



SKIN REGIMEN

THE ESSENTIAL LIFESTYLE GUIDE FOR SKIN LONGEVITY AND BEAUTY

DR. DAVIDE BOLLATI

S K I N R E G I M E N

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8 WHAT'S GOOD FOR THE HEART IS GOOD FOR THE SKIN

12 MEET THE EXPERTS

13 A MESSAGE FROM DR. DAVIDE BOLLATI

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SECTIONS

32 A PRIMER ON THE AGING PROCESS

50 THE SCIENCE OF LONGEVITY: A NEW ERA IN SKINCARE

68 THE BEAUTY/HEALTH CONNECTION

90 HOW TO LIVE GUIDE

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First edition, 2013

Design: Cool Gray Seven, New York

Printed and bound in Italy

10 9 8 7 6 5 4 3 2 1

WHAT'S
GOOD
FOR THE
HEART IS
GOOD
FOR THE
SKIN

they may forget
what you said,
or what you did,
but they will
always remember
how you made
them feel.

Take a moment and conjure up an image in your mind of someone you find to be truly beautiful. Maybe it's a lover, the face of a child, a movie star or a stranger that caught your eye while shopping at the market. What makes them beautiful to you? It can be hard to put into words, right? How difficult it is to describe beauty! Of course, it's a personal concept; it cannot be described in just one single objective manner. Even though there are no absolute rules to define beauty, we can still try and consider some key characteristics.

Let's start with the skin. After all, our skin is the first thing people see; it expresses our mood, its nuanced shades reveal our emotions, state of health and, in a way, our overall essence. Of course, many people will correctly argue that it's not just what's on the outside that makes a person beautiful. The inside counts too. But aside from the emotional aspects that create one's personality, did you ever stop to consider the things that are really inside the body? What about the heart, lungs and other organs? Today, thanks to so many advances in the science of aging and nutrition, you may be surprised by how important a role our insides play in our outward appearance.

It's impossible to evaluate beauty without investing in the care of what's inside the body. Today our health is constantly at odds with the world in which we live. Ever more frenetic and complex, modern life is full of toxic agents capable of degenerating, inflaming, oxidating and aging our body much faster than it should. This pathological aging—different from physiological aging—fuels all modern diseases.

SILENT KILLERS

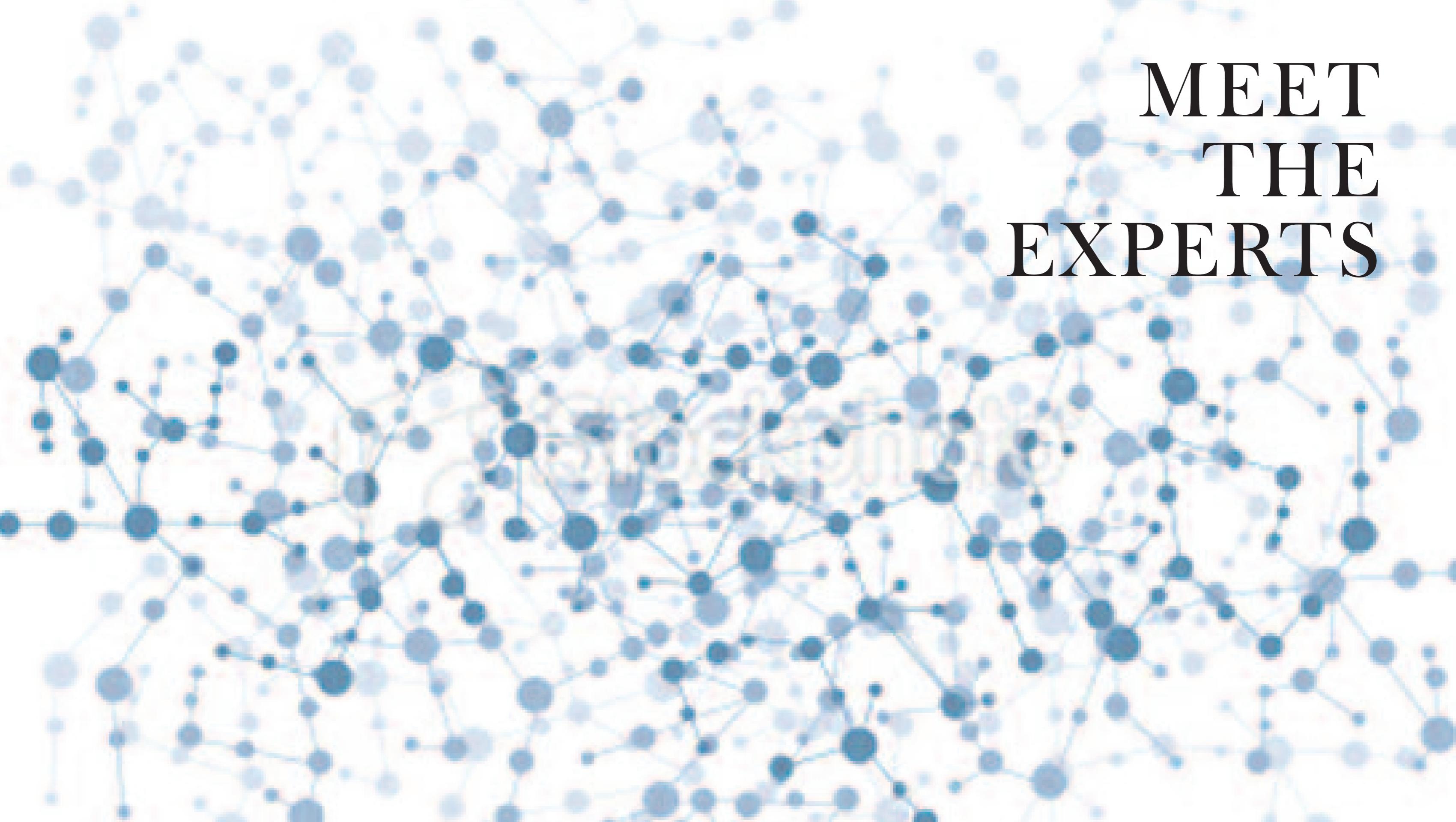
Spend a little time talking with a cardiologist and you'll gain a whole new appreciation for what it means to possess "inner beauty." We're talking about having a healthy heart and the relationship that has with overall wellness, including the skin. Difficulty in understanding the fine mechanisms that degenerate our body's integrated systems makes it difficult for researchers to find and apply therapies that are able to directly combat the aging processes.

The study of heart disease—now just as common in men as in women—has allowed cardiologists to understand that oxidative stress and free radicals, glycation, reduced methylation and chronic inflammation are biological mechanisms that can all be influenced by lifestyle. Directing their own toxic and degenerative action, such mechanisms bring about progressive imbalances, early-onset aging, and disease. Just as the heart and arteries do, skin ages and suffers similar harmful effects. One of the biggest problems we face is the simple fact that these harmful processes, which are occurring constantly in the body, are silent. Today we adopt remedies to fight against decline and disease when it's already too late; this is because in their onset, decline and disease creep up silently—almost asymptotically—and we do not know how to recognize the signs. If we take a wrinkle or diabetes for example, we know that they don't represent a therapeutic target in that they are the expression of a process that has already begun but that we unconsciously ignored. It is also true that we are not prepared to recognize—let alone, to understand—the delicate relationship existing between our lifestyles and the biochemical processes that cause such problems.

READY, SET, GO

With this book, our hope is to raise your awareness and give you the tools to take action. We want you to think about preserving your health and physical fitness but also to make choices that promote a healthy exterior. How does your lifestyle affect your health? In what way does it alter your physical characteristics? We hope you'll begin to understand how silent biochemical changes (that have major consequences) are at the heart of the degenerative processes that can contribute to early-onset aging. Our bodies inevitably deteriorate with time but the process of aging may be accelerated by the way we live our lives. Therefore the better care we take of our bodies and minds, the longer we will enjoy a beautiful life full of vitality. Following all these "rules" may not be possible all the time, but even if we can succeed some of the time, it will be a great start.

Everyone must learn how to take responsibility for his or her own longevity and contribute towards maintaining optimal health; it's never too late.



MEET THE EXPERTS

A MESSAGE FROM DAVIDE BOLLATI

When, right after my pharmacy studies, I decided to follow in the footsteps of my parents, passionate entrepreneurs in the field of cosmetic development and production, I could never have imagined that I would find myself dealing with so many diverse and relevant topics relating to the human condition like the ones we will touch on in this book. The type of beauty that we will explore in the following pages is intimately connected to a more holistic condition of health and well-being.

The science of beauty and health will be explored with a profoundness that embraces the complexity of human existence.

In the various sections of this book we will focus on health, wellness, and longevity with an emphasis on the skin—a primary organ that is a reflection of the health and soul of every person.

The thesis of my Pharmacy dissertation many years ago was already proposing a range of cosmetically-oriented answers in response to the two critical sources of stress to the skin, which I identified as the formation of free radicals, and consequently, inflammation.

Now, many years later, having gained precious experience in this field, I am presenting to you the latest findings of the mechanisms which dominate and accelerate the process of aging, and a concrete set of innovative countermeasures available today from the scientific world.

WE TAKE A SCIENTIFIC APPROACH

When speaking of cosmetics and beauty today, we must take into account the progress made in different fields such as medicine, nutrition, pharmacology, dermatology, genetics and psychology. Because of this, I gathered a scientific committee of elite professionals, highly esteemed in their respective fields. Each brings a specific point of view and, through a group effort, we are now able to reveal the mechanisms that regulate the aging process in general, and in particular that of the skin.

Today, it is very clear that correct nutrition, physical activity, the help of dietary supplements to improve organ function, along with a topical application of the latest skin care breakthroughs, are equally vital components needed for optimal health of our skin.

Moreover, stress management is a crucial component to our overall health. This remains a grossly underappreciated fact but if we want to live healthier and longer lives we need to take stress into account.

JOIN US ON THIS JOURNEY

I know that, like me, you lead a busy life and it's not always easy to find time to read another book. The good news is that we created a collection of educational and useful information with the hope that you can open to any page and learn something valuable.

Taken as a whole, consider this as your guide to achieve awareness and motivation and to encourage your loved ones that a change in lifestyle will not only give us younger and healthier skin but also a longer life, full of vitality and the will to improve ourselves and maximally express our individual potential as human beings.

Could the search for beauty be considered a natural human instinct, a quest for meaningful longevity?

I know that I and all the people that I work with believe it to be true. This is why every day we dedicate ourselves to the creation of new tools and treatments that can significantly improve the life of those who choose to follow us.

Enjoy reading this book and most of all, I wish you a long life of serenity and beautiful, healthy skin.

Davide Bollati



DEGREE IN PHARMACY, MASTER IN COSMETOLOGY,
FOUNDER & PRESIDENT OF [COMFORT ZONE], DAVINES S.P.A.



DR. DAVIDE BOLLATI

FOUNDER & PRESIDENT OF [COMFORT ZONE] DAVINES S.P.A.

Davide Bollati, born in 1966, is an Italian entrepreneur, considered a pioneer in the field of beauty and best known as chairman of the Davines family group companies, Davines and [comfort zone].

Davines Group was founded in Parma, Italy, in 1983 by the Bollati family after almost 20 years of working in the beauty business. It all started as a research laboratory producing high-end haircare and skincare products. After a decade, the Bollati family created their own brand of Davines haircare products exclusively for salons. In 1996 they founded [comfort zone] skincare products for premier spas. Today both brands are distributed and appreciated worldwide.

After earning a degree in Pharmacy from Parma University, Dr. Bollati moved to the US to complete a Master's Degree in Cosmetic Science at Farleigh Dickinson University. In 1992, he joined the family group after gaining invaluable experience working for various beauty businesses. Dr. Bollati began his successful career in the group he leads today as product development chemist in the R&D lab. He then joined the marketing team as product manager and successfully developed domestic and international sales markets. In March 2008 he graduated from the Harvard Business School where he enriched his educational background with the Owner/President Management Executive Program.

Dr. Bollati served as General Manager before he took over his current position as Chairman of the company.

Dr. Bollati's main inspiring factors in the business are the passion he has for sustainable beauty, and his desire to help foster a state of genuine happiness and well-being for all—these concepts are becoming the new mantra for the Davines Group. One of the main projects in progress right now is consistent with the company's manifesto on sustainability: Davines has created a new manufacturing facility that uses only renewable energy and is active in numerous other green projects including the Longevity Bar housed within their headquarters, which aims to serve all natural, health conscious meals.

With the intent of creating and safeguarding a shared ethical approach to the business, and to the well-being of the internal team and the clients worldwide, the "Davines Comfort Zone Carta Etica" has been created under the guidance of Philosophy Doctor Alberto Peretti of the University of Turin and with the contribution of over 300 employees.

Davide Bollati and his family hope that these efforts will serve as important, inspirational models to all businesses for putting sustainable ideas into practice.

“Before my recent multidisciplinary studies on longevity, I would never have imagined that mind-body balance, mental wellness, and stress management science would have such a crucial impact on the overall aging process of human beings. Each one of us should not underestimate the relationship between stress, all its different expressions and the phenomenon of aging.”



FILIPPO ONGARO

PHYSICIAN, AUTHOR AND SCIENTIFIC POPULARIZER

Born in Milan in 1970, Dr. Ongaro obtained his medical doctor degree at the University of Ferrara where he also attended the school of specialization in Sports Medicine, directed by Prof. Francesco Conconi. In 1999 he worked as a visiting researcher at the Deutsche Sporthochschule in Koeln, Germany. In 2000 he was hired as a physician at the European Space Agency (ESA). During his years at ESA Dr. Ongaro also worked at the Johnson Space Center (NASA) in Houston and at the Gagarin Cosmonaut Training Center in Russia, and had the opportunity to cooperate with many European and international scientists.

In the US Dr. Ongaro was the first Italian to obtain the diploma in functional medicine from the Institute for Functional Medicine and the Board Certification in anti-aging medicine (ABAARM). He also obtained a certification at the International School of Gynecological Endocrinology (ISGE). Dr. Ongaro is a frequent speaker at numerous national and international conferences on the topics of space medicine, anti-aging medicine, nutrigenomics, endocrinology and gynecological endocrinology, and is an active advocate of healthy lifestyles.

Dr. Ongaro is the Medical Director of the Institute for Regenerative and Anti-Aging Medicine (ISMERIAN, Italy) and Vice-President of the Association of Italian Anti-Aging Physicians (AMIA). In addition to being the author of several bestselling books, he is a regular contributor to several Italian radio and TV shows and writes for a number of magazines and newspapers on the topics of healthy living and nutrition.

“It is without a doubt that we live longer and better today than ever before. We have defeated many diseases thanks to modern medicine, which is more and more refined and technology-based. This trend is expected to continue, bringing about more sophisticated cures that will keep us alive for longer than we ever hoped.”

FILIPPO ONGARO



MASSIMO GUALERZI
CARDIOLOGIST, FOUNDER OF BE ACTIVE HEALTH IN MOTION

Massimo Gualerzi, a cardiologist, graduated with honors from the University of Parma. He works in the Cardiovascular Prevention and Rehabilitation Unit, which was established with an agreement signed between the University of Parma, the NHS Hospital of Parma, the NHS Local Unit and the Don Carlo Gnocchi Non-Profit Foundation.

Dr. Gualerzi has worked as a medical instructor for many years, and in 2010 he founded the Health and Management Company that focuses on training: he personally teaches about 50 courses per year with an attendance of about 2,500 physicians, who are general practitioners, pediatricians and cardiologists. His courses focus on how to increase vigilance in the prevention of cardiovascular disease and how to administer the "drugs of the future," i.e. sports activities, balanced nutrition and positive thinking.

His training activities are not limited to the medical sector: he also organizes courses at various companies to teach staff about cardiovascular risks and how to live healthy.

He is the author and coauthor of several international scientific publications on the physiopathology of cardiovascular disease. In 2005 he published the book "Amici del Cuore," which is used in several cardiovascular rehabilitation centers. In 2011 he founded "Be Active Salute In Movimento," in Parma, a medical functional gym with about 350 members and more than 700 contacts per year. In 2012 he founded MedellAb, a company that deals with telemedicine.

"As a physician and a cardiologist, I had always been more interested in health rather than beauty, but through years of experience and hundreds of patients, I've realized that all too often it is difficult to differentiate them. If we assume that health and beauty are the visible results of an even broader concept—harmony—and are barraged daily by harmful factors such as stress, junk food, obesity and a sedentary lifestyle, then our exteriors are a consequence of what is going on inside our bodies."

MASSIMO GUALERZI



MARIUCCIA BUCCI
NUTRIDERMATOLOGIST

Mariuccia Bucci graduated in medicine and surgery at the University of Pavia. She is specialized in Dermatology and Venereology with honors.

From 1997 until 2005 Dr. Bucci was a medical consultant at the Dermatology Hospital of L. Marchesi clinic in Inzago (Milan). In 1999, she co-founded the International Italian Society of Aesthetic Plastic Regenerative and Oncologic Dermatology (ISPLAD) and currently serves as Vice President. She also serves as the Head of the Department of Cosmetology and CosmetoGenomics at ISPLAD.

For the past 13 years Dr. Bucci has been involved in the medical training of fellow dermatologists: she presently holds a professorship at the Masters Division in Plastic Dermatology at the University of Milano and the University Tor Vergata in Rome. Dr. Bucci also serves as a visiting professor of the postgraduate division in Nutrition and Health on the Faculty of Pharmacy at the University of Milano.

In 2007 she founded the Department of NutriDermatology, a new branch of Plastic Dermatology, which deals with NutriGenomics, NutriLipidomics, and NutriCosmesis. Specifically, she researches nutrient deficiencies of the skin and corrective interventions that incorporate diet and supplements.

From 2008 until 2012 Dr. Bucci worked with Ted Channel, a digital TV channel dedicated to long-distance medical and scientific updating and training. In 2010 she joined the Scientific Board of NutriLipidomics at Lipinutragen, a spin-off of the National Research Council in Bologna.

In 2012 Dr. Bucci became an Sa.N.I.S. Professor at the School of Nutrition and Integration in Sport at the University of Pavia.

Dr. Bucci is a member of the top associations in her field (SIDEMAST, AIDA, SIDCO, ADOI) and has been invited as a speaker at courses and national and international conferences. She is author and co-author of 98 Italian and foreign publications in scientific journals and is the dermatologist consultant for several weekly and monthly magazines. She also works as a scientific advisor for several dermocosmetic companies.

“The will to stay and appear youthful—one of the pillars of 21st century life—has spurred the development of new anti-aging strategies. The simultaneous use of different but complementary supplements and cosmetics containing biometric advanced actives allows us to approach skincare from many strategic fronts at the same time. Coordinating such mechanisms optimizes and accelerates the effects such products have on skin.”

MARIUCCIA BUCCI



FULVIO MARZATICO

PHARMACOLOGIST, PROFESSOR, UNIVERSITY OF PAVIA

Fulvio Marzatico was born in Orio Litta in 1954. He graduated with honors in Biological Sciences at the University of Pavia and specialized in Pharmacology there. He subsequently became Researcher in the same department.

In 1989 he was awarded a scholarship to study new techniques for investigation of cerebral blood flow in various conditions of stress by the National Research Council at the Department of Neurology and Neurosurgery at the University of California, San Francisco (UCSF).

Since 1992 he has been teaching Nutrition and Dietetics in the Department of Experimental and Applied Biology at the University of Pavia and since 2001 he has been teaching Pharmacology Applied to Physical Activity for the Physical Activity and Sports Sciences Department.

In addition to research, he has been teaching Human Nutrition in the Master's degree program at the University of Pavia since 2010 and taught Clinical Nutrition and Dietetics in the Master's Degree program at the University of Siena.

