Healthy Aging and the Environment:

A Pocket Guide

HOW AND WHERE WE LIVE eat, work, play, and socialize influence our physical and mental health throughout life. Healthy aging begins even before birth. This *Guide* describes the important benefits of a healthy diet, regular exercise, healthy natural and built environments, positive social interaction, stress reduction, and avoidance of toxic exposures.

We hope this guide will help decision makers understand how multiple environmental factors, alone and together, influence the risk of disease and disability across the lifespan. In turn, we hope this will help mobilize efforts to identify key intervention points and crosscutting solutions that can help reverse rising disease trajectories, which are placing ever-mounting stress and economic burdens on families, communities, and the nation.

A Project of the Collaborative on Health and the Environment (CHE)
www.healthandenvironment.org

Scope of the Issue

Aging Population, Increasing Chronic Diseases

MANY CHRONIC DISEASES AND DISORDERS ARE BECOMING MUCH MORE COMMON AND DEVELOPING AT YOUNGER AGES. Some, such as diabetes, obesity, and cardiovascular disease, are risk factors for other diseases later in life, including dementia. At the same time, the over-65 population will nearly double in the next few decades to more than 71 million, increasing the number of people at greater risk for diseases such as Alzheimer's and Parkinson's diseases, among others.

Century of Change Helps Fuel Chronic Disease

Dramatic changes in the natural, built, and social environments have profoundly influenced the patterns and distribution of diseases and disabilities. The US now manufactures or imports about 42 billion pounds of industrial and agricultural chemicals daily. Many end up in consumer products or contaminate the environment and have been detected in our bodies, even in newborns.

Changes in food production, processing, and distribution have led to consumption of more calorie-dense, nutrient-poor food. Suburban sprawl and greater use of and design for the automobile have led to reduced physical activity, eroded public space, and diminished air quality.

More elders are living alone, and they are more likely to be poor than those who live with others. Social and economic stress are powerful predictors of health status, disease risk, and life expectancy.

"Every civilization creates the conditions for its own diseases."
—René Dubos

DISEASE TRENDS

- Over two-thirds of US adults are overweight or obese.
- 40% of adults are now diabetic or pre-diabetic, double the percentage 20 years ago.
- Cardiovascular disease is still the leading cause of death.
- Metabolic syndrome now affects 35% of adults, and roughly 55% of adults over 60.
- Over 5 million Americans now have the diagnosis of Alzheimer's disease, and the prevalence dramatically increases with age.

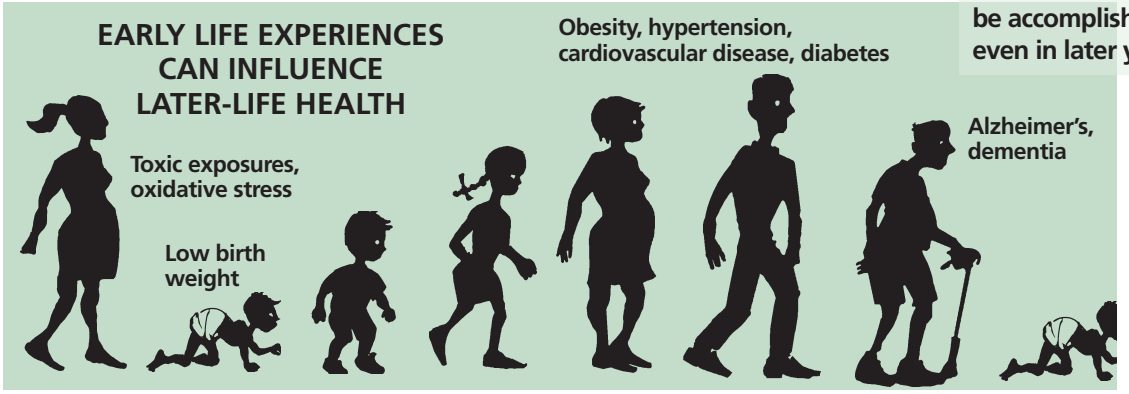
DISEASE COSTS

- Chronic disease costs $1.8 trillion annually.
- Average annual health care cost per person in the U.S is $5,000-6,000; having diabetes doubles that.
- Annual costs for Alzheimer's will be over $180 billion this year, Parkinson's $13-28.5 billion/year in the US.

HEALTH ACROSS THE LIFESPAN

BEGINNING IN THE WOMB and continuing throughout life, multiple environmental factors are strong determinants of health, even decades later, including enduring impacts on brain aging and function

It's never too late to begin healthy habits – much can be accomplished even in later years.

