

UNDER PRESSURE

When it comes to aging, the sag-inducing effects of gravity are inescapable. Or are they? **April Long** investigates the latest ways to keep skin on the up and up

The universe's most elemental force: Sir Isaac Newton discovered it and Albert Einstein defined it, but it was another observer who best summed up its unlovely effects. "If you don't fight gravity," Marilyn Monroe told *Life* magazine in 1952, "you sag."

At this very moment, even though you don't feel it, gravity is pulling you down (if you happened to spontaneously fall over, you would accelerate groundward at 32 feet per second, squared). It's holding all of us onto the planet, of course, so we should be grateful, but it's also exerting considerable pressure on our skin, bones, and organs. Gravity's relentless tug is to blame for the fact that most of us will lose as much as half an inch of height every 10 years after we hit 40, and will eventually develop many of the telltale signs of aging, such as deep folds between the nose and mouth, hollowing under the eyes, and jowls. After the age of 30, those areas gradually droop, on average, about 4 millimeters over the next 20 years.

Not only does this inevitable descent make us look older, but according to a recent study conducted by neuroscientist and professor Arnaud Aubert, PhD, in partnership with Dior, it also changes the way that others perceive us on an emotional level. In the experiment, closeup photographs were taken of a 40-year-old model at different stages of a trampoline jump: at normal gravity (1G) preceding her leap; during her upward acceleration (at 2G and 3G); and at the midair apex of the jump (0G, similar to the weightlessness

of space). The images were then shown separately to four different groups of 30 volunteers who were asked to assess the woman's age and also report how they felt about her. While the increase in gravitational pull did slightly push up the needle on her perceived age (she was presumed to be five years older at 3G than at 0G), the greater impact, it turned out, was on her likability. At 0G, study subjects described her as looking happy, confident, and attractive, but at 3G, they found her to be sad, stressed, tired, and depressed.

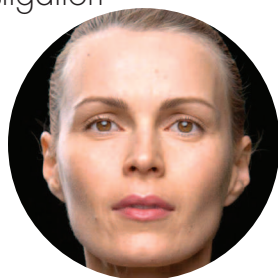
"The brain makes very deep social and emotional assessments based only on the visual cues from the face," Aubert says. "Those cues include wrinkles and skin condition, but also the lowering of the facial muscles, which is caused by the weakening of collagen fibers and a decrease in the muscles' resistance to gravity." And while, according to Aubert, wrinkles alone don't significantly impact a person's attractiveness (crow's-feet, in fact, have been shown to make a face come across

as friendlier and more intelligent), details like droopy eyes and down-turned mouths do—because they mimic, and are being read as, signs of negative emotions such as anger, disgust, or dejection.

So, yes, gravity is a major downer, in more ways than one. But should you now be Googling how to sign up for the first manned Mars mission, here's an interesting, counterintuitive fact: If we found ourselves floating around like so many Major Toms in zero gravity, we'd actually age even faster than we do on earth. This is not only because, according to Einstein's theory of general relativity, time moves more slowly the stronger the gravitational pull (which was actually proven in 2010, when physicists used atomic clocks to

JUMP CUT

Fast-forward aging? From weightlessness to full resistance, the effects of gravitational pull during a trampoline jump, as shown in a study by Dior skin-care researchers.



0G



1G



2G



3G

demonstrate that time passes more quickly at higher elevations—albeit only about 90 billionths of a second over a 79-year lifetime), but because the human body needs the resistance that gravity provides in order to stay resilient. Although it's well established that space travel weakens muscles and bones—the results of NASA's recently concluded Twins Study involving Mark and Scott Kelly, one of whom stayed on earth while the other orbited for a year, should provide further elucidation—some studies have specifically focused on the effects of 0G on the complexion. In 2015, researchers found that astronauts' skin thinned nearly 20 percent after six months in space; another 2015 study, conducted on three mice, found a 15 percent loss of thickness in the dermis after 91 days aboard the International Space Station.

“People who spend an extensive amount of time in space go through an accelerated aging process,” says London-based dermatologist Yannis Alexandrides, who developed his skin-care line, 111SKIN, in collaboration with two former Soviet space-program scientists. “The effect of minimal gravity is that the body doesn't need to be as strong as it needs to be on earth, so gradually the muscles atrophy, the bones lose density, and the skin loses thickness and connective tissue.”

The uplifting news? Ongoing research may bring a greater understanding about where the sweet spot might be between too little and too much gravity—and how the right topicals might be used to stave off the slackening con-

sequences of either extreme. NASA is currently conducting a program called Skin-B (slated to be completed in 2017), in which astronauts' skin will be analyzed over time in order to determine how to prevent the adverse effects of microgravity. Promisingly, in a study published in 2008, astronauts who used a glycerin-based moisturizing emulsion while in orbit were able to mitigate some of the skin-ravaging effects of extended space journeys.

For the rest of us, many skin-care companies are now zeroing in on the issue of gravity-induced laxity, developing products calibrated to reinforce the complexion's inner structure and tensile strength. Dior's newly reformulated Capture Totale Multi-Perfection Crème contains longoza flower extract, which the brand has found to activate a collagen- and elastin-generating stem cell matrix present in the upper dermis that, according to Edouard Mauvais-Jarvis, Dior's scientific communications director, “acts exactly like a spring, bringing mechanical resistance to the skin and making it able to resist gravity.” Indeed, subjects evaluated by dermatologists showed a 20 percent decrease in facial sagging and a 25 percent increase in skin elasticity after two months of using the new Capture Totale twice daily.

When more heavy lifting is needed, dermatologists have a battery of solutions. Tried-and-true fillers such as Restylane and Voluma can restore volume to sunken cheeks and temples and redefine the jawline; Botox can be used to disable downward-pulling muscles in the neck and above the eyes. And for the adventurous, a newfangled version of the thread lift—available in the U.S. as the

Silhouette Instalift, which received FDA approval in April 2015—is being touted as the most natural-looking way to restore drooping facial contours. Whereas old-school thread lifts—which involved the lacing of barbed, nonbiodegradable strings under the skin so that the face could be winched up—were beset by so many complications (infections, uneven results) that FDA approval was rescinded from many of them shortly after it had been granted in the early 2000s, the new generation involves dissolvable threads and a gentler technique. Paris- and London-based dermatologist Maurice Dray, MD, who is sought out by A-listers for his Goop-approved sugar-thread lift, says he's been performing the 30-minute procedure “for the last two years, nonstop,” and has seen no side effects other than slight bruising. The thread, which is injected into the skin with a long, hollow, very thin needle after the application of numbing cream, is made of sugar-derived glycolic and polylactic acids that are absorbed into the body over the course of six months—and while the tension in the string provides an immediate rejuvenating effect, it's the collagen fibers that form around the thread that, Dray says, provide long-term lifting that can last two to three years.

Though gravity may be the latest buzzword when it comes to addressing the same age-related sagging that has beset citizens of Planet Earth since time immemorial, our options for defying it, whether with potent ingredients or high-tech treatments, are better than ever. Universal law decrees that what goes up must come down—but that doesn't mean it has to stay there. ■



RAISING THE BAR

From far left: DIOR Capture Totale Multi-Perfection Crème comes in three different textures; 111SKIN Y Lift Neck & Décolletage Serum boosts with antioxidants, peptides, and hyaluronic acid; potent botanicals in SISLEYA Sisleya L'Intégral Anti-Âge significantly thicken the dermis; Korean favorite J.ONE Jelly Pack provides a corsetlike effect on facial contours; DR. JART Neck & Chin Lift mask features acupressure dots to drive firming ingredients into skin.