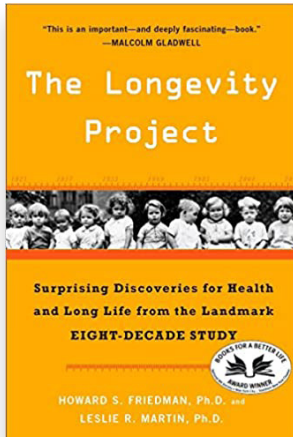


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# The Longevity Project

## THE SUMMARY

A Plume Book 2012

### Introduction: The Breakthrough Studies of a Lifetime

In 1921, a Stanford University psychologist, Lewis Terman, launched a study of 1,500 bright boys and girls to see if he could identify early glimmers of high intellectual leadership potential. They were all born around 1910. Some lived very long and healthy lives. What was their secret? In an effort to find out, we have spent the past twenty years following up on the people in Dr. Terman's studies and investigating why some people thrive well into old age while others fall ill and die prematurely. Along the way, we've discovered that many common health recommendations are ill-advised or simply wrong. We've replaced those with more accurate guideposts to a longer, healthier life. Throughout this book, we'll explain exactly why the following common beliefs, to name a few, are *false*:

The best of men cannot suspend their fate: the good die early, and the bad die late. (Myth!)

Get married and you will live longer. (Myth!)

Take it easy and don't work so hard and you will stay healthier. (Myth!)

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Thinking happy thoughts reduces stress and leads to a long life. (Myth!)

Religious people live longer, so don't miss religious services. (Myth!)

If you have hobbies like gardening, walking, and cooking, you should take up more vigorous forms of exercise. (Myth!)

Retire as soon as you can and play more golf to stay healthy and live longer. (Myth!)

If your child is very serious, encourage him or her to be more spontaneous and have more fun. (Myth!)

Give your children a big head start in school and they will thrive for life. (Myth!)

You can live to be a hundred only if you give up all the things that make you want to live to be a hundred! (Myth!)

## **Chapter 1: Personality and Long Life: Who Stays Well?**

If a meteor falls out of the sky and strikes you, there is probably little you could have done to prevent it. Some threats are random and unpredictable, at least as far as one can scientifically judge. But many such seemingly chance events are not totally random. Golfers on a Kansas City course who gather under a tree during a storm are more likely to be struck by lightning, for instance, than is a librarian in Los Angeles (where it rarely even thunders).

Surprisingly, the same is true for health. It is not random who will contract the flu or who will recover quickly. Many health threats are not simply due to bad luck. Rather, there are systematic individual differences in susceptibility to injury and disease, to who gets sick and who stays well. Some of these are a function of personality—stable individual differences, including associated biological differences. Others are tied to social relations such as marriage, family, friendship, and religious observance. Still others emerge from stressful challenges and the resources one can muster in facing the stress. Most important is our finding that the risk factors and protective shields do not occur in isolation but bunch together in patterns. These are the healthy or unhealthy life paths or trails that we call pathways. The pathways to long life had unforeseen twists, many of which amazed us.

It's especially important to be attuned to your own pathways because modern medical professionals will not do it for you. Most physicians, many of whom are highly trained to heal a specific part or system of the body, don't ask about your personality traits, your activity levels as a child, or your family history of divorce and remarriage. In fact, if you want to understand how you can find your optimal path to health and long life, we need to turn to the contemporary fields of health psychology, medical sociology, life-course epidemiology, genetics, and life-span development.

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## Chapter 2: Long Live the Prudent and Persistent

The initial statistical findings clearly revealed that the best childhood personality predictor of longevity was conscientiousness. The qualities of a prudent, persistent, well-organized person, like a scientist-professor are somewhat obsessive and not at all carefree. It was not cheerfulness and it was not having a sociable personality that predicted long life across the ensuing many decades. Certain other factors were also relevant, but the prudent, dependable children lived the longest. The strength of this finding was unexpected, but it proved to be a very important and enduring one.

Conscientiousness, which was the best predictor of longevity when measured in childhood, also turned out to be the best personality predictor of long life when measured in adulthood. The young adults who were thrifty, persistent, detail oriented and responsible lived the longest.

Conscientious people do more things to protect their health and engage in fewer activities that are risky. They are biologically predisposed to be both more conscientious and healthier. Having a conscientious personality also leads you into happier marriages, better relationships, and healthier work situations. That's right, conscientious people create healthy, long-life pathways for themselves.

