Review of My Mobility Designed crutches.
February 8, 2018

A couple of months ago I called offices of Mobility Designed crutches, and requested two forearm replacement clips. Mr. Alcazar fielded my call, asked me some questions about how I like the crutches (I like them a lot) and invited me to submit a review. I did not want to send anything until I had a chance to really use them. And so I waited a couple of months.

I believe that, for someone like me who is going to need an assistive device in order to walk for the remainder of my life these crutches are wonderful. They have greatly extended the distance that I can walk when I am outside, allowed me to move on pavement, grass, and any other irregular surfaces, let me walk uphill and downhill with a regular gait, and given me a degree of stability that is a tremendous relief. Although, like everything else, they are not perfect (see, "Suggested Improvements," below), the **unique** functional innovations in MD crutches make them super assistive devices for somebody like me with severe impairment and the need to move **securely** in the real world (complete with bumpy surfaces, curbs, ramps, hills, steps, people approaching from every direction, streets to cross, wetness and even ice).

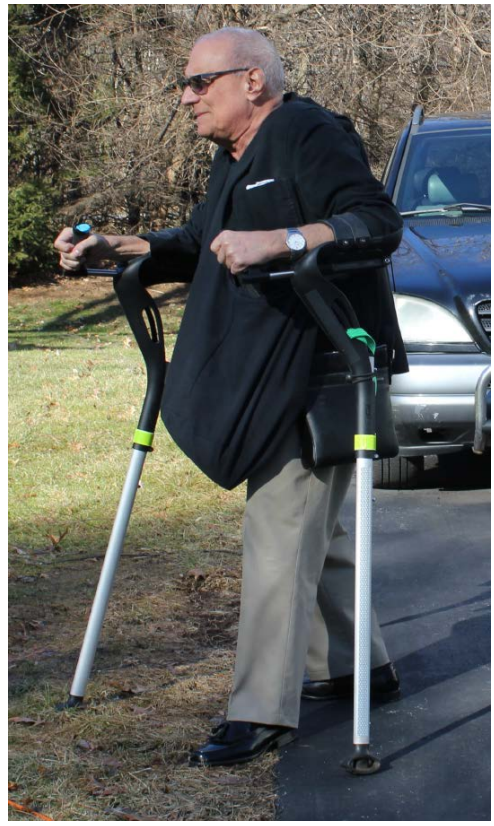

Figure 1 MD forearm crutches moving from blacktop to grass. Note forearm support with cushion and attachment clips, rounded shock absorber toe pads and handgrips up for security and down for manual tasks.

I suffer from severe lumbar spinal stenosis which causes

a great deal of pain and has weakened my legs. In addition, I have a severe upper and lower extremity motor and sensory axonal neuropathy, apparently of genetic origin. As far as walking goes, the combined effect of these two diagnoses is to make my arms and legs weak and to leave me without the ability to balance or to stay upright. The neuropathy has deprived me of "proprioceptive gait," the ability of my arms and legs to sense imbalance and communicate it to the brain then communicate the brain's corrective muscular instructions and efforts to the arms and legs.

In November, 2015, I had lumbar spinal surgery to partially alleviate the severe stenosis which resulted from the generation of the lumbar vertebrae and resulting compression of the spinal cord. I worked very hard for six weeks as an inpatient at the hospital and rehab to move from wheelchair-bound to walking with a cane. I stayed with a cane until the fall of 2017. Over those two years post-surgery, I became increasingly frustrated in my situation. Using a cane, I could not ascend any steps, even a single step up to a curb, I had great difficulty maintaining my balance even on that smoothest surface, and I was unable to walk on dirt, grass or other natural surfaces. Moreover, even with very short distances walk with a cane, say 20 or 30 feet, I developed agonizing low back pain and pain in my right hand and wrist.

Late September, 2017, I saw Louisiana Representative Steve Scalise return to the chamber of the House of Representatives only partially recovered from very grave injuries inflicted in June by a mentally disturbed assassin with a rifle. Mr. Scalise was clearly far from fully recovered. He was walking with a very short and unsteady gait, wearing sneakers, and exhibiting an emotion I recognized – – *i.e.,* mild alarm at being surrounded by friends and well-wishers with no place to sit and rest.