Dr. Marzatico is a speaker at numerous national and international conferences and has held many courses that focused on nutritional supplements for athletes, the connection between nutrition and aging and dietary supplements and cosmetics.

He is a member of the Italian Society of Nutrition, Physical Activity and Wellness (SINBEB), he has published many articles in national and international scientific journals, and he is the author of five books.

“We are what we eat, absorb and distribute. Nutrikinetics is a science that observes and describes the journey that active substances take to reach organs, and consequently, the skin. A diet rich in fruits and vegetables provides protection against degenerative diseases, and contributes to healthy intestinal flora and beautiful skin. The introduction of nutraceuticals, that is to say supplements, is key to receiving what might be missing in nutrition.”



JEANETTE BRONÉE, CHHC
NOURISHMENT COUNSELOR, META-MEDICINE COACH

Jeanette Bronée is an accomplished Nourishment Counselor and Health Advocate based in New York City.

As an ex-fashion executive and a woman in a high-risk category for breast cancer, Ms. Bronée knows first-hand about the importance and challenges of living a healthy, balanced life in today's busy world.

Ms. Bronée is driven by her passion to help others by shifting the paradigm of popular Western nutrition theory. She educates, inspires, and paves the way for our understanding of the fundamental role that food has as our medicine. It is the very tool we have within our power to achieve optimal wellness in not only the body, but also the mind and soul.

Founder of the Path For Life Self Nourishment Center, Ms. Bronée guides her clients, listeners, and readers to a greater self-awareness. She provides the knowledge that makes us able to make healthful choices, the motivation to take charge of our own health, and the tools to do so.

Ms. Bronée is a Board Certified Holistic Health Coach with the AADP, Certified Meta-Medicine Coach, Ericksonian Hypnotherapist, and EFT Practitioner. She is also certified in Connective Healing and Intuitive Counseling and trained in Macrobiotics and Energy Psychology.

Ms. Bronée is a highly regarded public speaker, author and contributing expert for many health magazines and publications. She relishes every opportunity to spread the word that we all have the ability to change our health and our life.

“Everything shows up on our face and skin. We can read the health of our inner organs; we see the emotions, the stress, and the overall vibrancy of a person on their face. Our inner nourishment and our outer nurture integrate into the wholeness of wellness.”

JEANETTE BRONÉE



ANTONELLA LATILLA

INTERNATIONAL SPA TREATMENT DEVELOPMENT
AND EDUCATION MASTER

Antonella Latilla is a natural researcher, scholar and investigator; she has been working in the field of aesthetics, beauty and body care since 1980. In 1997 she began collaborating with Comfort Zone and she has been instrumental in the development of methodology and training of hands-on treatments.

As a young woman Ms. Latilla discovered her passion for alternative medicines and the power of ancient natural remedies, natural preparations and phytotherapy. While treatment and healing of people are her main interests, her fascination with the connections between beauty treatments, well-being and emotional transformation brought her to the world of aesthetics.

During her training she broadened her horizons in the holistic medicine sector and combined her two passions by creating her own methodology. For the past 20 years, Ms. Latilla has gained vital experience at Kailash Kanan, a multidisciplinary center she founded. During this time her quest for knowledge and commitment to the professional community led her to work alongside leading international figures in search of new information and ways to better integrate Western and Eastern holistic cultures.

With great enthusiasm, Ms. Latilla has undertaken a journey of personal growth to develop dynamic communication skills that are enhanced by her natural power for deep emotional contact. She has a gentle and unique ability to touch the hearts of the people she meets.

Each massage experience is unique and it represents the opportunity for a meeting — the simplest and most intuitive way for communicating without the mind, without the use of words. The hands support, embrace, comfort, and stimulate—the skin, muscles and organs are lovingly moved towards healing. This time is used to regain a better understanding of ourselves, to take care of the temple we inhabit in this life. I am convinced that now more than ever this ageless tool is one of the easiest ways to improve our existence. Massage nurtures a stable ground for a healthier, more serene existence; it can help bring us closer to a life of harmonious longevity.

ANTONELLA LATILLA



utilizing advanced research to go beyond conventional limits



A PRIMER
ON THE
AGING
PROCESS

“A heart enamored o f beauty never ages.”

ANCIENT TURKISH PROVERB

WHAT IS AGING?

Forget for a moment about how to stop aging. Put any thoughts of a science-fiction-based vision of an immortality pill out of your mind. Let's think for a moment about aging itself. Aging is part of everyone's life and many of us associate graying hair, wrinkles, and more aches and pains with each passing year as the main aspects of growing old. But what is actually happening in our bodies? What is the biology of aging in our cells? First of all, everyone agrees that aging is more than the simple passing of time, and no scientist or doctor thinks there is a single cause of aging. The rate of cellular aging can vary from person to person but it is inescapable that over time, the abilities of our cells change with age.

What scientists do know is this: over time your DNA accumulates damage; like it or not, this is just a normal process. Your DNA suffers millions of damaging events each day. Most of this damage is harmless and has few consequences. What's more, our cells have devised clever mechanisms to repair DNA damage and, by and large, these mechanisms are working well into old age. Still, some of the damage that occurs escapes repair. Scientists that research the aging process believe that over many years, this accumulation of unrepaired DNA has important consequences. What they are still trying to figure out is whether or not these changes in DNA repair mechanisms that come with aging also contribute to the onset of aging. It seems likely that the accumulation of mutations may contribute to aging by affecting essential genes.

Our body's ability to regenerate tissues, fight off infections and efficiently rid the body of toxins is crucial for healthy survival. The big question is this: Can we help our bodies function at their best if we alter our behaviors like diet and exercise habits? Many researchers believe this is possible.

In the sections to follow, you'll learn about four primary cellular processes—oxidation, glycation, methylation and inflammation. In one way or another, these vital cellular processes influence the way in which our bodies age. Each contributes to, or is caused by, something that scientists refer to as metabolic stress. Over time, continual metabolic stresses slowly chip away at our body's ability to function in the most efficient, healthful way possible.

Keep in mind that aging is not just about how we look. This isn't an issue of vanity. As we age we are at greater risk for sickness and disease.

Our goal is to help everyone to learn about what supports healthy aging and highlight efforts we can make to prevent or delay the onset of age-related disease and decline.



ASTRONAUTS & AGING

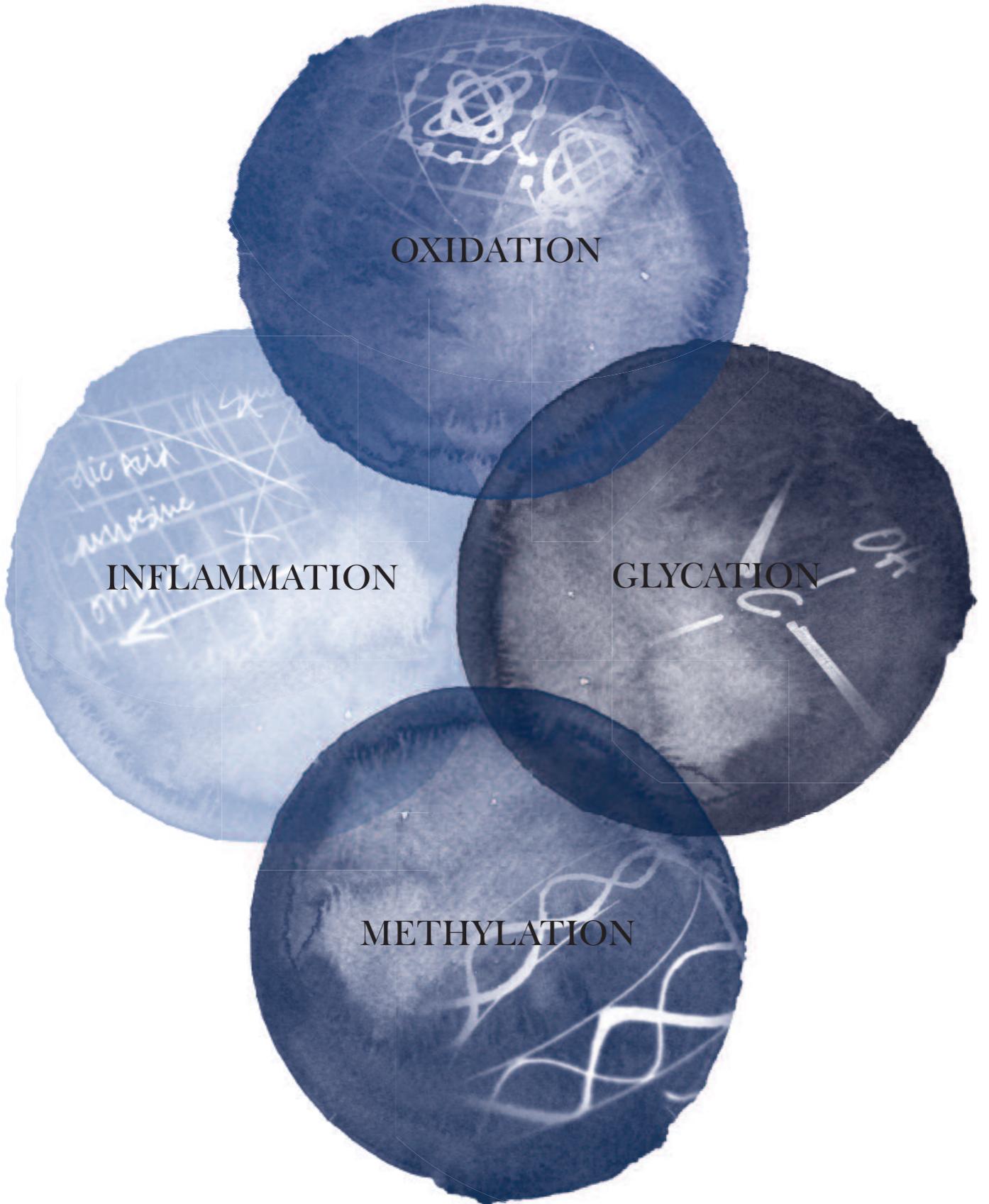
Believe it or not, some of the most surprising and helpful test subjects in the world of anti-aging science and medicine are astronauts. Enclosed in a space station orbiting Earth at 28,000 km/h, astronauts are exposed to a larger than normal amount of oxidative stress and as a result, they age at an accelerated rate compared to those of us walking around on Earth. Physicians who have had the opportunity to take care of astronauts' health before, during, and after space flight have experienced firsthand this intense and unique way to confront the issue of aging.

Think about the day-to-day life an astronaut. They are devoid of their family life, enclosed in confined spaces, they are without sunlight, they only eat artificial foods, there is no privacy, they are exposed to high doses of cosmic radiation and above all, they live in the absence of gravity. Astronauts undergo an enormous physical challenge; it is the basis of the accelerated aging that affects them.

Within the first few weeks of life in a zero gravity environment, muscle begins to atrophy and astronauts lose a significant amount of strength. The heart muscle shrinks and total blood volume is reduced. Because a body in near-weightlessness does not need to be supported as much by the skeletal system, the body slows down the process of regeneration and the rate of mineral loss from bones becomes accelerated, upsetting normal bone health and leaving astronauts at greater risk for fractures.

Astronauts are extremely inactive: no force of gravity offering resistance to muscles is like lying in bed all day and night. The cardiovascular system does not have to work very hard to move blood around your body. The overall experience is like a sped up version of what decades of aging do to the human body; as we grow older the same processes are at play—bone mineral loss, loss of muscle strength and mobility. To help slow down this aging process in space, guess what astronauts need to do? Exercise! The International Space Station is equipped with various gadgets and equipment to simulate gravity-based exercise on Earth. Astronauts living there do 2.5 hours of exercise six days a week just to try and stay healthy.

You probably never thought that humans on earth had very much in common with humans in space. But a sedentary, indoor lifestyle filled with all kinds of noise, stress and poor diet—hallmarks of our modern lives—makes us all in a way similar to astronauts at risk of many degenerative diseases after the sixth decade of life. In spatial medicine there exist countermeasures such as medicinal, psychological and dietary intervention that prepare the astronauts' body for flight, ensuring maintenance of function during their stay in space as well as the quickest recuperation possible upon return to Earth. The system works well and has allowed hundreds of astronauts to live safely in space. This model of personalized preventive care aimed at compensating a particular condition of life is exactly what we all need even here on planet Earth.



THE FOUR KILLERS THAT ACCELERATE THE AGING PROCESS

There are four very important cell processes that are correlated with DNA damage and aging of the skin: oxidation, glycation, methylation and inflammation.

These natural biochemical processes are carried out simultaneously in a continuous cycle. When the process is disrupted, a series of chain reactions capable of damaging all parts of cells, proteins, lipids and DNA is set off. As a result, cells lose homeostasis, balance, function, and start to age. In addition, the body is more susceptible to certain diseases and the skin visibly ages.

OXIDATION

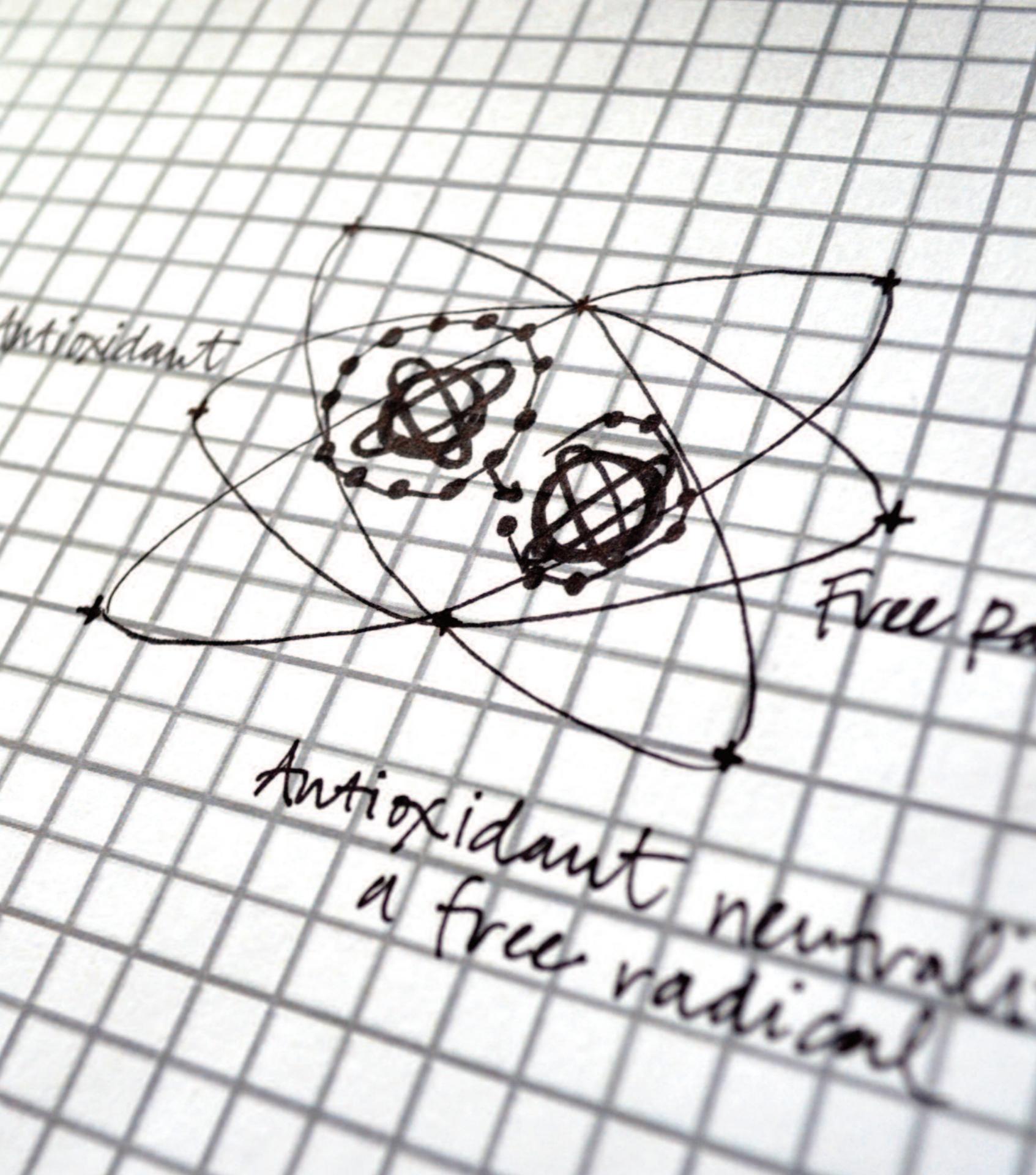
Every minute of every day, the cells in our body generate huge quantities of molecules called free radicals.

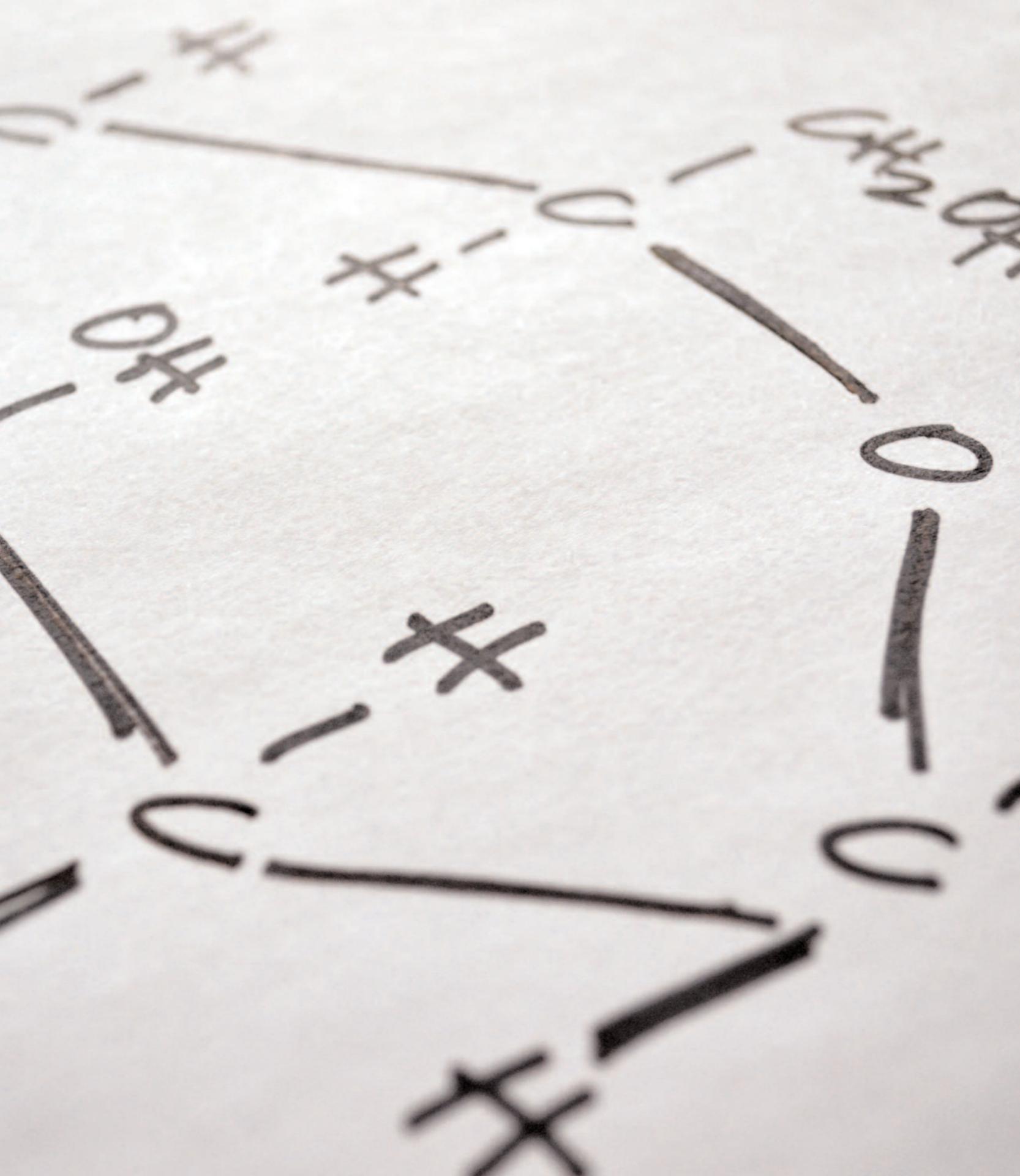
Free radicals are unstable molecules that contain unpaired electrons. Electrons prefer to be paired up with another electron in order to have a balanced electrical charge, so free radicals will snatch or steal electrons from nearby molecules in order to create stability. This phenomenon of stealing electrons is called oxidative stress. No, this is not a defect, it's just a natural process that takes place, a direct result of breathing oxygen and eating food that our cells use to generate the energy that keeps them functioning. For the most part, the human body does an excellent job of keeping free radicals in check. Our body is naturally programmed to fight against free radicals with an antioxidant system that can also be reinforced if we provide additional antioxidant agents.

