

# “Beyond” Aching Hands and Stomped-on Feet

Simple Tools and modifications for farmers & ranchers

Curt Johnson  
Maria Kelley



Washington Assistive Technology Act Program  
Technology for Independence

Washington  
**AgrAbility**  
Cultivating Accessible Agriculture



# What is Assistive Technology

## Not Just Electronic Devices

Any technique, solution, piece of equipment or device that improves the ability of people who have limitations or difficulty in completing a task of importance



Assistive Technology (AT) is...

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**FUNCTIONAL  
SOLUTIONS!**



# AgrAbility

A partner to rural communities since 1990

## THE MISSION OF AGRABILITY

Promote success in agriculture for farmers,  
farm family members and rural agricultural  
workers with disabilities



# Focus and Priorities of AgrAbility

- Education
- Networking
- Assistance





# Skagit County

WASHINGTON STATE UNIVERSITY  
EXTENSION

**WSU Skagit County Extension**  
**360-395-2365**

**For more information, go to:**  
<https://extension.wsu.edu/skagit/>



# Washington Assistive Technology Act Program



- ▶ Provide Assistive Technology resources and expertise to all Washington residence with disabilities to aid in making decisions and obtaining the technology and related services needed for employment, education and independent living
- ▶ Each state has a federally funded and mandated AT program that provides comprehensive statewide services
- ▶ University of Washington Center for Technology and Disability Studies (UWCTDS) is the lead agency for WATAP



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# Device Demonstration

- Free service by appointment
- Impartial demonstrations of devices and product features
- Completed at our Seattle offices or other locations in the area as staff are available
- Offered to :
  - Individuals with disabilities
  - Family members
  - Support providers



# Device Lending

- ALLOWS FOR REAL TIME TRIALS AT HOME, SCHOOL OR WORK
- LOAN PERIOD UP TO 21 DAYS
- SHIPPED ANYWHERE IN WASHINGTON (NOMINAL SHIPPING FEE)
- SOFTWARE PRE-INSTALLED AND SHIPPED ON LAPTOP



# Consultation & Evaluation

- In depth assessments and recommendations about Assistive Technology to meet your needs
- Professional recommendations for school, work and home modifications
- Evaluations and Consultations are provided through the UW Center for Technology and Disability Studies as a fee for service



# Assistive Technology is For....

- Prevention



- Maintenance/  
Job Retention



- Long Term Activity





## Categories of Assistive Technology

- Home / Worksite Modifications
- Gardening/Recreation
- Computer Access
- Independent Living
- Communication
- Learning and Cognition
- Vision / Hearing

# AT Could Be.....

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## ► Low Tech

Low tech AT are devices or equipment that don't require much training, may be less expensive and do not have complex or mechanical features.

## ► Mid Tech

may have some complex features, may be electronic or battery operated, may require some training to learn how to use and are more expensive

## ► Hi Tech

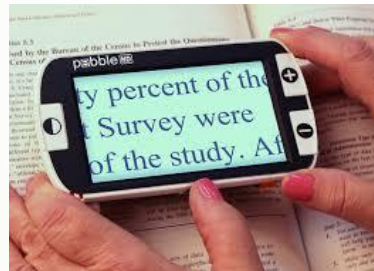
the most complex devices or equipment, that have digital or electronic components, may be computerized, will likely require training and effort to learn how to use and cost the most.

# Assistive Technology Might Be....

## Low Tech



## Mid Tech



## Hi Tech





Assistive Technology (AT) is...