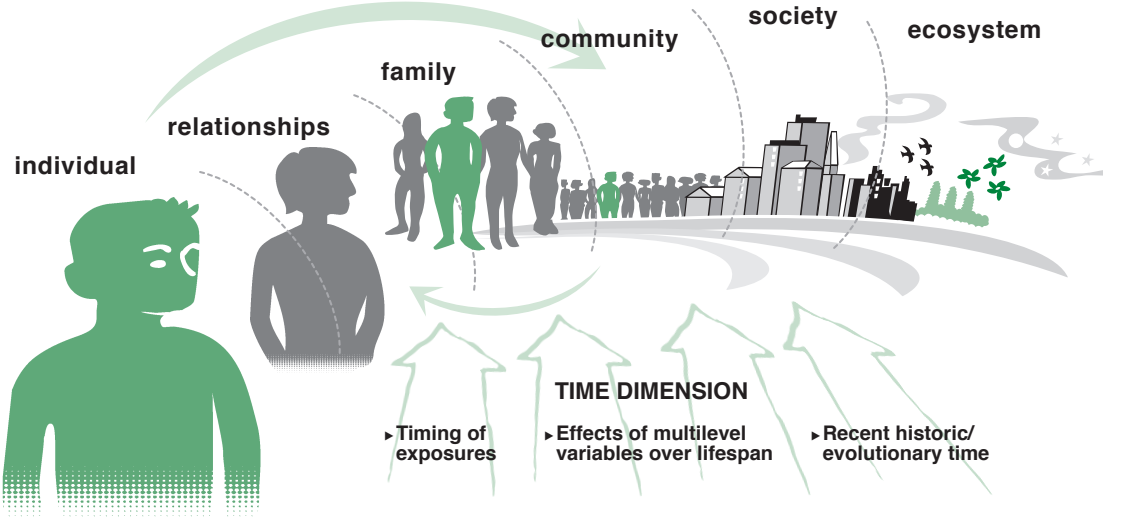


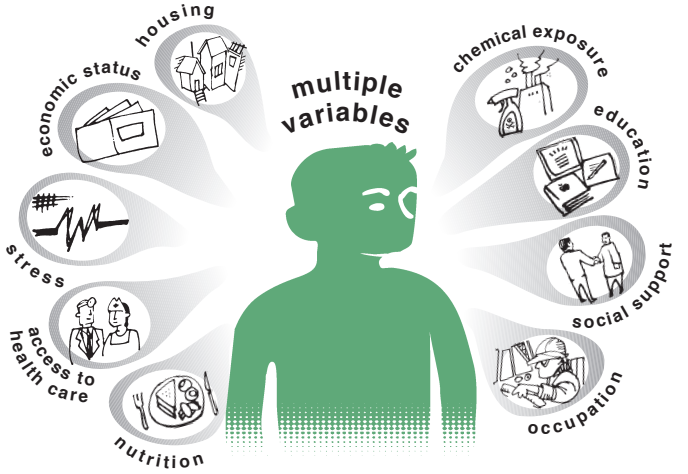
Here's one example: Maternal exposure to air pollution is associated with low birth weight and other problems. Air pollution also impairs lung development in children and increases the risk of respiratory tract infections, asthma, and cognitive behavioral problems. Low birth weight, followed by rapid catch-up growth, increases the risk of teenage and adult obesity. Low birth weight can also be a risk factor for adult cardiovascular disease, hypertension and Type II diabetes. These diseases/disorders (especially diabetes and obesity) are associated with increased risk of Alzheimer's disease/ dementia in later life.

A Systems Approach to Health

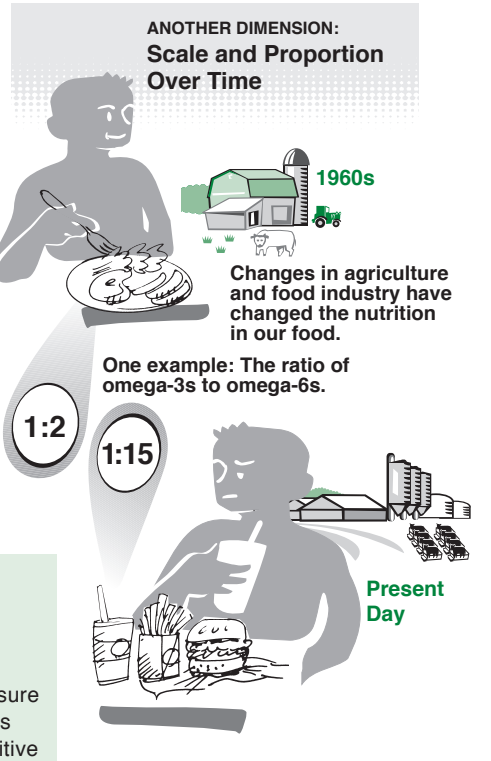
INDIVIDUALS AND FAMILIES ARE PROGRESSIVELY NESTED WITHIN COMMUNITIES, societies, cultures, and ecosystems. Each of these levels has significant influences on the others. In many instances, each can influence levels of healthy or harmful biologic markers, such as inflammatory mediators or stress hormones, that can be measured in people's blood. Thus, it's true that the physical and social environments can get "under our skin" and influence our health and disease risk. We call this an *ecological* or *systems* framework because it recognizes the contribution of each level to the health status of individuals, families, and communities.

Similarly, the field of ecology recognizes the essential contributions of each level to the functioning of an entire system as well as individuals, species, and communities within it.





Another dimension:
MULTIPLE VARIABLES interact and contribute to a combined effect at a point in time or over time.

