

THE WELL BUILDING STANDARD



NICE TO MEET YOU

PRESENTERS

HEATHER ZICHAL

EXECUTIVE VICE PRESIDENT, POLICY & GOVERNMENT AFFAIRS

KAREN QUINTANA

VICE PRESIDENT, TECHNICAL SOLUTIONS

INTRODUCTION

THE MOVEMENT: BETTER BUILDINGS

A group of people are practicing yoga in a bright studio with large windows. They are in a lunge position, using blocks for support. The text 'THE MOVEMENT: BETTER BUILDINGS' is overlaid in large white letters.

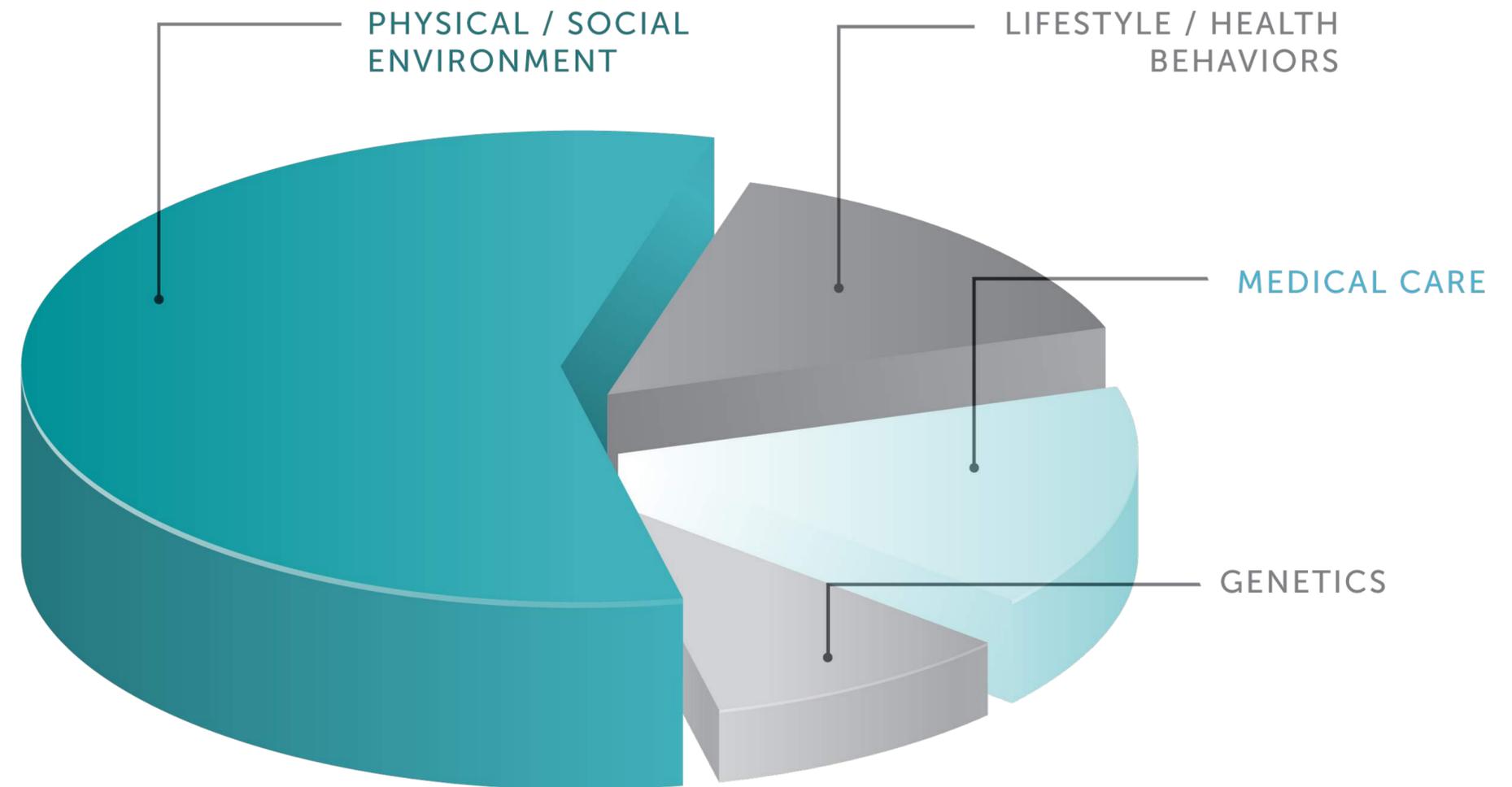


**WE SPEND 90% OF OUR TIME
INDOORS.**



**THE BUILDINGS WHERE WE LIVE, WORK,
LEARN AND RELAX PROFOUNDLY IMPACT
OUR HEALTH, WELL-BEING AND
PRODUCTIVITY.**

WHAT DETERMINES THE STATE OF HEALTH?



Source: Centers for Disease Control and Protection. Frequently Asked Questions. 2014. Available online at: <http://www.cdc.gov/nchstp/socialdeterminants/faq.html>



THE ULTIMATE GOAL OF OUR BUILDINGS & COMMUNITIES: TO CREATE A POSITIVE HUMAN EXPERIENCE

“

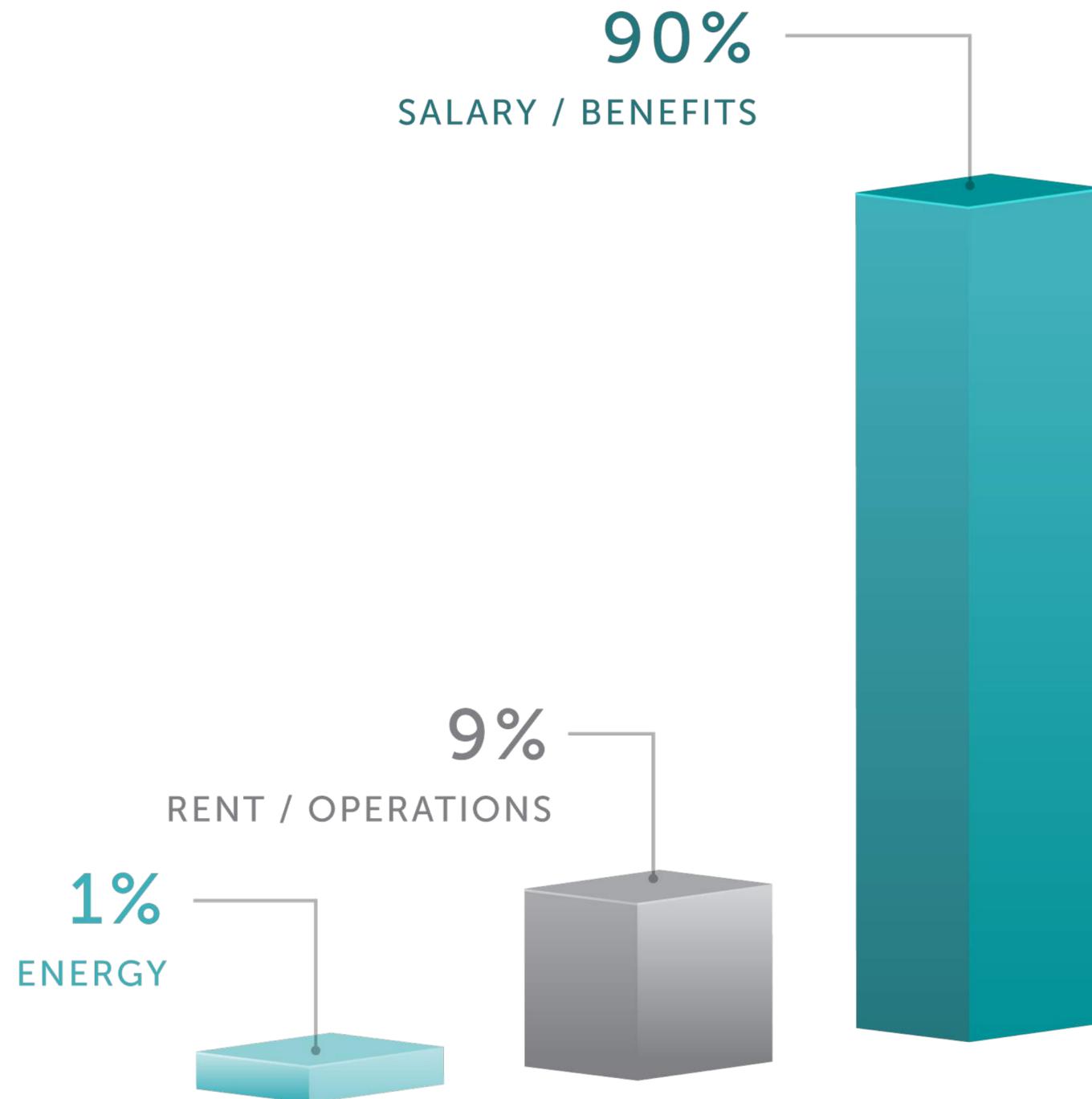
**HEALTH IS A STATE OF COMPLETE PHYSICAL,
MENTAL, AND SOCIAL WELL-BEING, AND NOT
MERELY THE ABSENCE OF DISEASE OR INFIRMITY.**

—

THE WORLD HEALTH ORGANIZATION

INVEST IN PEOPLE FOR RETURN ON INVESTMENT

Source: Knoll Workplace Research "What's Good for People, Moving from Wellnes to Well Being", Kate Lister 2004 Studies include those conducted by organizations including Harvard Business Review and World Economic Forum and the American Journal of Health Promotion Image courtesy of World Green Building Counsel Report "Health, Wellbeing & Productivity in Offices"





BETTER BUILDINGS ARE WELL.