I wondered what was holding him up and then I recognized in the photos black rubber or plastic clips across his upper arms and handgrips upon which he rested his weight. He was using traditional forearm crutches. I decided to explore that alternative. I looked at everything that was available on the Internet and discovered the Mobility Designed crutches which I found to be the only product that did not ultimately place my body weight on the hands and wrists. I went with Mobility Designed because I wanted despe rately to be free of the hand and wrist pain. I'm glad I did.

Probably the single most unique quality of the Mobility Designed crutch is the forearm support cushion. Basically it places all of my body weight on my forearm, which rests on a very comfortable yet firm cushion. Thus, my weight rests on the larger bones in my body, rather than the small, delicate and arthritic bones of my hands.

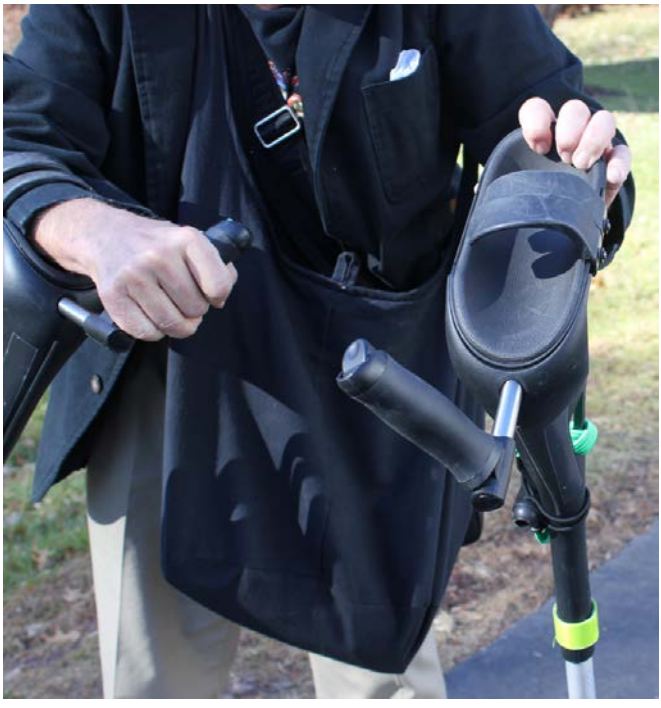

Figure 2 The forearm support cushion with attaching clips and hand hold is shown. Note yellow reflective trouser clips for bicyclists attached at the base of the upright and large cotton shoulder sack that goes with me everywhere.

This forearm support aspect of the crutches radically change the way I ascend a step or move from the street up to the curb. Instead of trying to hold the cane steady with my hand and wrist, I support my weight on my forearm, which in turn is secured to the forearm pad by MD's flexible, elastic clamps and ultimately anchored to the crutch toe pads, one set on the lower surface, like the street, the other up on the curb or sidewalk. Supported at four points—two feet, two crutches--I can securely and gently raise my

body with the combined effort of my legs and my shoulder girdle exerting pressure on to the forearm.

A very point which I wanted to mention is the composition of the plastic forearm cradle, the foundation upon which the forearm cushion and, ultimately, my forearm rests. Unfortunately, one of my principal problems is lack of grip strength and fine hand skill, so, in the course of lifting the crutches out of my backseat or putting them on and taking them off, I have dropped and banged them on concrete and other hard surfaces over and over. I do not recommend this kind of testing. However, the repeated drops have never cracked any aspect of the forearm support structure or any other part of the crutch.

The forearm clips are another unique characteristic of Mobility Designed crutches. Although they are not yet perfect (see, "Suggested Improvements," below discussing their tendency to snap), they allow a relatively secure grip on the forearm but permit me to put the crutches on or take them off with relative ease.

There are some other features that I like: first, there is a clip under the forearm pad that allows the pad to the loosened so that I can reach up to hit the button on my garage door opener or do other things with my ands without losing control of the crutch; second, there were the rubber crutch tips. I am particularly fearful of slipping on rain or ice. I had that problem with the tips of every cane that I purchased, even the one with a retractable metal spike. Yet the toe pads on the MD crutch, with their suction like rubber dimples and the curbs bottom. That seems to insure a solid grip through the entire stride whether out in front of me, beneath my feet, or to my rear.