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**FUNCTIONAL  
SOLUTIONS!**

# Table Extender Using PVC



# 50% of AT is abandoned. Why?

- Changes in consumer functional abilities or activities
- Failure to consider user options & preferences in device selection
- Lack of training on how to use the device
- Lack of access to & information about repair & maintenance



# “Safety – Safety - Safety

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(one more time – Safety)

## DO NO HARM

Think Creatively

Know Thyself

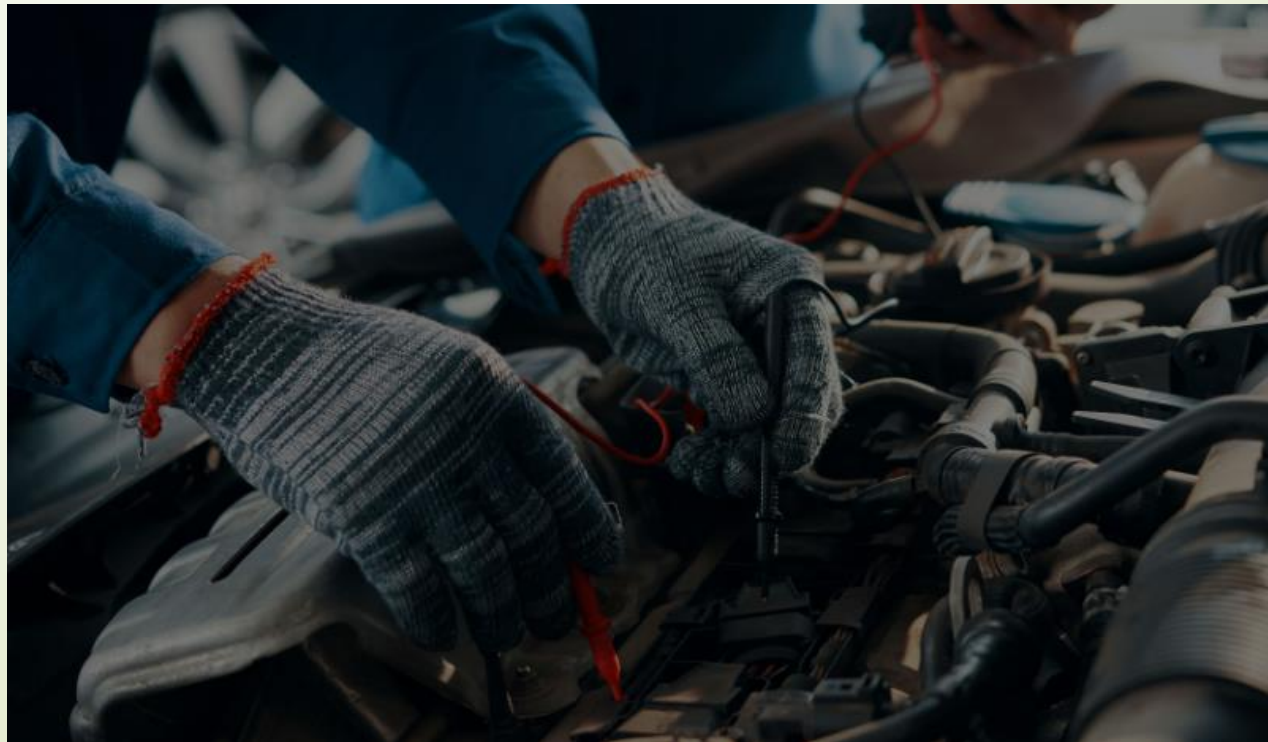
# Choosing AT

- ▶ Tech support available?
- ▶ \$back – warranties – guarantee
- ▶ Compatible with other AT – Mac vs PC
- ▶ Can it be funded – by who and how
- ▶ Who does training – expertise, how much or long
- ▶ Repair – who, turn around, shipping
- ▶ Changes over time

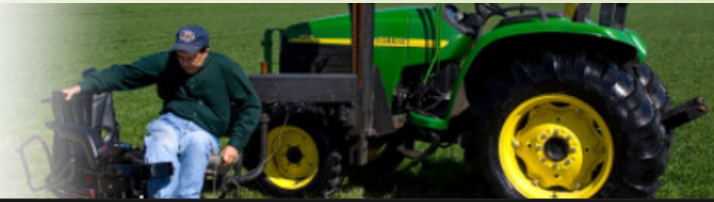


# “I can’t hold a flashlight and use my tools in tight, dark spaces?”

- Head lamps aren’t always an effective light source
- When there's only room for one hand and a tool!