If you are a conscientious person, the news is good. Keep doing what you are already doing. Your habits, brain biochemistry, and social environment are likely to work together to decrease your risk of poor health and early death.

Large numbers of people are not so conscientious. If this is you, are you doomed? No, but you're not likely to change your personality or lifestyle rapidly. It doesn't matter how many New Year's resolutions you make. In fact, rapid and pervasive changes are usually quickly abandoned by anyone undertaking them. Lasting adjustments happen with smaller, but progressive, steps. People can and do slowly change their patterns and their habits when they seek out situations that promote responsibility.

## Chapter 3: Friendly and Convivial: Healthy or Trivial?

Looking across the decades, we found that sociable children did not grow into healthier-than-average adults and did not live longer. This finding is an excellent reminder that supposed health benefits are often not what they first appear to be.

So why didn't sociability necessarily set one on a path to a long life? After all, the sociable children grew up to be adults who had better social relations, and good social relations are normally a sign of good health.

Whereas most research on personality and health had previously focused on stress and internal psychological conflict, we turned our attention to patterns of healthy and unhealthy behaviors. Being

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a “people person” can have its benefits, but those who rank high on sociability often find themselves in environments that encourage unhealthy behaviors and they join in the dangers of the moment.

To enjoy the perks of a sociable nature while minimizing the risks, our studies suggest being selective about whom you socialize with. Study participants who chose wisely reaped long-term health benefits. Furthermore, many of the more introverted children in our study grew up to take on stable jobs and develop steady friendships, which were just as valuable for health and long life. So if you’re socially reluctant and you’re okay with that, so are we.

While sociability by itself turned out to not be the reason some lived longer and others died sooner, this does not mean that social relations are unimportant to health. On the contrary, social ties emerged as critically important, even though individual sociability is not the key. For example, the Terman women outlived the Terman men for a variety of reasons, including differing social ties following divorce. As we will see, the real social reasons for long-term health were eye-opening and not what we expected.

## Chapter 4: Happiness and Health? A Cheery Conundrum

Who lives longer, the serious or the cheery? Many people in our culture peddle the idea that happiness, optimism, and good cheer are the secrets to good health. Some scientists have suggested that you can laugh your way to good health. Well, we discovered that happiness and laughter are important, but not for the reasons you might think.

As we looked across the decades to see who had lived the longest, we found one of the biggest bombshells of our entire project: cheerful and optimistic children were *less* likely to live to an old age than their more staid and sober counterparts. Healthy people are happy but happy people are not necessarily healthy. How could this be?

We found the cheerful Terman participants more likely to die young, and we found a hint that the cheerful children were relatively less likely than the average person to die from cancer or heart disease, but were instead slightly more likely to die from suicide, accident, or homicide.

We did find that the children higher on cheerfulness grew up to drink more alcohol and smoke more cigarettes, and vice versa. The cheerful children were the ones who grew up to engage in riskier hobbies such as aviation and hunting. Overall, many had a happy-go-lucky disregard for their health.

But don’t the oldest of the old, in the most golden of the golden years, tend to have a positive outlook? Studies of centenarians do find that long-lived people are optimistic, but this line of research has a serious flaw because there’s no proper comparison group. Who wouldn’t feel rosy in front of a birthday cake aglow with one hundred candles?

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Living a certain lifestyle puts you on the paths to long life that simultaneously make you happy and fulfilled. Cheering yourself up with short-term pleasures will usually do nothing remarkable for your health. If you find friends who laugh with you, then that is probably a healthy thing. If you find television shows that make you laugh all evening while you sit alone and eat, then that is not healthy.

## Chapter 5: Catastrophic Thinking: The Fates of Chicken Littles

If an acorn drops on your head and you conclude that the sky is falling, psychologists might call you a “catastrophizer.” There is a pattern to how people explain or interpret bad events. Catastrophizers see impending doom everywhere, while sunnier types are quick to see signs of fortune in their midst.

Catastrophizing is expressed not so much in how people feel about events or how they respond, but in how they *think* about things that happen or may happen to them. The bad part is that catastrophizers—the Chicken Littles of the world who think the sky is falling—can bring trouble onto themselves.