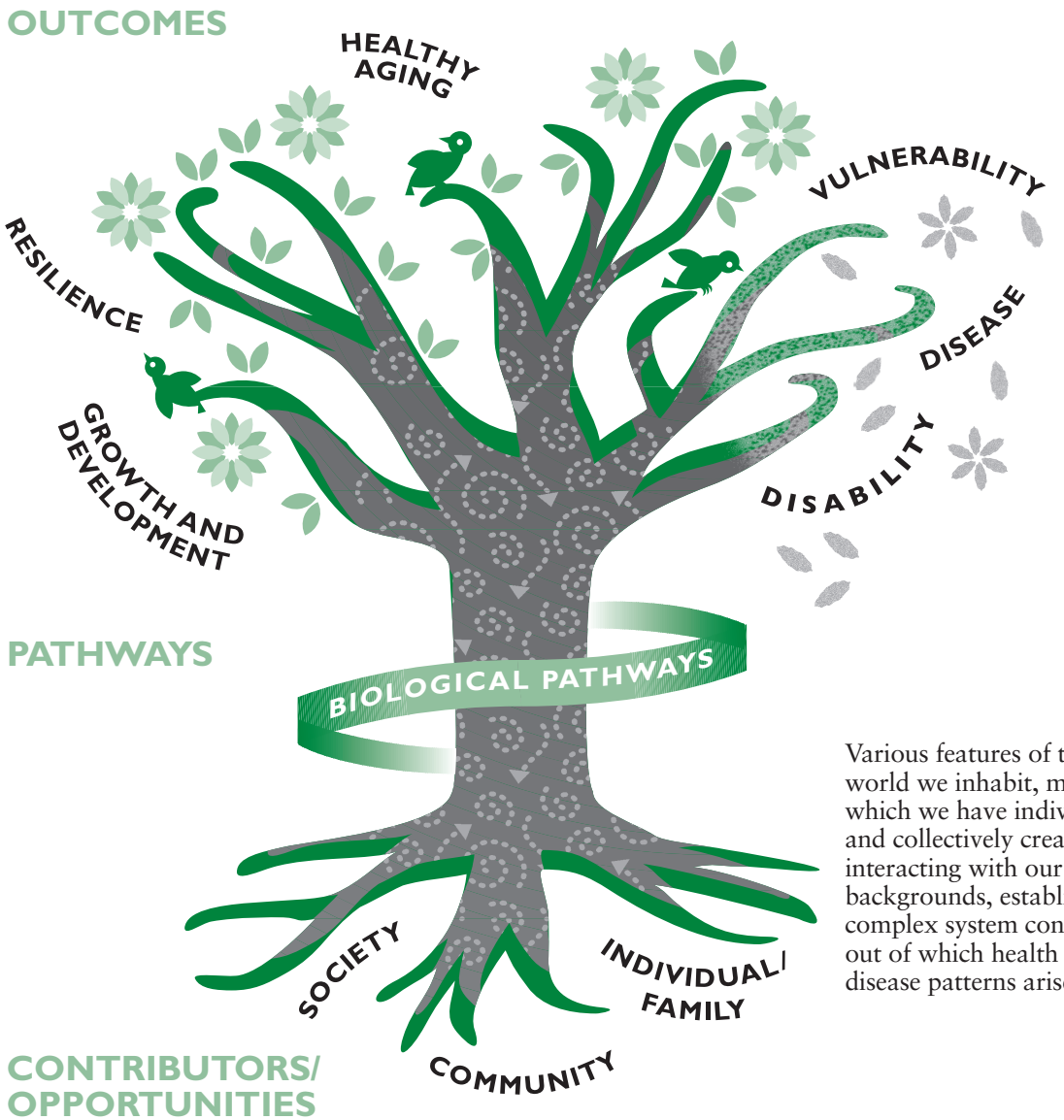


SYNERGISTIC EFFECTS OF LEAD AND STRESS ON ELDER COGNITION

It's well established that childhood lead exposure harms cognitive development in childhood. More recent evidence shows that cumulative lead exposure harms cognitive function later in life as well. Stress and lead exposure interact to create greater cognitive impact than either factor alone.

Disease Patterns Emerge from System Conditions

ALTHOUGH WE OFTEN have a tendency to look for single causes, most diseases or disorders actually arise from multiple, interacting contributing factors.

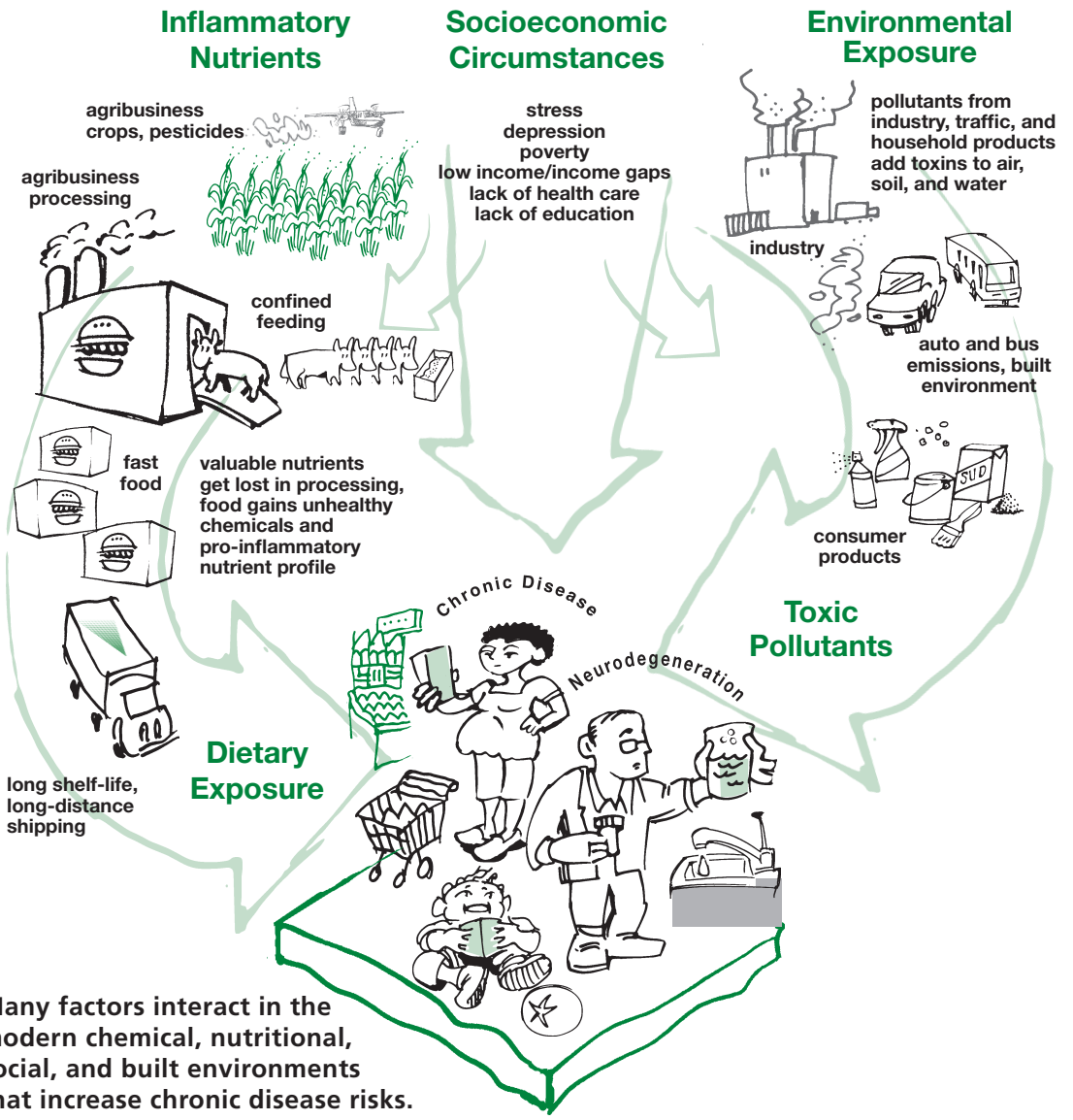


Various features of the world we inhabit, many of which we have individually and collectively created, interacting with our genetic backgrounds, establish complex system conditions out of which health or disease patterns arise.

