

New Harness Handle

Japan Guide Dog Association
Sam Tawada



Background

2002 Lukas Franck, The Seeing Eye, Inc.,

'The History and Ergonomics of Harness Handle Design' IGDF Seminar Seoul

2008 Hiroshi Iijima, Yokohama Rehabilitation Center

'Guide Dog Harness Development - Proposal for a Model Putting Less Pressure on Arm Joints', Japanese Conference on Advancement of Assistive and Rehabilitation Technology

2008 First Protocol for Bar-type Handle

May 2012 1st Class with Improved Bar-type Handle

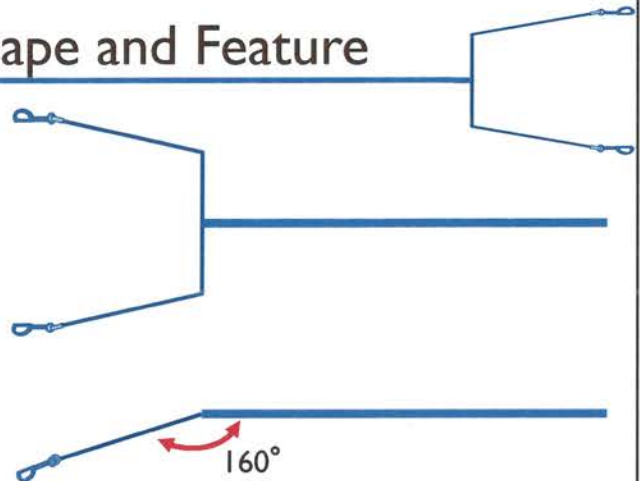
Aug 2012 2nd Class with Bar-type Handle

April 2014 Currently 21 graduates use Bar-type Handle

First Prototype



Bar-type Handle Shape and Feature



- Using golf club grip, same as long cane.
- Angled the handle to fit dog's body.

Bases of Guide Dog Mobility Safety

- Dog is Standing on the Ground
- Only Necessary Information for Stairs is,
Where it starts
- Obstacles such as Over-head, Puddles and Dynamic
depends on dog's learning ability and experience.

Comparison of Handles



U-shaped Handle

Back of the hand facing toward the direction of travel, elbow and shoulder joints twisted inward



Bar-type Handle

Thumb facing the direction of travel, back of the hand and joints in its natural position



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Comparison of Positions

U-shaped Handle



Front Position



Neutral Position



Back Position

Bar-type Handle



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Features of Bar-type Handle

- Change in position is easily done by sliding the handle
- Joints are not twisted inward that
 - We can avoid joint pains
 - It doesn't take time to get used to switching dogs from left to right-handed walk
 - We can freely adjust the position of the dog and the handler
- Different sizes of handles are unnecessary for correct fitting.