Some individuals over generalize the problem. Instead of seeing it as limited and specific, they believe it is going to undermine everything they do. Their life is a “total mess.” These are the true catastrophizers. Their pessimistic view of life sees every stumble as a calamity. We conducted statistical analyses on 1,200 Terman participants and found the results were clear. Catastrophizers died sooner. The difference was especially large for the men.

The good news is that catastrophic and related negative thought processes can be changed. The first step is recognizing thoughts for what they are—merely thoughts. This doesn’t mean that they are unimportant or hold no power, but the power of thoughts can be harnessed.

Cognitive therapy focuses on changing harmful thoughts using techniques such as “thought stopping.” When you start to think catastrophic thoughts, you literally say to yourself, “Stop!” This is immediately followed by “thought replacement,” which replacing the negative thoughts with more positive ones.

Rationally examining catastrophizing thought patterns and beliefs also proves useful. Most people probably recognize, at least in part, that things aren’t really as bad as all that, but this nugget of truth gets lost amid all the chaos of perceived calamity. Taking time to thoughtfully evaluate the situation and replacing inaccurate, catastrophic-oriented thoughts and beliefs with more rational and realistic ones is a worthwhile exercise.

## Chapter 6: Childhood and School Days: Head Start, Early Finish

The effects of early life events on later health are puzzling. For example, nutritional problems at a very young age might predispose a child to later heart disease and other adult illnesses. Impaired children can affect later reactions to stressful challenges but most children seem unaffected. Generally

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speaking, a simple early health advantage or disadvantage was not that important to later health trajectories.

Consistent with other research, we did find that breast-feeding was associated with better infant health, but what about long term? It turned out that breast-feeding made little difference, although there were some indications that the breast-fed males were a little healthier.

We found that those Terman participants who started school at a very early age tended to encounter difficulties throughout their lives. A few aspects of school days had clear links to health and longevity and starting formal schooling at a very early age turned out not to be a very good idea for most. Many early starters strayed off the paths that would have lead them to become well-adjusted adults who took care of their health. They were less likely to live a long life. Nevertheless, not everyone was negatively affected by an accelerated academic schedule.

We were surprised to find that the level of education by itself was not a very good predictor of later health and longevity. The better educated Terman subjects did tend to be healthier and live a little longer, but this was not an important factor compared to other personal and social predictors of health and long life that often went with success in school.

So what if you started first grade early, had a rough time in school, were kind of sickly, and never made it to graduate school? Is it time to see your doctor? Not necessarily. Many other factors turned out to be much more important on the paths to long life.

## **Chapter 7: Parental Divorce: Some Were Resilient**

It is well established that divorce of parents can be harmful for the children, at least in the short term. What about in the long term, across the decades? Could the child's experience of divorce be related to mortality risk many years in the future?

The death of a parent is certainly traumatic for children, which is why communities and religious groups have developed various rituals and ways of cushioning the blow for survivors. Would the death of a parent have negative long-term effects? We were surprised to find that although the death of a parent during one's childhood was usually difficult, it had no measurable impact on life-span morality risk. The children adapted and moved on with their lives.

That was the end of the good news. Although losing one's parent to divorce might seem better than losing a parent through death, we found the opposite. The long-term health effects of parental divorce were often devastating and it was indeed a risky circumstance that changed the pathways of many of the young participants.

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Children from divorced families died almost five years earlier on average from intact families. Parental divorce, not parental death, was the risk. In fact, parental divorce during childhood was the single strongest social predictor of early death many years into the future. However, our studies suggest that the sometimes-heard recommendation that staying married for the sake of the children is usually not a good idea *if the family environment is a distressed and unhappy one*.

Having one's parents split up does not necessarily mean increased health risks for an individual, but rather it may make working at one's own situation particularly important, with corresponding greater benefits.

The Terman participants who were able despite the dysfunctional patterns they observed in childhood, to establish themselves in good marriage of their own were much better off in terms of their future health and longevity than were those who followed the template their parents modeled for them. Most important, achieving a sense of satisfaction and a sense of accomplishment by young adulthood had a valuable buffering effect. These maturing individuals had strengthened themselves and embarked on the path to long life.

## Chapter 8: Running for Their Lives: Jocks vs. Nerds

It is common to hear advice to exercise more in order to stay healthy. In other words, make up your mind to be healthy and get out on the tennis or basketball court. On New Year's Day, many resolve to spend more time in the gym. By March, well, the gym has empty slots. This exercise advice comes from the common observation that those who are physically active are generally healthier. But this advice ignores your individual personality and your past history of activity or inactivity.