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## THE TOOLBOX

### Assistive Technology Database

*The Toolbox: Agricultural Tools, Equipment, Machinery & Buildings for Farmers and Ranchers with Physical Disabilities* is a resource that contains assistive technology solutions for farmers, ranchers, and other agricultural workers with disabilities.

You can [View by Category](#) or [Search](#) the Toolbox to find products, designs, ideas, techniques, and suggestions.

In addition to the database, there are several [technical reports](#), providing techniques and suggestions focused on specific topic on farming/ranching with a disability.

The Toolbox is based upon the print and CD versions of the product bearing the same name, published by the Breaking New Ground Resource Center (BNG). The new online format allows for added features, such as enhanced search and browse capabilities, video clips, hyperlinks to the web sites of product suppliers, full-color photographs, and continuously updated solution fact sheets.

**Note:** You cannot order Toolbox items from or through AgrAbility. You must obtain them through the manufacturer or supplier found at the bottom of each Toolbox information page.

- [View by Category](#) The Toolbox through the table of contents
- [Search](#) The Toolbox for a specific item

[Acknowledgments](#)

[Disclaimer](#)

Select Language ▾





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# THE TOOLBOX

## Assistive Technology Database

2.5.1

Search:

Show  results per page

If Search malfunctions, please refresh your browser and try again. If problems persist, contact us

Displaying solutions 1-3 of 3 found (search time: 0.058s)



### WoodOX Sling Firewood Carrier

**Limitations:** Strength/endurance, Back

... body and less chance of the load tripping in transit. Further, the Sling can be loaded/unloaded from a standing position, instead of having to bend over. Also, attached on the top is a small LED **flashlight**, which provides a hands-free way to illuminate the woodpile while loading as well as the path to... Full entry



Flashlight" alt="Head-Band **Flashlight**" />

### Head-Band **Flashlight**

**Limitations:** Visual

Shops and Shop Tools :: Hand Tools :: Low-Vision Home/Shop Project Aids

The Head-Band **Flashlight** straps around the person's head, thus freeing both hands to work on the object

that's being...



Flashlight Glove" alt="LED-**Flashlight** Glove" />

### LED-**Flashlight** Glove

**Limitations:** Visual

Safety and Health :: Personal Safety and Health :: Adaptive Clothing  
 Shops and Shop Tools :: Hand Tools :: Low-Vision Home/Shop Project Aids

The one-size-fits-all LED-**Flashlight** Glove, which has built-in mini LED bulbs on both its partial thumb and forefinger, is designed to illuminate the work area without need of other light source and leaving both hands free. Pressing a button on top of the glove turns the LEDs on. The 3/4-ounce, glove is...

#### Most Recent Toolbox Additions

- Gas-Powered Long-Shaft Planting Auger
- Bale Grabber
- Trailing Small-Bale Accumulator
- Seedbed Tilter
- Telescoping Garden Tool Set
- Wheelchair Handrim Gripping Covers





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### LED-Flashlight Glove



The one-size-fits-all LED-Flashlight Glove, which has built-in mini LED bulbs on both its partial thumb and forefinger, is designed to illuminate the work area without need of other light source and leaving both hands free. Pressing a button on top of the glove turns the LEDs on. The 3/4-ounce, glove is made Spandex and cotton and is affixed on the hand via Velcro(r) strap. It is

available in right- or left-hand models.