Individual lifestyles are only part of the story. Family, community, societal, and ecosystem characteristics also contribute significantly to the health or disease status of individuals and communities of people.

Multiple Factors Influence Health

Many chronic diseases are not just a matter of bad luck, individual responsibility, or personal choice. They are in large measure diseases of the civilization we have created and must, therefore, be addressed in that way.



Many factors interact in the modern chemical, nutritional, social, and built environments that increase chronic disease risks.

Agro-industrial food production, processing, and distribution influences food accessibility, prices, and choices.

For most people, caloric intake has increased while dietary quality has declined.

Socioeconomic factors, such as low income, lack of access to health care, stress, and depression, add to the risks. Exposure to a multitude of environmental toxicants, and a built environment that makes it difficult for many people to live healthy lives, add even more.

Collectively, these all-too-common features of the daily lives of many people create a context that promotes biologic pathways underlying many chronic diseases, including cognitive decline and dementia.

Some people may be genetically predisposed to develop these disorders, but even then, these environmental factors play an important role.

Inflammation, Oxidative Stress, Insulin Signaling

MUCH HAS BEEN learned in recent years about the roles that various biologic mechanisms play in the origins of disease. **Chronic inflammation and excessive oxidative stress** are two mechanisms that underlie many common chronic diseases, including diabetes, cardiovascular disease, metabolic syndrome, and Alzheimer's and Parkinson's diseases. They contribute to, and are often accompanied by, **insulin resistance**, an underlying feature of glucose intolerance, pre-diabetes, and diabetes.

These three biologic processes are interrelated, tend to promote each other, and to co-occur in individuals and even in populations. When excessively abnormal, they portend increased risks of disease.

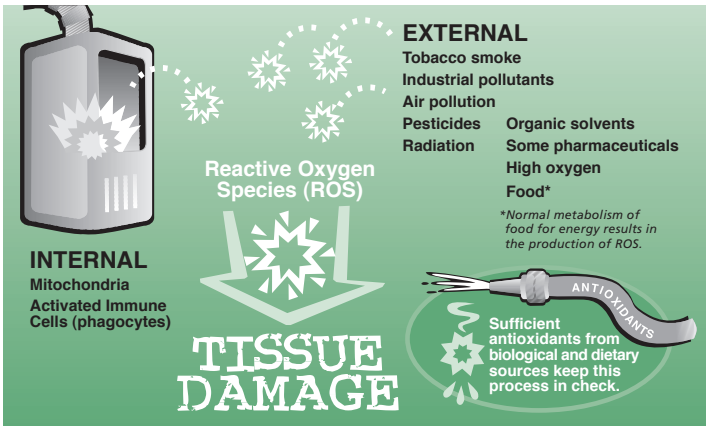
Atherosclerosis is an inflammatory disease.

Inflammation – You Can't Always See It

Inflammation is:

- A biologic process essential for fighting infections and healing wounds.
- On the skin, it appears as painful, hot redness and swelling. But beneath the skin it is not always apparent, although it is a dimension of many chronic illnesses.

Excessive Oxidative Stress Damages Cells



Inflammation is closely related to excessive oxidative stress (OS), which occurs when levels of "reactive oxygen species" (ROS) are chronically elevated, damage tissues, and increase disease risk.

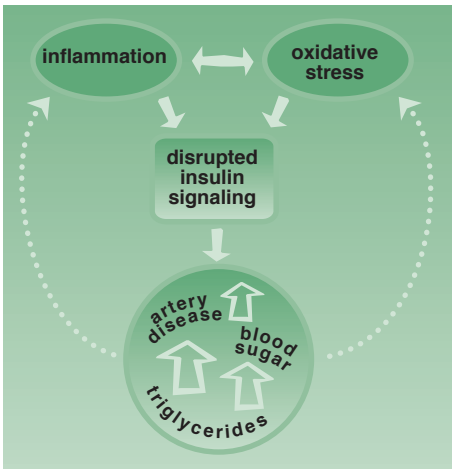
- ROS are highly reactive oxygen compounds, sometimes called free radicals, normally present in the body as a result of using oxygen to metabolize food and create energy. They play an essential role in some aspects of cell signaling.
- Antioxidants, including from dietary sources, keep ROS at healthy levels. Overproduction of ROS and/or insufficient antioxidants lead to excessive OS.
- Exposure to air pollution, various industrial chemicals, pesticides, heavy metals, and radiation can also cause excessive ROS.

Chronic inflammation and excessive oxidative stress are interrelated and tend to promote each other. Together, they also promote insulin resistance.

Disrupted Insulin Signaling

Insulin is a pancreatic hormone essential for normal metabolism with widespread effects.

- It is best known for its role in glucose metabolism and controlling blood sugar levels.
- Inadequate levels of insulin or insulin resistance are associated with vascular disease and abnormal triglyceride levels. Even without overt diabetes, insulin resistance can increase the risk of a number of common chronic diseases.