I have tried to isolate and identify the features that I thought made this crutch stand out from alternatives. But there is an additional feature that is probably more important than the others, but which I cannot fully explain, not being some kind of biomechanical engineer. It may be the result of the way that the long stem of the crutch is anchored to a point midway down my forearms, or possibly the fact that the pivot point around which the crutch and arm together swing is different from that of ordinary forearm crutches or canes. I do not know the answer. **But the fact is that these crutches give me a nice even stride, with the left foot and right crutch moving forward, followed by the right foot and left crutch. This gait seems effortless on flat surfaces, downhill and, most important, even up a significant incline. Because of this special feature, the MD crutches have really expanded the distance that I feel I can walk safely.**

Some Adaptations. I have made some minor alterations to help me use the crutches better. For one, I found that reflective clips made for bicyclists to secure their trousers can also secure the sleeve of a bulky overcoat in order to facilitate getting it into and out of the forearm clips. When the clips are not used, they can easily be attached to the crutches in order to provide reflectors that are noticeable to approaching vehicles. Ten or twelve inch long Velcro straps that are marketed to secure awnings in the off-season serve the same purpose for the crutches. The straps and the reflective trouser clips are available on *Amazon* for just a few dollars.

I also found that there are loads of reflectors that come in silver gray color to attach to the aluminum leg of the crutch and in black to attach to the black plastic of the forearm support assembly. These reflective strips are virtually invisible when the crutches in normal use.

However, they make my crutches extremely conspicuous to approaching vehicles on a dark street at night.

I have slightly altered the placement of the forearm clips. Basically, I chose the option to place both of the two clips on one side of each forearm support, rather than one clip on each side. This way, I lose a little bit of security in terms of the attachment of my forearm to its support. However, arranging both clips on the same side allows me to get into the crutches when I am by myself rapidly and without the assistance of a companion. Well-meaning companions, with every good intention, have "helped" me with the forearm clips, by yanking them so hard and so far that the clips have broken.

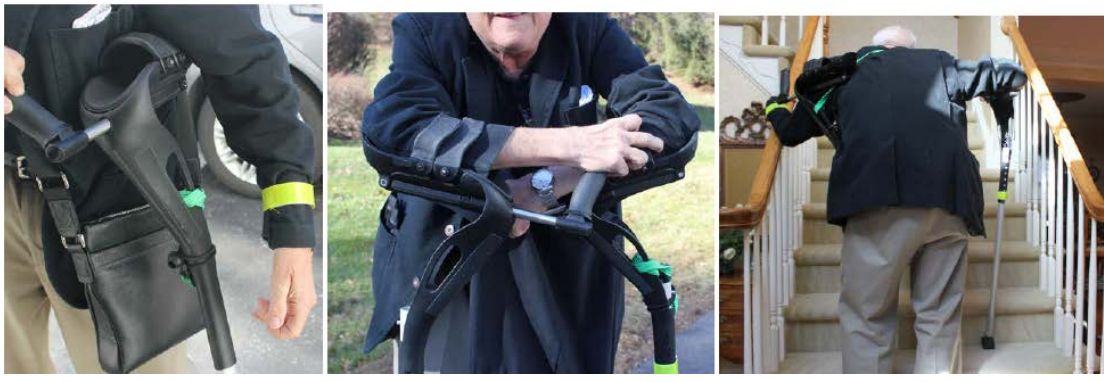

Figure 3 Adaptations: L: Black reflector strip, bungee, reflective cuff; C: Forearm clips allow donning crutches without help; R: stairs with crutch bungeed around shoulder.

Finally, I carry a 36 inch bungee simply wrapped around one crutch. Most times, when I have to ascend or descend a long flight of stairs, I am with someone. I just ask my companion to handle one of my crutches while I go up or down a flight, using, for example, one crutch in my left hand to apply force to the surface of each step and while using the right hand to grasp the railing for security. Of course, I can reverse the process if the railing is on the opposite side. I want to follow this same procedure, which allows me to feel secure on the steps by gripping the hand rail even when I am alone with no companion to

carry the unused crutch up or down that flight of stairs. This solution is that I use the bungee to secure one crutch behind my back and around my shoulder while using the other crutch in one hand and the hand rail in the other.

