

An Evaluation of Capuchin Monkeys Trained to Help Severely Disabled Individuals

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Abstract—This report describes an evaluation made by the Rehabilitation R&D Evaluation Unit (REU) of research conducted jointly by Helping Hands, Inc., Boston, MA and Boston University which was funded by the Rehabilitation Research and Development Service, Department of Veterans Affairs. The report covers an assessment conducted in February and March 1989 to determine the activities, effectiveness, advantages, and disadvantages exhibited by the capuchin monkeys placed as aides in the residences of disabled persons.

Key words: *Capuchin monkey aides, evaluation, quadriplegics, severely disabled.*

INTRODUCTION

The results of 10 years of research and development activities concerning the use of monkey helpers to quadriplegics were evaluated by assessing current placements. Helping Hands, Inc. reported that a total of 14 monkey helpers have been placed.

In this evaluation, a detailed retrospective study was made of nine of the ten monkeys currently placed as helpers to quadriplegic individuals. One placement was considered geographically too distant to be included in the study. An experienced therapist conducted interviews with the owners of eight of the monkeys who were living at home. The monkeys were directly observed performing their assistive tasks. One owner was interviewed in the hospital.

In the four placements no longer active, telephone interviews were conducted with the disabled persons in two cases and an on site visit was conducted with the wife of the disabled person now deceased in one case.

Helping Hands Inc. was visited by the evaluators as well as the monkey breeding colony in Disney World. Additionally, the interviewers visited the homes of three of the 89 foster parents reported by Helping Hands as raising monkeys to be trained as helpers.

The evaluation provided sufficient positive findings that monkey helpers are useful, effective and acceptable.

METHODOLOGY

Helping Hands, Inc. identified 14 placements of monkey helpers. This report summarizes data from interviews conducted with nine disabled persons who received monkey helpers.

Eight of the nine active monkey placements were observed directly by an experienced therapist. The recipients of the monkey helpers, all of whom were quadriplegics, were interviewed by the therapist. One person was hospitalized at the time and the interview was conducted in the hospital. The interviewer spent at least 3 and one-half hours at each of the interview sites.

The circumstances of the remaining five placements are summarized below:

1. A visit was conducted with the spouse of a deceased veteran who had received a monkey helper. The monkey, who was awaiting reassignment, was still present in the home during the interview. The wife reported that she and

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her husband were pleased with the monkey helper and that it had been possible for him to be left alone with the monkey for 5 to 6 hours. Previously, she could not leave her husband unattended. The interviewer observed that the monkey responded to her verbal commands.

2. A visit was conducted with a quadriplegic recipient and his father. At the time of the interview the monkey had been returned to Helping Hands, Inc. for reassignment. The recipient and his father reported that for 5 months the monkey had been very helpful. Then the recipient was bedridden and isolated for 3 months, after which the monkey responded only to the father.

3. Telephone contact was made with another person who had received a monkey helper but subsequently returned it to Helping Hands. (This monkey helper was reassigned to one of the other recipients who was site-visited in this study.) The initial owner reported that for 1 year the monkey performed when requested and as needed. However, when the owner returned to work the monkey was left alone for many hours during the day and it was felt that the monkey would better serve someone else.

4. One placement was made overseas, which was considered beyond the travel range for this evaluation.

5. One placement was discontinued because the recipient, who suffered from cerebral palsy, lacked sufficient motor control to properly operate the monkey-related equipment. This monkey helper was returned to Helping Hands for reassignment.

FINDINGS

A. Environment of the Monkey Helper

The monkey helpers in this evaluation were placed with six male and three female quadriplegic individuals. One recipient's disability resulted from muscular dystrophy, the remaining eight were due to traumatic spinal cord injury. Two recipients, both male, were veterans.

Six of the disabled persons resided with a family member (four of these with a spouse), two in a resident home, and one lived alone with a 24-hour attendant. Three of the recipients had a part-time attendant. Five of the recipients had pets (cats, dogs, and a ferret), none of which seemed to pose problems for the monkey helper.