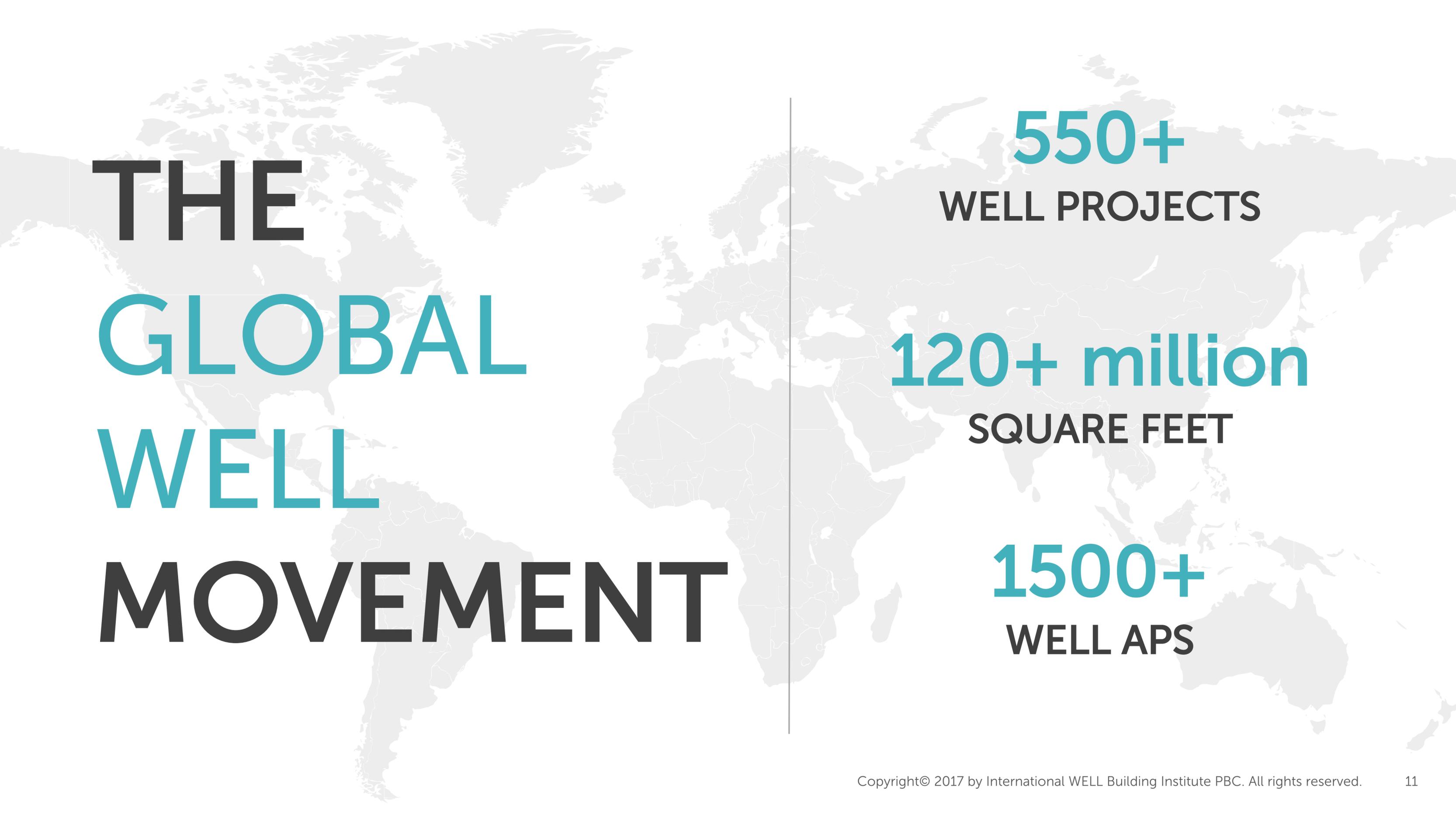
OUR STANDARD

The premier global standard
for healthy buildings



YOUR COMMUNITY

Join the movement with the
WELL AP credential



**THE
GLOBAL
WELL
MOVEMENT**

550+
WELL PROJECTS

120+ million
SQUARE FEET

1500+
WELL APS

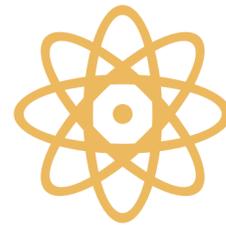


THE TEAM BEHIND WELL

IWBI is a public benefit corporation whose mission is to improve human health and well-being in buildings and communities everywhere.

DEVELOPMENT OF WELL

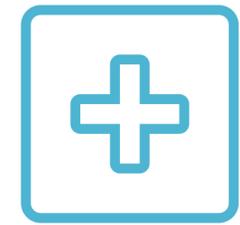
IWBI undertook a comprehensive expert peer review process, which included three phases—a scientific, medical and building expert review—and culminated in the release of the WELL Building Standard.



SCIENTIFIC

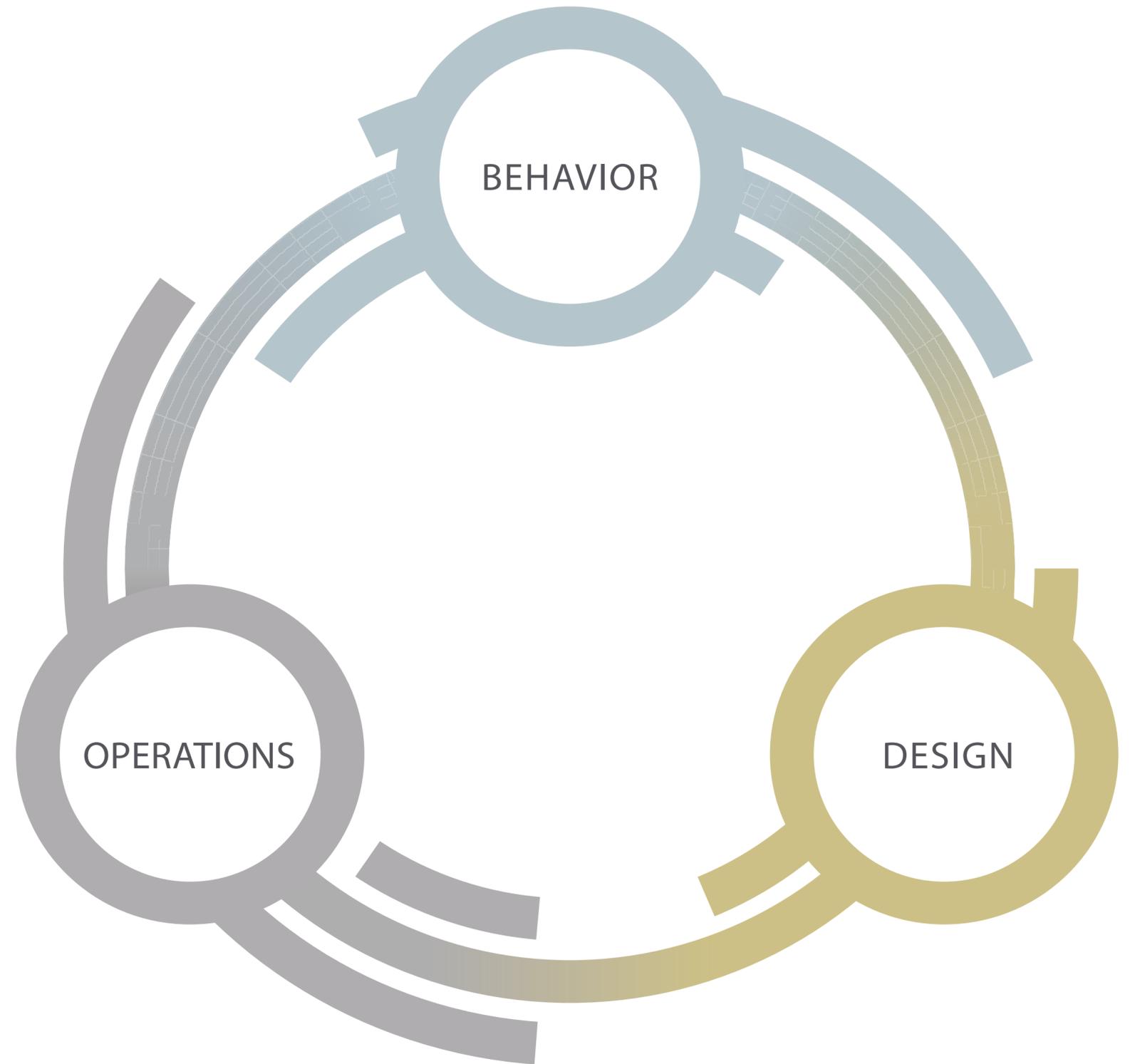


PRACTITIONER



MEDICAL

**WELL IS
MORE
THAN
GOOD
DESIGN.**



A COMPREHENSIVE APPROACH TO WELL-BEING

The WELL Building standard is made up of features that address seven concepts:



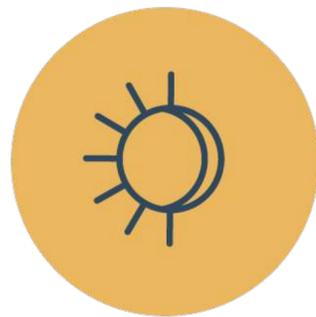
AIR



WATER



NOURISHMENT



LIGHT



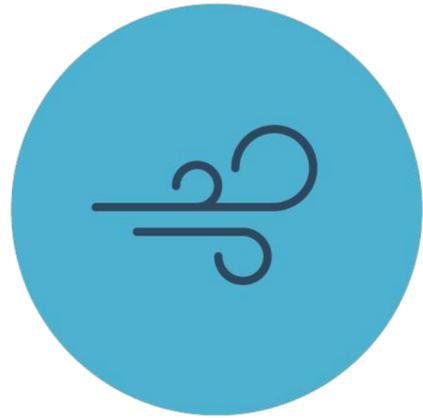
FITNESS



COMFORT



MIND



AIR: THE ISSUE

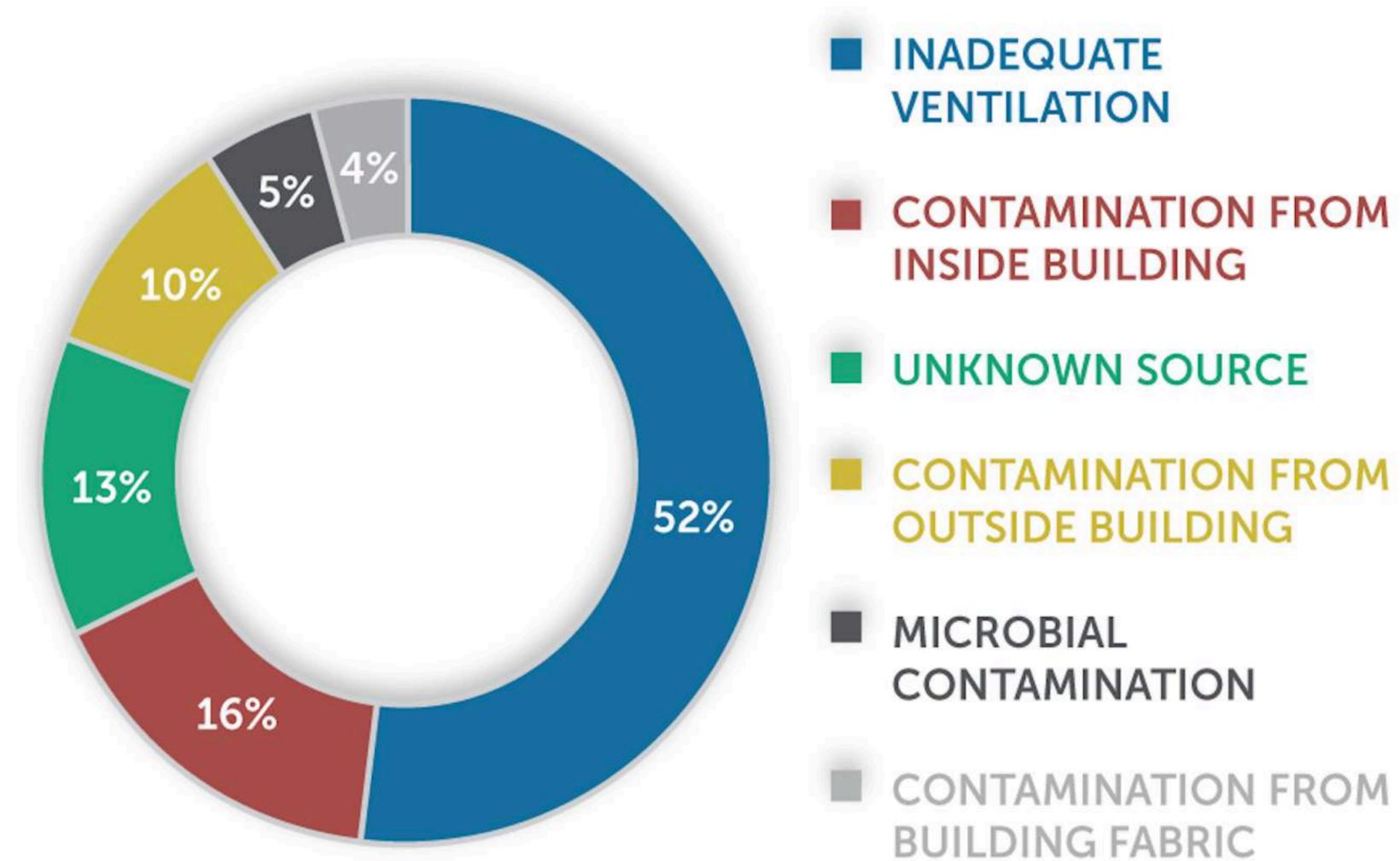
Concentrations of some pollution indicators can be **2-5 times** higher indoors compared to outdoors.¹

Polluted air is the number one environmental cause of premature mortality, contributing to **200,000 premature deaths** annually in the United States alone and approximately seven million, or one in eight, premature deaths globally.²

1. Calazzo F, Ashok A, Waitz IA, Yim SHL, Barrett SRH. Air pollution and early deaths in the United States. Part I: Quantifying the impact of major sectors in 2005. *Atmospheric Environment*. 2013;79:198-208

2. World Health Organization. 7 million premature deaths annually linked to air pollution. 2014; <http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/>. Accessed May 20, 2016..