**\$ Cost range:** See below

**L Limitations Addressed by Product:** Visual

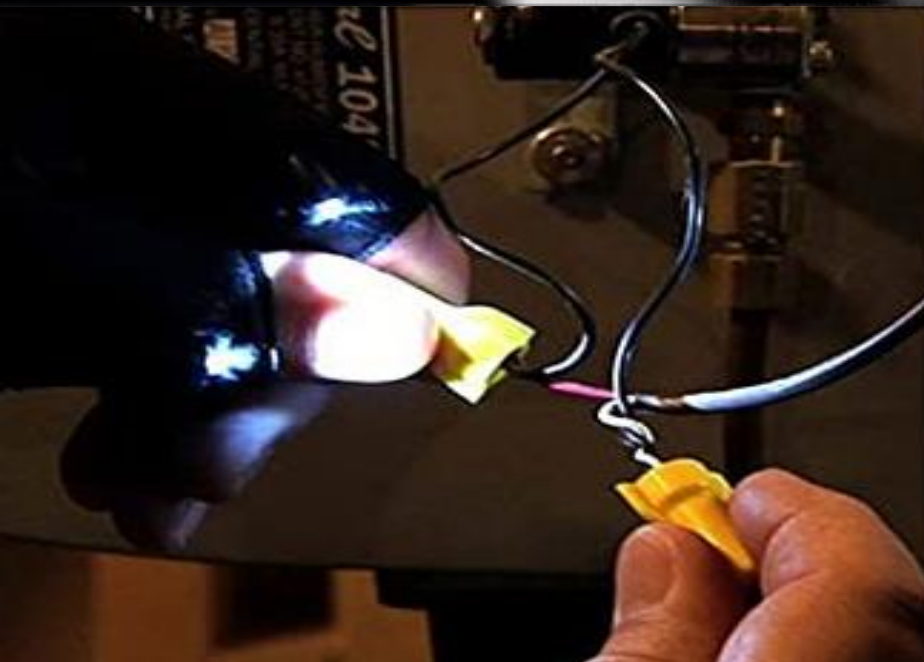
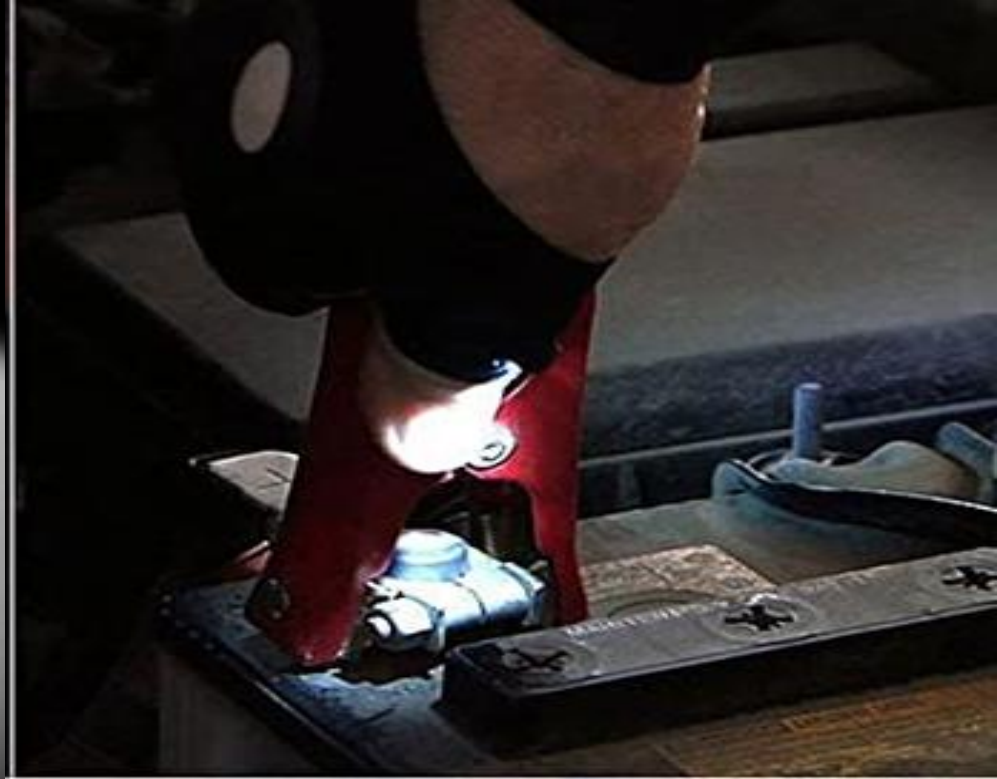
Toolbox :: Safety and Health :: Personal Safety and Health :: Adaptive Clothing

Toolbox :: Shops and Shop Tools :: Hand Tools :: Low-Vision Home/Shop Project Aids

<b>Source</b>	Local and online stores carrying hardware items
<b>Est. Cost</b>	\$10-\$20