The family members universally accepted the presence of the monkey helper. Seven caregivers reported free time on a daily basis as a result of a few hours of assistance by the monkey helper. All nine of the disabled persons reported that the monkey helper was a pet and companion, as well as an aide.

Table 1

Number of Assistive Tasks Performed by a Monkey Helper (Reported to and Observed by Interviewer)

Name of monkey	Number of years with disabled person	Number of tasks
Hellion	10.0	28
Freeway	8.0	24
Su Su	6.5	28
Henri	6.0	28
Jo	5.0	27
Peepers	1.5	23
Cleo	0.5	15
Jeep (reassignment)	0.5	6
Maggie	0.4	23

B. Description of Monkey Helpers

The monkey helpers in this study were placed for varying periods of time (see **Table 1**). Three of the monkeys (Jeep, Cleo, and Maggie) were placed for less than 1 year, whereas, Hellion was placed for about 10 years.

Capuchin monkeys live an average of 30 years. The monkey helpers reported on ranged in age from 6 to 20 years old. The productive life expectancy of the Capuchin is estimated to be 20 years.

C. Activities Performed

All monkey helpers are trained in a basic repertoire of 60 assistive tasks (see **Appendix A**). Although a monkey helper arrives at the home of the disabled person with this training, it is the particular needs of the individual that will determine what specific activities the monkey will ultimately perform.

In this study, the monkey helpers were observed to perform about 58 percent of the tasks which they learned at Helping Hands, Inc. Additionally, they were able to perform other tasks not addressed in basic training (e.g., turning on or off a computer, television, radio and lights; repositioning a foot on a footrest; pushing buttons on a telephone; and turning a faucet on and off).

The types of tasks requested of the monkey helper varied according to the individual's needs. All individuals reported complete satisfaction with the monkey helper's response, performance, and behavior.

Each person interviewed stated that the monkey accomplished all of the requested tasks by responding to verbal commands; the laser pointer was used in a demonstration only, and there was no need for negative shock reinforcement. The shock pack, a device built into a belt

which the monkey wears and which allows the trainer to sound a warning tone or give the monkey a 0.5 second shock, was reported as being used only during the initial in-home orientation or in training of new tasks.

A review of the tasks performed by the monkey helper indicated that the longer the monkey lived with the disabled person, the greater the number of tasks it performed (see **Table 1**).

The assistive tasks observed by the interviewer as they were being performed by a monkey helper are listed in **Appendix B**. These tasks can be sorted into four categories: feeding, fetching, manipulating objects, and personal care. The monkey helpers all responded very reliably to verbal commands and to the laser pointer in a demonstration. The monkeys did what they were asked to do by their owner.

The survey results showed that the monkey helper increased the owner's independence of human assistance. This is explicitly reflected by the increased time that the recipients spent without a caregiver since receiving a monkey helper (see **Table 2**).

Flexibility of the monkey as a helper is important. The monkey should be able to accompany its owner to perform requested tasks anywhere in the house and even travel with the disabled person. The demonstrated ability to learn additional tasks not taught in basic training (e.g., foot positioning) expands the utility of these helpers.

A very important aspect clearly experienced by all persons interviewed was the relationship that developed between the recipient owner and the monkey helper. In all cases this "bonding" meant a lot to the owner, who viewed the monkey as a companion and pet in addition to functioning as an aide.

D. Acceptability

A number of areas were reviewed regarding the acceptability of a monkey helper. The following potential problem areas were explored by the interviewer but produced no unfavorable information.

- *Aggressive or undesirable monkey helper behavior.* All interviewees identified their monkey's behavior as acceptable and none reported incidents of unacceptable behavior.
- *Care of monkey.* The feeding, caging, grooming, etc. of the monkey was acceptable to the family, and/or attendant.
- *Health care of monkey.* The required medical care of all monkey placements was reported as minimum to non-existent. Two instances of colds were reported which, in coordination with Helping Hands, were treated locally

Table 2

Hours a Quadriplegic Spends Without a Caregiver

	Without monkey helper	With a monkey helper
Average hours	0.4 hours	5.9 hours
Range for 9 quads	0 to 3 hours	1 to 15 hours

in a routine manner. In view of the length of time (5 to 10 years) the monkeys have lived with the disabled person, there appear to be no special medical or health care requirements. The eight monkeys visited appeared healthy and clean. No odors were detected in the house.