Still over time, as we age, the body's ability to control oxidative stress becomes slightly less efficient. In addition to this natural oxidative stress, our habits and activities in our daily lives can contribute to even more oxidative stress. Smoking cigarettes, exposure to UV sunlight, and environmental toxins also lead to the production of free radicals in the body.

So what does any of this have to do with your health and appearance? Free radicals are part of a cascading mechanism that causes damage to molecular structure. For example, when free radicals attack the different layers of our skin, they speed up the formation of wrinkles and other imperfections. But there is also damage we don't see, like changes in the macroscopic and microscopic structures of our body in a sub-clinical way.

When free radicals cause damage to lipids of cellular membranes, the defensive barrier is harmed. Such oxidation induces inflammation and causes early-onset aging. Free radicals also oxidize DNA and RNA—essentially, what constitute our genetic makeup—provoking mutations within the genetic code itself. Finally, during oxidation, structural (hyaluronic acid, collagen, etc.) and regulatory proteins are oxidized, causing structural and functional damage to our bodies—including our skin.





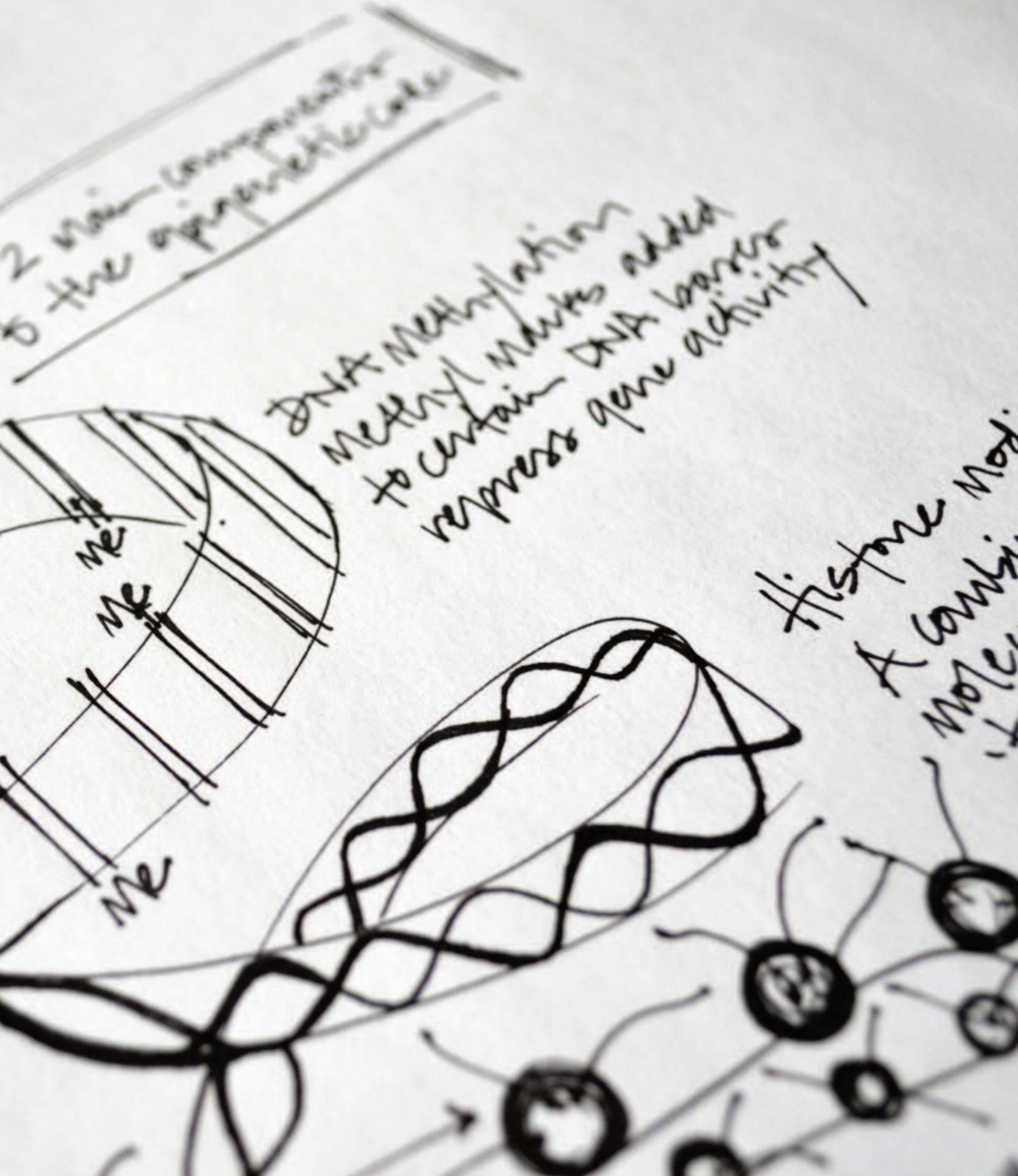
GLYCATION

At its most basic level, think of glycation as a sneak attack by sugars. When you eat sugar or refined carbohydrates, the body turns them into glucose. High levels of blood glucose in turn create sugarcoated proteins, which go on to form Advanced Glycation End-products (abbreviated as AGEs for short). These AGEs complexes latch onto receptors and alter the chemical properties of proteins, lipids and DNA. Their presence can lead to stiffening of protein fibers. At the skin level, the most macroscopic damage occurs to the extra-cellular matrices, directly affecting collagen and elastin, causing these essential molecules to lose their characteristic plasticity, becoming rigid and giving way to the formation of wrinkles and reduced capacity for healing.

The reason we don't see the harm when we're young is because our youthful bodies have more defenses to block the damage, plus we produce more collagen when we are young. But by the time you enter your 30s, you've had decades of harmful exposure to AGEs, UV rays and air pollution. This is around the time many people start to see the formation of age spots and darkened areas on their skin.

Damage from glycation isn't limited to your skin. The degenerative process accompanied by glycation compromises the function of bones, tendons, cartilage, teeth, muscle and the cardiovascular system. Research has also shown that chronic high levels of blood glucose could increase your chances for developing diabetes and heart disease—in other words, a decrease in your longevity.

Even though we can't eliminate sugar completely from our diets—we need glucose to live, it's an essential fuel for our cells—making better lifestyle choices can help. Eating fewer sugary foods that contain white sugar (or high-fructose corn syrup) and refined carbohydrates is key to helping your body and your skin. Another spot of good news? Now that researchers know that glycation is a primary cause of skin aging, anti-aging creams are formulated with compounds that fight AGEs and aim to stimulate the fibroblasts to build new collagen.



METHYLATION

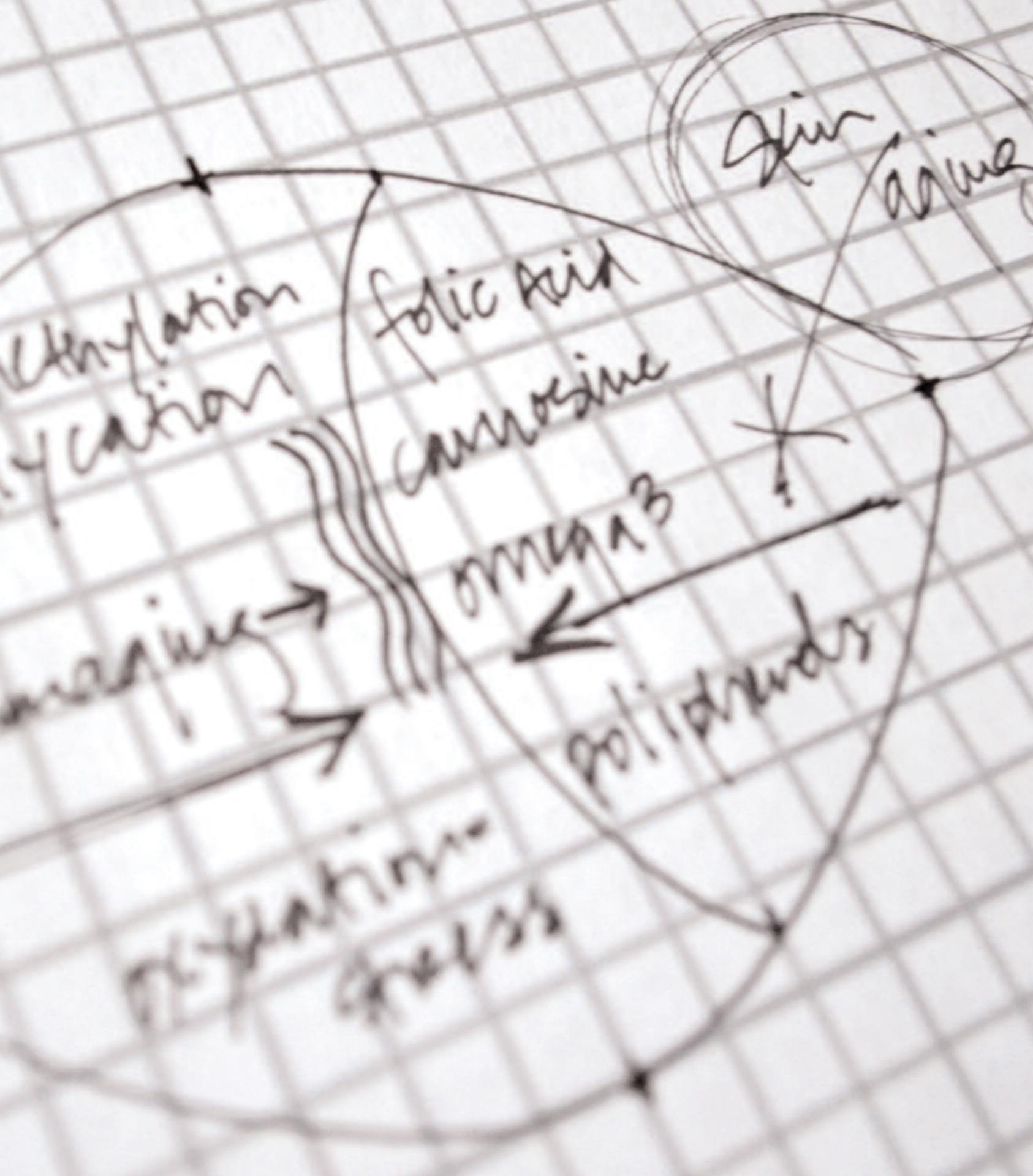
The human body has evolved to create a wide variety of biochemical cycles that take place in our cells; the main purpose of these cyclical reactions is to replenish the molecules needed to sustain life. Methylation is just one of these essential processes; it's happening right now in your cells, billions of times per minute. It's essential for the proper function of almost all of the body's systems.

Methylation influences which genes are activated and which are not. It is a biochemical process essential to maintain the functionality of cells. Vitamins, hormones, neurotransmitters and antibodies work only if methylation occurs correctly. Unfortunately, as we age methylation becomes less effective. The result is an increase in opportunity for poor cellular function and disease.

So, how does it work? It's a complicated process but here are the basics: during methylation a methyl group, which is comprised of one carbon atom and three hydrogen atoms, gets added to a specific spot on our DNA. But where do the methyl groups come from? We get them from nutrients and Vitamin B6, B12 and folic acid in particular, which have a fundamental role in cycles that regulate methylation.

If a person's diet lacks sufficient levels of proper nutrients, B vitamins and folic acid, the methylation process will not function properly (the reason is because without proper dietary intake, there are not enough methyl groups in your body to make methylation happen). This leads to disease and poor health, and the result is an increase in blood levels of homocysteine. Doctors use blood levels of homocysteine as a way to tell if methylation is functioning properly.

Aside from an unhealthy diet, researchers have also discovered that a sedentary lifestyle—not getting daily exercise—may also contribute to poor methylation. Faulty methylation is also known to lead to high levels of homocysteine (an amino acid in the blood). Elevated levels of homocysteine are a risk indicator of numerous illnesses, including cardiovascular disease. Sustaining the process of methylation through healthy eating and exercise is vital for health and longevity.



INFLAMMATION

These days almost anyone interested in reading about health and wellness is coming across pages and pages of unflattering articles written about the process of inflammation.

But beyond the buzz of newspapers and magazines is the fundamental fact that (despite all the negative press) inflammation is one of the body's most important defenses against infection and trauma. Think of it as your own personal superhero protecting you against invading viruses and bacteria.

It comes to the rescue when we fall down and scrape a knee or break a leg in a cycling accident. Without inflammation bruises and wounds wouldn't heal. When we accidentally cut ourselves with a knife while chopping vegetables, the inflammation response directs more blood flow to the area of the injury; this includes white blood cells, which fight off infection. Doctors refer to this as acute inflammation.

But just like many comic book superheroes, inflammation can have a dark side: when beneficial acute inflammation becomes chronic inflammation, it can actually fight against perfectly healthy cells and cause disease. When this happens, inflammation becomes a negative force with regard to health. Medical researchers have learned that inflammatory processes, especially chronic inflammation, have been associated with a number of serious chronic illnesses: cardiovascular disease, osteoporosis, Alzheimer's, muscle wasting, diabetes, and frailty. This negative response means that inflammation may be an important contributing factor in the damage and deterioration associated with aging.

The real mystery is whether or not inflammation is a response to aging or a cause of it, or paradoxically, both. Aging is characterized by a chronic state of slight inflammation tied to both genetics and the individual development of immune system responses. In the long run, this inflammatory process may compromise organs and reduce longevity by increasing sensitivity to certain risk factors.

This fact makes inflammation a silent threat that grows stronger day by day. And even though it is asymptomatic, it may be potentially more dangerous than we'd ever thought. One of the main ways to combat chronic inflammation is through healthy lifestyle habits: focus your efforts on relaxing your mind, getting regular exercise and eating foods that contain anti-inflammatory compounds (like vegetables and nuts). Think of these habits as your very own team of superheroes to help you be as healthy as you can be.

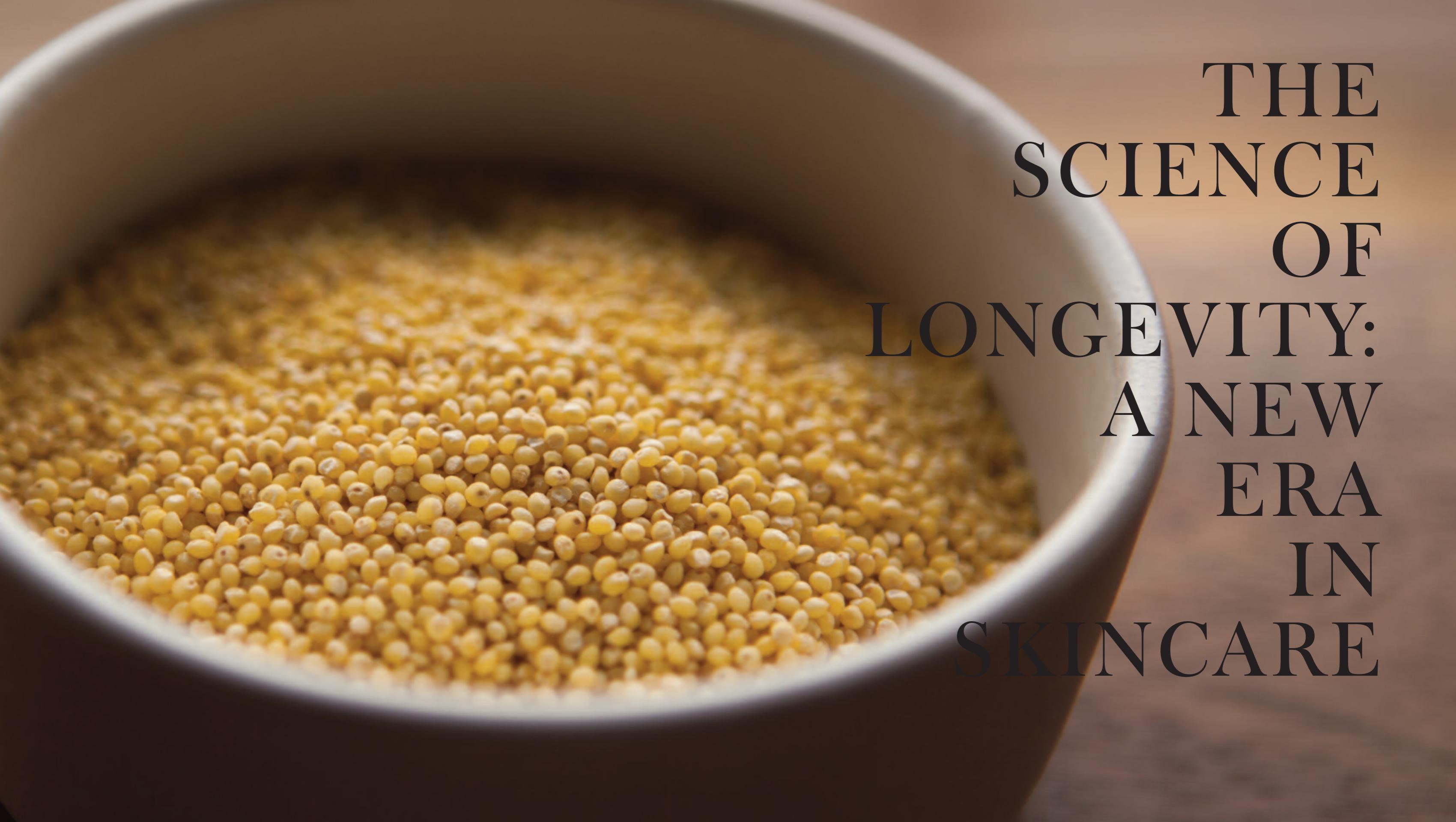
LIVING LONGER (AND SICKER)

A recent look at global health and wellness by dozens of researchers from 50 countries revealed both good and bad news: nearly every country in the world is showing an increase in life expectancy in men and women and a lower mortality rate for children than any other point in history. The bad news? More people are suffering from illness and disability as they grow old.

We've conquered many diseases thanks to modern medicine that is constantly more refined and technology-based. This trend is expected to continue, bringing about more sophisticated cures that will keep us alive for longer than we ever hoped. However, the nature of diseases will continue to change and humans will face new threats. If in the past we died from infection and wounds, today we fall ill and live in the precarious condition of chronic disease. The causes are multifaceted and find their roots within our lifestyles—the friction between our biology and the world in which we live. Phenomena such as inflammation, stress and weight gain used to ensure our survival but now have turned into silent enemies that, unbeknownst to us, ravage our bodies. When we finally begin to treat these conditions, it is usually too late.