A different way to think about physical activity is to put people into categories. Some seem very active—the jocks—and some seem to have little interest in active recreation—the nerds. If these categories are loose ones, perhaps some nerds might be induced to increase their physical activity, and the jocks encouraged to maintain their activities over the years. Are some individuals basically more active than others? Do their activity levels persist over time? What is relevant to health and long life?

When we looked across the decades, we found that being active in middle age was most important to health and longevity. Being inactive in childhood was not a problem if you became more active as you age. Then you will do almost as well in terms of life span, and sometimes equally well.

If you don't like jogging, don't jog. Instead begin doing things that you really enjoy and can keep up. You don't have to do the same thing all the time, and you definitely don't have to do something that irritates or bores you. Some say choose activities that will benefit your body and your soul. Others say choose something with a steady partner, for mutual support. Still others recommend team sports so that you will be pulled in by the camaraderie of the team. We don't say "force yourself to exercise thirty minutes a day." Instead, we say follow the successes of the healthy Terman participants: develop those patterns, whatever they are, that get you up and out of your chair.

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## Chapter 9: To Sickness or to Health? Love, Marriage, and Divorce

“Married people live longer!” This adage is one of the most common conclusions to emerge from epidemiological studies of longevity. In general it is a valid description, albeit a misleading one. It turns out that the studies show that it is not the married *people* who live longer but rather married *men*. The bulk of the evidence in various studies does not show much, if any, advantage for married women.

A fascinating comparison found that remarried men were less likely to live longer than steadily married men, but did live longer than the divorced men. One key reason was that they had faced the stress of divorce. The social stress of divorce harms health directly, and sets in motion a series of other harmful behaviors and patterns. Steadily married men were very likely to live to age seventy and beyond, but divorced men were very unlikely to reach old age. Less than a third did so! Steadily single men also outlive the remarried groups, and they way outlived the divorced group, but, on average, they did not live as long as the steadily married men.

If you are a single woman with a number of friends and an interesting life, don’t think you need to get married to improve your health. Women who have gotten divorced and not remarried usually lived nearly as long as their steadily married counterparts. Our research shows that being single can often be just as healthy for a woman as being in a marriage—particularly if she has close friendships, meaningful memberships in organizations and family ties.

So married men do live longer but usually only if they are suited to a lasting marriage and do not divorce. Those who are only sometimes attached and find their relationships repeatedly dissolving even into their forties and fifties, could face significant health risks. If that describes you, pay special attention to the information about careers and social organizations in the following chapters.

## Chapter 10: Careers, Success, and Satisfaction: Thriving and Surviving

“Relax,” “avoid stress,” “don’t work too hard”—these are common exhortations for staying healthy—but turn out to be poor advice. There is no evidence that people told to relax necessarily become healthier as a result. Could it be that if you gave up an interesting, demanding job to retire and move away from your friends to live in a warm-weather golf community you may be *increasing* the risk to your health?

It all depends on what kinds of stresses you face and on how you deal with them. Converging evidence from a number of studies suggest that the damaging sort of workplace stress arises from conflicts with other people such as your overbearing boss, or your coworkers rather than from the challenges and demands of the work itself. This is especially true if you have lots of responsibilities that depend upon the cooperation of others.



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On the other hand, if you have resources and a great deal of influence over outcomes, demanding tasks will be less stressful for you. It makes sense that those agency heads, symphony conductors and company presidents who have both power and leadership skills will tend to remain healthy despite very demanding careers. The research results were very clear: those with the most career success were the least likely to die young. In fact, on average the most successful men lived five years longer than the least successful.

Skeptics might wonder whether hard workers are really enjoying life. Are they missing out on enjoying good things? Our research has shown that conscientious, dependable people are not leading boring and stale lives. In fact, we found that productive, hardworking people (even in old age) are not stressed and miserable, but tend to be happier, healthier, and more socially connected than their less productive peers.

Finding the perfect career to match your personality and preferences is not the way to guarantee success or long life. Many subjects found themselves in less-than-ideal jobs and yet attained great success and satisfaction. Others who did find a perfect career match ended up risking their health because their occupation accentuated unhealthy patterns. Being intelligent was not a ticket to long life, but channeling knowledge and smarts toward productive achievement was.

