



# Universal Design Targets Products for All Ages

*A large and growing group of elderly and disabled people seek style and quality in the devices that assist them*

By Robert Grace

**P**roduct design, for the most part, has failed the elderly and less able-bodied among us. That is the opinion of some designers and product developers who are focusing now on changing that dynamic.

For years, “when designing for the older generations, manufacturers have a tendency to talk down to elder people,” according to Anders Berggreen, founder and CEO of Danish design firm byACRE ApS. “Nobody really cared about designing for the elder market,” he said in a telephone interview.

to choose these glasses based on our personal sense of style, and they’re just another accessory.

“I think we need to start thinking about products we use that match our abilities in the same sort of way. ... The generation that’s getting older now is used to choices, and I think there will be more of a demand for [such products].”

## An Aging Population

To that point, the increasing interest in designing for the older generation is not entirely altruistic. As Baby Boomers age, the birth rate declines, and people live longer, that group is becoming a much larger segment of the population, representing a key economic demographic for those selling products.

In 1950, after all, only 8 percent of the U.S. population was 65 or over, according to market research firm Statista. By 2019, that number had more than doubled to 16.5 percent of the American population and is expected to reach 22 percent by 2050.

Costello—who initially worked as a software coder and then as a branding and marketing consultant—explains that she and her sister got interested in universal design when they looked for, but couldn’t find a good-looking, two-handed cup for their 86-year-old mother, whose hands tended to shake.

They first planned to identify such products, strike marketing deals, and create an attractive retail platform to sell them online. But there was one problem—virtually

“I think there is a squeamishness about old age and disability,” notes Susan Costello, who in June 2016 founded Eyra Stores Ltd. in London along with her sister Anne. The Irish pair, working with British designer Sebastian Conran, plans to launch in February their first line of products—specially designed kitchenware utensils targeting those who may have difficulties in gripping such items.

“People avoid talking about [age], and ignore it,” Costello



Susan Costello: “Mindsets need to change” when it comes to elder design. Courtesy of Eyra Stores Ltd.

says. “It’s a mindset that needs to change. Many of us, once we turn 40 or so, need glasses for reading, and yet we don’t then consider ourselves disabled. We tend



A set of four kitchen utensils comes with a magnetic wall rack. (above) Designed by Sebastian Conran, Eyra's first set of utensils are shaped to accommodate different grips. (left) Courtesy of Eyra Stores Ltd.

no such high-quality products seemed to exist. With a few exceptions, she says, most such products “seemed to have been made by well-meaning inventors, rather than by industrial designers who think about the whole holistic and user-centered approach to design.”

Also, in those countries with a more public-supported healthcare system, such as the U.K. and Scandinavia, supplies of such products tend to cater to the low-cost, lowest-common-denominator type of items for which the system will pay. But there are millions of individuals with the means and desire to acquire high-quality, attractive and seriously functional products to help them in their everyday lives. The Costello sisters decided to partner with designers to create their own line of stylish homeware accessories.

Two years later, Susan Costello says, “It continues to surprise me ... why nobody else is doing this? It seems such an obvious omission.”

## Eyra's Ergonomic Utensils

The first four-piece set of Eyra utensils—a pasta grabber, spoon, slotted spoon and spatula—all feature uniquely angled handles designed by Conran. Sebastian Conran Associates in London also 3D-printed the early samples of the products to help refine the concept.

“The shape, angle and width of the handle has been carefully considered to accommodate different grip types,” Eyra states on its website. “They’re more comfortable in the handle than standard straight-handled utensils. As soon as you start using them, you’ll wonder why all utensils aren’t like this.” The handles come in two colors—aubergine or orange—and all have a stainless steel hook at the end.

The products are due to hit the market in February, at a price of £60 (about \$79), which includes a wall-mounted, magnetic rack. Eyra retains the intellectual property rights to its products, and negotiates royalty deals with its designer partners, who help to promote them, Costello explains.

The handles are injection molded from polypropylene and are overmolded with a soft-touch thermoplastic elastomer for a safer, more comfortable grip. The heads are molded from tough, lightweight nylon, covered with a premium-grade, high-temperature-resistant silicone. The finish on the steel tooling was made using electronic discharge machining (or so-called spark erosion), which lends a slight sheen to the finish of the utensils.