Slowly making changes to lifestyle habits and understanding how the choices we make each day influence our health and well-being is essential. The next section aims to shed light on one of our more neglected organs: the skin. Many people don't realize that efforts we take to keep our body healthy can also keep our skin healthy. Today, we now know that there are specific lifestyle habits that benefit skin integrity.





THE
SCIENCE
OF
LONGEVITY:
A NEW
ERA
IN
SKINCARE

Imagine for a moment a longevity diet for the skin. A regimen that includes both topical and oral components that perfectly complement one another and give the skin the most essential biological ingredients it needs. Imagine an integrated approach that not only benefits the way you look, but enhances the way you feel, inside and out.



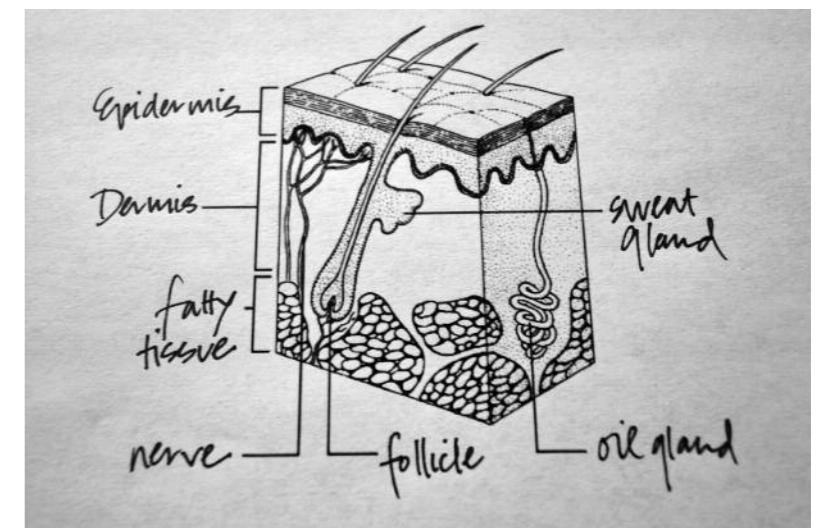
WHAT MESSAGE IS YOUR SKIN SENDING?

What is our true age? Is it determined by birthdays or by how others perceive us—observing our imperfections and focusing their gaze on our wrinkles? How curious it is when we notice that sometimes individuals appear to be so much younger or older than their age. Of course, our chronological age is simply our age in years. Biological age, on the other hand, is our age at a cellular level—how well (or not) the cells of the body function. Lifestyle choices like years of eating junk food, smoking and never exercising can lead to faulty cellular function. The consequence of this can be cells that perform as if they are much older than they are.

More than any other organ, our skin shows the first signs of aging. Skin tells no lies; it reveals each and every secret—and indulgence! Inevitably, pigment marks, wrinkles, loss of color, pallid tone and saggy skin will all become evident signs of aging. However, skin does not only “talk” to others. It speaks to us as well—it is the expression of our deepest and most intimate emotions and indicates our state of well-being. When these signals are correctly interpreted and cared for, the result is much more far-reaching than just healthier skin.

A flaw in our skin may not just be an unfortunate imperfection. Perhaps it's the sign of a deeper, more worrisome issue. If we limit ourselves to only treating external flaws—even by highly effective cosmetics—we run the risk that such a fix never extends deeper than the surface. By not understanding the causes behind the problem, it's highly probable that it will surface again. What to do? Understand and identify the underlying issue by studying the skin's relation to the body as a whole.

All too often we only think of skin as the stuff responsible for containing and protecting our bodies—a shell unto itself that exists without playing an important role in our health and well-being. Instead, the opposite is true: a healthy mind and body includes every part of us—even our skin!



A CLOSER LOOK: UNDERSTANDING THE LIFE OF YOUR SKIN

Before we delve deeper into the scientific study of skin and the fascinating world of cosmetic research, let us take a moment to get to know the life cycle of this often-neglected organ. Skin is comprised of complex tissue; its main function is the body's defense. Everyone knows first hand the downside of getting older, but how does aging influence the skin? As years go by, our epidermis is slower to regenerate itself and is increasingly affected by the slowing migration of keratinocytes (epidermis cells). Skin loses elasticity and tone, becomes fragile and forms wrinkles. Within its outermost layer, skin loses natural moisturizing factors and other components of the lipid barrier. As a result, skin is dehydrated and loses its softness. The dermis/epidermis relationship breaks down—the dermis is no longer able to efficiently transmit nutrients to our skin's outer layers. The levels of collagen and elastin—the skin's two most important structural proteins—within the dermis decrease and the dermis matrix deteriorates. Think of the dermis matrix as the scaffolding that holds everything together: by losing its "structural support," skin becomes slack and is less elastic.

Skin aging is a natural biological process characterized by a progressive reduction of the skin's normal functions as well as its ability to repair itself. This means more susceptibility to diseases and damaging environmental factors. In short, aging brings about changes to both the skin's structure and chemical composition. There are likely two independent forces at work that explain the complex mechanisms of aging: a person's genes—the genetic code that they have inherited from their parents—and the environment, that is to say, the day in and day out exposure to agents or substances that cause structural and functional damage. This explains the difference between chronological age written on our passport and biological age written on our skin.

HIGH-TECH COSMETICS TO THE RESCUE?

The current world of cosmetics is enjoying new life thanks to the use of biologically functional ingredients capable of influencing the body's own mechanisms that influence skin aging. Scientists in the beauty industry have recently begun to formulate a new generation of high-tech molecules that can become part of the skin's own biological pathways. Here's the best part: these advanced, science-based formulations are now accessible to all.

These new generation cosmetics are not only more efficient with respect to traditional products but they also have more specific uses. Thanks to a multitude of cutting-edge laboratory techniques that are continually being perfected, the new compounds are able to be more target-specific.

For example, new anti-wrinkle agents with firming properties are now tested in fibroblast cultures (dermis cells): Through laboratory testing, researchers evaluate the lifespan of activity and whether or not there is new synthesis of collagen taking place. Back in the 1980s, researchers erroneously believed that using collagen (an enormous molecule incapable of penetrating the epidermis layer) in facial creams could prevent wrinkles. Today, however, we have cosmetics formulated with molecules called micropeptides, which are highly specific and capable of not only penetrating the epidermis but also stimulating fibroblasts (tissue fibers) in order to synthesize a higher quantity of natural collagen. Such micropeptides are called "biomimetic peptides" and represent new innovation within the ever-evolving, high-tech generation of cosmetics.

LOOKING DEEPER: HOW THESE NEW COMPOUNDS WORK

Peptides are efficient due to their small size and their highly specific functions. There is a special category called biomimetic peptides that are made from the synthesis of amino acids that actually "mimic" the actions of a natural protein within the active amino acid chain. For example, acetyl hexapeptide-3 is a hexapeptide comprised of six "botulinum-like" amino acids that mimics the Botulinum Toxin Type A.

Other biomimetic peptides of great cosmetic interest are those that mimic the actions of certain natural cutaneous proteins. One example is palmitoyl tripeptide-5, its activity is related to its shape and not to its concentration. The shape allows the peptide to strongly bind to a special receptor and to stimulate the production of collagen.

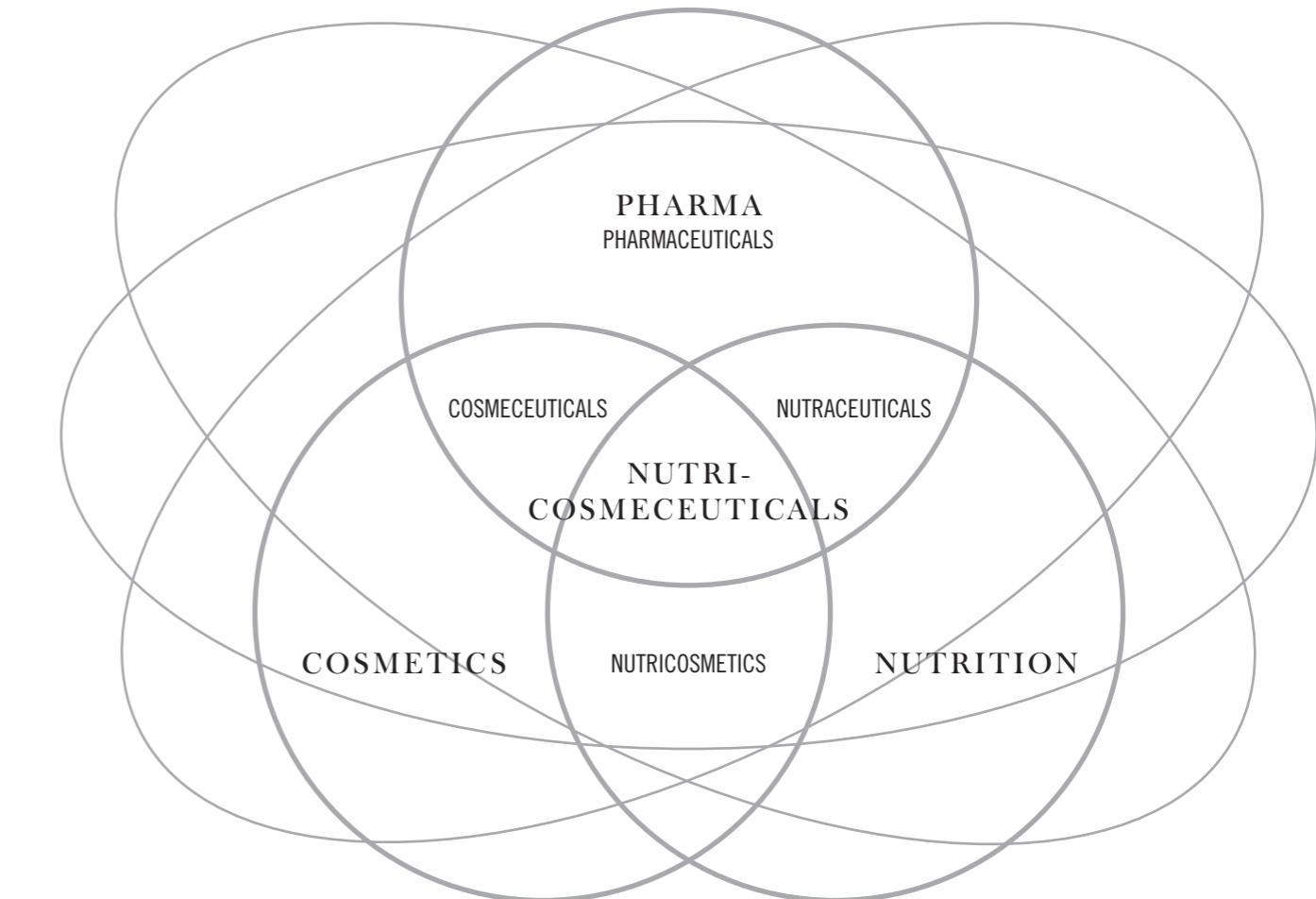
There also exist synthetic peptides that accelerate the re-growth of our skin's interconnecting scaffolding layer. Among these is the hexapeptide-10 that attaches fragments of laminin, an important component of the connection between the dermis and epidermis. Laminin is important for the integrity of the extracellular matrix because it acts as a receptor of integrin and collagen type VII and controls the adhesion of keratinocytes.

These peptides may also have a stimulating effect on biological processes and influence growth factors, promoting healing and stimulating growth of blood vessels (angiogenesis), fibrous connective tissue (granulation tissue) and collagen growth.

SAY HELLO TO COSMECEUTICALS

Today, cosmetic science researchers are focusing their efforts on creating biologically active ingredients known as "cosmeceuticals"; the hope is that they may prevent or treat (both long and short term) skin imperfections with a much higher degree of efficiency. This area of research embodies the evolution of the traditional cosmetic product—a technologically innovative formula that acts as an optimal vehicle for biologically active ingredients.

The advent of cosmeceuticals has coincided with the creation of a multifaceted cosmetic program aimed at delaying the cellular and tissue aging processes by utilizing a pool of antioxidants and advanced ingredients. This represents the evolution of traditional cosmetic formulas enhanced by technologically innovative textures able to deliver high concentrations of functional agents. Today, a daily application of cosmeceutical serums and creams has become an indispensable anti-aging treatment.



PHARMACEUTICALS

Drugs (Greek: *pharmakon*) that treat, prevent or alleviate symptoms of disease.

NUTRACEUTICALS

Orally-administered nutritional ingredients with claimed target-related bioactivity that provide functional and/or health benefits beyond the basic nutritional function.

COSMECEUTICALS

Topically-applied cosmetic ingredients with claimed target-related bioactivity that provide advanced functional benefits beyond the basic cosmetic function.

NUTRICOSMETICS

Orally-taken cosmetic ingredients with claimed target-related bioactivity that provide functional benefits beyond the basic cosmetic function.

NUTRI-COSMECEUTICALS

An integrated area of cosmeceutical skin care and nutricosmetics for the health and beauty of the skin.



Our skin is our largest organ.

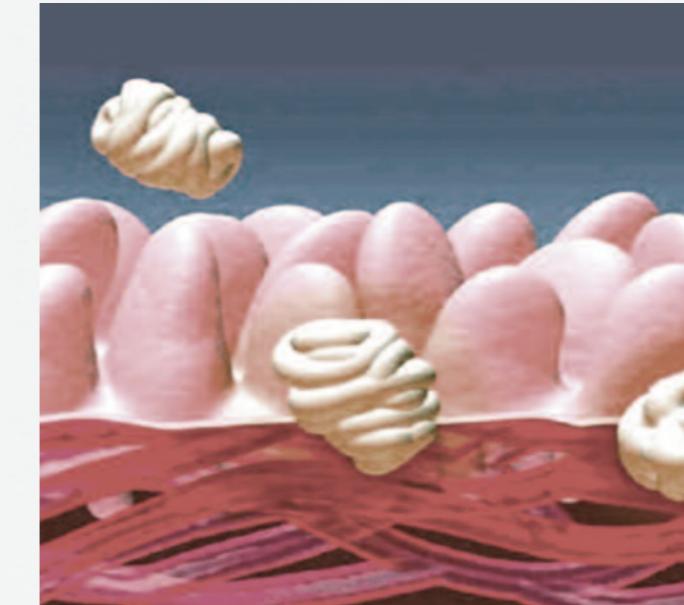
We think of the skin as something that is on the outside, but it is in fact a reflection of what is going on inside, both physically and emotionally.

WHAT THE FUTURE HOLDS: INTRODUCING NUTRICOSMETICS AND SUPERFOODS

Over the years, beauty treatments have been contained in many forms, from creams to drinks to capsules. Of course treatments will always come in an array of forms, but as the field of cosmetics evolves, researchers are predicting a trend towards a more universal approach. Enter the world of nutricosmetics, a term that derives from the combination of the words "nutrients" and "cosmetics." The overarching goal is to harness the power of nutrition and strategically formulated dietary supplements. Put more simply, if you feed your body with all the healthful ingredients it needs, your outside will positively reflect your overall health and well-being.

INSIDE & OUT

Along with nutricosmetics comes a new concept of beauty. Understanding the key forces guiding the development of this category is vital: these factors include the fact that people are living longer, there is greater concern for the environment, interest in less invasive cosmetic procedures is on the rise, and spa culture continues to grow. The principle target group for nutricosmetics are women and men over the age of 40 who are particularly interested in well-being and personal esthetic beauty. As the category evolves, anti-aging and antioxidant ingredients are further enhanced by "super fruits" such as pomegranate, acai, blueberries and goji berries—all recommended for health and beauty. There is also the belief that current cultural trends may move younger women and men to embrace nutricosmetics: these products are generally less harmful to the environment and tend to overlap with many aspects of natural products, a booming retail market.



BIOAVAILABILITY

Doctors and nutritionists correctly remind us all the time to eat many servings of fruits and vegetables each day because they are full of vitamins, minerals and phytochemicals that are essential for our body to maintain optimal health. The more often we eat these healthy foods, the more likely our body will be able to extract and absorb the essential nutrients that they contain. But here is a surprising fact that many people do not know: the human body is not 100% efficient at obtaining all the nutrients that exist in certain foods. This can be summed up in the concept of bioavailability: that is to say, how much of a particular nutrient in a food item is absorbed by the body and used in cellular processes. For example, let's talk about carrots, which are rich in beta-carotene. The amount of beta-carotene (which our cells use to make Vitamin A) that is bioavailable varies from around 5% to 40% depending on whether or not that carrot is raw or cooked (believe it or not, the body absorbs more beta-carotene from cooked carrots). Without going into all the chemistry, ease of bioavailability is related to the molecules that make up a particular food. In the case of carrots, their structure contains a matrix comprised of complex digestible (and indigestible) polysaccharides and proteins, which influence the bioavailability of the beta-carotene.

Most people who are healthy and are eating all the recommended servings of fruits and vegetables generally do not suffer nutrient deficiencies. But for anyone who is ill or elderly, their body has an even harder time absorbing all the nutrients it needs. The same can be said for anyone who misses meals or has a lot of stress in their lives. Other habits like smoking and excessive drinking can diminish the amount of vitamins that the body can absorb. For all of these people, and there are millions of them, it's sometimes recommended to take supplements. Vitamin pills for example help the body to maintain the optimal level of a particular nutrient. They are created so that it's possible for a nutrient to arrive where we want it to arrive, and in the right amount.

This same concept of bioavailability can also apply to topical cosmetics. After all, we want the beneficial ingredients to seep into our skin and do their job where they are needed most, right? Functional cosmetics, as they are called, are engineered specifically with active ingredients that can be absorbed and used by our cells. The goal is to help our own natural systems to do their job as best as they can.

1 Take an integrated approach.

The strength and popularity of nutricosmetics is attributed to the belief that beauty “starts from within.” Nutricosmetics have become particularly popular in China, Europe and Japan—and wherever the fundamental belief of “you are what you eat” is practiced along with diverse traditions involving diet and its impact on beauty. This simple yet powerful notion aims to get the most out of living a positive, health-filled life.

2 Treat your body beautifully inside and out.

Nutricosmetics often contain ingredients derived from vitamins, minerals, botanical extracts and antioxidants and come in pill, syrup or food form. Food and drink sold as beauty products are a relatively new concept and represent the first step towards functional nutrition, a new innovation within the field of cosmetics.

Orally consuming substances that affect the skin has many advantages. Essential active ingredients that are unstable, difficult to absorb or hard-to-formulate in traditional cosmetic forms may be taken in capsule form. On the flipside, the supplements must pass a number of obstacles to reach their goal: from the digestive tract they have to go into the bloodstream and are only then distributed biologically to the skin, surviving deterioration during their “trip.” Once all barriers have been passed, the intact molecules penetrate the skin starting from the deepest layers and working themselves towards the surface.

There exists a complementary relationship between nutriceuticals and topical treatments used for caring for the skin. This synergy exists between functional substances applied topically (creams) on problem areas and other products that are effective from the inside out in order to correct health deficits or restore altered conditions or functions.

3 Go the extra step.

We like to refer to certain critical, natural compounds as “extra vitamins.” Two interesting examples of an extra vitamin are phytoene and phytofluene: they are carotenoids characterized by their lack of color and their ability to absorb ultraviolet rays.

Within the vegetable world, over seven hundred different types of carotenoid molecules have been discovered, each having its own biological origins and properties. One particular carotenoid that currently proves interesting—not only for its antioxidant capabilities for skin but also appreciated by doctors for its anti-inflammatory properties and its ability to protect humans from UV rays—is astaxanthin. For this reason, many new cosmetics and supplements have been formulated with astaxanthin to strengthen skin defenses and to protect against sun damage.