State of the Science

Alzheimer's disease and dementia more generally are not inevitable features of aging, although advancing age is a strong risk factor. Environmental factors also play key roles in the development of cognitive decline and Alzheimer's disease with onset later in life. Many people with a diagnosis of dementia or Alzheimer's disease have a mixture of biologic processes in their brains, including vascular disease and amyloid plaque deposits, that make diagnostic categorization difficult. Nonetheless, risk factors include:

- Adoption of the "Western lifestyle."
- Midlife diabetes, obesity, and metabolic syndrome.
- Midlife elevated total cholesterol.
- Excessive saturated fat consumption may increase risk of dementia as much as 2-3 fold.
- Cumulative exposures to lead, air pollution, and other environmental contaminants; social isolation; and low socioeconomic status.

Various environmental factors also increase the risk of **Parkinson's disease**, particularly in cases that become apparent after age 50. Underlying susceptibility genes also appear to play a role. Risk factors include:

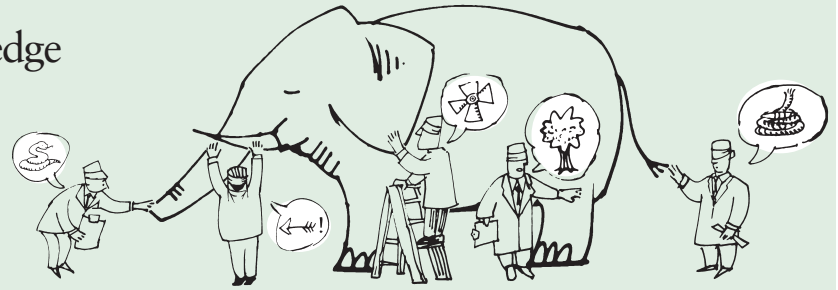
- Exposures to certain pesticides, solvents, and air pollution.
- Excessive exposures to metals such as lead, iron, and manganese, among others.

At the physiological level, both Alzheimer's and Parkinson's diseases are characterized by:

- Abnormal protein deposits in the brain.
- Chronic inflammation.
- Increased oxidative stress.

WEIGHT OF EVIDENCE:

How Much Knowledge is Needed to Take Preventive Action?



Recently, the US Dept of Health and Human Services (HHS) commissioned a literature review to evaluate the quality of evidence linking nutritional factors, medical conditions, medications, socioeconomic and behavioral factors, toxic environmental factors, and genetics to the risk of Alzheimer's disease and cognitive decline.

Studies were rated based on their quality by using the GRADE (Grading of Recommendations Assessment, Development, and Evaluation) criteria. GRADE prioritizes randomized controlled trials and supplements with observational studies when necessary. Randomized controlled trials are considered the "gold standard" of research. For drug studies, they involve a "control" group and a "treatment" group. However, randomized controlled studies are cumbersome, expensive, and sometimes cannot be done on humans for ethical reasons. For example, it would be unethical to intentionally administer suspected toxic substances to one group of people and not to another to see if the exposed group developed health effects.

The HHS review found that chronic diseases and conditions such as diabetes, elevated blood cholesterol level in midlife, and depression have been associated with increased risk of Alzheimer's disease. Adequate folic acid intake, low saturated fat consumption, high fruit and vegetable consumption, use of statins (drugs to treat high cholesterol levels), light to moderate alcohol consumption, educational attainment, cognitive engagement, and participation in physical activities are linked to decreased risk. Increased omega-3 fatty acids are associated with decreased risk of cognitive decline. Current smoking, never having been married, and having low social support are associated with increased risk of Alzheimer's disease.

Currently available data justify efforts to reduce risk factors for cognitive decline and Alzheimer's disease.

However, using GRADE criteria, the authors concluded that the quality of evidence for the association of these factors with Alzheimer's disease/cognitive decline is low. That is, the quality of available data makes it difficult to draw definitive conclusions, despite the associations that have been reported. They went on to add, "Additional studies on these factors may change, perhaps substantially, the magnitude or direction of the observed associations." Hopefully, additional studies will be forthcoming.

However, complex, multifactorial diseases are not easily studied by carefully controlled epidemiologic investigations that meet GRADE criteria. Cause and effect relationships between single risk factors and disease outcomes will always be difficult to establish with certainty. That said, currently available data justify efforts to reduce factors that appear to increase risks of cognitive decline and Alzheimer's disease and also to promote those that decrease risks–particularly when the interventions themselves do not pose additional risks.

Lifelong Health Depends on Multiple Healthy Environments

FOOD ENVIRONMENT

Changes in the food supply over the past century, especially the growth of factory farming, processed, and "fast" food, have radically altered the typical American diet. It is now characterized by high intakes of refined carbohydrates and excessive saturated fats, while lacking in whole grains, sufficient fruits and vegetables, and omega-3 fatty acids.

- Saturated fat and high-glycemic carbohydrates, (those rapidly absorbed into the blood, causing sharp spikes in blood glucose and insulin) are two pro-inflammatory nutrients of particular concern.
- Refined carbohydrates, often sugar sweeteners, comprise nearly 20% of calories in today's average diet.
- High intakes of omega-6 fatty acid-laden vegetable oils, often in processed food, contribute to today's high ratio of omega-6: omega-3 fatty acids.

Supporting a healthier food system provides a wide variety of health benefits.

BUILT ENVIRONMENT

The built environment includes our homes and workplaces, schools and libraries, hospitals and long-term care facilities, streets and transportation systems, even our parks and playgrounds.