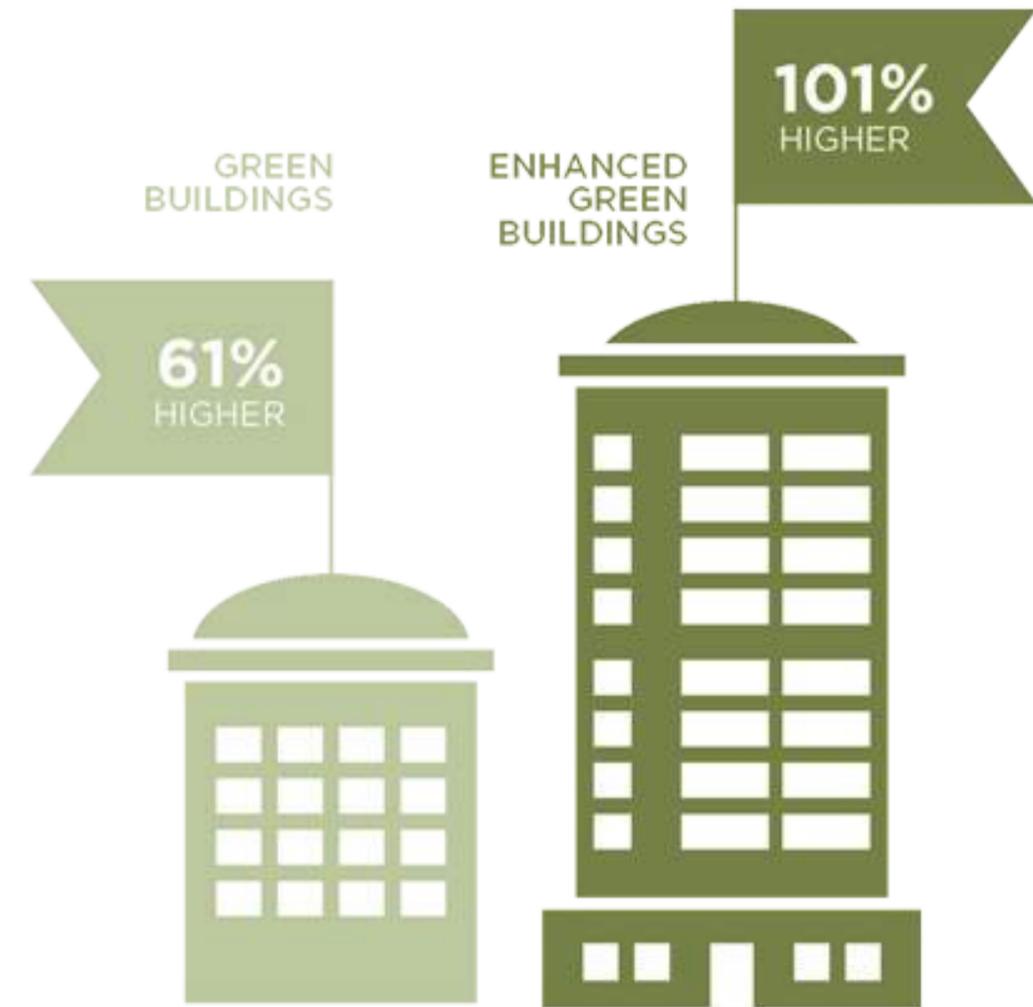
SOURCES OF POOR INDOOR AIR QUALITY





THE BENEFITS OF BETTER AIR QUALITY

A World Green Building Council study found that office workers **performed better on cognitive function tests** in buildings with lower VOC and CO2 levels.



(n=24)

Allen JG, Macnaughton P, Satish U, Santanam S, Vallarino J, Spengler JD. Associations Of Cognitive Function Scores with Carbon Dioxide, Ventilation, And Volatile Organic Compound Exposures In Office Workers: A Controlled Exposure Study Of Green and Conventional Office Environments. Environ Health Perspect. 2015. doi:10.1289/ehp.1510037.



AIR

Breathe easy with optimal indoor air quality

- Material selection
- Ventilation
- Filtration
- Moisture control
- Maintenance and operations
- Source of concern protection
- Construction purposes



WATER: THE ISSUE

Being dehydrated by just **2%** has been shown to impair cognitive performance.¹

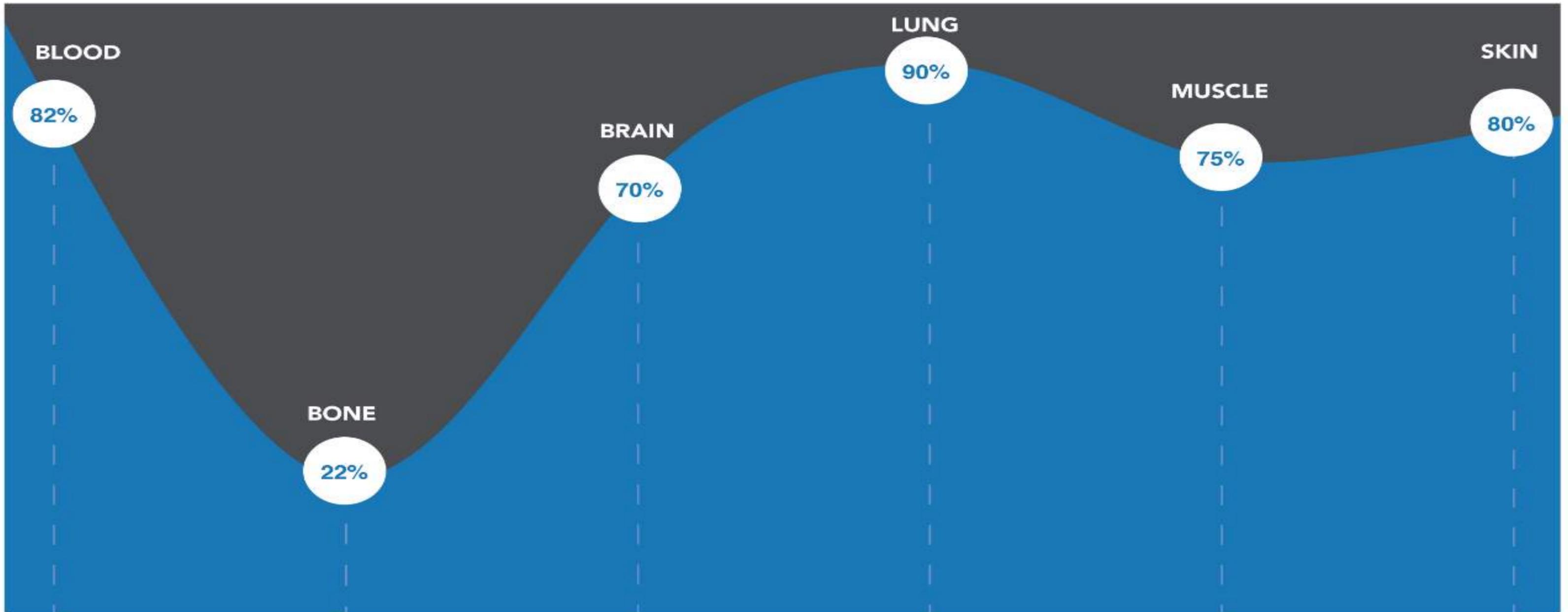
The Institute of Medicine recommends that women consume at least **2.7 L [11 cups]** and men consume at least **3.7 L [16 cups]** of water from foods and beverages each day.²

1. Cognitive performance and dehydration. J Am Coll Nutr. 2012;31(2):71-78

1. Grandjean AC, Grandjean NR. Dehydration and cognitive performance. J Am Coll Nutr. 2007;26(5 Suppl):549s-554s

2. Institute of Medicine of the National Academies. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate. Washington, DC: The National Academies Press; 2005.





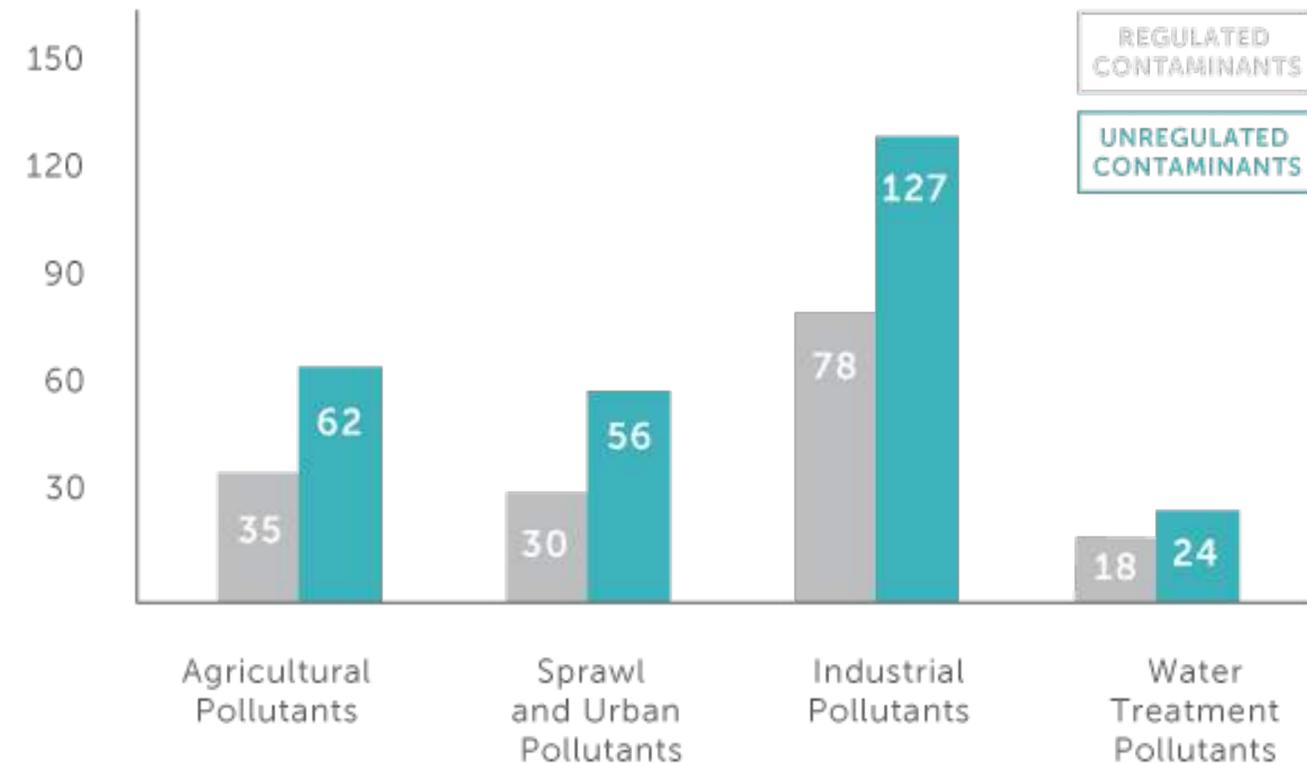
WATER IN HUMAN TISSUE

MORE THAN 2/3 OF THE HUMAN BODY IS COMPRISED OF WATER.