- *Matching of monkey with disabled individual.* The screening and preplacement work-up established by Helping Hands, Inc. appeared to be effective. At the time of interviews, monkeys were functioning well. In the terminated placements, the monkeys were removed to respond to the changing needs of the recipient.
- *Supply of monkey helpers.* Helping Hands, Inc. has developed a system to breed, socialize, and train monkeys as helpers. The span of 4 to 5 years from birth to completion of training of each monkey affects the supply of monkey helpers on an annual basis. Helping Hands, Inc. reports 89 monkeys are currently in foster homes as part of the preplacement process. Fifteen monkeys were in training at Helping Hands, Inc. at the time of this evaluation.
- *Care of monkey helper in absence of disabled person.* Absence of the disabled owner, either for short-term hospitalization or employment, presents problems. The monkey helper tends to regress in terms of learned behavior and may transfer allegiance or response patterns to someone else in the household. Helping Hands, as a part of its placement criteria, makes a systematic determination on the disposition of the monkey helper should absence of the owner occur.

CONCLUSIONS

Monkeys can be taught to perform a variety of useful tasks for disabled individuals. By performing these tasks, the monkey helper offers a degree of freedom for a caregiver. A monkey helper also can provide the opportunity for the disabled person to be without a caregiver for periods of time. The performance of assistive tasks is a significant positive contribution that enables a disabled individual to become more independent. Sufficient posi-

tive results were obtained in this evaluation to conclude that monkey helpers are useful and accepted.

The monkey helper was positively accepted in the household of each of the nine disabled individuals and by all types of caregivers, friends, family, and paid attendants. Monkey helpers exhibited a positive behavior and became accepted members of the household.

The research, development, and evaluation phases of this project are completed. The evaluation of the monkeys

placed was found to be satisfactory. If enabling legislation is passed authorizing the Department of Veterans Affairs to provide monkey helpers to quadriplegic veterans, Helping Hands, Inc. would be considered a vendor providing the monkey helpers and all necessary related services including placement and follow-up as required.

Appendix C presents a discussion of the results of a survey to determine veteran interest in concept of monkeys as helpers for disabled individuals.

APPENDIX A

Basic Repertoire of Tasks Monkey Helpers Are Trained to Perform by Helping Hands, Inc.

Feeding

Hold sandwich
Spoon-feed meals
Feed snack

Personal Care

Wipe face
Scratch face with cloth
Put on eye glasses
Take off eye glasses

Fetching

Retrieve mouth stick
Retrieve bottle
Retrieve cup
Retrieve plate
Lift small items from floor
Lift small items from table
Place book for reading
Retrieve splint

Manipulating Objects

Reposition quad's arm
Open cage door
Close cage door
Load floppy disk
Pull cords
Position remote controls
Turn book pages
Position computer paper

Manipulating Objects

Open bottle cap
Close bottle cap
Place drinking straw
Remove drinking straw
Open small refrigerator door
Close small refrigerator door
Place sandwich in holder
Hold cup
Hold plate
Hold bottle
Open oven door (cold)
Close oven door (cold)
Open food container
Close food container
Open cartons
Close cartons
Vacuum floor
Open doors
Close doors
Lock doors
Unlock doors
Open drawers
Close drawers
Open cabinet
Close cabinet
Empty trash
Clean table top spills
Open curtains
Position "J" stick
Load VCR cassette
Unload VCR cassette
Load audio cassette
Unload audio cassette
Position sip and puff unit
Position small appliances
Change floppy disk
Position disk for CD player

APPENDIX B
Assistive Tasks Observed in this Study as Being Performed by a Monkey Helper

Feeding

Spoon-feed meals
 Feed snacks
 Hold sandwich

Personal Care

Wipe quad's face
 Scratch quad's face

Fetching

Retrieve bottle
 Retrieve cup
 Retrieve plate
 Retrieve mouth stick
 Lift small items from floor
 Lift small items from table
 Place books for reading