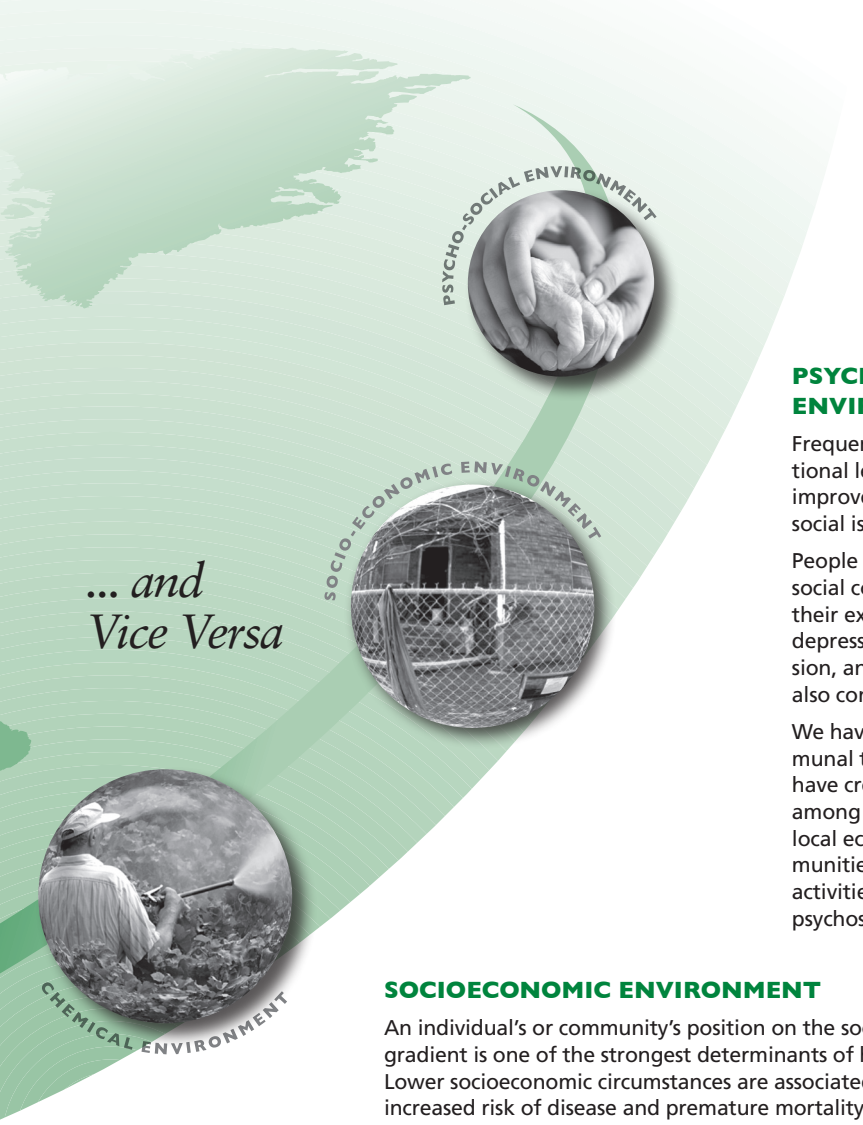
The nature of our built environment, whether we are at home, work, school, or play, can have a profound influence on our health, including our ability to exercise, buy nutritious food, socialize, and sleep.

If it is safe, clean, accessible to all, and free of toxic chemicals and other kinds of pollution it can help foster exercise and stress reduction, provide fresh food, and offer opportunities for positive social activities.

NATURAL ENVIRONMENT

It is critical that our natural environment be nurtured as an integral part of the built environment and preserved in parks and wilderness areas. Studies show that people benefit so much both physically and mentally from contact with nature that it should be considered a public health strategy.

Protecting our air, water, land and the biodiversity of all living things are critical to the health of humans and the planet.



PSYCHOSOCIAL ENVIRONMENT

Frequent social interaction and intergenerational learning can help maintain and even improve physical and mental health, while social isolation can have a negative impact.

People who live in neighborhoods that lack social cohesion, sidewalks, or safety limit their exercise and have an increased risk of depression and obesity. Urban sprawl, television, and access to other electronic devices also contribute to increasing social isolation.

We have largely shifted from being a communal to a more individualistic society and have created a world where we often live among strangers. A new focus on developing local economies and more sustainable communities and productive intergenerational activities bodes well for fostering healthier psychosocial environments.

SOCIOECONOMIC ENVIRONMENT

An individual's or community's position on the socioeconomic gradient is one of the strongest determinants of health status. Lower socioeconomic circumstances are associated with increased risk of disease and premature mortality at every level of the gradient.

Reducing poverty and improving economic opportunities are best buys for health.

CHEMICAL ENVIRONMENT

Virtually all people and wildlife are exposed regularly to a complex mixture of industrial chemicals and other environmental pollutants. The vast majority of the more than 80,000 chemicals in commercial use in the U.S., including several thousand chemicals used in high volume, have not undergone adequate safety testing.

Many contribute to the risk of common diseases through a variety of mechanisms. For example:

- Lead is an important example of a lifecycle neurotoxicant—dangerous to the brain at all ages, not just in children. It also causes many other adverse health effects.
- Some pesticide exposures can cause Parkinson's disease in people, consistent with extensive evidence from experimental laboratory data.
- Air pollution is not only harmful to the cardiovascular system and lungs but also to the brain. It increases inflammatory changes and markers of Alzheimer's-type and Parkinson's-type neurodegenerative diseases.
- Occupational exposures to organic solvents, such as trichloroethylene, n-hexane, and others, are associated with increased risk of Parkinson's-like disorders.

Reducing exposure to toxic chemicals will help reduce the risks of these and other diseases.

Healthy Environmental Pathways

FOOD ENVIRONMENT

Good Food

Healthy nutrition is essential, beginning with fetal development and continuing through infancy, childhood, adolescence, and all stages of adulthood into the elder years. The Mediterranean diet is a traditional diet that provides a wide variety of health benefits. It consists of fresh fruits and vegetables, legumes (such as lentils and chick peas), whole grains, fish, nuts, unsaturated fatty acids (especially olive and canola oil) and sometimes modest amounts of wine with meals. It may also include low-to-moderate quantities of low- or no-fat dairy products and meat. Studies have shown that the diet:

- Reduces significantly cardiac deaths, recurrent heart attack, stroke, or heart failure among people who've previously had a heart attack.
- Reduces elevations of blood sugar, insulin resistance, triglycerides, and total cholesterol, excess body weight, inflammation, and metabolic syndrome.
- Substantially reduces the risks of developing heart disease, diabetes (by as much as 80%), and cancer as well as mortality from heart disease, cancer and all causes in general.
- Those eating the diet are less likely to develop Alzheimer's and Parkinson's diseases than people who eat a more typical Western diet.