Let me be clear that the fundamental approach to going up and down stairs is careful surveillance and common sense. I look for and try to avoid locations where I have to negotiate long flights of steps, poorly built steps, thin or narrow tread ways, cracked concrete, etc. I try to find elevators wherever possible. But the fact is that my life in retirement takes me on a regular basis into old churches and other buildings erected long before building codes required uniform stairway treads, risers, and handrails, and when elevators were evidence of opulence, not at all required by code.

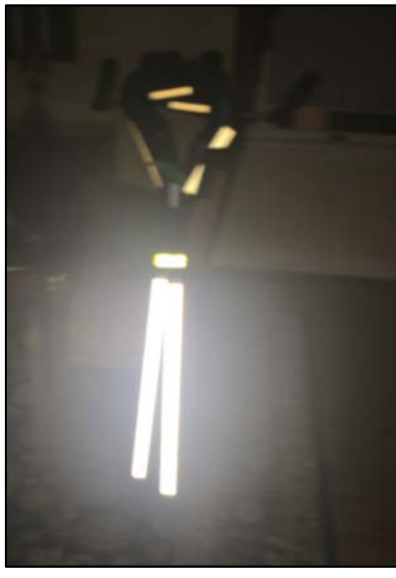

Figure 4 In a dark environment the reflective strips become visually very prominent.

Suggested improvements. I only have a few very minor concerns. First, the handgrips for the crutch have a wonderful feature. There are thumb controlled buttons, which, when depressed by my thumb, allow the handgrip to drop down and free my hand to access any controls or devices that I may need to operate. I imagine that I am not the only crutch user who has neuropathic conditions that make the hands very weak. In my case, for example, I cannot hold a pen firmly enough to handwrite or print the numbers for a tip and total on an ordinary restaurant check. So I certainly cannot depress the thumb switch with enough force to activate it. I think that the buttons could be made to be operated by the neuropathic patient if they were just elongated a bit in order to give the users like me better leverage for more force.

The forearm support clips are terrific. But, they take a lot of use in the course of a day. Moreover, it is difficult if not impossible to avoid having them manipulated by the patient's companions who move quickly to hold them open in order to allow you to get into the crutches. Unfortunately, before I can stop my companions, they yank the forearm clips open all the way. I have had several pair yanked off the anchor that secures them to the framework of the forearm support. I am sure that the anchor clips, now only about 58 of an inch long could be lengthened or the entire clip could be otherwise modified to take the degree of abuse that I am describing, which I believe is entirely foreseeable in the day–to–day conduct of the crutch user.

Another very modest change that I thought might help would be to drill an additional attachment point for the forearm clips on the forearm support, so that the user could attach three clips and really secure the arm to the crutch while still having the capacity to slip the arm, even with a bulky jacket over it, into and out of the forearm clips.

So, as to the forearm clips, I am suggesting overall that they be made more rugged and probably more forceful as to the degree to which they bind the user's forearms to the forearm support and pad. I should emphasize that the degree to which the forearm clips securely attach the user to the forearm support and cushion does not really affect the efficiency of the crutch for walking, ascending steps, or other use directly related to the patient's travel. Those clips need to be secure in order to permit the user to take maximum advantage of the several unique ways that MD has fashioned the crutch in order to allow the patient to do a host of activity with his hands without losing hold of the crutch.

These suggested improvements could add to the cost of crutches, but I think they are a good idea. For me, I cannot imagine going back to any other form of assistive device. I know I

will need to use the MDs for daily travel for a long time. True, when I am at a casino with endless flat surfaces, I can rent an electric scooter. Why am in my home, I can use a walker or Rollator. But when I have to go out into the world with uneven surfaces, bumps, grass, gravel etc., Mobility Designed has to be my choice. I feel that for people like me, the small price increment to make these suggested fixes is is a course I would gladly pay in order to make the crutches ideally suited for everyday use.