WHERE DO WATER CONTAMINANTS COME FROM?

Deteriorating water quality threatens global gains made in improving drinking water.

TOTAL CHEMICALS DETECTED





CONSEQUENCES OF DEHYDRATION

EVEN MILD DEHYDRATION (1.36% DEHYDRATION) IS ASSOCIATED WITH DECREASED MOOD, INCREASED PERCEPTION OF TASK DIFFICULTY, AND LOWER CONCENTRATION.



WATER

Drink up: WELL promotes high quality water and improved accessibility

- Performance testing
- Treatment
- Maintenance and operations
- Hydration promotion



NOURISHMENT: THE ISSUE

Over half of the world's adult population is overweight or obese.¹

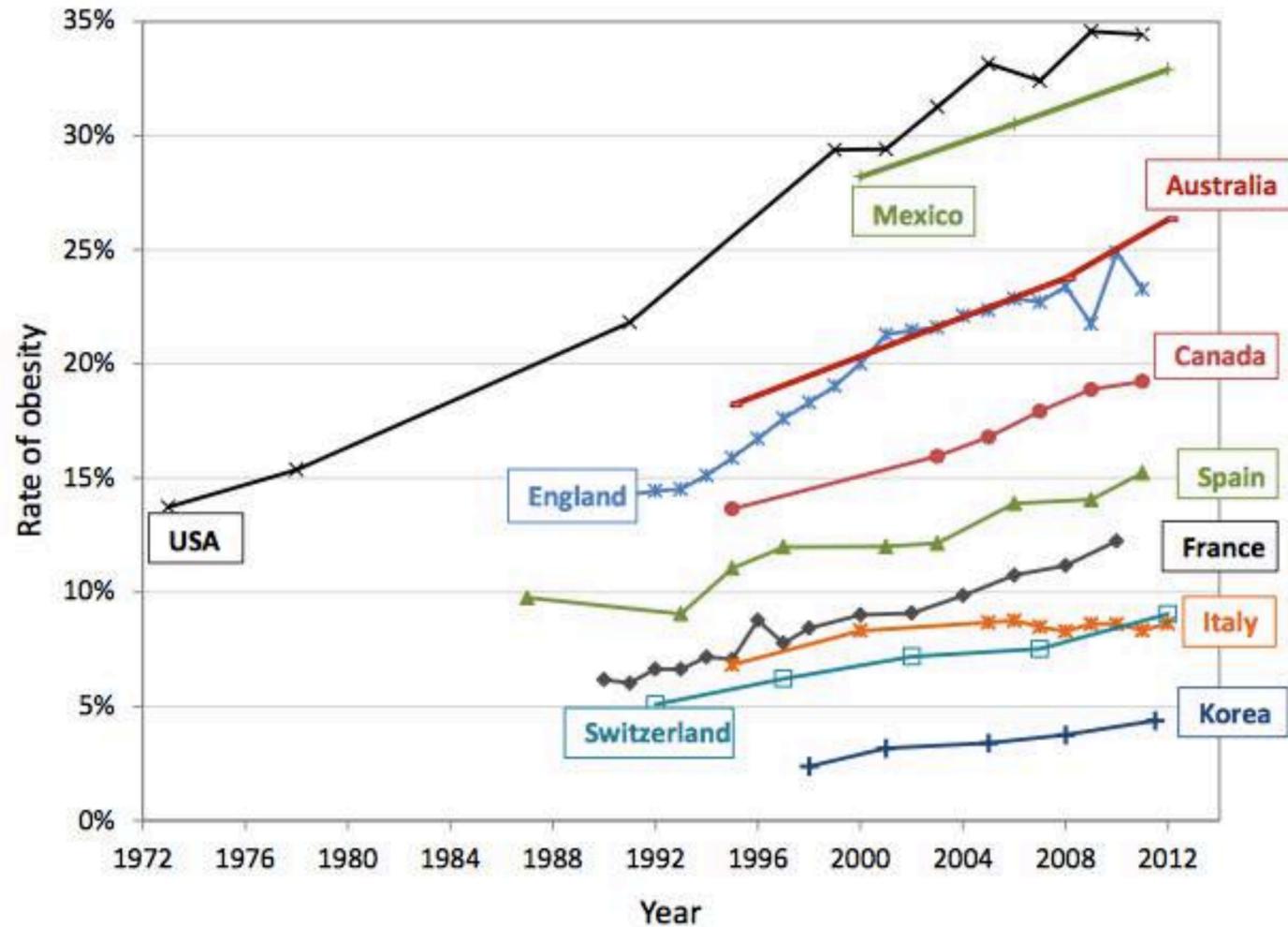
Poor nutrition is a major contributor to preventable chronic diseases such as cardiovascular disease, diabetes, and obesity.²

1. World Health Organization. Obesity and overweight fact sheet. 2016. <http://www.who.int/mediacentre/factsheets/fs311/en/> Accessed December 13, 2016.

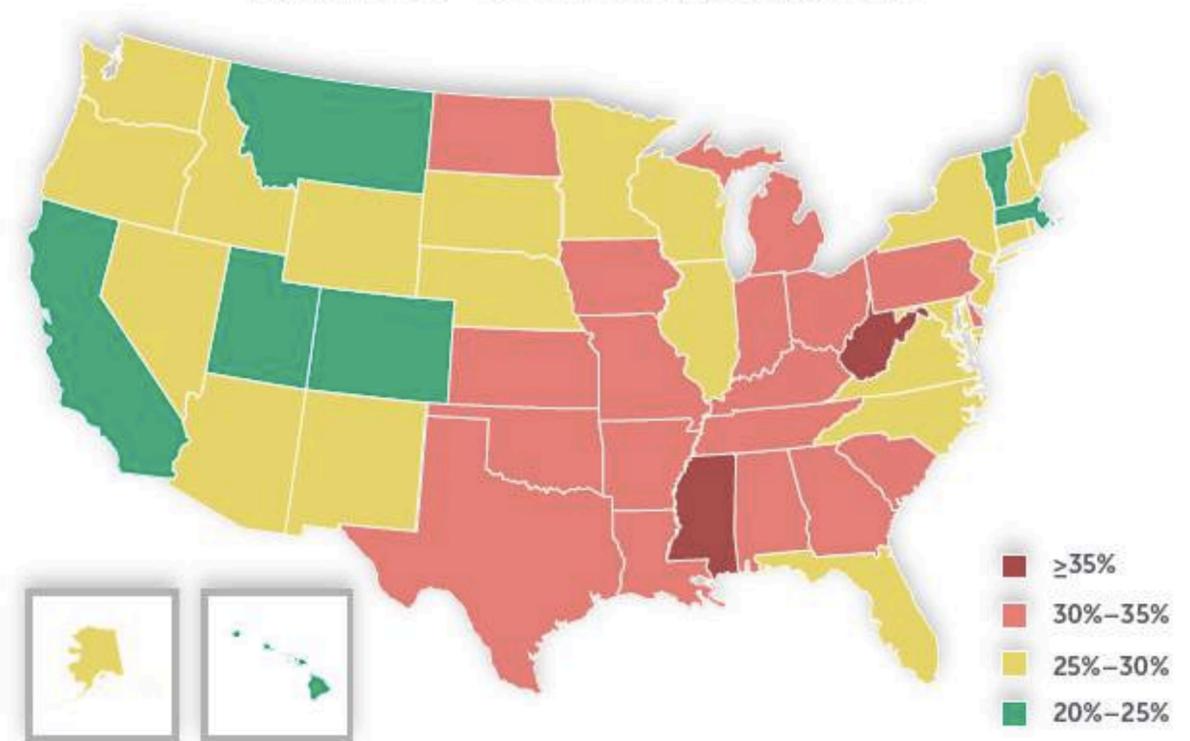
2. World Health Organization. Diet, nutrition and the prevention of chronic diseases - Report of the joint WHO/FAO expert consultation. Geneva, Switzerland: World Health Organization;2003