Last updated: Dec 20, 2019





# “My hands hurt so bad when I have to carry a water pail”

- ▶ Limited hand strength, pain, weakness



# Lifting Hook



- \$15
- Holds up to 600 Pounds
- Helps carry anything with handle
- Pulling garden cart
- Supports hand weakness
- Arthritis or general hand weakness



# Home Solutions



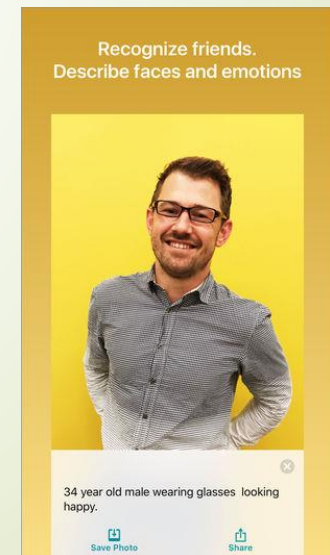


# Seeing AI

iOS only, Free

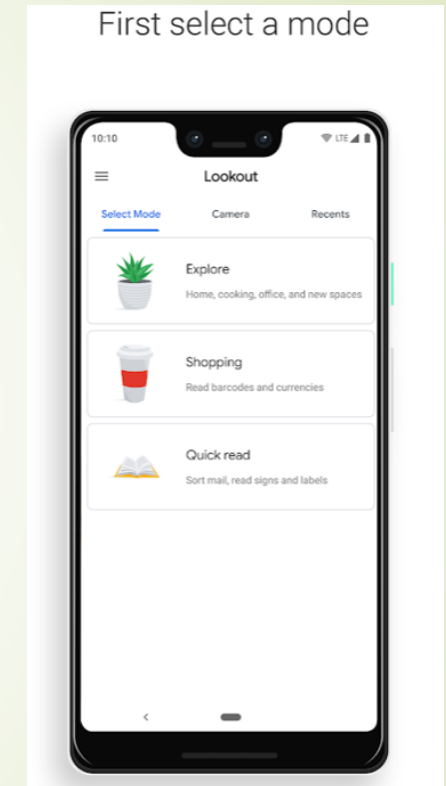
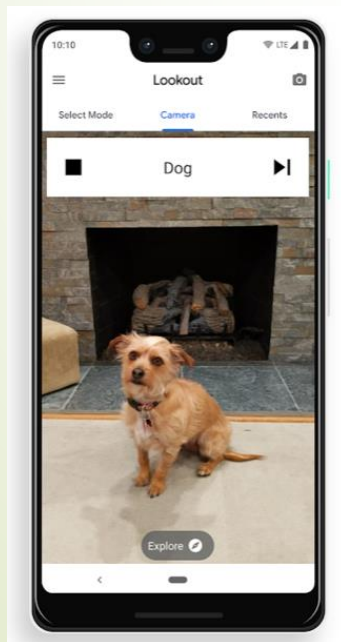


- Short Text - Speaks text as soon as it appears in front of the camera.
- Scans barcodes - hear the name, and package information when available.
- Currency - Recognizes currency notes.
- Color - Identifies color.