4 Slow it down.

With the passing of time, the concentration of antioxidants within skin diminishes, making it increasingly important to consume the right foods or use supplements. Research has shown us that skin samples from elderly people are more vulnerable to accumulations of oxidized proteins (from oxidative stress) because they are no longer capable of removing them as efficiently as skin samples from younger individuals. What if we could slow the process down?

Astaxanthin is an excellent antioxidant, and thanks to its special chemical structure, it can insert itself into the cell membrane, thereby stabilizing and protecting it in a more efficient way than other antioxidants. In addition, it has biological functions much like that of other carotenoids (lutein, zeaxanthin, beta-carotene and lycopene). Its molecular structure explains its high potency (500 times more potent than vitamin E and 10 times more potent than beta-carotene). A natural organism with the most abundant levels of astaxanthin is a micro-algae (*haematococcus pluvialis*), which synthesizes large quantities of astaxanthin to protect itself from UV radiation.

A number of clinical trials have demonstrated that when taken orally, astaxanthin reduces wrinkles and helps maintain skin elasticity and hydration.

A NEW ERA HAS ARRIVED

CREATING AN ANTI-AGING DIET FOR THE SKIN

The will to stay and appear youthful—one of the pillars of 21st-century life—has spurred the development of new anti-aging strategies. Topical application of active substances has the advantage of coming into direct contact with the affected areas and showing their effectiveness rather quickly.

The simultaneous use of different but complementary supplements and cosmetics containing biologically active compounds allow us to approach skincare from many strategic fronts at the same time. Coordinating the various mechanisms will optimize and accelerate the effects such products have on skin. By combining a cream with an oral supplement, an individual may obtain total synergy towards significantly bettering his or her skin's tone, color, hydration and elasticity.

Four key actions are needed: a deep cleansing phase from external pollutants, an intense renewing phase to stimulate the skin's ability to regenerate and absorb functional ingredients, an intensive protective/corrective action phase and finally a structure-enhancing nourishment phase. Innovation can deeply favor this with the introduction of switch technology: last generation switch creams, once applied, change from a lighter to a richer texture creating a sort of second skin, which prevents loss of water and provides a functional shield against external aggressions.

Useful strategies for maintaining healthy skin must meet a series of goals. The skin's outermost layer must be normalized using serums and substances with keratolytic action—that is to say, products capable of penetrating the outer layer and stimulating the growth of new cells. This may be obtained by exfoliating (using scrubs with microgranules) or chemically through “preparatory” cosmetics containing alpha hydroxy acids (present in nature in fruits) like citric acid (in citrus fruits), malic acid (in apples), lactic acid (in milk), tataric acid (in grapes), glycolic acid (in cane sugar) or beta hydroxy acid like salicylic acid, polyhydroxy acids or vitamin A derivatives. At determined pH concentrations, these ingredients exfoliate the skin and serve to help a new, more youthful and compact layer form itself. Surface exfoliation can be done before application of “activators” or serums concentrated to enable deep penetration of the skin by larger or more “clumsy” molecules.

The right level of hydration must be re-established by reducing trans-epidermal water loss, or water in the form of vapor that seeps out from the dermis towards the skin's outermost layers, affecting the body's temperature equilibrium. The intensity of this change depends on the skin's thickness and the integrity of the proteins and lipids within it that serve as a barrier.

Proper skin hydration—taking into account both the epidermis and the outermost layer—is fundamental and possible only if the skin's innermost layers are sufficiently hydrated and able to retain water at a normal capacity. In essence, a multi-level biological approach must be taken to regulate and maintain optimal hydration.

Within the dermis, where molecules of water are attached to structural proteins (mostly to collagen) and other shapeless components, hyaluronic acid is called into action. Its glycosaminoglycans, formed by long chains of polysaccharides, capture and hold water, acting as veritable “biological sponges.”

Within an epidermis that lacks hydrolipid film and has deteriorated intercellular links, there is an increase in trans-epidermal water loss. Surface-renewing moisturizers like glucono delta-lactone (thanks to their molecular shape) help to keep the hydrolipid film intact; hyaluronic acid helps to moisturize the skin's surface and keep it moisturized.

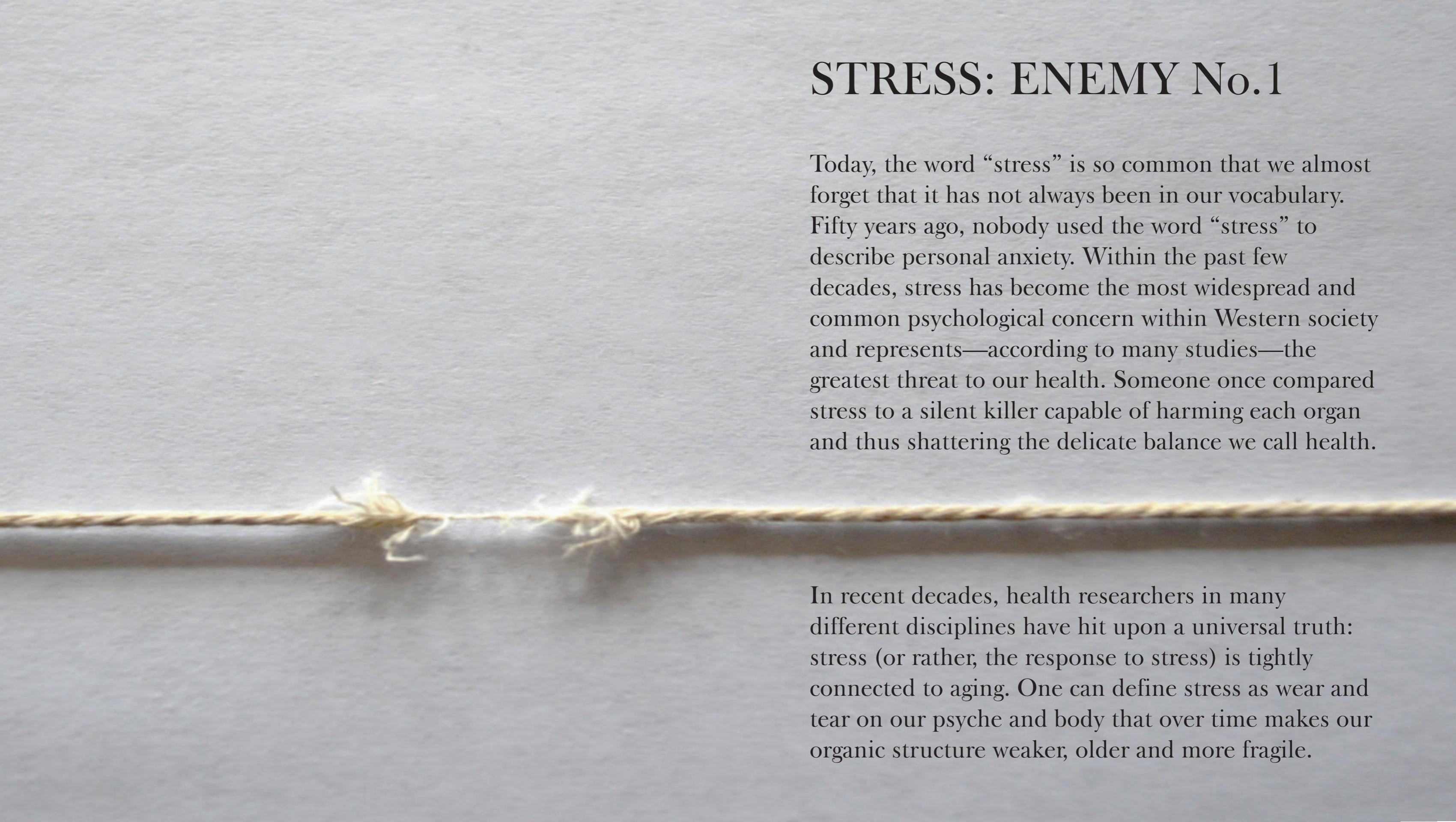
Finally, as time passes, skin tone loss is inevitable, therefore a skin structure enhancing action is needed. This can be obtained by stimulating collagen through biomimetic peptides and maslinic acid, a newly extracted molecule from olives, which also has anti-free radical properties.

THE BEAUTY/ HEALTH CONNECTION



It is impossible to research beauty without investing in the care of what's going on inside the body. Today our health is constantly at odds with the world in which we live. Ever more frenetic and complex, modern life is a toxic agent capable of degenerating, inflaming, oxidating and aging our body much faster than it should.

STRESS: ENEMY No.1



Today, the word “stress” is so common that we almost forget that it has not always been in our vocabulary. Fifty years ago, nobody used the word “stress” to describe personal anxiety. Within the past few decades, stress has become the most widespread and common psychological concern within Western society and represents—according to many studies—the greatest threat to our health. Someone once compared stress to a silent killer capable of harming each organ and thus shattering the delicate balance we call health.

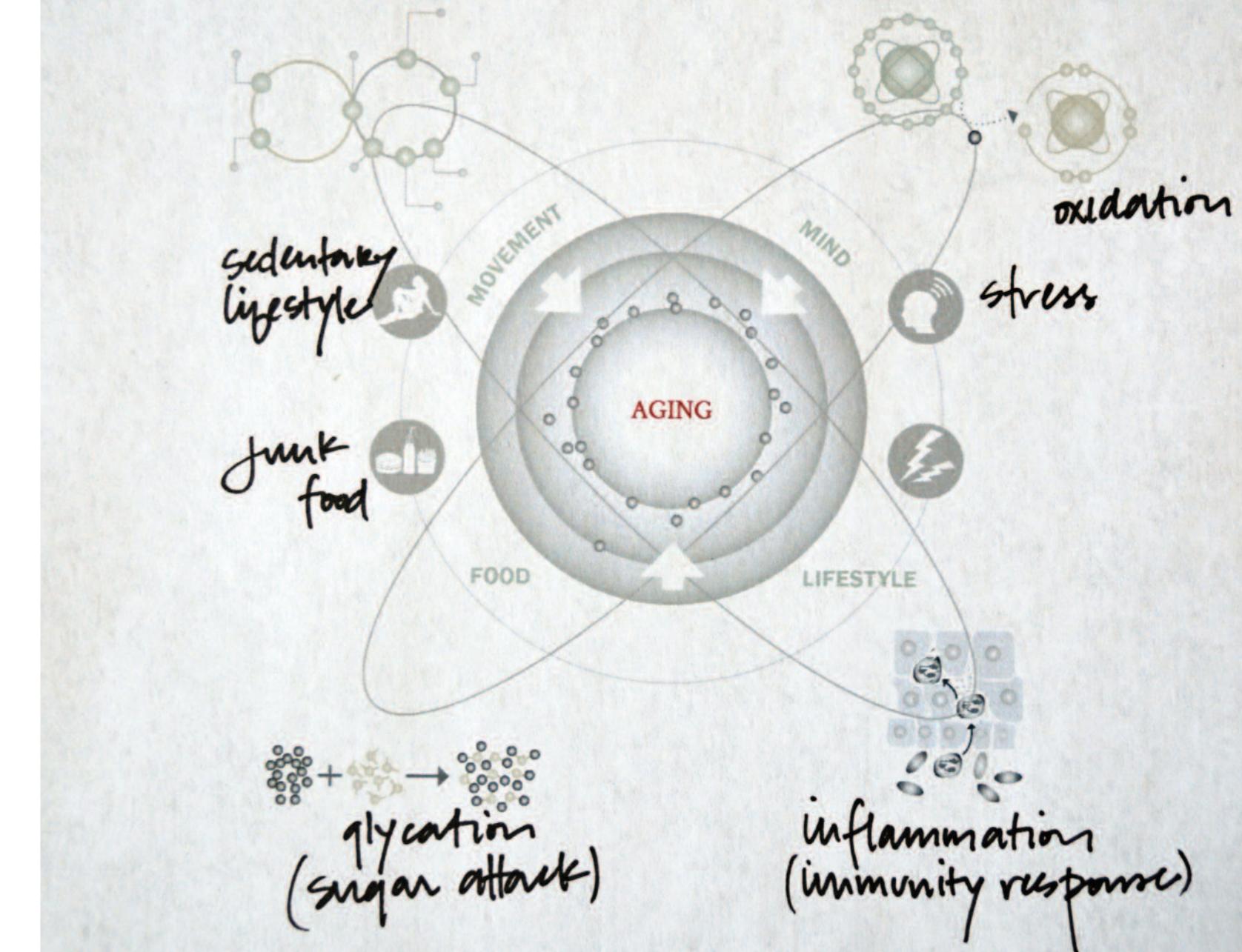
In recent decades, health researchers in many different disciplines have hit upon a universal truth: stress (or rather, the response to stress) is tightly connected to aging. One can define stress as wear and tear on our psyche and body that over time makes our organic structure weaker, older and more fragile.

A CLOSER LOOK

When we experience stressful situations, we activate the same physiological response mechanisms that—when chronically activated—become psychologically and physically deleterious to us. The principal effects that we can measure include higher heart rate, higher blood pressure, irritability and specific physical ailments like gastritis, colitis and difficulty sleeping, among others.

The ill effects on skin are also evident, causing wrinkles, off-coloredness and other imperfections. What we don't see, however, is a phenomenon called oxidative stress that is caused by not only stress itself but also by smoke, pollution and UV rays from the sun. Oxidative stress alters the macroscopic and microscopic structures of our body in a sub-clinical way, slowly paving the way within the body for disease and the aging process.

Moreover, the study of the physiopathology of different diseases has allowed researchers to understand that oxidative stress and free radicals, glycation, reduced methylation and chronic inflammation are biological mechanisms all affected by lifestyle. These mechanisms exercise their own toxic and degenerative action, and bring about progressive imbalances, early-onset aging and disease.





STRESS & DISEASE

For most people, it's no secret that stress can interfere with your health. And yet how many times have you heard a doctor tell you, "Don't worry about it... it's just stress"? It's almost as if even though stress is at the heart of many diseases, stress is treated like something we should just accept and live with, as if it is out of our control and part of normal, daily life. But stress is precisely the thing we should focus our attention on if we want to maintain health and longevity. Over the last decade, medical research that connects stress to disease is gaining a lot of credibility.

Before we go any further, let's quickly summarize our body's stress response. Say a barking, rabid dog runs toward you—within seconds, stress hormones including adrenaline and cortisol are released, the heart rate speeds up and pumps more blood to muscles so they can contract with maximum force. Veins within vital organs open up slightly more while veins within non-essential body parts close slightly. Breath increases to free up more oxygen and our senses become incredibly acute, helping us identify every single escape route. Our bodies are ready to flee within seconds.

This stress mechanism, which has evolved over millions of years, is called the "fight or flight" response. It works great when we need it most, like when danger suddenly appears. But here's the problem: this same fight or flight response can be triggered when we experience psychological stress—the same kind of stress people experience in traffic jams, when they can't pay their bills, or in relationships that cause tension or anger—these can all set off our normal stress response. For people who encounter this type of stress every day, the body has a hard time shutting down the stress response.

Chronic stress, which can cause elevated levels of cortisol, has been shown to increase one's risk for heart disease, depression, and weakening of the immune system. Prolonged elevated levels of cortisol may also promote inflammation.

One study conducted by the Harvard Women's Health Watch research initiative found that women with highly stressful jobs were 40% more likely to develop heart disease. If you suffer from chronic stress, don't let anyone, be it a doctor or friends, tell you that it's just the way life is; we simply cannot treat a vital phenomenon such as stress in a superficial manner.

ILLNESSES THAT ARE BELIEVED TO BE ASSOCIATED WITH CHRONIC STRESS:

Cardiovascular disease
Stroke and cerebrovascular disease
Hypertension
Tumors
Inflammatory disease
Osteoporosis and bone demineralization
Insomnia
Anxiety
Depression
Psoriasis
Gastroduodenal ulcers
Gastroesophageal reflux
Infertility
Obesity
Metabolic syndromes and diabetes
Fibromyalgia
Chronic fatigue



HELP FROM BIOFEEDBACK

The basic idea behind biofeedback is simple: train your mind to control your body. Stating the concept like this makes it sound easy, but for most people it's not as easy as that. It's a skill that requires patience and training. Think about learning to play the piano or creating a pencil drawing of a bowl of fruit: all of us have the ability to do these things and with daily practice we can get better.

The goal of biofeedback is to gain a little more control over key bodily functions including heart rate or body temperature or muscle tightness due to tension. In the last several years more healthcare providers are looking to see if biofeedback can help people combat stress. In fact it's most often thought of as a relaxation technique. Possible candidates for biofeedback include anyone who suffers from chronic anxiety, stress, or pain. In hospital settings, patients who are coping with side effects of chemotherapy or anxiety before surgery have found relief using biofeedback techniques.

How does it work? In most cases you use a biofeedback device that can measure one or more body functions. The most common is heart rate. During a typical biofeedback session you are asked to do specific breathing exercises while hooked up to a device that measures corresponding heart rate. The goal is to learn how to use breath to lower your heart rate. Decreasing your heart rate can influence the release of hormones and reduce blood pressure and put the body in a decreased state of stress. Perfecting the ability to lower heart rate may be an inexpensive, non-invasive way to manage stress.

NOT SMOKING, HEALTHY DIET, AND REGULAR EXERCISE CAN PREVENT:
82% of heart attacks, 70% of strokes,
90% of type II diabetes, and 70% of colon cancer

WATER'S VITAL ROLE

Skin requires water, lipids and nutrients to act as a balanced organism of defense. Its structure is a highly organized one wherein the transport of water and solutes plays a crucial role in maintenance of homeostasis. The skin's state of hydration or dryness also directly influences its efficiency as a barrier.

Within this complex system of actions and interactions, water without a doubt represents an extremely important element. The skin's outermost layer only appears to be dry: in reality, it is composed of anywhere from 20-35% water at any time. Together with proteins and lipids, water gives skin its indispensable characteristics of softness, flexibility and elasticity, so necessary when adapting to movements of muscles and joints. When the skin is evidently dehydrated and contains less than 20% water, its surface becomes dry and rough, elasticity is clearly reduced and it begins to crack and peel. Ceramides are responsible for storing water within the skin's outermost layer.

The dermis is a layer of skin between the epidermis (with which it makes up the cutis) and subcutaneous tissues; it contains roughly 70% of the entire water reserve in the cutis. Within the dermis, water molecules are partly attached to collagen and partly attached to compounds that form the extracellular matrix. Among these compounds is hyaluronic acid, noted for its hydration and absorption capabilities, able to absorb a quantity of water up to—some researchers say—70 times its own weight. In other words, 1 gram of hyaluronic acid can hold 70 grams of water.

When the body is dehydrated, the dermis' reserve becomes the first defense in resupplying needed hydration. When the sun damages skin, the dermis becomes damaged and loses the ability to hold water.

NATURE'S KEY TO HYDRATION: HYALURONIC ACID

Hyaluronic acid is comprised of a large molecule, containing numerous sugars, able to act as a sort of "biological sponge" which soaks up water and fills tissue. Hyaluronic acid is naturally present in the dermis, but its concentration diminishes over time due to the presence of particular enzymes (hyaluronidase); this contributes to the aging of the skin. Dermocosmetic laboratories have long been interested in hyaluronic acid for its properties of absorption and hydration. The lower the molecular weight, the more hyaluronic acid succeeds in penetrating the skin.

Hyaluronic acid represents an important cosmetic weapon to combat the signs of aging. With its enormous advantage in both concentration and molecular dimensions, it may be able to hydrate all types of skin—from hydrating the most youthful to acting as filler for the more mature and wrinkled. A cream or a gel-cream containing hyaluronic acid may be formulated for use by an individual at any age.