OBESITY EPIDEMIC

GLOBAL OBESITY RATES 1972-2012



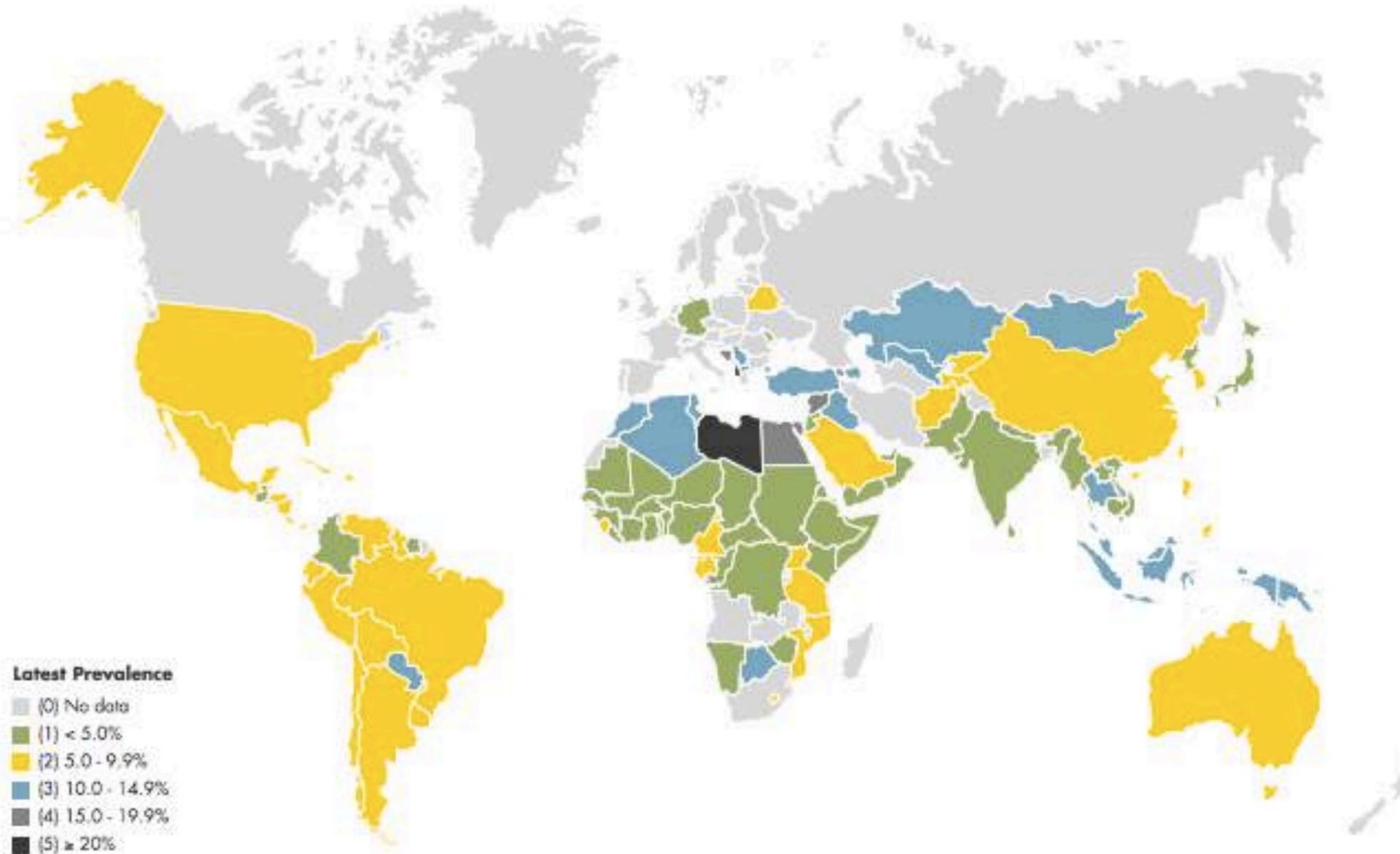
PREVALENCE OF OBESITY IN US ADULTS



- 2 / 3 OF ALL AMERICAN ADULTS ARE OVERWEIGHT.
- 1 / 3 OF ALL AMERICAN ADULTS ARE OBESE.

1. Organization for Economic Cooperation and Development. *Obesity Update*. Paris, France;2014.
 2. Centers for Disease Control and Prevention. *Overweight & Obesity: Adult Obesity Facts*. 2016;
www.cdc.gov/obesity/data/adult.html. Accessed December 1, 2016.

FIGURE 1:
AGE-STANDARDIZED PREVALENCE OF OVERWEIGHT IN CHILDREN UNDER 5 YEARS OF AGE,
COMPARABLE ESTIMATES, 2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. All rights reserved. Copyright – WHO 2015.

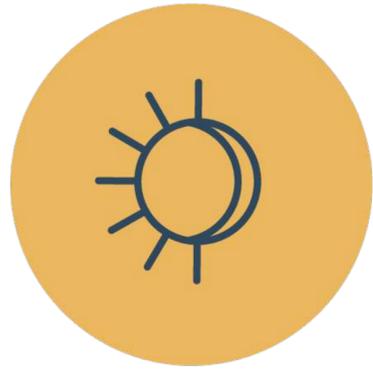
Source: Tracking tool (<http://www.who.int/nutrition/trackingtool>)



NOURISHMENT

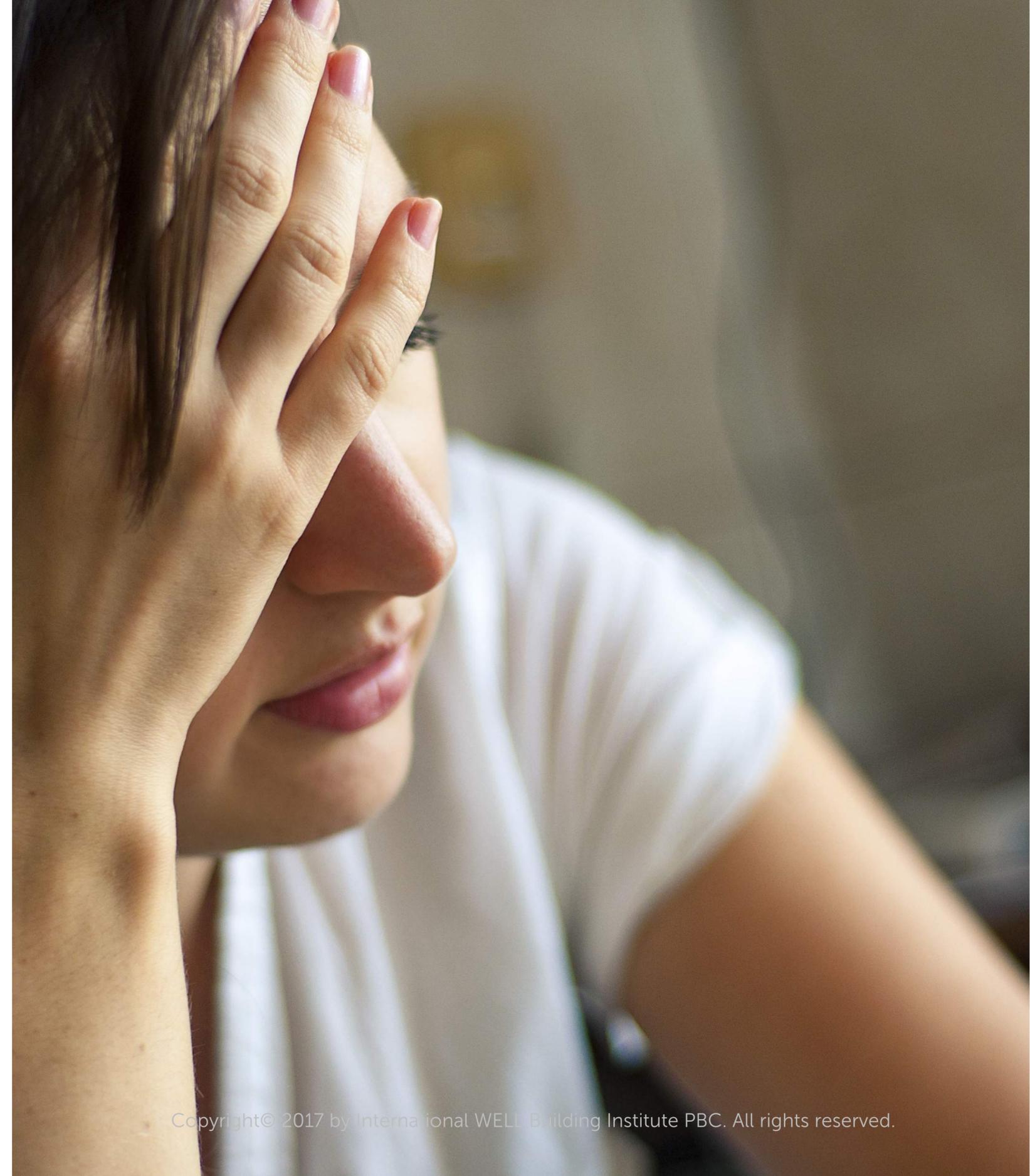
Dig in to wholesome foods. WELL Certified™ buildings limit the presence of unhealthy ingredients and can encourage better eating habits.

- Healthy portions
- Mindful eating
- Food production
- Access to healthy foods
- Food preparation
- Allergies and alternatives
- Transparency
- Environmental Cues and influencers



LIGHT: THE ISSUE

Disruption to the body's circadian rhythm are associated with chronic diseases including obesity, diabetes, and depression.¹



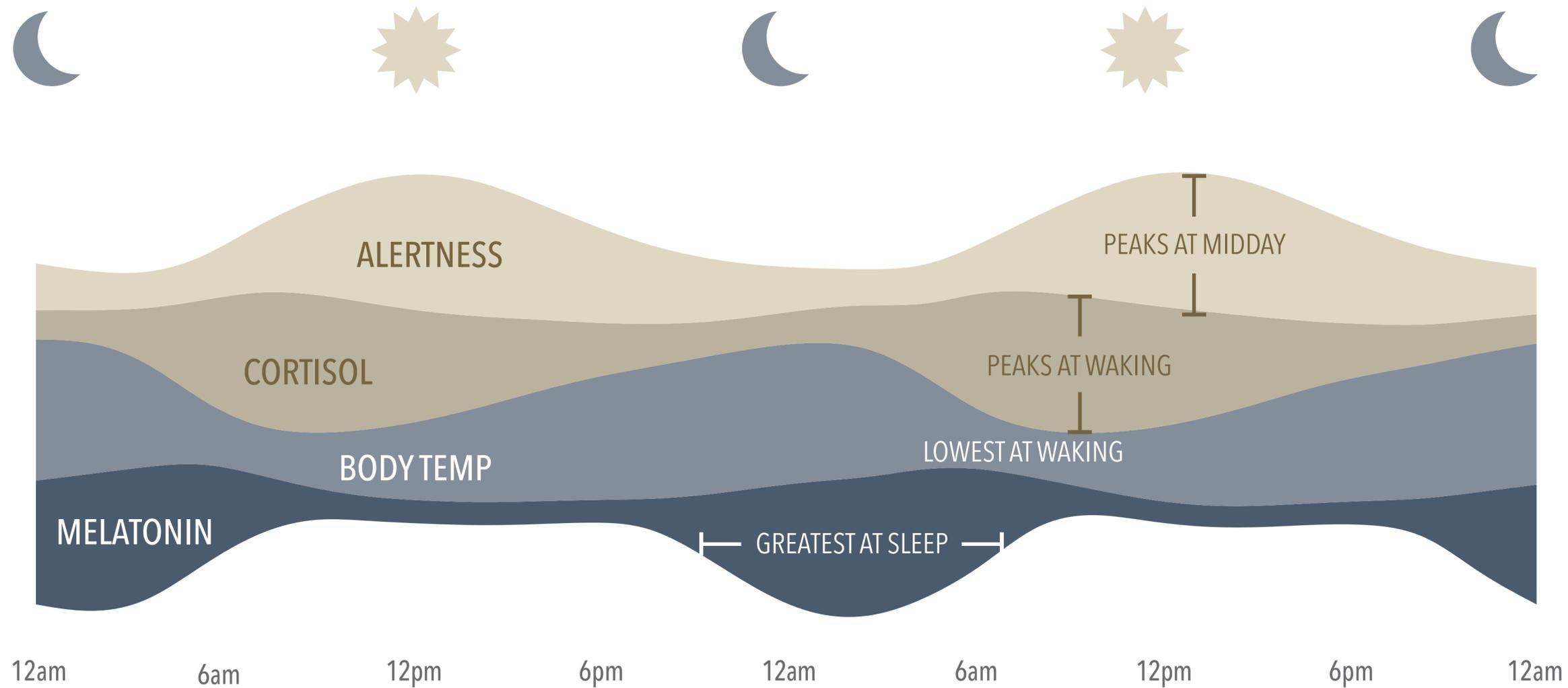
1. National Institute of General Medical Sciences. Circadian Rhythms Fact Sheet. 2012; https://www.nigms.nih.gov/Education/Pages/Factsheet_CircadianRhythms.aspx. Accessed December 1, 2016.



