

Rest Easy

An easy chair and a cushion
solve painful difficulties
for one man.

By Jonathon Schuch, ME,
and Indra Lawson

When a person acquires a disability later in life, he or she discovers that adaptations need to be made to everyday equipment. Roy Bonavita was one of those people. The division of Rehabilitation Engineering Services at the University of Virginia adapted a seating system to meet his needs after he was diagnosed with osteoarthritis and had hip replacement surgery. The system needed to account for his exceptionally tall height, meet a specific trunk-to-thigh angle greater than 90 degrees, and allow feet elevation.

Roy Bonavita, who is 6 feet 5 inches tall, had two total hip replacement surgeries on the right hip due to avascular necrosis and osteoarthritis, a degenerative joint disease. To reduce stress on the operated hip, his orthopedic surgeon advised him to sit in a chair that

allows an obtuse trunk-to-lower-limb angle. He also needed to elevate his feet and recline in his chair because of ankle edema.

Roy put two pillows under the seat cushion and one behind the back cushion of an easy chair that he owned

(see Figure 1). However, while this system raised him to a height that made getting out of the chair easier, he was not seated at the angle recommended to relieve stress from the operated hip.

Engineering and Assistive Technology Society of North America. A number of responses were received, but most of the equipment suggested did not meet all the requirements.

Roy was experiencing discomfort that prevented him from sitting in his chair for extended periods of time.

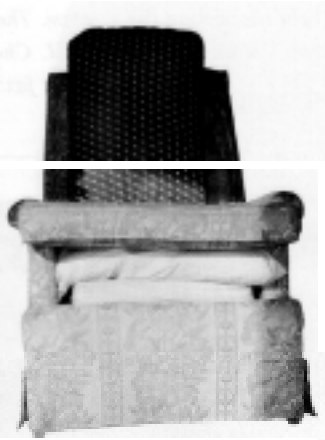
Consequently, he was experiencing discomfort that prevented him from sitting in his chair for extended periods of time during any given day. He was also not able to walk without enduring serious pain. As a result, UVA was consulted by Roy, who learned about the program through his physician.

However, someone did suggest we contact the La-Z-Boy Chair Co. to see if it made or could make a usable chair. A customer service representative recommended its “tall man’s chair.”

We found one store in the area that had such a chair in stock. We visited the store to measure the chair and make sure its dimensions matched Roy’s body dimensions-and it did.

The next step was to search for a cushion that would allow the proper trunk-to-lower-limb

The rehab engineering team first searched for a commercial product that might meet his needs. We initially consulted with therapists in sports medicine to identify manufacturers that made furniture for taller people (e.g., basketball players). Unfortunately, this search provided no useful information.



As a second step, a query was sent out on the list server sponsored by the Rehabilitation

Figure 1 (above). The original solution-pillows and a regular-sized chair-failed to relieve Ray’s pain.

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Figure 2. A hemicushion gave Roy’s hip the right amount of stress reduction.

angle. A search for a commercial product that would meet his size and angle parameters was to no avail. We did find one product that met the angle requirements—the Hemi Wheelchair Cushion by SpanAmerica—but it did not meet his size requirements.

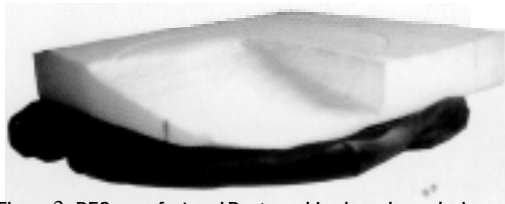


Figure 3. RES manufactured Roy's cushion based on a design originally developed by Steven Sprigle, PhD, and Laura Cron, OTR, formerly of RES.

We ended up manufacturing a cushion ourselves. This cushion has a sloped cutout that provides seat support and allows one leg to be angled downward (see Figures 2 and 3). This concept was incorporated into a 4-inch HR55 piece of foam that would meet the seat depth and width requirements.

Once we had the cushion manufactured, we met with Roy at the furniture store to try the chair and cushion. The La-Z-Boy tall man's chair fit his height requirements very

well and allowed leg elevation, tilt in space and recline. He then tested the hemicushion on top of the seat (see Figure 4).

Roy immediately said this felt much better, and there was less stress on his hip. And with the hemicushion on top of the seat cushion, he was able to stand up from the chair much easier.

Now that the client was pleased with the system, the chair had to be acquired. Rehab Engineering Services purchased the La-Z-Boy, added the cushion and delivered it to Roy, subsequently billing his funding sources (Medicare and Medicaid). The chair cost \$517 and cushion cost \$70, with additional fees for our time.

After using the chair for two months, Roy doubled his sitting time from five to six hours to 10 to 12 hours a day. With the recliner, he's able to elevate his feet, which helps reduce the edema at his ankles. And because he no longer stresses his hip at home while sitting, he has been weaned from his cane while walking. He is also no longer taking pain medication (he was originally prescribed two Voltaren, 75 mg each, taken twice daily). ■



Figure 4. His La-Z-Boy tall man's chair and cushion reduced Roy's pain and doubled his sitting time.

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