## **Chapter 11: Long Life Meets the Afterlife: Religion and Health**

Overall in the United States, we know that religious people tend to be healthier and live somewhat longer than the nonreligious, but there is a lot of individual variation. Similar results have emerged from other studies in Europe and Asia. Why do religious folks stay healthier and live longer? Does praying make a difference?

When we looked at whether religious involvement at midlife was predictive of long life during the ensuing decades, we saw that religiosity did not matter much for the men. But for the women, the religiously inclined were clearly more likely to live long lives. They tended to be very friendly but were also inclined to be worriers. The least religious women, as measured at midlife, were the least likely to live a very long life as they were less likely to get and stay married, less likely to have children, and less likely to be extensively involved in helping others.

While we cannot provide empirical corroboration about whether being pious is important to gaining eternal life, we did uncover good evidence that at least some aspects of congregational participation are relevant to the length of one's present life. The most important characteristics, especially for women, are linked in social networks and community engagement. Our findings suggest that feeling religious or watching television evangelists will not likely produce the same experiences, or positive outcomes as someone who is actively engaged in a religious community. For men in the study, and often for men more generally, the relevance of religion to health is overwhelmed by other influences such as their families and careers.

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Some people feel they are not devout enough, and they resolve to meditate further or spend hours in prayer. While this makes many people feel better or more compassionate, our findings suggest that these practices are not central to health promotion. Instead, the good health habits fostered by religious practice and especially the social engagement that is so much a part of the religious community are likely explanations for the health of many religious folk.

## Chapter 12: Confidants, Networks, and the Power of Social Life

Daniel Defoe, famous for his novel *Robinson Crusoe*, asserted, "The best of men cannot suspend their fate: The good die early, and the bad die late."

We did not find this to be true at all, instead finding that many of the most agreeable, thoughtful, and helpful Terman subjects were among the longest living. That said, we saw again and again that it was not the feel-good aspects of having friends that was associated with long life. It was the more hands-on pieces that mattered most like being in contact with family members, doing things with friends, and helping others.

The lives of the Terman participants showed that taking time to cultivate social networks is important not just to the quality of life but also to its quantity. Feeling good, staying calm, and breathing deeply can be signs of health but they are not its root causes. Instead, social relations should be the first place to look for improving health and longevity. Pets can bring great joy to life, but we found no evidence that having a pet will provide the social enrichment that is so important to long life.

Social connections can be found in careers, in congregations, and in extended networks of friends and family. Our studies showed it is not those who *felt* the most connected or appreciated, but those who had many actual ties in their social networks, and who were engaged with helping others, who lived the longest.

It is worth reiterating that social networks represent the most important way to change one's life pathway. In many ways, it is also a very doable fix, in a relatively straightforward manner. Repairing a troubled marriage or unproductive career is also very important to health but is quite difficult and will take a lot of time. In contrast, setting aside a few hours each week to volunteer, or joining a group that shares one of your passions, increases the size of your social network and provides opportunities to help others. You're never too old and it's never too late or too early to start this. The returns can be enormous in terms of life's quality *and* quantity.

## Chapter 13: The Gender Gap in Long Life

Almost everywhere in the world, women outlive men. "Do you know the six words that appear in every man's obituary?" Comedian Alan King asked. "*He is survived by his wife.*"

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Although this female advantage in longevity has long been studied, it remains puzzling. Many things contribute to this mysterious phenomenon, and not always in intuitive ways, but our studies have yielded some tantalizing clues. The average man lives a shorter life than the average woman—five to seven years shorter—but there is quite a bit of overlap and variation.

One might have guessed that the more masculine women, who got out and took charge of their lives, would have outlived the women who liked the more traditional, home-based activities like interior decorating and working with children. But this is not what we found. One might also think that among the men, it would be the jocks and sports fans who stayed fit and lived long. But here again, that was not what happened across the decades. For most, femininity was more protective and masculinity was more dangerous.

Overall, in various studies, we repeatedly discovered that the women would generally recover and thrive even if they lost their men, whether by divorce or widowhood. Longevity often seemed to come down to social relations. The women and the less masculine men were better able to establish and maintain deeper social connections, which often saved their lives.