LIGHT AT NIGHT: A POSSIBLE CARCINOGEN

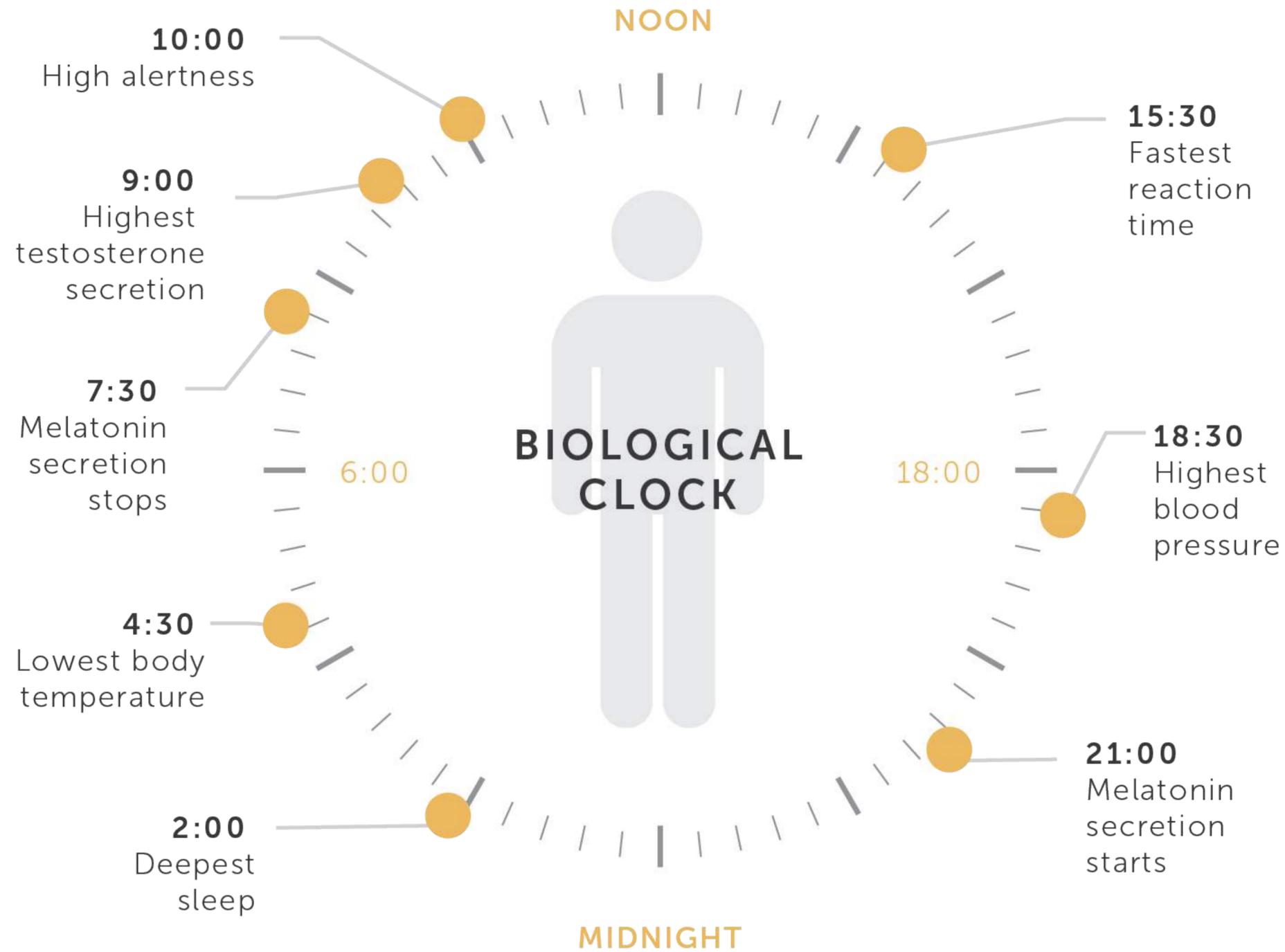
1. IARC Monographs Programme finds cancer hazards associated with shiftwork, painting and firefighting [press release]. France: IARC;2007.

2. Harvard Medical School. Blue light has a dark side. 2012; www.health.harvard.edu/staying-healthy/blue-light-has-a-dark-side. Accessed December 1, 2016.

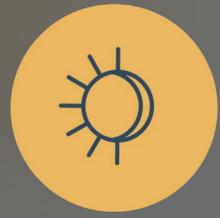


DAILY CYCLE OF CORTISOL & MELATONIN

HUMAN CIRCADIAN RHYTHMS



1. U.S. Department of Health and Human Services, National Institutes of Health, National Institute of General Medical Sciences. Tick Tock: New Clues About Biological Clocks and Health. 2014; <https://publications.nigms.nih.gov/inside>



LIGHT

Benefit from daylight & lighting systems designed to increase alertness, enhance experience and promote sleep.

- Circadian design
- Daylighting
- Glare control
- Color quality
- Activity-based lighting levels
- Visual acuity



FITNESS: THE ISSUE

Physical inactivity is highly prevalent worldwide, with **23%** of adults failing to meet international exercise and physical activity guidelines established by the WHO.¹

Additionally, the WHO notes that individuals who are insufficiently active have a **20-30% higher risk** of mortality compared to those who meet international recommendations.²

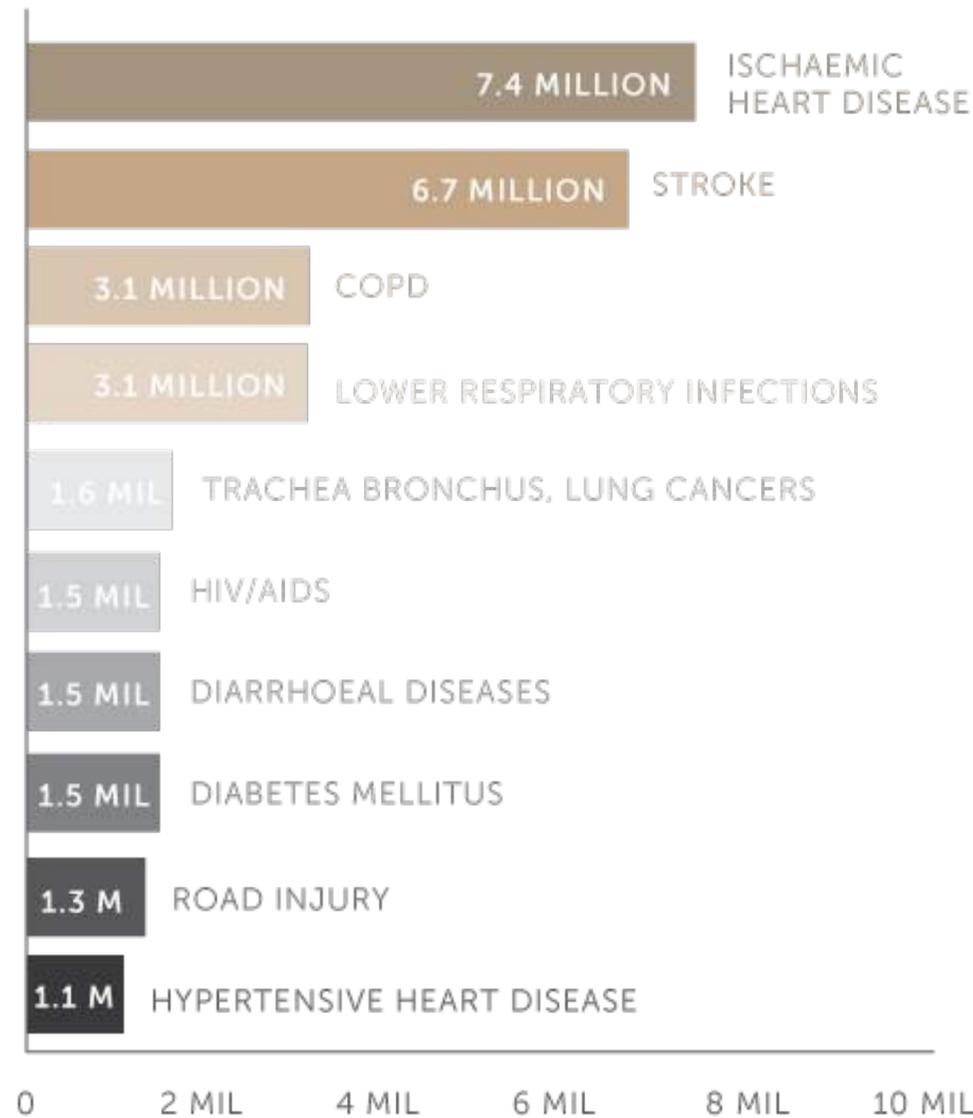
1. Edmonds C, Crombie R, Gardner M. Subjective thirst moderates changes in speed of responding associated with water consumption. *Frontiers in Human Neuroscience*. 2013;7(363).

2. World Health Organization. Physical Activity. 2015; <http://www.who.int/mediacentre/factsheets/fs385/en/>. Accessed June 10, 2016.

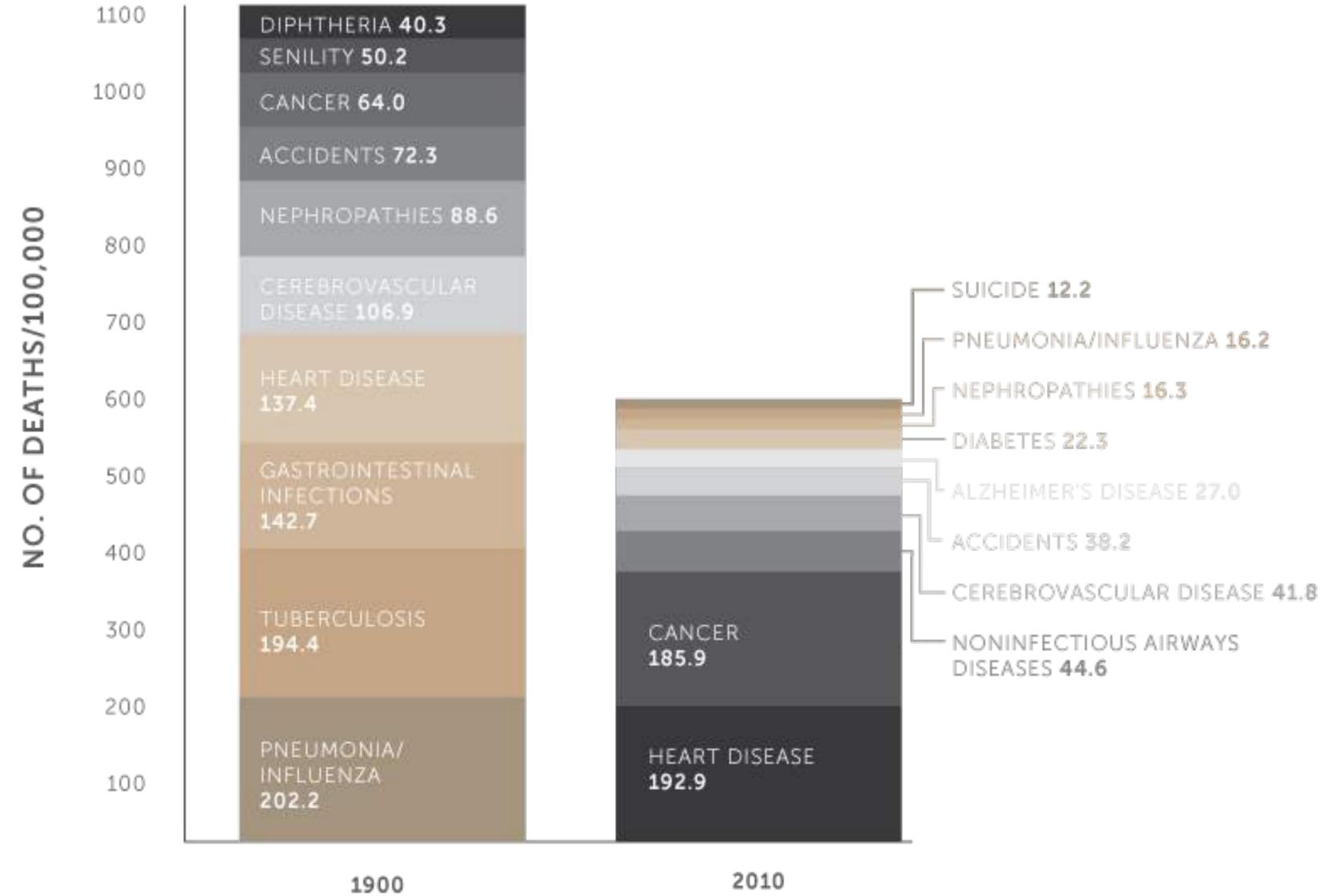
2. Ding D, Lawson KD, Kolbe-Alexander TL, et al. The economic burden of physical inactivity: a global analysis of major non-communicable diseases. *Lancet* (London, England). 2016;388(10051):1311-1324.