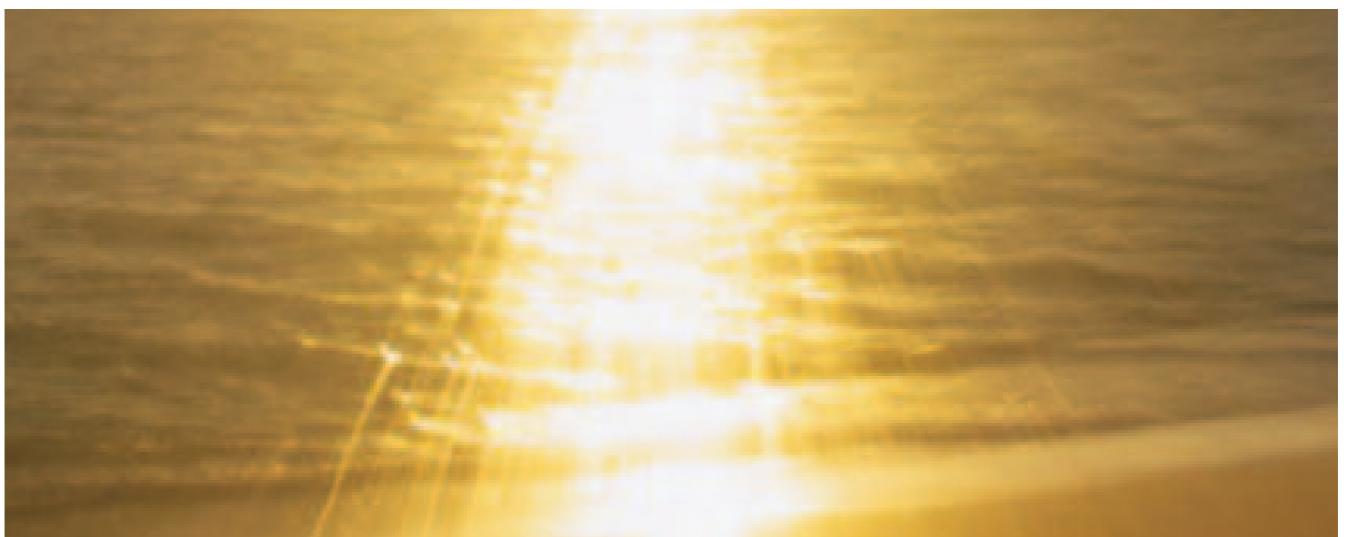
HOW UV LIGHT HARMS OUR SKIN

When it comes to premature aging of the skin, our worst enemy is one of the very things that makes life possible: the sun. If we could only see the harmful ultraviolet light maybe we would be reminded to take care to protect ourselves from it. Instead, sunlight makes us feel warm and happy; it lifts our mood and even helps our body create vitamin D, an essential nutrient.

The good news is that we can easily protect ourselves from the sun's harmful rays, which are made up of ultraviolet light called UVA and UVB. Exposure to UVA and UVB can alter the structural and chemical properties of skin and promote damage to DNA, cause sunburns, discoloration, and promote the formation of skin cancer. Skin researchers also know that decades of sun exposure promotes premature aging of the skin. UV light, which increases the formation of free radicals, causes the outer layer of skin to thicken, giving it a leathery appearance. At the same time, UV exposure causes the underlying structure of the skin to suffer connective tissue damage. This means that the skin loses its elasticity and the consequences of this are the formation of wrinkles and sagging.

The best thing you can do to protect yourself from the sun's harmful rays is to shield your skin from the sun, especially between the hours of 10 am and 4 pm when the sun's rays are at their strongest.

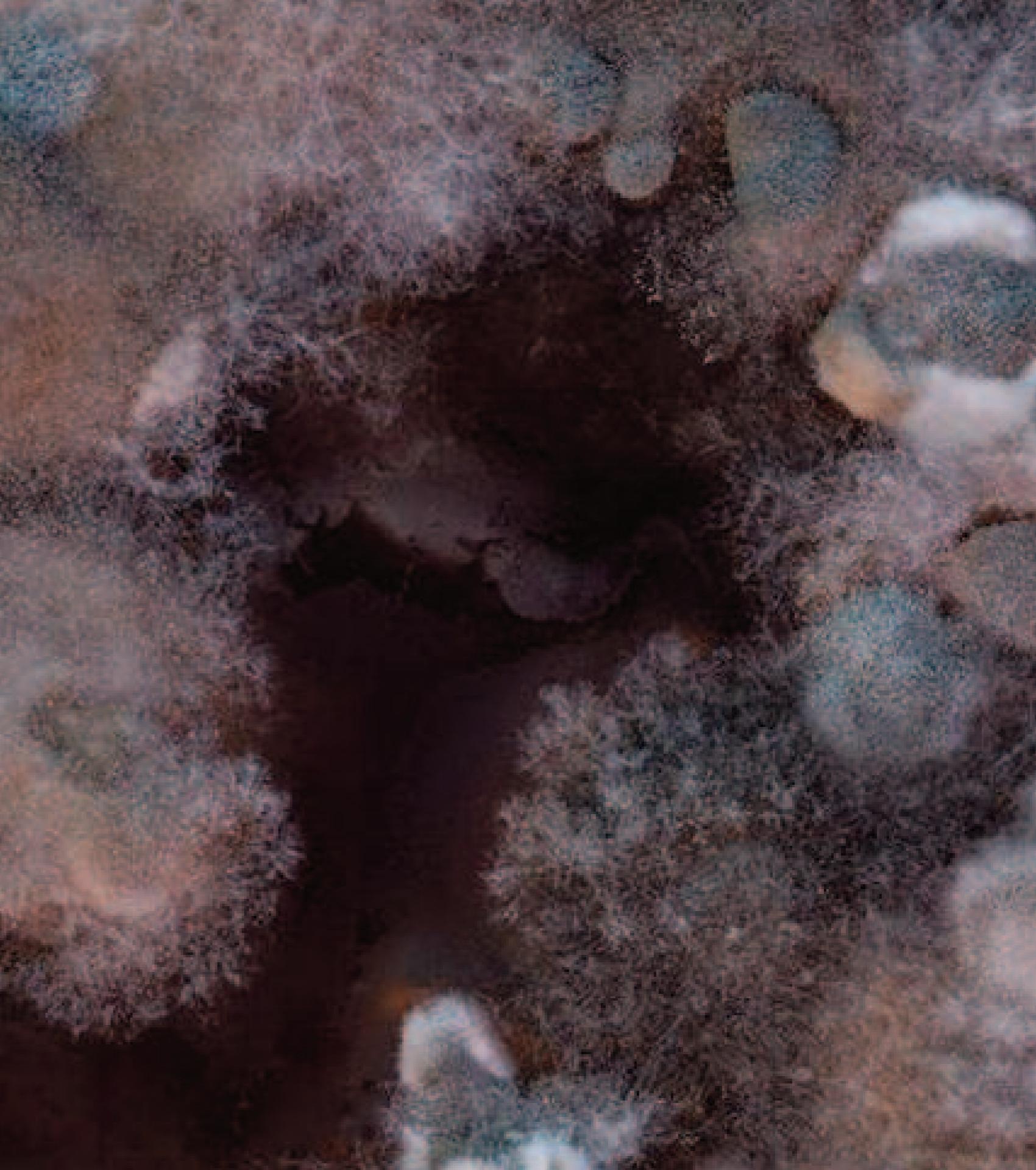
Everyone is advised to cover up: wear a hat that shades the face, and frequently apply a broad-spectrum sunscreen (that blocks UVA and UVB) on exposed skin.



PROBIOTICS: GOOD BACTERIA TO THE RESCUE

A lot of people find it hard to believe that bacteria—organisms that we are often told to fear—happily flourish by the trillions inside our body. Recent scientific advances have allowed microbiologists to more deeply examine our relationship with bacteria. Today, we know that vast colonies of so-called “good bacteria” thrive in our intestines and play a vital role in the digestion of food, the synthesis of nutrients, and even protect us from other harmful bacteria. At the heart of the concept of probiotics is the idea that if we nurture the good bacteria, we’ll help our bodies maintain a state of health and wellness. Doctors now believe that when the health of good bacteria in our intestines goes awry we can suffer a variety of health problems. One common reason for disruption of good bacteria in our systems is the use of antibiotics, which can kill off large amounts of good bacteria.

Probiotics often come in the form of oral products such as dietary supplements and yogurts. The most common bacteria strains found in probiotics are called *Lactobacillus* and *Bifidobacterium*. They are used to treat a variety of gastrointestinal conditions such as infectious diarrhea (diarrhea associated with using antibiotics), irritable bowel syndrome, and inflammatory bowel disease. Whether or not probiotics can cure individuals with these types of illnesses requires further study. However, published scientific research suggests that there is strong evidence that probiotics may help people suffering from acute diarrhea and antibiotic-associated diarrhea. Probiotics may also be helpful in the treatment of the skin condition eczema. Advocates of the treatment suggest a holistic approach: use probiotics as a means to protect good bacteria and give the immune system a boost.



A SCIENTIFIC STRATEGY OF ANTI-AGING

MODULATION OF OXIDATION: ANTHOCYANIN

Today, more and more attention is being paid to highly biologically active compounds present within fruits and vegetables. Anthocyanin, a type of plant pigment that can be red, blue or purple, is noted for its antioxidant and anti-inflammatory properties. It is highly associated with bioflavonoids, those healthful molecules found in red wine and various berries. Not only is anthocyanin able to combat oxidants like molecular oxygen and free radicals, it's also capable of protecting and repairing capillaries. Anthocyanin also reduces the damage caused to cells and tissue by impeding the inflammatory processes.

One potent source of anthocyanin is the maqui berry (*aristotelia chilensis*), which grows on a dark purple plant found in Patagonia. It is extremely rich in antioxidants, and it is capable of absorbing free radicals six times more efficiently than blueberries and 60% more than acai berries, which up until now were known as the natural "super antioxidant" par excellence. Maqui berry may prove highly beneficial in the fight against oxidation process.

MODULATION OF GLYCATION: CARNOSINE + VITAMINS B1 & B6

The compound carnosine is a naturally produced compound in our body. It is found in high concentrations in muscle, heart, and brain tissue. Research has shown that carnosine seems to have an important biochemical job: it is a strong antioxidant and also works as an anti-glycolitic agent. What's more, researchers suspect that the compound promotes cellular longevity. Studies have demonstrated that when cells divide and multiply in an environment containing carnosine, they survive up to three times longer than those that do not. When cells are removed from an environment rich in carnosine, they assume the look and behavior of aged cells. Carnosine is highly effective in neutralizing glycation at the cutaneous level. Furthermore, it stimulates the production of vimentin, a structural protein that lends strength and stability to fibroblasts (skin matrix building cells) and endothelial cells (the thin layer of cells that line the interior surface of blood vessels).

Two other anti-glycolitic molecules that have been recently discovered are the vitamins B1 and B6, present in spinach and other leafy green vegetables. Both inhibit the formation of AGEs, the enormous molecules stemming from glycation. Spinach extract is particularly rich in B vitamins and is now used in cosmeceutical formulas as a functional ingredient.

MODULATION OF METHYLATION: FOLIC ACID

DNA's chemistry is intimately linked to the processes of aging. Among several DNA regulation processes is a mechanism that involves the transference of methyl groups by way of methylation; as discussed at the beginning of this book, this process has the ability to alter genetic expression. The presence of a methyl group tells the cell which parts of DNA not to copy for that particular cell type. Recent research has revealed that these anchorage points prevent activation of genes that may accelerate aging; as such, their location is of vital importance in terms of cellular and tissue structure. Sustaining and integrating the chemistry of methylation is vital.

Folic acid (also called folate or Vitamin B9) is used by the body to synthesize DNA, repair DNA and methylate DNA. It is especially important in aiding rapid cell division and growth, such as in pregnancy and infancy. Foods that contain folic acid in them include leafy green vegetables, fruits, dried beans, and nuts. The fact that this nutrient plays such a vital role in the body means that it is important to consume a daily diet that supplies the body with a ready supply of folic acid. Doing so will aid in the formation of healthy cells.

MODULATION OF INFLAMMATION: OMEGA-3s

Omega-3s are a category of polyunsaturated fatty acids that are needed for the normal operation of several vital bodily functions—this is why they are often referred to as essential fatty acids. Medical research tells us that omega-3s help the body fight against inflammation. They also help maintain healthy cellular membrane structure (including biosynthesis of intercellular lipids within the outermost layer of skin) and they aid in blood clotting. Since the human body cannot manufacture omega-3s we need to get them through our diet.

Omega-3s include three compounds ALA (Alpha-Linolenic Acid), EPA (EicosoPentaenoic Acid) and DHA (DocosaHexaenoic Acid). EPA and DHA are considered long-chain forms of omega-3 and are found in fish, fish oil supplements, and algae extract. ALA, the short-chain form, is found in plant sources including green leafy vegetables, walnuts, and flax seed.

Unfortunately, our modern diets have significantly increased the consumption of saturated fatty acids and polyunsaturated omega-6 fatty acids. Even with ample anti-inflammatory protection, inflammation may still occur due to a dip in omega-3 polyunsaturated fat and its anti-inflammatory properties. This abrupt change in diet, bringing with it a favoring of omega-6 fatty acids over those of the omega-3 group, causes pro-inflammatory conditions at both systemic and cutaneous levels. Elevated levels of omega-6 fatty acids in the diet are principally due to high consumption of vegetable oils, red meat, pork and turkey. These "new" dietary habits combined with reduced consumption of fish rich in omega-3 fatty acids (salmon, herring, anchovies and bluefish) in our diet cause a ratio of omega-6 to omega-3 acids of about 10:1 or 20:1. This value is extraordinarily high considering that our genetic ancestors—going back hundreds of thousands of years—traditionally subsisted on a ratio of about 2:1.

Two essential polyunsaturated fats that must be consumed through proper diet are the n-3 family (ALA and EPA) from fish oil and the n-6 family (linoleic acid and arachidonic acid) from vegetable oils. A diet rich in these two polyunsaturated fats may prevent inflammation and, as a result, any skin diseases associated with it—for example, dermatitis and other conditions of aged skin. Recently, chia seeds have been found to be the vegetable source richest in omega-3 fatty acids. They contain a healthful ratio of 3:1 to omega-6.

A BEAUTIFUL MIND: LONGEVITY AND THE POWER OF THOUGHTS

There probably isn't a single person out there who doesn't have something negative to say about getting older. But did you ever stop to think about how your attitudes about aging might influence how long you live? Over the past decade a growing body of published research is starting to suggest that, aside from healthy lifestyle habits, our attitudes and beliefs about aging may actually influence how long we live.

In one study, researchers matched death records with health surveys taken by 660 people in the 1970s when they were 50 years old. Everyone who took the survey provided information about their feelings regarding aging. They found that people with more positive attitudes about their own aging lived 7.5 years longer than the people who had more negative feelings about aging. This held true even when the researchers controlled for other variables like gender, socioeconomic status and functional health.

Another study evaluated the results of 26 other studies conducted around the world between 1989 and 2010. Each of the published papers revealed aspects of a test subject's satisfaction with life, their feelings, moods or emotions. In general those with a more positive view of life and themselves lived between 4 and 10 years longer compared with people with more negative emotions.

Of course, just feeling good about life or yourself isn't all there is to longevity, but the overarching message is clear: our perceptions and attitudes about ourselves, especially the way we embrace the fact that we are growing older everyday, can have life-extending consequences.





MOVING FORWARD: INTEGRATED HEALTH

What we need is a radical change of perspective. We need to understand how vague phenomena, such as stress, are the basis for many diseases and influence the way we age. We need to focus on action that not only suppresses symptoms but also modifies the causes of disease—this is the way to ensure the higher degree of longevity we all desire. The first step is to work on stress: taking small steps, each day, towards improving our diet, sleep patterns, exercise. Taking a universal approach to care for our bodies and minds is our best defense.



HOW TO LIVE GUIDE

Our bodies inevitably deteriorate with time, but the process of aging may be accelerated by the way we live our lives, by our attitudes towards the trials and tribulations of life. The more we care for our bodies and minds, the longer we will enjoy a beautiful life.



TAKE ACTION

A traffic jam may cause us stress one day and not bother us at all the next. This is a positive thing; it shows us that with the right techniques we can learn to deal with aggravating situations without letting stress get the better of us. Knowing this makes it fundamental for us to ask ourselves: What are the best methods for managing stress? For years, studies carried out by prestigious universities and medical centers have focused on different methods of stress management but have yet to reach a single consensus.

The reason that so many different techniques for stress management exist is probably because there are so many different physical behaviors. And let's face it, people are different—they react differently in stressful situations. Some behaviors may not be effective for certain individuals but may work miracles for others. The bottom line? In order to live better, it's important to know what is healthy and what is not.

All the choices we make everyday—how to eat, how to react to stress, when to relax (and so many more!) are all part of the equation to living a balanced, healthful life. So please, read on: we want to put you on the road to complete health and optimal beauty.

WHERE TO BEGIN? JUST RELAX

"Relaxation" is a word that sounds almost foreign within our modern vocabulary. Yet, the body has its own rhythms and the mind must learn to respect them. Otherwise, the body will fall ill and will cease to function normally. Often, overactive college students, exhausted mothers and ambitious professionals deny their bodies the rest they need and unknowingly subject themselves to stressful lifestyles—a battle lost before it has begun. Learning how to relax efficiently blocks a negative response to stress and may even stop it before it starts. If we learn how to respond to stressful situations with effective techniques for relaxation, we'll eventually eliminate a response to stress altogether.

DID YOU KNOW?

Along with reduced oxygen consumption and a slower heart rate, relaxation also triggers a number of positive effects:

Increased production of endorphins and enkephalines
(natural pain suppressors)

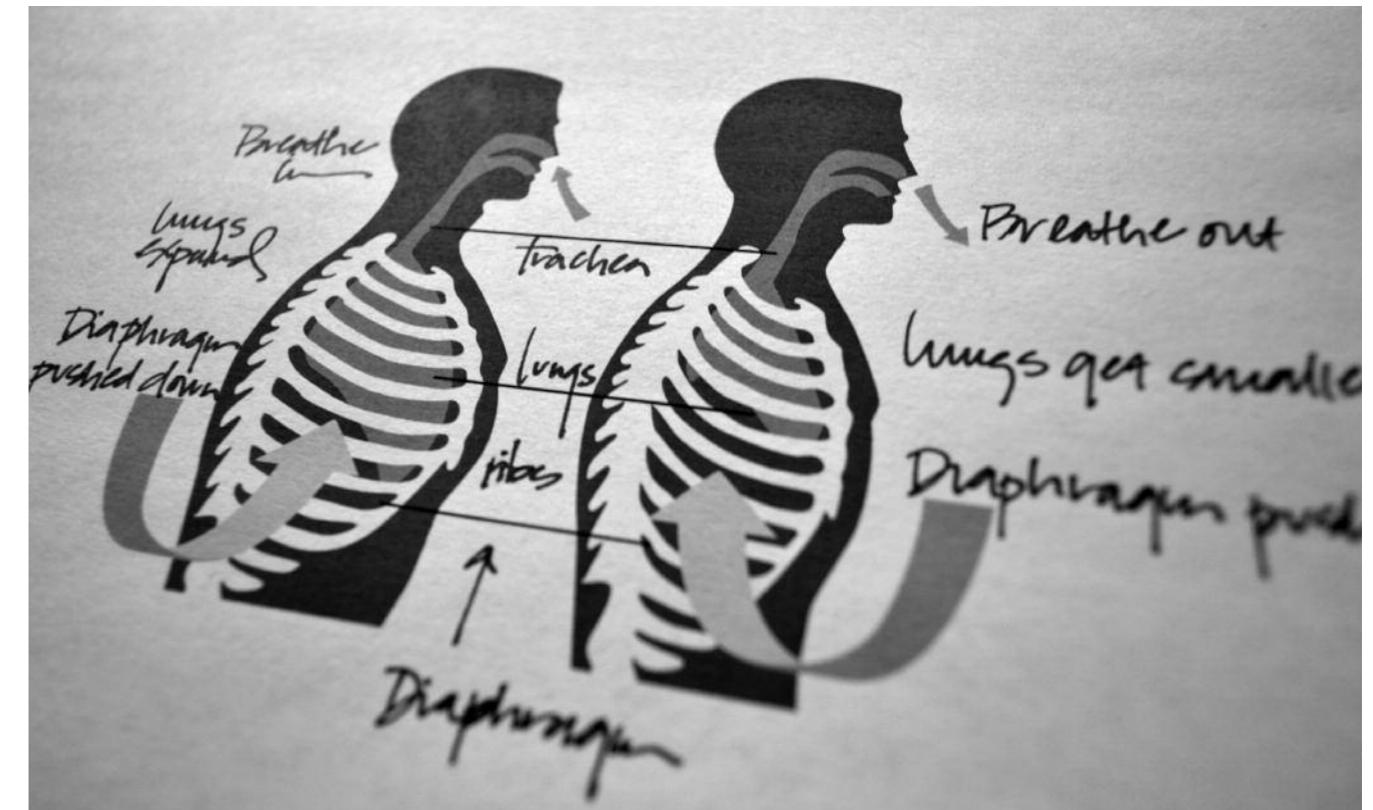
Muscle relaxation

Reduced articular and muscle pains

Reduced arterial pressure

Reduced production of cortisol and adrenaline
(stress hormones)

Increased blood circulation and tissue irrigation



LEARN TO RELAX: RIGHT NOW

Behind each relaxation technique there lies one essential element: breathing. Breathing is an activity that may seem obvious—the first spontaneous act of life, it's an automatic gesture carried out from the moment we're born until the day we die. Think of a baby on its back. How does it breathe? Their abdomen rises and falls regularly with each breath; the movement, fluid and harmonious, is incredibly natural.