Our use of date-derived notions of masculinity and femininity made it clear to us that it is an especially good idea to nurture one particular feminine quality: social connectedness. Over and over in our research we have seen the value of social networks. Healthy aging involves maintaining contact with family and community. Meaningful bonds with others are part of the reason that being active in one's religious congregation is healthy. A close, loving relationship with one's spouse promotes long life, and, in the case of those who endured parental divorce during childhood, establishing good social relations helps blunt the risk associated with that stressful experience.

## **Chapter 14: The Toll of War and Trauma: Why Some Thrive**

When the National World War II Memorial opened in Washington, D.C., in 2004, thousands of veterans visited. These are veterans who often faced serious stress and yet lived well into their eighties, nineties, and hundreds.

Our studies have shown that the psychological stress of war itself is not necessarily a major health threat. Rather, it is the cascade of unhealthy patterns that sometimes follows. The more severe the stress, the more kinds of adaptation and coping are needed. Those soldiers isolated in far-off lands, seeing the most horrifying of combat scenarios, are at the most risk and much the worse if they were already prone to unhealthy decisions and traveling a lonely, unhealthy pathway. The drinking, smoking, overeating, sleep disturbances, moodiness, and other signs of chronic stress often appear together and reinforce each other.

However, those individuals who can find meaning in a traumatic experience—such as going to war or facing a terrorist attack—and are able to reestablish a sense of security about the world are usually

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the ones who return to a healthy pathway. Often this involves working with friends or colleagues to help make things better for others. On the behavior side, those who did better were the ones who avoided drowning their sorrows and instead turned to sports, social clubs, and productive hard work.

The very most successful persons, however, are not those who simply react productively in *response* to stress, but those who put themselves on a better path from the get-go. Those individuals are less likely to find themselves in stressful situations in the first place. If they do encounter traumatic challenges, they are less likely to let the ensuing pressures take control of them; they use their existing tried-and-true means for heading off stress before it can become chronic and debilitating. They are motivated, persistent, and prudent. They take care of themselves, avoiding catastrophizing thoughts and working hard at life's challenges. Most important, they turn to the good social relationships that are the hallmark of their healthy life pathways.

## **Chapter 15: Individual Paths to Health and Long Life (and Why We Won't Take Polypills)**

Polypills, or any all-in-one quick fix, are a poor way to set most people on paths to long life. As we have discovered over and over in our studies, some pathways are much healthier than others, and many people have made their own luck by following them. Most research on long life looks for the genes and the drugs that will delay aging. Ironically, many people overlook or misunderstand the less exotic but much more effective tools already at our disposal.

It may be surprising to realize that there are only a few things that are reliably known to be directly and consistently bad for health. The first direct threats are toxins (poisons) in sufficient amounts—tobacco, lead, pesticides, etc. The second is radioactivity. The third is virulent infectious diseases. The most obvious direct threat is trauma. Almost everything else is open for dispute.

What have we learned about how to stay healthy and what individuals can do? Our studies show it is not enough to focus on our bodies. Although individual bodies become ill, it is equally important to focus on families, work, and social relations. The human body is not a plant that needs to be watered. At its essence, individual health depends on social health.

The 1,528 Terman participants had a good start in life. Those who lived the longest were those who, through an often-complex pattern of persistence, prudence, hard work, and close involvement with friends and communities, headed down meaningful, interesting life paths. They then found their way back to these healthy paths each time they were pushed off the road.

How fascinating to understand that those individuals who became involved with others in a consequential life would be improving their health as an unanticipated bonus. Getting and staying on healthy life paths can be a lifelong challenge. It is heartening to know that striving for a socially richer and more productive life will increase the odds of a *long* life as well.

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## **Epilogue: Long Life and Public Health: Looking Ahead to What Society Should Do**

Policy makers and laypersons alike tend to make two major conceptual errors when thinking about health and longevity.

First, people tend to overestimate the importance of family biology. Sure, tendencies toward certain diseases run in families, and some diseases have clear genetic causes. But your own life path matters more.

The second core error about health, which we've described in our research above, is the idea that we can make a major difference in health and longevity by giving people lists of health recommendations. We often hear physicians say, "Of course, eat right, stop smoking, lose weight, sleep more, exercise, etc., etc., etc., should be the first choice in staying healthy but most of my patients can't do this, so it is a great thing that we have these effective medications." Such sentiments are perfectly natural, because if you hand most patients a list of life-altering changes, they will not make them.

We hope the guideposts on the path to long life illuminated by the Terman subjects will inspire changes in our social and health care systems that will help us all travel healthier passages.