LEADING CAUSES OF DEATH WORLDWIDE

THE 10 LEADING CAUSES OF DEATH IN THE WORLD
2012



TOP 10 CAUSES OF DEATH
1900 VS 2010



1. World Health Organization. The top 10 causes of death. 2012; <http://www.who.int/mediacentre/factsheets/fs310/en/>. Accessed December 1, 2016.
2. Jones DS, Podolsky SH, Greene JA. The Burden of Disease and the Changing Task of Medicine. *New England Journal of Medicine*. 2012;366(25):2333-2338.

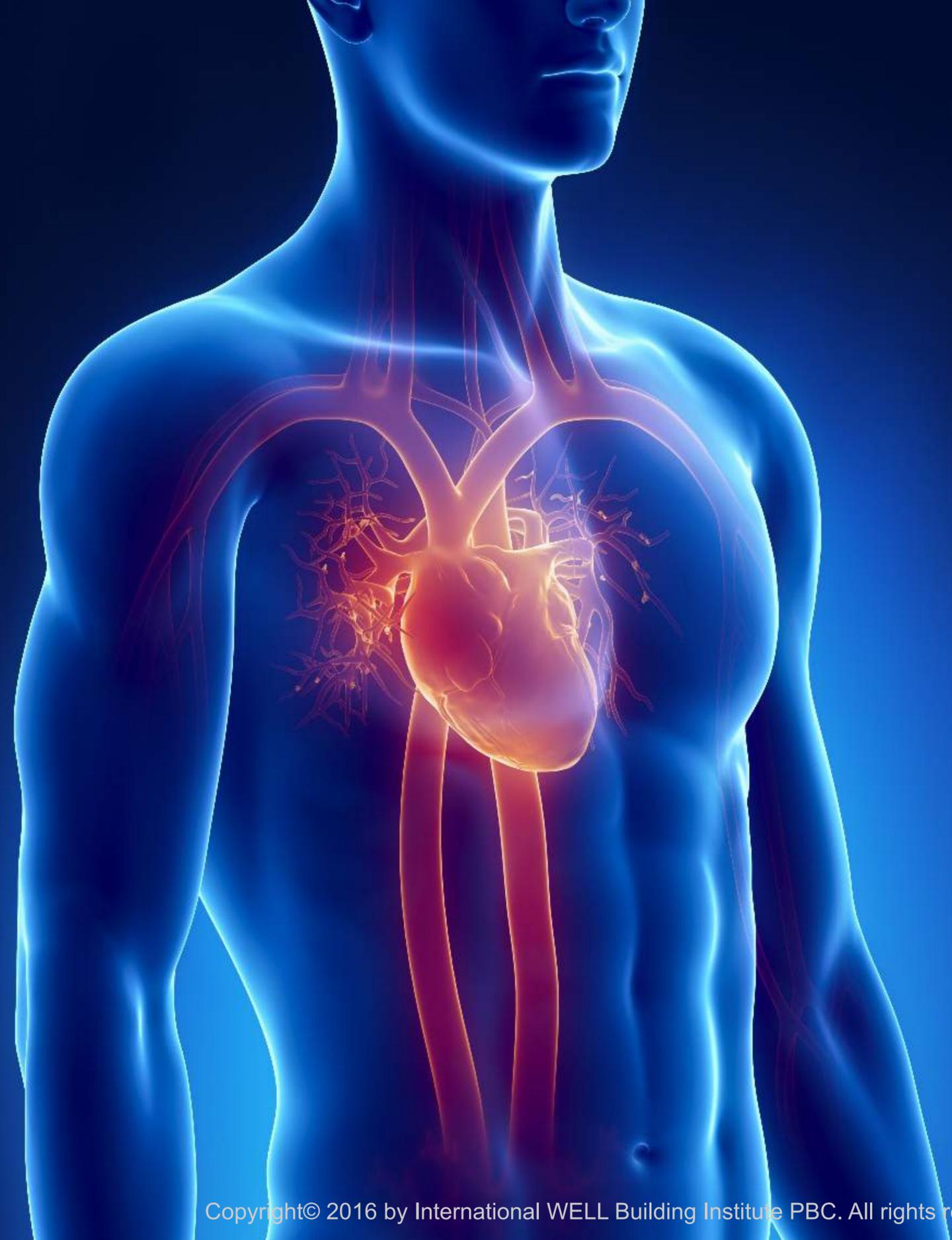
PHYSICAL ACTIVITY AND HEART HEALTH

CARDIOVASCULAR DISEASE (CVD) IS THE LEADING CAUSE OF DEATH WORLDWIDE.¹

THE RISK OF DEVELOPING CVD CAN BE REDUCED WITH REGULAR, MODERATE-INTENSITY AEROBIC PHYSICAL ACTIVITY (AT LEAST 150 MINUTES PER WEEK).²

¹ WHO. The top 10 causes of death. 2014. Available online at: <http://www.who.int/mediacentre/factsheets/fs310/en/>.

² 2008 Physical Activity Guidelines for Americans. Washington (DC): U.S. Department of Health and Human Services; 2008. Available at: <http://www.health.gov/paguidelines>.





HEALTH EFFECTS OF SITTING

PEOPLE WITH SEDENTARY JOBS HAVE TWICE
THE RISK OF CARDIOVASCULAR DISEASE AS
PEOPLE WITH STANDING JOBS.¹



FITNESS

Keep moving with WELL's integration of exercise and fitness into everyday life.

- Exterior active design
- Interior active design
- Activity-based working
- Physical activity spaces
- Awareness and habits
- Physical activity programs



COMFORT: THE ISSUE

Work-related musculoskeletal disorders result in over **\$2.5 billion** in medical and other associated costs, including lost productivity.¹

Distracting noise can contribute up to a **66%** decline in performance.²

Unwanted or excessive noise can lead to difficulties with communication and concentration.³

An office that is too hot or too cold can cause a drop in productivity of up to **9%**.⁴

1. Bhattacharya A. Costs of occupational musculoskeletal disorders (MSDs) in the United States. *International Journal of Industrial Ergonomics*. 2014;44(3):448-454.

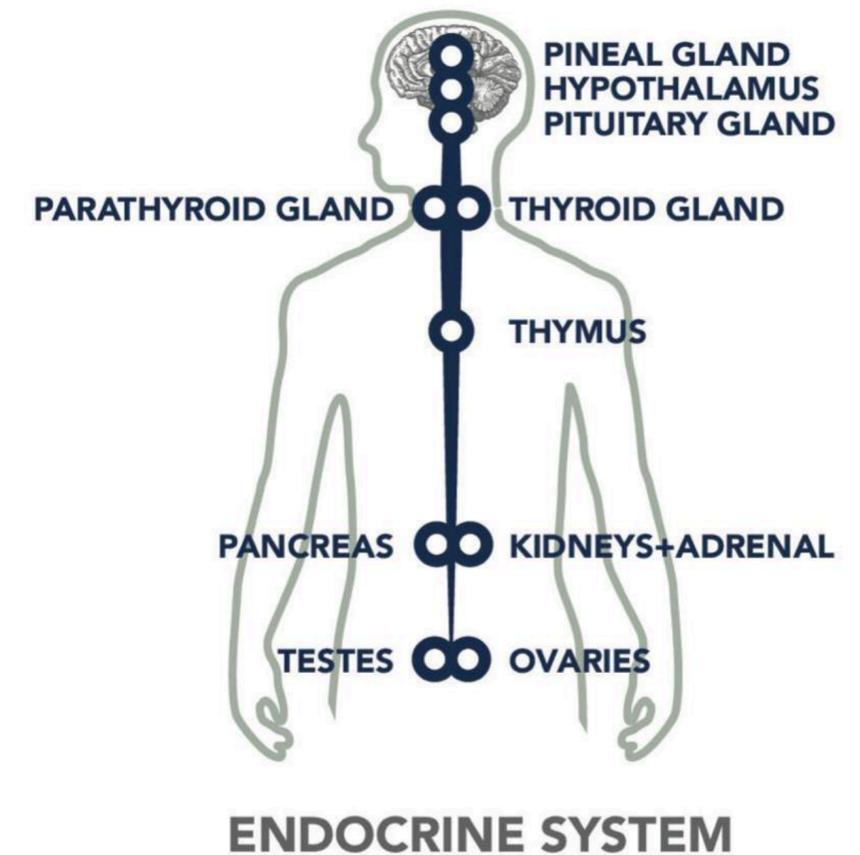
2. Banbury S, Berry DC. Disruption of office-related tasks by speech and office noise. *British Journal of Psychology*. 1998;89(3):499-517.

3. Perham N, Banbury S, Jones DM. Do realistic reverberation levels reduce auditory distraction? *Applied Cognitive Psychology*. 2007;21(7):839-847.