Here's how to do a simple breathing exercise to align the diaphragm: lie down on your back and relax. Slightly bend your legs and place your feet firmly on the floor. Bring your arms straight to your sides. Flatten your lower back, pressing your spine against the floor completely. Breathe in slowly and deeply for a count of three. Breathe out completely. For maximum efficiency, repeat this exercise for at least a half hour. If you start to feel dizzy, don't be alarmed: this is due to an accumulation of oxygen in the blood.

Each time you feel agitated or fatigued, remember to take a breath—the deepest breath possible. Your diaphragm and entire thoracic cavity will benefit; it is also said that deeper breaths ensure a longer and healthier life. Pay attention to your breath during the day.

OLDER AND WISER AND HEALTHIER: A TRUE STORY

On August 4th, 1997, Jeanne Calment died at age 122 years and 164 days old. She was verified the oldest living woman ever recorded in history. Calment lived in Arles, France and outlived all members of her family, including her daughter and grandson.

Feeling too sedentary at age 85, she started to practice fencing. At 100 years old she still rode her bicycle. At 114 she underwent an operation for a broken femur; she survived but was confined to a wheelchair. She was never a strict proponent of good health in today's sense of the word. Rather, it is said that she smoked until she was 117, drank wine regularly and declared herself an olive oil fanatic (to which she attributed her longevity).

Many members of her family also enjoyed longevity. Her older brother Francois lived to be 97 while her father nearly lived to be 100 and her mother died at age 86. Jeanne Calment did not have an easy life: she lived through two World Wars and many personal tragedies. At 21 years of age, she married a rich second cousin with whom she had a daughter who died at 35 years old due to pneumonia. Ms. Calment raised her grandson as her own. He would go on to be a doctor but tragically died at 36 in a car accident.

Ms. Calment's long life is certainly attributed to specific genes favorable to longevity that the rest of us might not have. However, her sense of irony helped to let the difficulties of her life "roll off her back." In one of the last interviews she gave, a journalist asked her what she thought when she looked at all her wrinkles. Not missing a beat, Calment looked at her with a serious face and said, "What wrinkles? I only have one wrinkle and I'm sitting on it."

Most of us aren't born with super genes like Ms. Calment, but science is helping us gain a better understanding of the molecular mechanisms that are involved with aging. Such knowledge will allow us to find ways to strengthen our protective genes and increase longevity. There's still much work to do and we may never be able to completely control these processes but we already know a great deal of information that can help us: a good diet, sensible use of nutraceuticals, regular physical exercise and relaxation techniques contribute not only to living longer but also living better. Therefore even if we weren't born with the super genes typical to those of centenarians, a healthy lifestyle and personalized medicine should be able to bring many of us into old age in good health.

Instead of hoping for a miracle drug, maybe we should look to people like Ms. Calment as role models for healthy living. The vast amount of research done on centenarians has allowed us to see how mental and emotional attitudes matter. In effect, it seems that—beyond good genes—all centenarians share a generally healthy lifestyle and a character that allows them a positive approach to life, which may in fact benefit their well-being and longevity.



HERE ARE SOME COMMON
TRAITS OF CENTENARIANS FOUND
AROUND THE WORLD:

They do not overeat and never eat to fullness.

They follow the rule of eating until 80% full.

They eat many vegetables, few processed foods and only complete proteins from free-range animals.

Drink red wine regularly but in moderation.

Work less and know how to maintain a slower pace.

Feel a strong purpose in their life.

Hold religious or spiritual beliefs.

Have a strong sense of belonging and a role in their communities.

Do daily physical exercise.

Cherish relationships with friends and family, which are at the center of their very existence.

THE POWER OF A SMILE

Before email, text messaging and even telephones, the original way to spread happiness was to flash someone a nice big smile. Our face uses five primary muscles to produce more than a dozen expressions: each is a reflection of a specific mood or emotion. But what about the reverse? Do you think our expressions can influence the way we feel?

Try a quick experiment. Close your eyes for a few seconds and force your face into a smile as big and bright as you can make. Hold that smile for 15 or 30 seconds. How did it make you feel?

You may be surprised to learn that recent research suggests that smiling can actually influence the way we feel, and believe it or not, the act of smiling may even be linked to how long we live.

In one study, conducted at the University of Kansas, test subjects were asked to hold their face in a smile or neutral position while simultaneously doing different stressful tasks. All of the test subjects had their heart rate measured throughout the experiment. The researchers found that people who maintained a smile during the task had lower heart rates—a sign of lower stress levels—compared to those with a neutral facial expression. Does this mean that smiling reduce levels of the stress hormone cortisol? More research needs to be done but these results are intriguing.

In another published study, test subjects where asked to make happy, neutral or relaxed facial expressions while a heated probe was placed near their forearm. Those with negative facial expressions actually reported feeling more pain compared to those with happy expressions.

Finally, in 2010, researchers at Wayne State University in Detroit, Michigan, evaluated the facial expressions of major league baseball players from photographs on baseball cards produced in 1952. Using death certificates the researchers compared age of death with each baseball players degree of smiling. Incredibly they found that players with the biggest smiles lived an average of 79.9 years while those who did not smile lived an average of 72.9 years. Can smiling add five more years of life? Probably more studies will need to be conducted—but why wait to find out? Smiling more with the hope of boosting longevity doesn't sound like a wasted effort.





HANDS ON! THE SCIENCE OF TOUCH

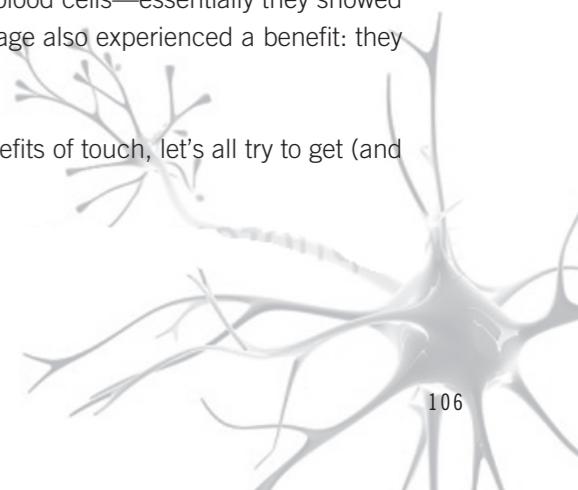
Think about the last time you held someone's hand, or when someone gave you a nice strong hug. It made you feel relaxed and happy, right? The positive emotional feelings you get during hand-holding and hugging actually have a biological basis. Scientists know that such tactile acts of love and kindness between people increase the release of oxytocin, a hormone that is produced in the hypothalamus and is associated with feelings of contentment.

Even the simplest forms of touch can have positive benefits: for example, researchers have reported that the more often professional basketball players touch each other during games (slapping backs, fist bumps, handshakes, high fives, etc.) the more likely they are to perform well as individuals and as a team.

Recent research has even begun to shed light on the benefits of massage. One Canadian study went so far as to take tissue samples (biopsies) of leg muscles of young men after massage. In this study, the volunteers exercised for one hour and then they received a vigorous 10-minute massage on one leg but not the other. The investigators found that massage reduced the production of natural compounds called cytokines that are known to play a vital role in inflammation. They also discovered that massage stimulated mitochondria, a cell's power center that supplies it with vital energy for basic functions and repair.

In another study (sponsored by the National Center for Complementary and Alternative Medicine in the US), 29 healthy adults were randomly assigned to receive a 45-minute deep-tissue massage and another group of 29 were given a light massage. The people that got the deep tissue massage had significant decrease in cortisol levels. In addition the researchers found that the same group had an increase in infection-fighting white blood cells—essentially they showed a boost to their immune system. The other group of people who got the light massage also experienced a benefit: they were found to have higher levels of oxytocin.

More research is needed of course, but given what we know already about the benefits of touch, let's all try to get (and give) as much touch as we can.



SPA TREATMENTS FOR A BETTER YOU

THE KABAT TECHNIQUE

Dr. Herman Kabat, an American neurophysiologist and physician, developed this system of therapeutic movements in the 1940s. Unlike a typical massage, this treatment calls for both the therapist and the receiver of the treatment to be actively engaged. The main idea is to use our natural reflexes to assist in muscle relaxation. Movements that incorporate stretching, resistance and manual pressure are used to help improve muscle strength, stability, mobility and coordination. The primary functional movements used in the Kabat technique mimic what we do in real life: arms and legs are moved in spiral and diagonal patterns. As the therapist and the receiver achieve muscle relaxation, the reward is improved circulation in muscles and surrounding tissues. The cycle of rhythmic movements stimulates all of the senses and helps people understand the power of the brain to move our muscles. The goal of Kabat is to achieve a greater sense of awareness and connection to the body through the mind.

BELOW ARE EXAMPLES OF TWO UNIQUE, PROPRIETARY SPA TREATMENTS WE'VE DEVELOPED AT COMFORT ZONE TO BENEFIT BOTH BODY AND MIND:

ACTION SUBLIME: FOR FACE, NECK & SHOULDERS

This therapy session was designed to stimulate, cleanse, relax, and rejuvenate. The therapist starts by applying a soothing mask to the face; it's an exclusive anti-aging treatment, which simultaneously fights damage caused by free radicals, exposure to sun, and environmental pollution. It is a detoxifying and revitalizing mask. During the massage portion of the session the therapist rotates hands and arms to unblock joints; gentle, repetitive circular motions are active and supportive. Arm stretches combined with a nurturing shoulder massage help open the chest cavity, allowing for deeper inhalations. After the massage, the mask is removed and a highly active serum, which contains hyaluronic acid, milk proteins, and betaglucan, is applied to the face. Gentle circular motions during the application process invigorate the skin and increase blood flow. During the last stage of the treatment, sublime feelings are enhanced with the addition of a protective facial cream that contains retinol.

TRANQUILLITY RITUAL: FOR FACE & BODY

This treatment induces complete relaxation and a rebalancing of both mind and body; it uses a soothing, slow, and deep pressure massage technique—a lullaby for weary minds and muscles. The session starts with aromatherapy: a warm, floral fragrance that recalls feelings of joy and tranquillity. A deep cleaning mask is applied to the face that stimulates the formation of new cells. The revitalizing massage, from head to toe, incorporates repetitive movements that foster lymphatic drainage and increased circulation to muscle and connective tissues. A final hydrating layer is applied to face and body; the skin is left feeling velvety and looking luminous.

EXERCISE: GOOD FOR YOUR BODY AND MIND (AND YOUR SKIN!)

It's no secret that exercise is vital for a healthy heart and mind. But many people don't realize that when we do a cardio workout, there are many health benefits for the skin. Walking, running, swimming and cycling—any activity that increases your heart rate and promotes circulation, will not only keep you fit, these activities will help maintain healthy, vibrant skin.

INCREASE BLOOD FLOW

When we increase our heart rate through exercise we are increasing blood flow to all our organs, including the skin. Blood carries oxygen and nutrients to all of our cells and, but at the same time, blood also helps flush away waste products, including free radicals.

REDUCE INFLAMMATION

Inflammation is believed to have a negative influence on the health of the heart and other organs and inflammation is also a well-known enemy of the skin. Growing scientific evidence suggests that regular exercise reduces biological markers of inflammation. Other research indicates that regular vigorous exercise that aids in the reduction of the body's overall level of fat is helpful in the fight against inflammation: fat cells are known to release pro-inflammatory molecules.

TIME TO GLOW

When we exercise, we sweat, and this process can help clean out pores. Exercise can also help stimulate another important skin cell function: producing natural oils that make our skin resilient and vibrant.

GOODBYE STRESS

Regular exercise has been proven to decrease stress and bouts of depression. In some people, stress is known to cause or exacerbate skin condition like acne or eczema. So any activity that reduces stress may also improve the skin.

ALWAYS COVER UP

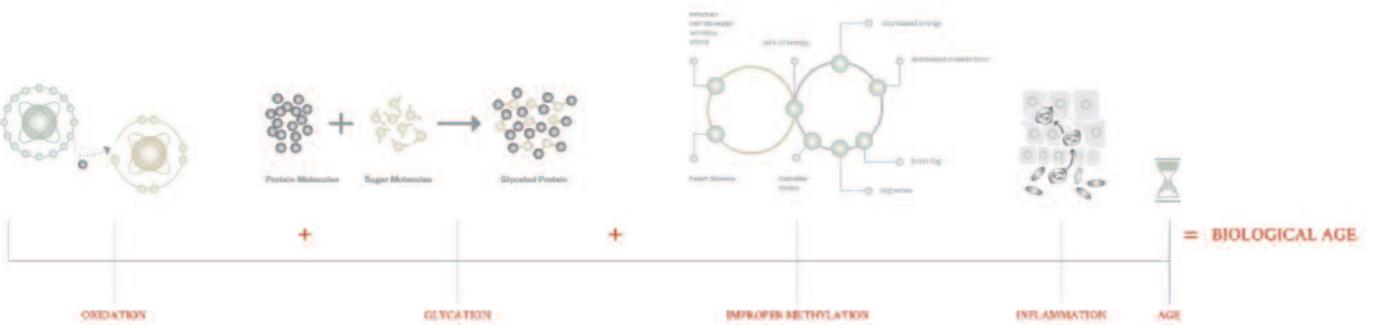
The biggest risk to skin when we exercise is exposure to the sun. So always wear sunscreen. If you swim, chlorine or other harsh pool chemicals can dry skin. After you take a post-exercise shower, always be sure to apply moisturizer.

ENLIST NATURE'S ARMY TO HELP FIGHT YOUR ANTI-AGING BATTLE

How many people know that the food we eat can influence the health and function of our skin? Very few. Of those few, even fewer think about that connection when deciding what to eat. There are foods that when added to our diet may help our skin, lending luminosity, freshness and elasticity.

Carefully choosing what we eat is necessary to maintain youthful skin as well as to resist and react to daily stress in a positive way. The danger of a non-varied diet not containing sufficient nutrients is that it may produce chronic inflammation and provoke structural and functional damage to the skin.

In order to protect skin, it is necessary to consume (or topically use) substances rich in antioxidants and pro-vitamins to ensure photo-protection and stimulation of the skin's immune responses.



ESSENTIAL FATTY ACIDS

These are acids that humans must consume with meals: our bodies can't make them, but we need them for good health. Deficiencies are responsible for a variety of health problems including abnormalities in the liver and kidney, changes in the blood, reduced growth rates, decreased immune function, depression, and skin changes, including dryness and scaliness. Linoleic acid (omega-6) and alpha-linolenic acid (ALA, omega-3) are essential fatty acids that help the epidermis and dermis function better, reducing water loss and thereby guaranteeing the best hydration possible. These compounds are readily found in nuts, seeds and fish.

POLYPHENOLS

These compounds are nutraceuticals found in fruit and vegetables that are especially appropriate for maintaining youthful beauty. At present, there are about 5,000 known types of polyphenol molecules. These molecules are the product of plant metabolism and are natural antioxidants helpful in counteracting the damaging effects of free radicals.

Polyphenols—especially those found in a diet rich in vegetables—have an important anti-inflammatory and antioxidant effect as well as serve to reinforce the immune system. They are a promising new player in the development of an efficient preventive strategy against the damaging effects of UV rays on skin. Some studies clearly show how polyphenols from green tea, milk thistle and proanthocyanidin protect against inflammation, oxidative stress and damage to DNA caused by UV radiation.

CAROTENOIDS

This is a type of pigment that plays a fundamental role in protecting plants and algae from light (UV) stress; as such, they are very useful for protecting our skin. Carotenoids are divided in two categories: carotenes and xanthophylls. Due to their molecular structure, they are capable of attaching to and eliminating free radicals, providing precious help towards an organism's defense. Humans cannot synthesize carotenoids on their own; for this reason, carotenoids must be introduced within our diet. Among the most famous carotenoids are lycopene, lutein and astaxanthin.