Other evidence-based diets can also reduce risks of some diseases, such as the Ornish and the DASH diets.

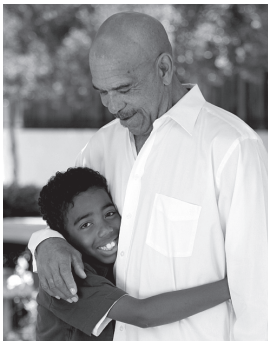
Good Food System

We can do much as a society to improve our food system—from farm to plate. For example:

- Farm policies can be re-designed to promote programs and practices

that provide everyone with sufficient nutritious, sustainably produced food and restore ecosystems that have been degraded by agricultural activities.

- Communities can ensure that all residents have access to healthy foods and not live in "food deserts" where they can only buy processed and calorie-rich, nutrient-poor foods.
- Healthy foods served in schools, hospitals, businesses, day-care centers and elder-care facilities can help support a healthier agricultural system—including all aspects of food production, processing, and distribution.



CHEMICAL ENVIRONMENT

We should make every effort to prevent toxic exposures, replace toxicants with safer alternatives, and minimize exposures especially to the most vulnerable groups and individuals.

Hundreds of organizations, including the American Medical Association, the American Public Health Association, the American Nursing Association, and the American Academy of Pediatrics, support the restructuring of the Toxic Substances Control Act (TSCA) to serve as a vehicle to help federal and state agencies to assess the human and environmental health hazards of industrial chemicals and reduce the use of those of greatest concern. Among the recommendations:

- Require safer substitutes and solutions.
- Phase out persistent, bioaccumulative, highly toxic chemicals.
- Give the public and workers the full right to know about chemicals to which they are exposed and participate in decision-making.
- Prevent harm from new or existing chemicals when credible threats exist, even when some uncertainty remains.

Businesses can lead by prioritizing innovative approaches to reducing exposure to toxic chemicals including safer substitute programs, supporting green chemistry, cleanup of toxic waste, pollution prevention, and cleaner forms of energy.

We have examples of success stories:

- Lead – When lead was removed from gasoline, children's blood lead levels dramatically declined.
- Restrictions on the sale of chlorpyrifos, an organophosphate pesticide, resulted in lower prenatal exposures in an ongoing epidemiologic study in New York and reduced impacts on children's neurodevelopment after birth.

NATURAL ENVIRONMENT

Access to the natural environment is essential for people's health. For example:

- In the hospital, views of nature from hospital beds speeds healing, reduces the need for pain medications, and improves mood.
- Gardening reduces stress and may help build social networks. Horticultural therapy can benefit people with heart disease and dementia, among other illnesses.
- Wilderness experiences are beneficial for people with cognitive disabilities and improve the self-esteem and wellbeing of inner city children.

- Jogging in the green outdoors seems to provide greater positive feelings than the same activity in a gym.
- Kids with ADHD are better able to concentrate after a walk in a park, compared to a walk in a city neighborhood.

Thus, access to forests, parks, and open spaces is a public health priority; their protection or development also contributes to cleaner air, water, and climate control, and increases biodiversity.

BUILT ENVIRONMENT

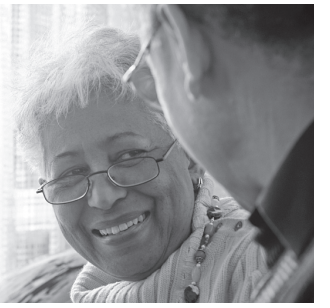
Many of us spend virtually all of our time in the built environment and on average, we spend over 90% of our time indoors. Our homes, workplaces, and communities can be designed to be safe and accessible, with low levels of toxic environmental chemicals and pollution. Energy efficiency, thoughtful design of transportation systems, and use of non-toxic building materials in all buildings should be a priority and can easily be incorporated into beautiful spaces.

Physical activity at all ages improves physical and emotional wellbeing and is key to lowering the risk of cardiovascular disease, diabetes, obesity, cognitive decline, Alzheimer's/dementia, and many kinds of cancer. Properly designed and maintained, the built environment can:

- Encourage and support regular exercise.
- Reduce crime and create safer neighborhoods.
- Reduce pollution and toxic emissions inside buildings and in outdoor air.
- Provide accessibility for all people including sidewalks, walking and biking paths, access to buildings.

PSYCHOSOCIAL/ ECONOMIC ENVIRONMENT

Chronic psychosocial and economic stress, job stress and burnout, loneliness, and caregiver stress increase the risk of a wide variety of diseases. All along the

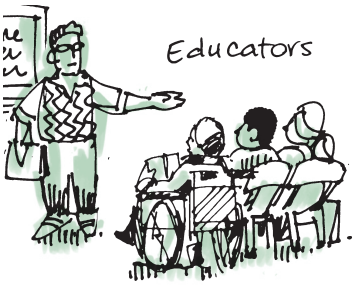


socioeconomic gradient, people who are better off are healthier than people less well off.

Among the biologic mechanisms that help to explain this is the association of chronic socioeconomic stress with higher levels of various inflammatory markers that increase the risk of numerous diseases. These disparities can be addressed by decreasing differences in income or providing more services to people in need.

Places to Intervene in the System

Everyone is a policy maker in his or her home, workplace, community, school, church, and everywhere we make choices. Here are only a few examples of how individuals alone and collectively can influence the quality of life and health.



Who Makes Policies?

COMMUNITY LEADERS

- Ensure that all residents have access to healthy food and don't live in "food deserts" where they can only buy processed foods laden with fat, sugar, and salt.
- Work to reduce use of toxic chemicals in public places such as schools, libraries, public spaces.
- Support investment in streets and sidewalks where people can walk and bike, and open spaces and parks where people can play, exercise, or relax and rejuvenate.
- Support community gardens to foster community relationships, grow nutritious food, and engage with nature.

