

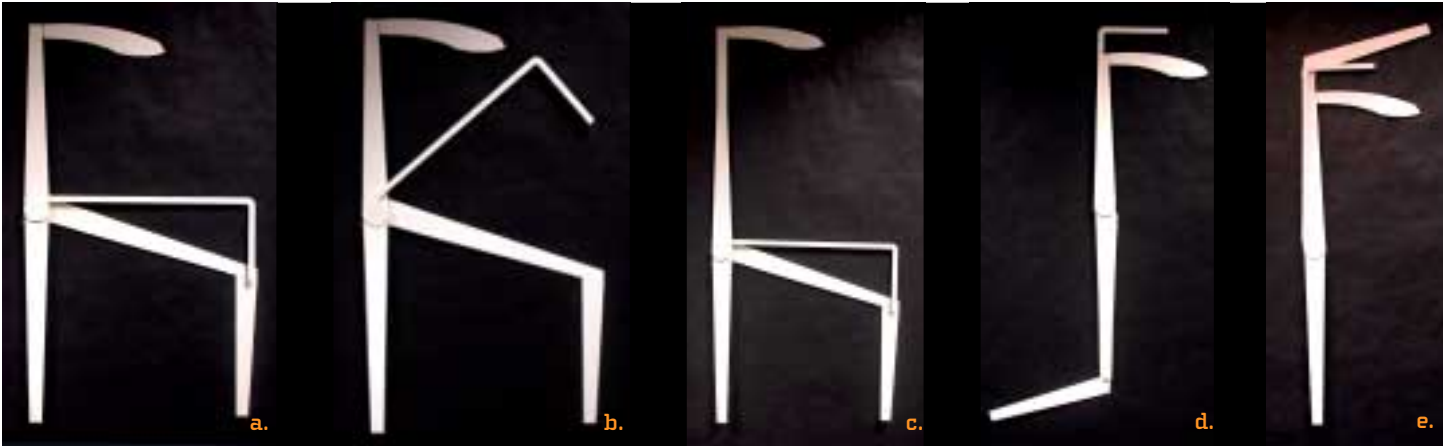


Walker with handles adjusted to trochanter (hip) height of user. Walker with handles adjusted to grocery cart height. User leans on handles.

Engineering prototype



In this prototype mechanics and functionality of the walker were examined in detail. A focus on the adjustability of the height of the handles revealed a significant by-product: rotation of the handles could provide additional ways to modify the product thereby amplifying user flexibility needs. The handles, when turned inward(see photo at left), provide support along the forearm, relieving pressure from tired hands and feet and allowing rest.



Two Dimensional Foamcore Model

This study yielded a re-examination of the geometry of the prototype. Figure a. shows the rotating element in the seated position and handles at trochanter height. Figure b. shows the existing profile and rotating element in motion. Figure c. shows the rotating element in the seated position and handles raised to elbow height. Figure d. demonstrates the volume of the unit when closed. In figure e. there is an attempt to reduce the volume by rotating the leg upward so that all protruding elements are contained in one place.



In figure f. the angled leg was replaced with a straight leg and the pivot point was raised, while the seat element remained constant. As one can see in figure g., the volume was significantly reduced with the removal of the angled leg, however the length of the closed unit was increased due to the added material in the length of the leg. By moving the structural support on the seat/shelf element, both curvilinear and straight leg solutions became options for further design exploration. Ultimately, one can see that the combination of parts in figure j. yielded the most elegant and economical form in both the open and closed positions (figure k.).



Walker as seating.

Walker in use.

Three Dimensional Foamcore Model

The two dimensional form was modelled in three dimensions in order to understand its faults and potentials before beginning the final computer model. It was noted that when handles were configured as in figure a, they could function as a backrest. When configured as in figure b, they would serve as armrests. The handles were adjustable to a variety of heights thereby accommodating individual needs as shown in figures c. and d.