Application of Bar-shape Handle - Switching



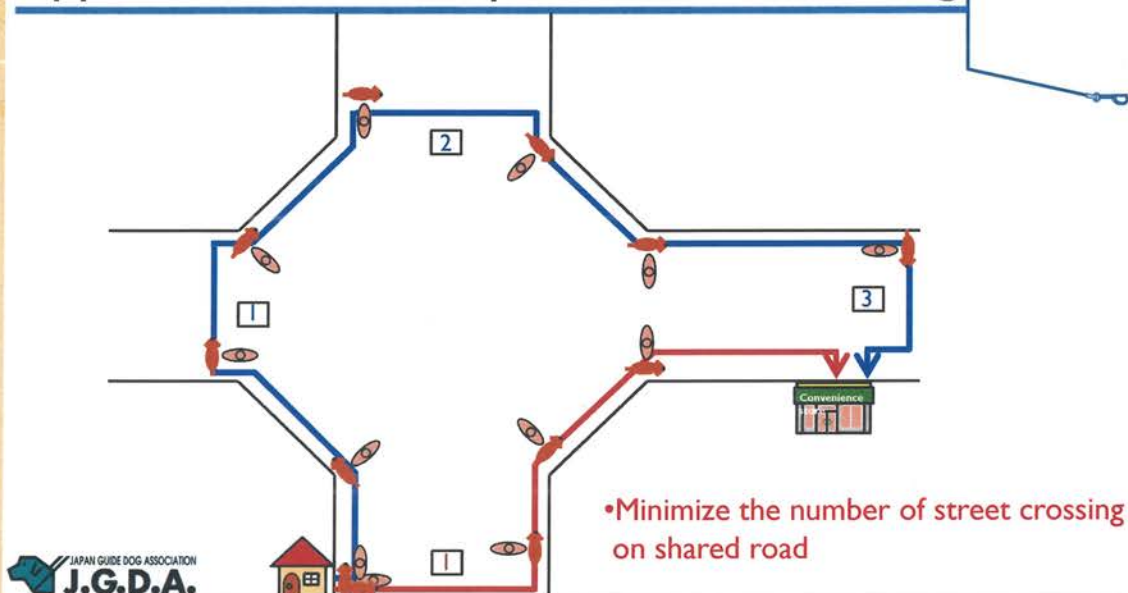
Left-Handled Walk



Right-Handled Walk



Application of Bar-shape Handle - Switching

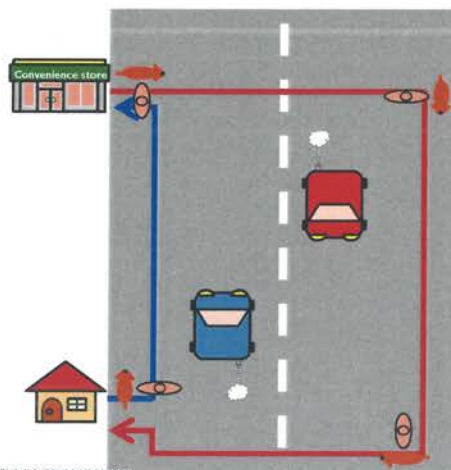


Application of Bar-shape Handle - Switching

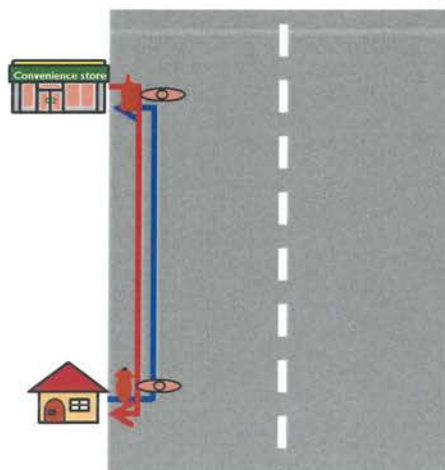
- Introduction of Right-Handled Walk in 2013
- Minimize the number of street crossing
- Switching using Bar-type Handle is much easier than U-shaped Handle

Application of Bar-shape Handle - Switching

U -Turn



I -Turn



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Application of Bar-shape Handle – Special Case



"Safe Guide Dog Mobility for Former Hansen's Disease Patient with Multiple Disabilities" – S.Yoshizawa and T.Suzuki

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Application of Bar-shape Handle – Snow Travel



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'Snow Travel' – S. Tanaka and M. Aoki

Instruction for Bar-shape Handle – Lead Off

Leading Off

Movement of dog leading off can be felt by the sliding of the handle in the palm.

Forward

Handle slides in the palm

Step forward alongside dog



Directional Command

Hold the handle short, handler and dog is closer for easy communication

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Position of Ascending Stairs

- Approach



- Stop



- Lead off



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Position of Descending Stairs

- Approach



- Stop



- Lead Off



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Detecting Start and Finish of Ascending Stairs

- U-shaped Handle



- Bar-type Handle



Detecting Start and Finish of Descending Stairs

- U-shaped Handle



- Bar-type Handle



Note : Treatment of Bar-type Handle

Consideration to others

- Handle gets in the way when calling from under the chair or table.
- Handle swings when dog shivers (ex. At the parking lot)
- Handle sticks out when dog curls up (ex. In the train)

Handle Care

- Do not leave the handle on the ground, facing down. It breaks easily.



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Future Development

- Keep U-shaped handle for clients and trainers who are used to it.
- Secure enough strength
- Cost down from mass production
- Survey on joint strain several years later

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Reference

- The History and Ergonomics of Harness Handle Design 2002
 - Lukas Franck, The Seeing Eye, Inc Morristown, NJ, USA
- Guide Dog Training in Japan The Journal of Blind Welfare May 1976 VOL LX NO.709
 - Howard Robson
- *'Guide dog harness development - Proposal for a model putting less pressure on arm joints'* 2010,
 - Iijima Hiroshi Yokohama Rehabilitation Services, Kanagawa, JAPAN