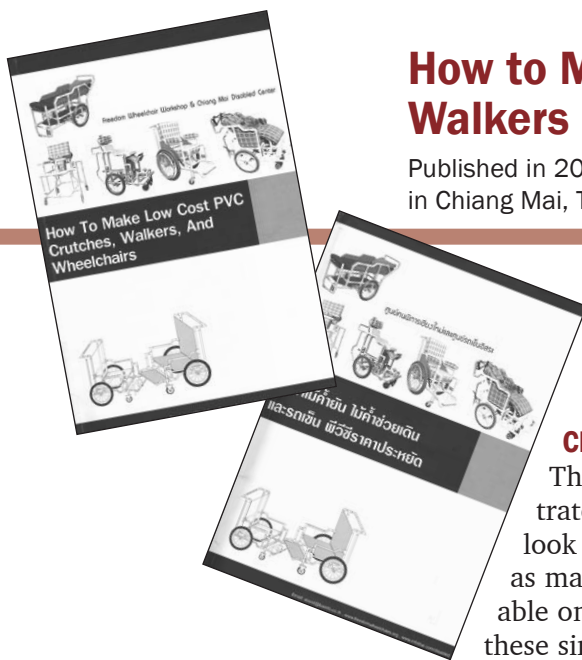


How to Make Low Cost PVC Crutches, Walkers and Wheelchairs

Published in 2005 by Freedom Wheelchair Workshop and Chiang Mai Disabled Center in Chiang Mai, Thailand



Excerpts from ...

Chapter 1. Introduction:

The simple designs illustrated in this book may not look as fashionable or exotic as many mobility aids available on the retail market, but these simple designs perform the exact same function while providing low-income families with safe, sturdy, inexpensive, and especially low maintenance mobility alternatives. Our designs are not set in stone. They are offered as designs meant to undergo constant change and revisions, depending upon terrain, disability, and the weight, size, and age of the client. We encourage our readers to adapt these ideas to your individual needs.

Chapter 2. Common Sense in Planning

“We build chairs to fit individual people, rather than trying to force disabled persons to fit inappropriate chairs.” Building a wheelchair at home from PVC water pipe provides a wonderful opportunity to design the walker or wheelchair to meet the specific needs, and physical proportions of the individual disabled person.

Over the years we have watched well-meaning (but often uninformed) members of groups ... distribute free wheelchairs.

These distributions are often conducted as “media events” in order to gain face or publicity ... Too often (and unfortunately), it remains quite common that little or no thought is given to inviting or empowering disabled recipients to participate in planning

and distribution. Although disabled people must depend upon these donations for life enhancing mobility, they are seldom consulted during the actual process ... In countries where disabled persons suffer from social stigma, it may also be insensitive to hold media events which can cause embarrassment or discomfort to chair recipients.

The Foundation to Encourage the Potential of Disabled Persons and its Freedom Wheelchair Workshop supports the concept that free foreign wheelchair distribution must be embarked upon with care, with responsibility toward verifying need, with thought given to the availability of spare parts and repair, and must always be accompanied by minimal hands-on wheelchair training supervised by professionals. It remains a total enigma why tens of thousands of foreign dollars are repeatedly invested in gathering, repairing, purchasing and shipping mobility aids to countries like Thailand without regard to responsible and recipient-sensitive distribution.

Empowerment

From our perspective as wheelchair producers (especially disabled persons who build wheelchairs); we oppose policies which tend to lock disabled persons into roles as recipients of perpetual public charity. We believe it is wiser and ultimately more enduring to empower disabled persons to participate in all aspects of their daily survival. The book is our example of disabled empowerment.

The 45-page book, with nine chapters in both Thai and English, is available for free. For a copy, contact:
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Chapter 9: Do-It-Yourself Diagrams

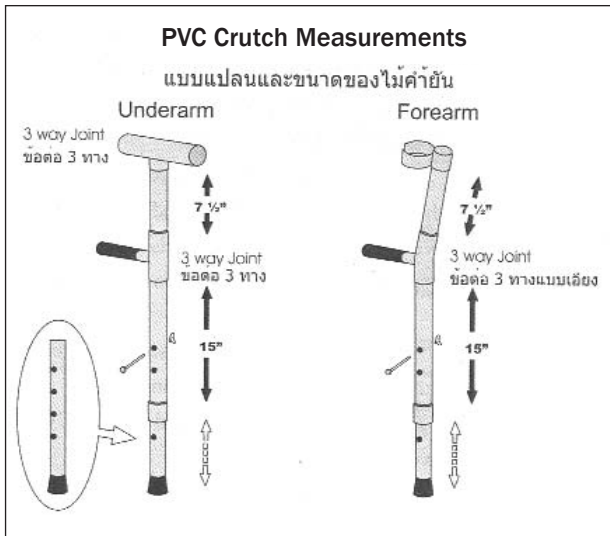


Diagram 8: PVC Crutch Measurements

Our two crutch designs are equally simple to construct. The solid black colored areas indicate the points at which rubber crutch tips and foam or rubber handle grips are added. Measurements shown represent average adult body heights. These measurements will need to be appropriately increased for tall persons or decreased for children or short adults. The lower segment on both crutch designs incorporates telescoping tubes that allow for height adjustment. Sometimes, on underarm crutches, some people also prefer to telescope the section from underarm to handle.

Underarm crutches provide maximum stability and are easy to use. The disadvantages of underarm crutches are that they may cause underarm chaffing and soreness. Soreness can cause perspiration which in turn may cause inflammation. Therefore, underarm crutch users are encouraged to keep underarm areas clean and dry.

Forearm or “Canadian” crutches require forearm strength. Many users feel that forearm crutches are less cumbersome and easier to use than underarm crutches. As indicated in Chapter 3, we recommend that cuff padding be glued to the insides of the two forearm cuffs.

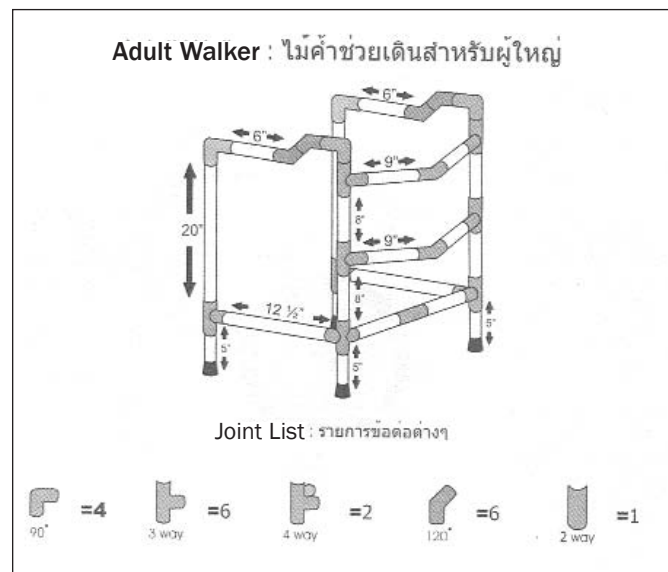


Diagram 9: Adult Walker

A PVC walker weighs approximately the same as a manufactured aluminum walker, but is less expensive and very easy to make. The solid black areas on the diagram show the four rubber tips added for ground stability. If you prefer a height-adjustable walker, you can add telescoping PVC tubes just above each of the 4 feet. On our walkers, we add foam bicycle handle grips. The reason that our two upper front PVC side connecting tubes are curved forward is because the curve adds knee space for walking. A simpler design would use straight connecting tubes. ▲