HEALTH CARE PROFESSIONALS

- Include primary disease prevention as an explicit responsibility of the health care sector.
- Incorporate primary prevention into medical practices. Coordinate with and support similar efforts originating elsewhere, thereby reducing demand for health care services.
- Ensure that your own health care facility reduces use of toxic chemicals and materials in buildings and operations, manages waste responsibly, and provides healthy food.
- Work to provide equitable health care access to lower income populations who are at the highest risk for health problems.

EDUCATORS

- Review school food options, work with others to limit access to unhealthy processed, high-calorie snack food and promote nutritious substitutes.
- Promote intergenerational approaches that bring together elders and young people in productive learning environments, physical activity, arts, and music.
- Reduce use of toxic chemicals, cleaning products, pesticides in your school.

ELECTED OFFICIALS

- Support health-promoting legislation and policies that prioritize access to health care, environmental protection, healthy food promotion.
- Support maternal and child health policies, programs, and services, and supplemental nutrition programs for elders.

Make healthy living available to all!

- Support and vote for regulating toxic chemicals to reduce exposures. Support green chemistry initiatives.

PUBLIC AGENCIES

- Support multi- and inter-disciplinary, cross-sectoral, and intergenerational approaches to health.

YOU Make Policies!

- Help ensure access to clean air and water, nutritious food, and safe neighborhoods throughout your region.

MEDIA

- Learn the issues and write about them – not just in today's news cycle, but repeatedly, to help educate readers on health issues.
- Use your media to describe examples of best practices that promote healthy living so people have models to follow.
- Focus on the big picture as well as the crisis of the day.

INVESTORS

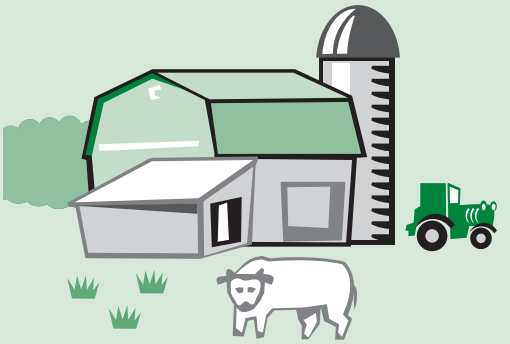
- Invest in the long term and not just the short term bottom line.
- Support renewable and clean energy, sustainable building, and other life-enhancing industries.

INSURANCE COMPANIES

- Health Care - Provide incentives for primary prevention practices.
- Environment – Encourage healthy building and lifestyles with financial incentives.

BUSINESS LEADERS

- Create products that benefit rather than degrade the environment and health.
- Develop production processes that prioritize environmental protection.
- Encourage employee health by supporting healthy food, opportunities for exercise, and stress reduction.



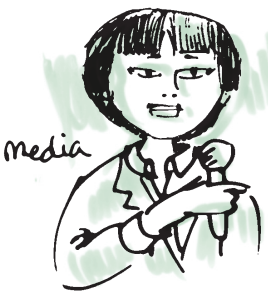
Q: How is the Farm Bill a Health Bill?

A: Because it:

- Helps set policies and practices for the foods eaten by lower-income Americans.
- Influences access to healthy foods.
- Influences the success or failure of sustainable agriculture.
- Affects the health of farmers, workers, and consumers by setting policies that influence the way food is produced, packaged, shipped, stored, and ultimately eaten.

HOMEOWNERS

- Don't dump toxic chemicals in your backyard or in the street.
- Don't use pesticides on your yard or in your house.
- Foster neighborhood and community sociability.
- Use safer alternatives for cleaning and personal care products



Key Elements of Healthy Living

Personal approaches, combined with public policy changes, make healthy living available to all.

HEALTHY PEOPLE AND HEALTHY COMMUNITIES ARE INTERDEPENDENT. While we can all make positive choices for personal health, we don't all have equal access to nutritious food, clean air and water, safe workplaces, healthy housing, places for recreation, green spaces, peaceful neighborhoods, or quality health care.

"I need to buy food for dinner and the nearest supermarket is two bus rides away. I'm exhausted from working all day. Why can't we have fresh food in our neighborhood?"

IN SUGGESTING INDIVIDUAL APPROACHES, we emphasize that these actions must be combined with public policy changes in order to be truly effective and make healthy living available to all.

PERSONAL LEVEL

Key elements of healthy living include:

- Staying active physically and mentally.
- Eating healthy and nutritious food.
- Avoiding harmful toxicants and pollutants.
- Staying socially engaged with family, friends, and community.

There are many ways to accomplish these goals throughout your life.

PUBLIC POLICY LEVEL

- Address socio-economic disparity.
- Encourage community solutions.
- Provide healthier food supplies.
- Promote public transportation.
- Support sustainable food production.
- Reduce exposures to chemicals.
- Develop eco-friendly products.

Time for Change

Myriad factors contribute to resilience and health or, alternatively, to vulnerability and disease. Pathways to chronic disease can be replaced with pathways to healthy aging and resilience.

The public health, economic, social, environmental, and security consequences of the choices that we make are increasingly clear. The health of current and future generations depends on acting wisely—with foresight and humility. It also depends on our summoning the political will and power to create the change that needs to happen if we are to pass on to future generations a world in which they can live lives of quality.

Organizing human existence on earth in ways that are sustainable and just and that acknowledge and respect universal human rights is both desirable and possible. In a world of intricate interdependencies, the quality of life of all people must be considered when making decisions.

Let's do it!

For more information: CHE's Healthy Aging and the Environment Initiative www.healthandenvironment.org

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To download the *Pocket Guide* or the 208-page fully-referenced *Healthy Aging* report and for more information on environmental influences on healthy aging across the lifespan, please visit www.healthandenvironment.org/initiatives/healthy_aging.

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It's Time to Change the Current System...

...and Create the Opportunity for Individual Change.

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