Costello says she wanted to manufacture the products in Europe, and considered having the tooling made in Portugal, but was quoted a price of €120,000 (about \$141,000), compared with a price of \$28,000 in China.



As a startup company, they had no choice but to go with the Chinese option.

Eyra is already planning to expand its product line, to include items such as a premium, over-bed activity table made of Serbian oak that is on rolling castors, has a flip-top and is adjustable in height. Costello says they also may develop a range of bathroom and personal-care products.

### Elder Empathic Experiment

If there is a doyen of universal design, many would agree it is Dr. Patricia Moore, dubbed by some as the “mother of empathy.” A celebrated international designer and gerontologist, Moore in the late 1970s became disturbed by seeing the difficulties encountered on a daily basis by her grandparents, with whom she lived. She saw the issues they had with everyday products, and with features in their home, and out on the street, since nothing had been designed for people with their types of physical limitations.

Starting in 1979, at the age of 26, Moore pulled off an audacious, now-famous, experiment to try to better understand what it was like to live as someone of advanced age. From 1979 to 1982, with the help of a makeup artist from “Saturday Night Live” in New York, she transformed herself into a woman in her mid-80s.

She wore a prosthetic cocoon that made her hunch over. She wrapped her hands and legs to make them less functional, wore glasses that hampered her sight, walked with a cane, and donned makeup and a wig to complete the mirage.

Her personal encounters with ageism and discrimination were shocking and eye-opening to her. She was often ignored, or dismissed, by those around her, and simple tasks proved difficult to do. She had difficulty reaching items, opening doors, reading instructions and the like.

As a result, she realized that she had to continue her research on this topic, giving birth to what she dubs the Elder Empathic Experiment. In 1985, she published a book on her experiences titled “Disguised: A True Story.”

Moore helped to develop the OXO Good Grips ergonomic kitchen tools, as well as designs for other leading appliance and housewares makers. She also helped write the 1990 Americans With Disabilities Act.

She has been widely recognized for her pioneering research. In 2000, a consortium of news editors and organizations named her one of The 100 Most Important



In her 20s, Pattie Moore underwent a dramatic transformation to understand the challenges of living as an elder with physical limitations. Courtesy of Dr. Patricia Moore

Women in America. ID Magazine selected Moore as one of The 40 Most Socially Conscious Designers in the world. She is a Fellow of the Industrial Designers Society of America, in 2016 was named one of The Most Notable American Industrial Designers in the history of the field, and in 2020 won a Cooper Hewitt National Design Award for her decades of work.

Now 68 and living in Phoenix, Moore remains as passionate about and devoted to her work as ever. In a phone interview with Plastics Engineering, she offers her insights on trends in this space. For one, the COVID-19 pandemic has had a profound effect, in her view, with many being emotionally affected by being restricted or seeing others restricted from interacting with elder friends and family members. This has stirred embers of



empathy not often seen before.

“I’ve seen interior designers, architects [and other designers] really responding in a very humane and holistic way to try to circumvent these types of effects from ... a pandemic.”

When it comes to the design process, Moore admonishes, “We have failed terribly, in not considering cognition, low vision, loss of hearing, grip and grasp. Overall, I still have to criticize my friends and colleagues, in that we don’t make it an important part of our design brief. That’s because a lot of companies say, ‘They’re old, they’re dying off, they’re not the focus of our work.’”



Now 68, Patricia Moore continues to advocate for universal design. Courtesy of Dr. Patricia Moore

“I’m still crestfallen and very sad that the focus of R&D isn’t equity for all individuals by design. That failure,” she counsels, “is that all of us face the potential loss of autonomy and independence as we age. Companies that dismiss elders and people living with all levels of ability are ignoring half of the planet’s population. Until we achieve ‘Design for All’, my work won’t be done.”

## The Key Role of Plastics

Moore also is a huge advocate of plastics, which she sees as being a safe, practical and forgiving material. “My life is full of plastics, and better for it. I can’t imagine a high quality of life without plastics. It’s absolutely impactful and important to have plastic as an alternative material choice [for our elders]. It keeps them safe; it keeps them secure.”

