form of sleep problems, which in turn are associated with several medical conditions such as high blood pressure, myocardial infarction, stroke, cognitive decline, and depression.<sup>8</sup> Changing outlook in life and setting goals can be a way to remedy sleep disturbances and its associated dire consequences. For example, one study found that a strong sense of purpose in life is associated with a 16 percent reduced odds of developing sleep disturbances.<sup>9</sup> The protective effect for insomnia may be in part due to lower stress levels in individuals who set and achieve meaningful goals.

## FRAILITY AND MORTALITY

Frailty is defined as impairments in multiple body systems, decreased physiological reserves, and a decline in ability to maintain homeostasis.<sup>10</sup> Physical criteria include unintentional weight loss, weakness, self-reported exhaustion, slow walking speed, and low physical activity. Elderly with a sense of purpose in life are less likely to develop frailty.<sup>10</sup> The association persists even when the results are adjusted for household wealth, depressive symptoms, cognitive functions, BMI, smoking, and

chronic medical conditions. The exact mediating factor is not known and may be related to lower levels of inflammation in individuals with a higher sense of purpose. Higher well-being is associated with lower blood concentrations of the inflammatory marker such as C-reactive protein, plasma sIL-6R, and fibrinogen.<sup>10,11</sup>

Evaluation of data from 1,238 older adults showed that, during a five-year period, those with the highest sense of purpose in life have 57 percent lower risk of mortality.<sup>12</sup> The biological benefits that underlie this correlation may include better cardiovascular health, lessen chance of chronic diseases, and better ability to deal with stress.<sup>13</sup>

## PURPOSE: A POWERFUL THERAPY

Imagine if there were a drug that would reduce the risk of Alzheimer's by 2.4 fold, cut the number of macroscopic strokes in the brain by 50 percent, lower the risk of different forms of sleep disturbances by 16 percent, decrease levels of inflammatory markers, and lessen the risk of mortality by 57 percent. Clearly, having a purpose in life is a powerful tool that can improve the quality of life for our patients and lessen the burden of several chronic medical conditions in our society. The challenge for us is to find a way to educate the public on how they can tailor an approach to life that incorporates finding meaning in day-to-day activities, setting goals, and enjoying life by conquering small victories along the way. ■

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