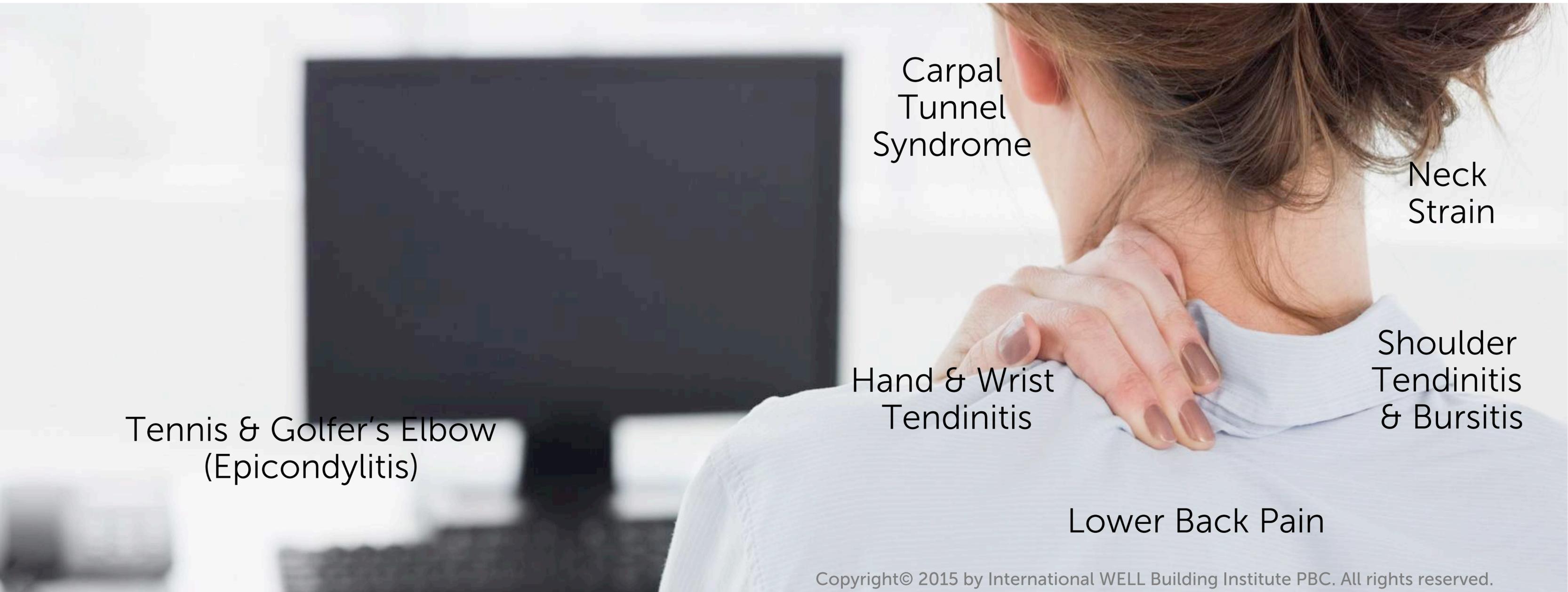
4. Olli S, William JF, Quanhong L-G. Effect of temperature on task performance in office environment. *5th International Conference on Cold Climate Heating, Ventilating and Air Conditioning*. Moscow, Russia:2006.

THE ENDOCRINE SYSTEM

- COMPRISES A COLLECTION OF MAJOR GLANDS THAT SECRETE CHEMICAL MESSENGER HORMONES THROUGHOUT THE BODY.
- ENDOCRINE HORMONES REGULATE GROWTH, DEVELOPMENT, REPRODUCTION AND METABOLISM.
- RECEIVES SENSORY INPUTS FROM THE SMELL, TASTE, VISUAL, TOUCH, TEMPERATURE, PAIN, ETC.
- EFFECTS ARE SLOWER TO INITIATE AND PROLONGED IN RESPONSE, LASTING FROM MINUTES TO WEEKS.



WORK-RELATED MUSCULOSKELETAL DISORDERS



Carpal
Tunnel
Syndrome

Neck
Strain

Hand & Wrist
Tendinitis

Shoulder
Tendinitis
& Bursitis

Tennis & Golfer's Elbow
(Epicondylitis)

Lower Back Pain

GOALS + INTENTS

CONSEQUENCES OF ENVIRONMENTAL NOISE



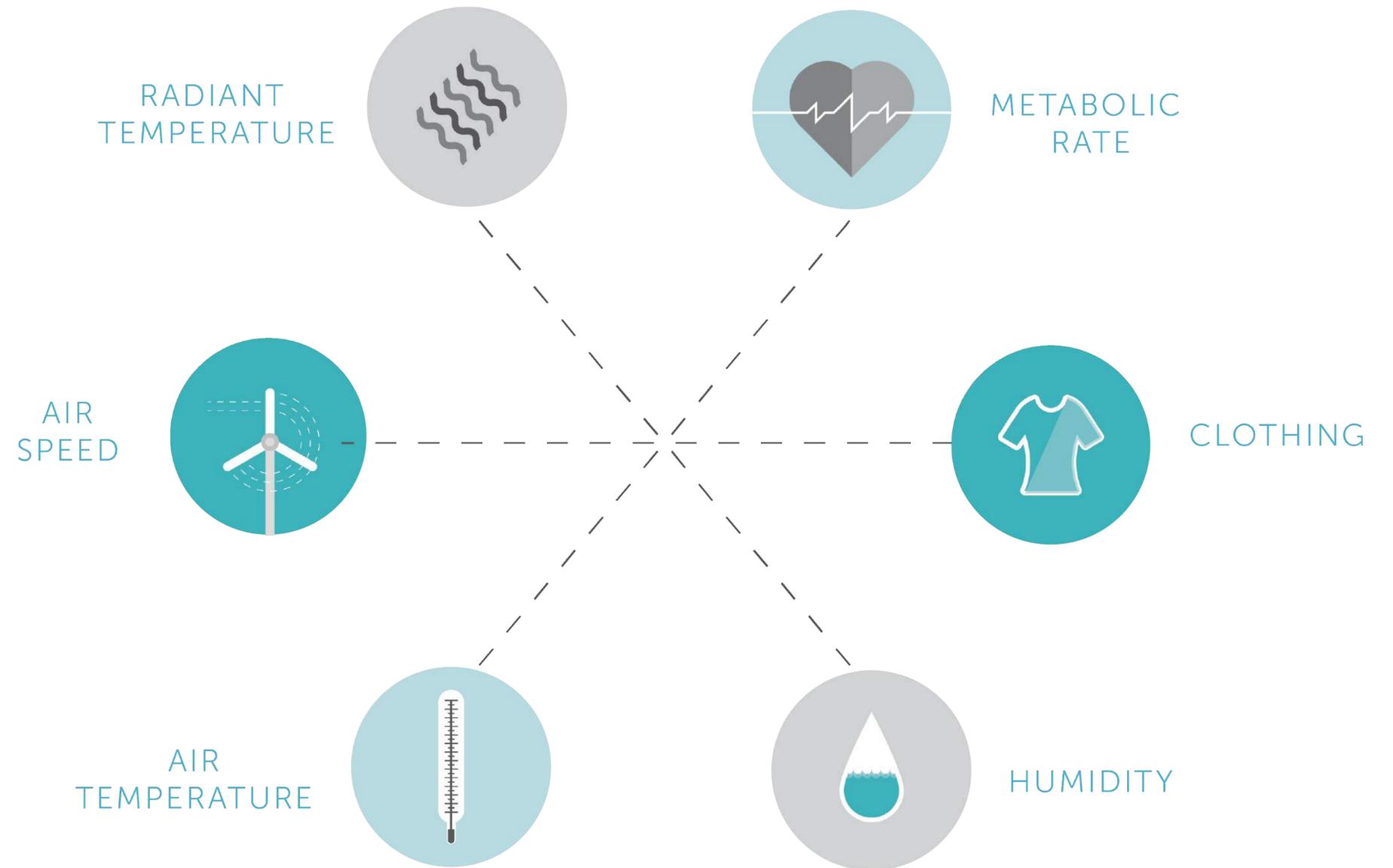
DEFINING THERMAL COMFORT

ENVIRONMENTAL FACTORS

- Air temperature
- Humidity
- Air speed
- Radiant temperature

PERSONAL FACTORS

- Clothing levels
- Metabolic rates





COMFORT

Settle into a distraction-free, productive and comfortable space.

- Ergonomic
- Acoustics
- Thermal
- Olfactory
- Accessibility



MIND: THE ISSUE

Various environmental characteristics can have direct impacts on mental health and well-being, such as housing, crowding, noise, indoor air quality, and light.¹

Mental, neurological, and substance use disorders account for 14% of the global burden of disease and depression alone is the leading cause of disability worldwide.²

Poor mental health is linked to poor health outcomes such as cardiovascular disease, obesity, and diabetes and to poor health behaviors such as smoking, disordered sleep patterns, and physical inactivity.³

1. Evans GW. *The built environment and mental health.* *J Urban Health.* 2003;80(4):536-555.

2. World Health Organization. Depression. <http://www.who.int/mediacentre/factsheets/fs369/en/>. Accessed May 25, 2016.

2. World Health Organization. *Mental health action plan 2013-2020.* Geneva: World Health Organization; 2013..

3. Centers for Disease Control and Prevention. *Mental Health Basics.* 2013; <http://www.cdc.gov/mentalhealth/basics.htm>. Accessed May 20, 2016.

STRESS & CHRONIC STRESS

- Stress is a response to demands placed on the body by internal and external conditions or circumstances.¹
- Persistent stressful states can have extreme health consequences including increased risk of depression, cardiovascular disease, diabetes, and upper respiratory infection among other adverse health outcomes.²

1. National Institute of Health. Fact Sheet on Stress.
<https://www.nimh.nih.gov/health/publications/stress/index.shtml>. Accessed December 1, 2016.

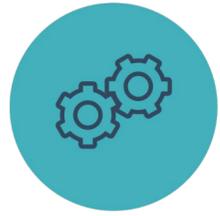
2. Cohen S, Janicki-Deverts D, Doyle WJ, et al. Chronic stress, glucocorticoid receptor resistance, inflammation, and disease risk. *Proceedings of the National Academy of Sciences of the United States of America*. 2012;109(16):5995-5999.



MIND & MENTAL HEALTH

A COMBINATION OF COMPLEX SYSTEMS
IMPACT MENTAL WELL-BEING:

- THE NERVOUS SYSTEM
- THE ENDOCRINE SYSTEM
- ENVIRONMENTAL CONDITIONS
- SOCIO-CULTURAL CONDITIONS
- PERSONAL CHARACTERISTICS



THE BENEFITS OF BIOPHILIC DESIGN

Employees who work in office spaces that incorporate natural elements such as natural light and greenery report:

15% higher levels of well-being and creativity

Source: Cooper C, Browning B. Human Spaces: The Global Impact of Biophilic Design in the Workplace.; 2015. <http://humanspaces.com/global-report/the-global-impact-of-biophilic-design-in-the-workplace/>. Accessed February 1, 2017.





MIND

Stay centered: WELL optimizes cognitive and emotional health through design, technology and treatment strategies.

- Stakeholder engagement
- Transparency
- Wellness awareness and protocols
- Connection to nature
- Adaptable spaces
- Altruism

PROCESS OVERVIEW

HOW DO I ACHIEVE WELL?

DEVELOPMENT
BRAND EXPLORATION

Essen

Values &
Character

Value

BEGIN YOUR JOURNEY TO WELL CERTIFICATION



VERIFIED PERFORMANCE

The WELL differentiator: data-driven environmental assessments through on-site performance verification.



PEOPLE + PLANET

WELL works in conjunction with global green building rating systems to optimize building performance for human health and our environment.



LIVING
BUILDING
CHALLENGESM

IWBI + GBCI

Green Business Certification Inc.
(GBCI), the same organization that
administers LEED certification,
provides third-party certification
for WELL.



SILVER, GOLD OR PLATINUM



100%
OF PRECONDITIONS



100%
OF PRECONDITIONS

40%+
OF OPTIMIZATIONS



100%
OF PRECONDITIONS

80%+
OF OPTIMIZATIONS



Education



Multifamily Residential



Commercial Kitchen



Commercial Buildings



Retail



Restaurant



Commercial Interiors

ALL BUILDINGS IN

Choose from our project types and pilot programs – or work with us for a custom approach to your unique building project.

WE ARE WELL

WELLCERTIFIED.COM