Manipulating Objects

Wipe table top
 *Wipe lap tray
 Place straw
 Remove straw
 Place sandwich holder
 Remove bottle top
 Replace bottle top
 Hold Bottle
 Hold cup
 Position "J" stick
 Open food container
 Close food container
 Open small refrigerator
 Close small refrigerator
 *Turn on computer
 *Turn off computer
 Open cartons
 Close cartons
 *Turn on lights
 *Turn-off lights
 Lock door
 Unlock door
 *Turn-on radio
 *Turn-off radio
 Load audio cassette
 Unload audio cassette
 Load video cassette
 Unload video cassette
 Position quad's arms
 *Position foot on footrest
 Position sip and puff unit
 *Turn-on faucet
 *Turn-off faucet
 *Push buttons on telephone

*Not included in basic repertoire training

APPENDIX C

Summary Report of Survey to Determine Disabled Veterans' Interest in Capuchin Monkeys as Aides

To determine the potential need and desirability of monkey helpers as care providers to quadriplegic veterans, a survey was conducted in March, 1989. The survey was developed through a joint effort by the VA Rehabilitation Research and Development Service, M.J. Willard, Ed.D., principal investigator, and Boston University, and was mailed to 1,000 quadriplegic veterans (500 service-connected injury and 500 nonservice-connected injury). The results were tabulated and analyzed by an independent consultant.

The survey was completed and returned by 151 veterans (both service- and nonservice-connected injuries). Among the respondents, the average level of spinal injury was C-6, with ranges from C-1 to T-1. The average time spent in a wheelchair was 6 to 8 hours a day. Eighty percent of respondents lived at home with a spouse, 15 percent resided in a nursing home, and 5 percent were in a hospital (not determined whether intermediate medicine or spinal cord injury long-term care). Sixty-five percent had children in the residence and 55 percent had attendants. Approximately 4 percent stated that they worked.

An essential question of the survey questionnaire was: "Considering both positive and negative traits of monkeys, would you want a monkey-helper? There were 29 "yes," 102 "no," and 20 "maybe" responses.

In the "yes" category, there were 26 male respondents and 3 female respondents. However, not all the "yes" answers were unequivocal; many had qualifying statements relating to conditional or trial acceptance and need for more information. None in the "yes" category responded that they worked.

In the "maybe" category there were conditional and/or provisional statements that usually reflected or stated "not now, but maybe later."

Respondents in the "no" category, as well as some in the "maybe" category, found several areas of monkey helper behavior and traits not acceptable. The following percentages reflect the frequency of indication of an unacceptable trait:

Objections of family member(s) — 85 %
 Objections to general animal traits/behavior — 70 %
 Objections to a dependent animal — 65 %
 Objections from an attendant — 50 %
 Objections to animal sexuality — 45 %
 Away from home too much — 30 %
 Cost of care and feeding — 5 %
 Would interfere with work — 3 %
 Other objections — 25 %

Conclusions

A review of the returned questionnaires showed that about two-thirds of the respondents either did not complete all of the information requested or did not adequately and/or accurately fill in the necessary information. Responses did indicate that many of the veterans considered owning a capuchin monkey to be in the "pet" area. Some respondents had personal reservations as to the length of stay of a monkey. Objections from family members or an attendant were listed as reasons, as well as cost of maintenance, and undesirability of a dependent animal, animal traits, and behaviors.

Some respondents viewed a monkey helper as a temporary visitor who could be returned at any time. As the risks of worsening physical or psychosocial conditions increase, concern for the monkey could become an issue, as it would when children, family "live-ins," and additional pets were added to the monkey's environment.

Serious consideration must be given to the fact that 1,000 survey forms were sent out and only 151 were returned, which would infer a lack of interest or ambivalence. The feasibility/needs analysis indicated that interest is not great in the total number of respondents. However, those who were interested were positive in their approach and realistic in expectation as to the role the monkey would play in care delivery.