Moore says she encouraged her parents, when in their 80s, to use plastics dinnerware, after her mother suffered a gash from a broken glass. She got her mother

some classic, colorful, handled Heller mugs, which were designed by Massimo Vignelli some 50 years ago, as well as a set of lightweight Copco melamine dinner plates. “And she loved it,” she recounts.

Moore singles out Tupperware Brands and designer David Kusuma, the firm’s long-time vice president of research and innovation (global R&D), for doing exemplary work. Tupperware’s beautiful, easy-to-open, safe, stackable and multi-sized food storage containers not only help to reduce food waste, but are a key component to food portioning, which is vital for elders’ nutrition.

## A Stylish Rollator. Really?

Others, meanwhile, are focused on serving different segments of this market.

In 2004, byACRE’s Berggreen founded a firm called Seed, which sold premium baby strollers and pushchairs that he designed. He recalls: “Years ago, I was asked, ‘Would you not like to design a rollator?’ (a wheeled walker) And I said, yes, you are absolutely right, I would not like to design a rollator. Because I thought it was so unsexy and, for me, boring. I really was not interested in doing that.

“But after I said ‘no’ to that, I started seeing rollators everywhere. They looked to me like something manufactured in East Germany in the 1950s and ‘60s. They were just so boring.”



byACRE’s Anders Berggreen says his products’ users are “customers,” not “patients.” Courtesy of byACRE

Then Berggreen got to thinking of the importance of applying design to help those who were challenged in their mobility, not necessarily just older people. He read a study about people who needed such devices, and how they were lacking. He realized that those users tended to feel sick and embarrassed and their level of social activity declined almost to nothing.

So, after selling Seed and then founding byACRE in 2015, he said: “We made a design brief for ourselves:



Can we make a rollator that looks like furniture?" He pondered how to take some of the references of classic Scandinavian design and incorporate them into such a product. The firm's first rollator earned a prestigious design award.

Another important element of the mindset, he stresses, is that byACRE does not view its product users as "patients," but rather as "customers." They might be challenged in their mobility, but that doesn't mean you are a patient. "There's a very, very big difference," he says, "between talking to a patient and talking to a consumer."



Berggreen sees no reason why assistive devices such as rollators can't be functional and stylish. Courtesy of byACRE

Consumers have free choice. They make their own decisions about what they like and don't like. So byACRE aimed to create a rollator that someone would like to walk with. It wasn't something that the user just got from an insurance company or from the healthcare system.

Berggreen says the response to early models was positive. He received letters from family members of those using byACRE's rollators saying that the user had resumed a social life again. It is no accident that byACRE's very name was assembled from the words "active" and "re-habitate"—Latin for "back to life."

### All About Losing Weight

While gathering this user experience, the byACRE team learned that the weight of the product was important to those customers. But, he says, manufacturers paid little attention to product weight. Most rollators then were made

in China, for European and U.S. companies, "and nobody really cared about designing for this target group."

The firm next turned its attention to finding how to produce a stylish yet lightweight frame. That led them to explore carbon fiber and resulted in its latest product—the Carbon Ultralight. Berggreen outlines the labor-intensive, low-pressure manufacturing process that byACRE uses to make its products in-house, via operations in China, Myanmar, Sweden and Denmark.

First, there is carbon cutting. In this process, small prepreg sheets of the Japanese-sourced carbon fiber are cut out and combined. This resembles a form of knitting or weaving, where the strands are woven in different directions. He says byACRE uses its "own special recipe" for this process, to yield a strong, lightweight frame. "This is the heart and soul of the Carbon Ultralight walking experience."

Once the sheets are cut and woven, they are layered to create the special "boomerang" shape of the rollator frame. "Our frames consist of around three large pieces that are combined in different directions to form the unique shape." Inside these overlapping sheets they insert silicone bladders to help the frames keep their shape during the next step,



byACRE's Carbon Ultralight rollator, made from carbon fiber, weighs just 10.5 pounds. Courtesy of byACRE

which is the baking process.

The construction is then placed inside a custom-made mold, which is heated to 180°C and baked. The bladders inside are inflated incrementally to keep pressure and ensure that the shape holds. Once out of oven, the frames are fitted with cuttings and drillings done by hand at the top of the frame where clips and the handlebar are attached.