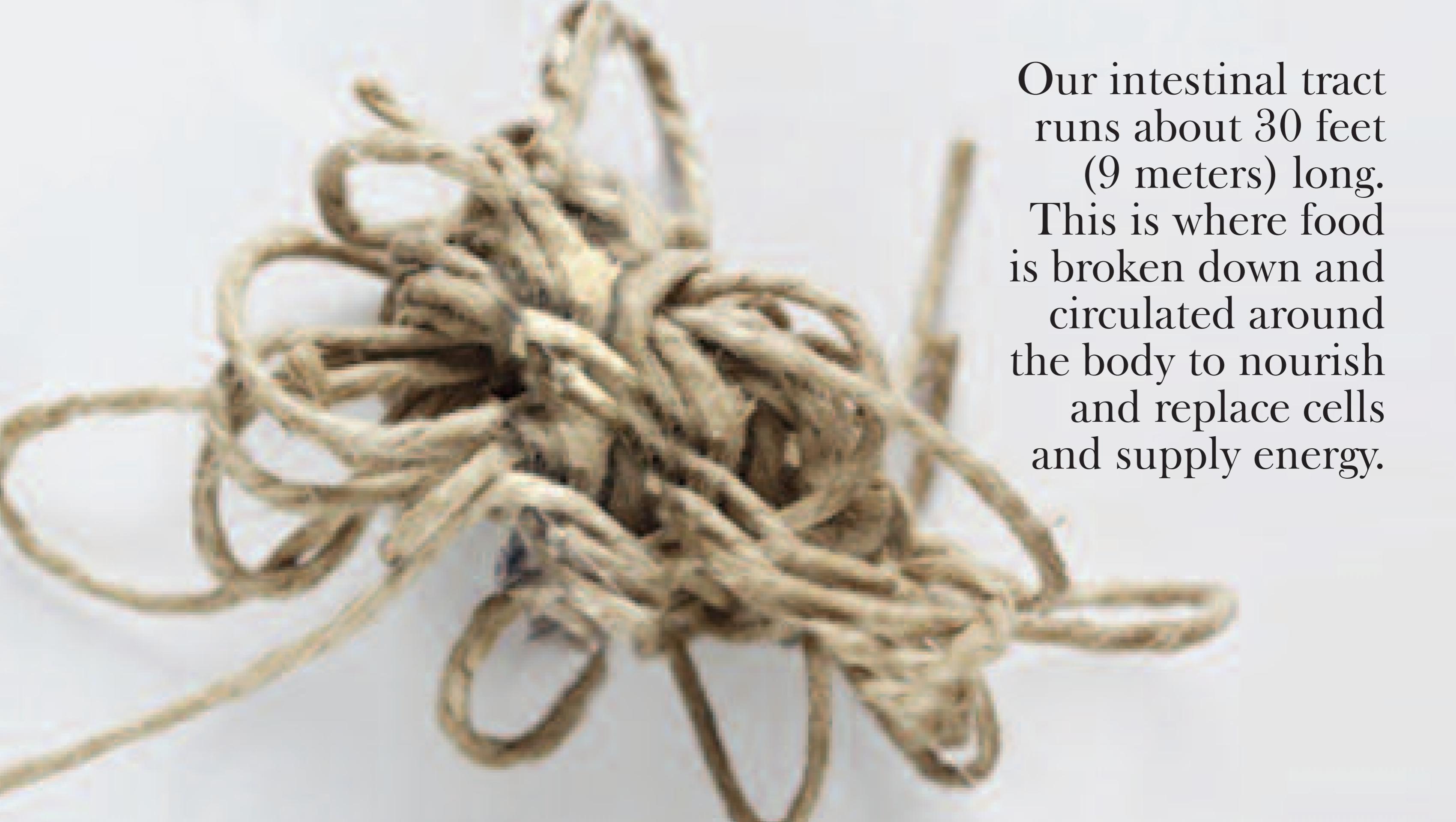
PROBIOTICS

Recently, research on probiotic organisms (our friendly gut bacteria) has advanced enough to confirm that there exists a dynamic, balanced relationship between nutrition, intestinal microflora and health. The presence of good bacteria in the body counteracts changes in the functioning and anatomy of the intestine as well as reduces immunoglobulins and antibodies.

PHYTO-FOODS

The most important factor in our nourishment when it comes to vitality and anti-inflammation is to nourish the liver and maintain good detoxification.

A great liver booster and detox helper is “green food.” This includes all leafy, dark leafy, and fiber-rich green vegetables. Leafy greens and green vegetables cleanse and assist in the detoxification of the liver and the entire intestinal system.



Our intestinal tract runs about 30 feet (9 meters) long. This is where food is broken down and circulated around the body to nourish and replace cells and supply energy.

LEARN THE FOODS THAT STRESS OUR HEALTH AND OUR SKIN

Everything we eat is absorbed into our bloodstream and goes on to feed our bodies, including our skin. So what we eat can influence the way we look. Have you ever noticed that you look different after an evening of eating heavy foods, high salt intake, or having eaten greasy fried food? You may already know that this shows on your face, but you might not have made the connection that all the foods you eat on a daily basis show up on your skin. Eating then becomes a source of daily nourishment—or a daily depletion—of your skin's health, radiance, and aging process.

FOODS THAT CAUSE INFLAMMATION (PUFFY AND RED SKIN)

Inflammation is a state that the entire body is in when under high stress or when we have too high an intake of acidic, inflammatory foods. Such foods include processed and refined products (sugar, flour products, and soda) as well as saturated added fats, and those from animal products. It's worth noting that most commercial foods are acidifying and cause inflammation. Last but not least: add alcohol to the list.

FOODS THAT CAUSE MORE FATTY AND LOOSE SKIN

The biological process that causes your skin to loosen is inflammation. High animal fat (saturated fat) induces an inflammation response, and that will cause us to store more fat both on our bodies as weight-gain, and also cause what is called fatty organs and tissue in the body. Sugar and fructose (found in baked goods, sugar, soda, candy, and processed foods) and dairy also cause an increase in inflammation.

FOODS THAT DRY OUT THE SKIN

Many of us believe having dry, itchy skin only requires drinking a few extra glasses of water (and, yes, drinking water throughout the day is important, however, what we eat can also be a factor). Some foods are rich in water because they either contain water, like fiber-rich vegetables and fruit, or foods cooked in water, like grains and legumes. Processed foods on the other hand are devoid of water; they are typically not cooked with water and they are baked at high heat (think of baked goods like cookies and crackers). Many of these foods also contain wheat, which has a tendency to cause dry skin.

FOODS THAT CAUSE MORE WRINKLES

Dry skin is often prone to more wrinkles. It's widely known that high exposure to sun and wind can play a major role in wrinkle formation (which is why protection from the outer environment is crucial) but did you know that sugar consumption is also related to wrinkles because it directly affects collagen? Quick reminder: this process is called glycation, which happens when the sugar in your bloodstream is too high and attaches itself to proteins (called AGE). The more sugar you eat, the more glycation or AGE, and with that, the more damage to the collagen (and more wrinkles).



A DAY OF EATING WELL

UPON WAKING

Drink a 16 oz. (475 ml) glass of room temperature water. You can even add a squeeze of lemon. It's a good practice to start the day cleansing your system with water, and it helps the liver kick into action so you feel awake much faster. Next – make yourself a fresh green juice. Your liver, digestive system, energy, and skin will thank you for it. It is a fantastic way to start the day; it gives you energy, mental alertness, and helps you feel cleansed and refreshed. It will also help your skin look radiant.

GREEN JUICE

You can use almost any leafy green in this juice. Apple and some lemon juice lend flavor and freshness.

A few handfuls of kale or other leafy greens

1 medium apple

1 cucumber peeled

1 stalk of celery

Lemon juice

1 small piece of fresh ginger (optional)

Coconut water (optional)

Add all the ingredients into a juicer. Mix juice with up to 1 cup (237 ml) of coconut water to taste. Pour into a glass and enjoy.



BREAKFAST

Start the day with a grain dish. In the summer try raw oatmeal: whole raw oats, mixed with seeds, nuts, and cinnamon. Add some almond or hemp milk and let it soak for a moment. Add chia seeds on top for extra omega 3 and prolonged fullness. If you want some extra sweetness, add some pure 100% maple syrup or honey. In the winter, cook the oats in water to make a nice, warm, yummy bowl of oatmeal and add all the same ingredients mentioned above for raw oatmeal.

Another morning starter option is quinoa, which offers more protein. It mixes great with all the same ingredients as the oats. If you prefer a savory version, mix in some chopped carrots when cooking; try adding avocado and add some seaweed sprinkles (a good source of iodine).

If you like a hot beverage to start the day, it's best to have a cup of green or herbal tea in the morning, rather than coffee, which induces stress. One alternative to coffee is black tea, if you feel you need a bigger caffeine boost; another option is puerh tea, which is a fermented green tea. Puerh is as dark as coffee, very high in antioxidants, helps reduce stress but stimulates energy, and is great for both digestion and elimination.

RAW CHIA OATMEAL

This is quick, easy and nutritious.

$\frac{1}{2}$ cup (40 g) organic rolled oats

1 teaspoon (1 g) chia seeds

5 pecans chopped

$\frac{1}{2}$ cup (75 g) mixed sunflower seeds and pumpkin seeds dry roasted

1 teaspoon (1 g) of ground flax seeds

$\frac{1}{2}$ cup (118 ml) unsweetened almond milk

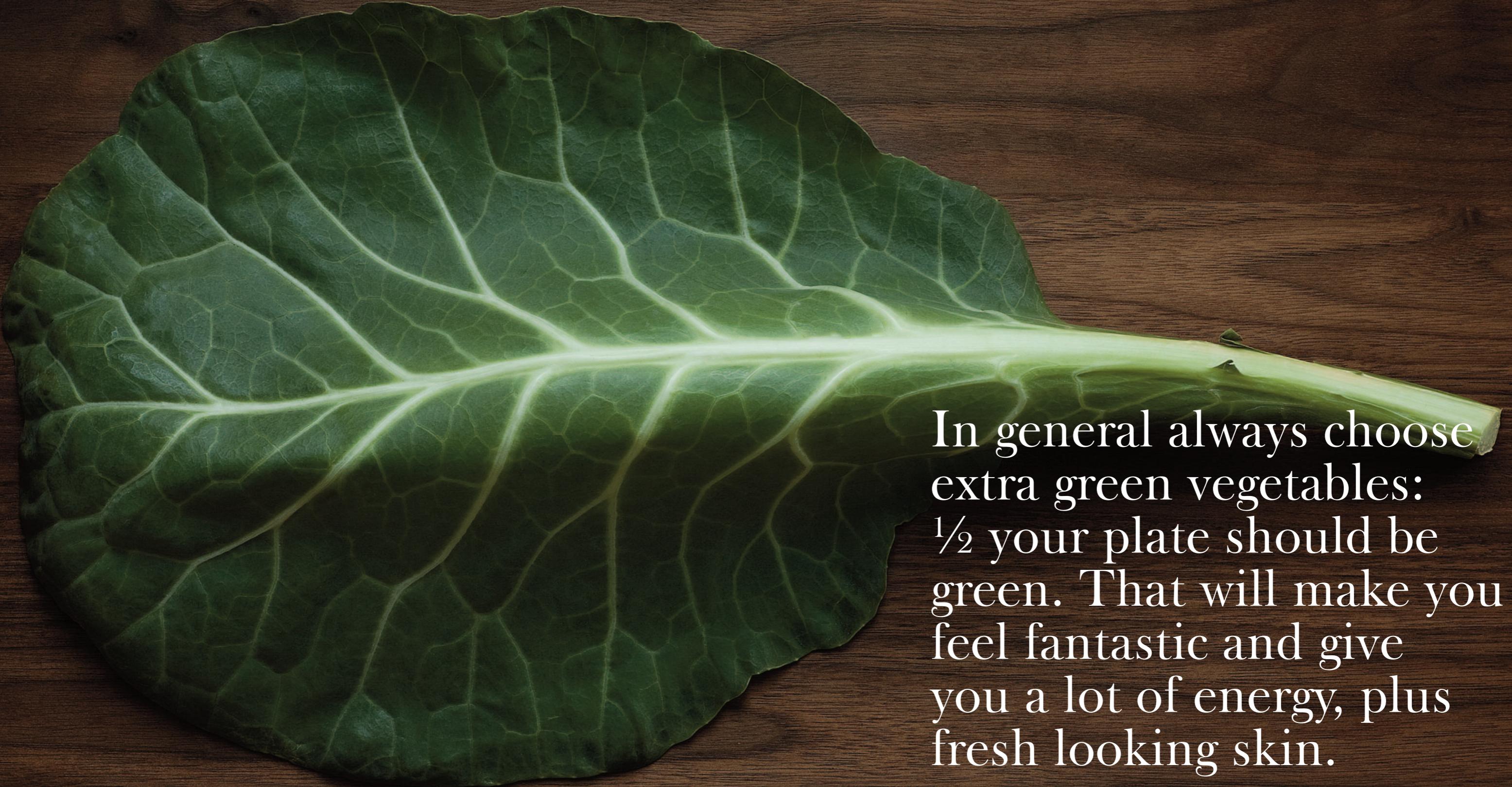
Dash of vanilla

Dash of nutmeg

Maple syrup

Place all the dry ingredients in bowl. Add almond milk and vanilla. Sprinkle with pecans and add maple syrup to taste.





In general always choose extra green vegetables: $\frac{1}{2}$ your plate should be green. That will make you feel fantastic and give you a lot of energy, plus fresh looking skin.

LUNCH

Choose a good source of protein that is rich in omega-3 fatty acids, such as fish, quinoa, avocado, and/or legumes. Make sure to get your fiber from a whole grain and vegetables (especially the green ones, such as kale, broccoli, broccoli rabe, grilled asparagus, artichokes, fresh greens, any sautéed or roasted cruciferous and/or sweet root vegetable). It is also nice to add some raw shredded beets, carrots, and/or daikon. Another great lunch choice is a puree of vegetables, served as a soup.

SWEET POTATO CARROT SOUP

Soups are great for lunch or dinner and they are so easy to make. Cook the vegetables, add spices, put them in a blender, and you have soup!

1 cup (130 g) cubed sweet potato
1 cup (130 g) cubed carrot
1 clove of garlic
Pinch of cayenne
½ teaspoon (2 g) ground nutmeg
¼ teaspoon (2 g) ground cardamom
½ tablespoon (7 ml) lemon juice
Salt to taste

Peel and chop sweet potato into cubes. Add the vegetables and garlic to a 4-quart (3.8 L) saucepan. Add 2 cups (480 ml) of water and bring to a boil. Cover and simmer, stir frequently for 20 minutes until vegetables are tender. Strain the stock and use to thin the soup if needed. Add vegetables to blender. Add spices. Blend at low speed until smooth. Garnish with sunflower sprouts and serve.

QUINOA PILAF

Quinoa is high in complete protein, omega 3 fatty acids, and is considered a complex carbohydrate—a super food!

½ cup (80 g) quinoa
1 bunch spinach
1 teaspoon (5 ml) mirin
1 teaspoon (5 ml) olive oil
1 cup (130 g) chopped cucumber (medium)
Pinch of sea salt

Add quinoa with a pinch of salt to 1¼ cup (295 ml) of water. Bring to a boil and then simmer for 20 minutes until water is gone and the quinoa looks like a sprout. While the quinoa is cooking, chop spinach in food processor or blender. Add mirin and olive oil. Mix with chopped cucumber and pinch of salt. Mix in cooled quinoa. Spoon into glass, invert glass onto plate and slowly lift off glass. Garnish with sunflower sprout and serve.



AFTERNOON SNACK

If you need an energy pick-me-up or something soothing and calming: a smoothie can do the trick. Choose something that is high in nourishment and nutrient content, and low in sugar and/or fructose. Avoid dairy. If you want something fresher, a juice is a great choice. Try a mix of beet, carrot, and greens, and toss in a little apple to taste.

DINNER

For dinner, make it simple and light. Have a lot of green vegetables and/or leafy greens with a piece of poached, roasted, or grilled fish. You want dinner to be light so it is easy to digest before sleep. This way your body has the time to detox, recover, rejuvenate, and restore overnight.

FISH AND GREENS

This simple, healthy meal is perfect anytime of year. Bon appétit!

Fish

White fish (your choice)

Herbs, rubs, marinades (be creative, use what you like. Some ideas: pesto, mustard, tahini, or just a dash of sea salt and pepper)

Greens

1 handful of kale, stems and leaves coarsely chopped

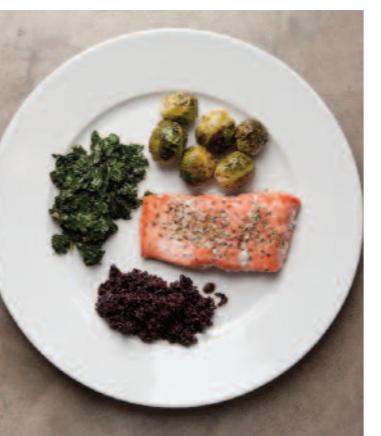
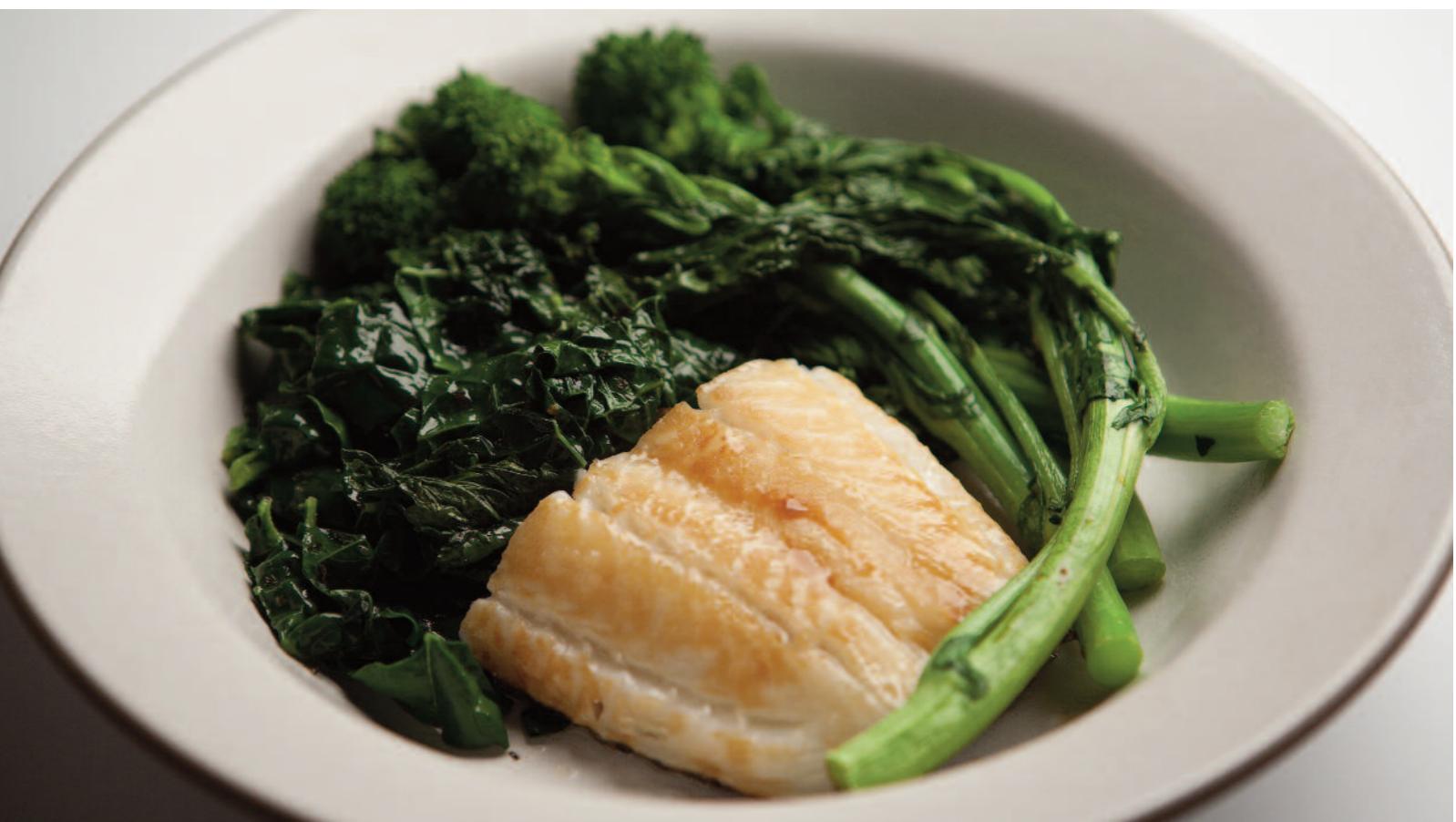
1 handful of broccoli rabe

1 tablespoon (15 ml) olive oil

1 clove garlic, finely chopped

Salt and pepper

Preheat oven to 425 degrees Fahrenheit (218 degrees Celsius). In a bowl add herbs, rub, or marinade to fish. Put fish in a baking dish in the oven. Cook for 12 minutes. While the fish is cooking, add 1 tablespoon of olive oil and chopped garlic to a pan, heat for about 1 minute. Now, add the broccoli rabe and sauté for 3 minutes. Add a small amount of water if the pan is getting dry. Add kale and sauté for 1 minute. Turn off the heat and cover the pan with the lid. Let it sit for 1-2 minutes to steam. The greens should be bright green when served. Season with salt and pepper to taste. Serve greens alongside fish.



“It is worthwhile to be as immortal as possible.”

ARISTOTLE