Once done, the frame parts are sent for painting. They first must be sanded by hand before being coated with layers of byACRE's Oyster White, Carbon Black or Strawberry Red color paint. The frames are finished with a clear coating and a good polish, and after a careful inspection are sent off to be assembled.

It's obvious, Berggreen notes, there is a lot of work involved in creating a Carbon Ultralight rollator. "Making the carbon fiber frames is only a small part of the entire production process, but it is very much in this step that the DNA of the rollator lies."

The Carbon Ultralight model sells for between \$600 and \$650 in the U.S., and weighs just 10.5 pounds. While initially skeptical as to whether the product would be well received in the U.S. beyond a few major cities, he says byACRE has already sold the model in 48 states, as well as across Europe, and in South Korea, Japan, Australia and New Zealand.

## Next: A 'Masculine' Model

Now, the firm is developing a Carbon Overland model that was due to launch about the time of this publication. It will have a "very masculine" look and feature bigger, air-filled wheels that can be used to navigate through sand, mud and other off-road surfaces. byACRE developed this model and partnered with Land Rover, to co-promote it in conjunction with the automaker's recently relaunched Defender sport utility vehicle.

When it comes to marketing, Berggreen explains, the messaging is vitally important. It's a huge step mentally to go from using a cane to using a rollator. His approach is that "it's a means of transportation much more than it's a mobility aid, and I think that's why it works."

He doubts, frankly, that such a product could have succeeded a decade ago. But the internet has made a huge difference in buying patterns. Instead of doctors or caregivers going to medical equipment stores to buy the cheapest, sturdiest walker or rollator, now the user herself can research the product from home.

"With the internet," he says, "people Google it and find information about these products. We can see on our website that people come and go and come back and take time to read our design philosophy. It gives them confidence. That would have been impossible 10 years ago."

## Normalizing Bodily Devices

Other companies also recognize the opportunity to serve the growing, style-minded community of aging

or otherwise challenged individuals who need assistive devices of one type or another.

Oticon A/S of Copenhagen develops stylish, very visible hearing aids. "They have helped to eliminate the stigma of wearing such devices," says Berggreen. The growing use of wireless ear buds and headphones also help to normalize the wearing of such items. In fact, some of Oticon's models even allow the wearer to connect their hearing aids via Bluetooth to listen to music or to manage hands-free phone calls.

Coloplast Corp., which is based in Minneapolis, makes the ostomy pouches that individuals must wear after surgery to address serious intestinal issues that require them to have a hole in their lower abdomen and to use such a pouch. Berggreen says Coloplast hired a designer he knows and asked that person to design better-looking ostomy bags and related packaging so they would more closely resemble a high-quality designer bag. Again, "they took all the stigma out because they simply chose another language, in their design and in their communication. And they are absolutely the world leader today," he remarks.

Berggreen says byACRE's motto, "Age Is the New Black," drives all that it does. "We believe that aging is a new and exciting transition of life that should be reflected in the modern design of today." He adds: "Make something that doesn't keep saying that you're sick, or about to die. Make something that looks nice, has a good function, and that you would use if you had to pay for it yourself." Beyond rollators, the company has design ideas for products in bathrooms, bedrooms, living rooms and kitchens.

A common theme runs among the philosophies of those dedicated to advancing this sector, and it centers around giving customers, regardless of age or ability, a variety of attractive, quality product choices.

"If you don't have choice in your life," stresses Moore, "you can't have control of your life. And if you don't have choice plus control, you cannot get quality of life."

"That's really what I try to convey to both clients and students of design and architecture," she says. "Keep pushing that snowball up the hill, because the more we create, the better we get, and the more opportunities we create for consumers all over the world, for every price point and lifestyle."

### ABOUT THE AUTHOR

Robert Grace is a writer, editor and marketing communications professional who has been active in B2B journalism since 1980. He was founding editor of and worked for 25 years at *Plastics News*, serving as editorial director, associate publisher and conference director. He is now both editor of SPE's *Journal of Blow Molding* and a regular contributor to various outlets. A long-time member of the Industrial Designers Society of America, he runs his own firm, RC Grace LLC, in Daytona Beach, Fla., and can be contacted at [bob@rcgrace.com](mailto:bob@rcgrace.com).