# Google Lookout (Android - free)

- Reads Text
- Identifies surrounding items
- Reads Currency



## iGuerburn Doorway Flip Assist Handle

- ❑ Doorway Stair Assist Grab Bar
- ❑ Supports up to 300 pounds
- ❑ \$30



## Baking Push – Pull Stick

- ❑ \$5.00
- ❑ 11 Inches
- ❑ Natural bamboo
- ❑ Protects against burns





# Pill Popper

- Reusable
- Pack of three \$10
- Liquids, Sprays or Creams



# Pill Bottle Openers

## Rx Vial Cap Opener

\$10 Amazon



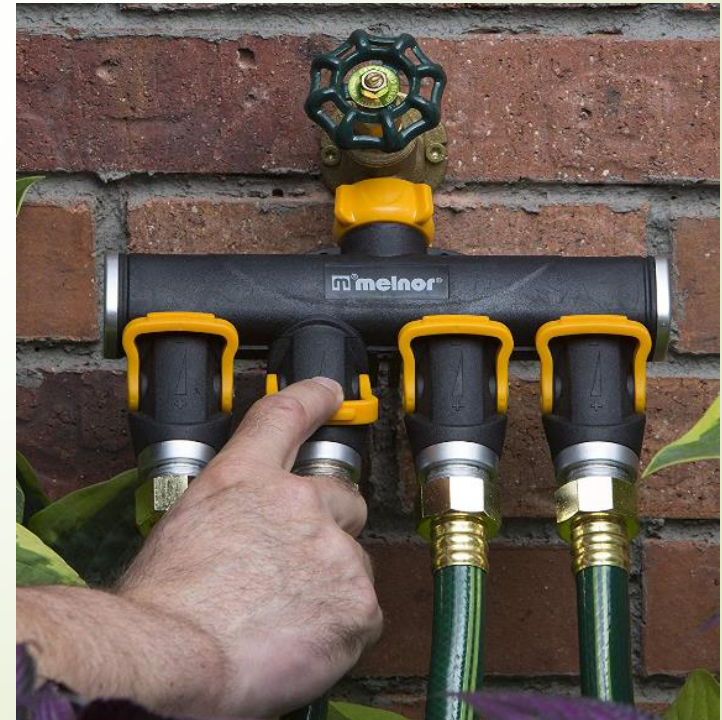
## Medi-Grip Remover by JOKARI

➔ \$6



# Hose Splitters (Manifolds)

- Long handle or lever
- Ergonomic design for Arthritis
- \$15 - \$20





# Radius Butterfly Hose Nozzle

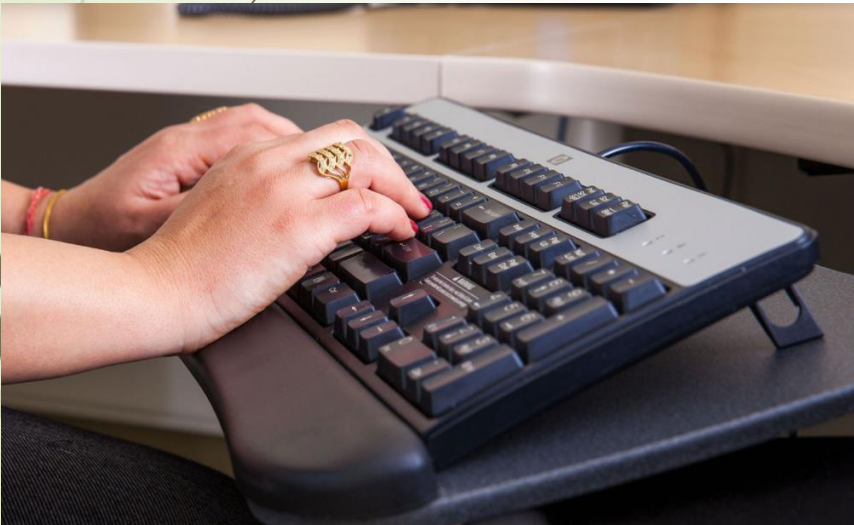
- Ergonomic Grip
- Thumb lever volume adjustment
- 5 pattern spray
- \$22





# Consider Those Wrists!

- ▶ Awkward positioning increases pressure on medial nerve and other structures in and around wrist
- ▶ Resulting in tendinitis, pain and fatigue



# Still Thinking About Those Wrists!

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Standard Mouse



Squeezes nerves in hand causing pain and discomfort.

Vertical mouse



Alleviates pressure in wrist joint and reduces risk of cramping.



# Computer Access Pointers/Mice (Navigation)



Roller Mouse



Vertical Mouse



Big Ball



Joy Stick



# GlassOuse

- ▶ Wearable Bluetooth mouse control
- ▶ \$469
- ▶ Switch control options
  - ▶ bite, sip/puff, foot





# Keyboards



# “My wrist and elbow gets so sore after an hour I have to quite work”

- Wrist fatigue, limited grip, weakness and pain
- Required to use hand trowel for extended periods of time







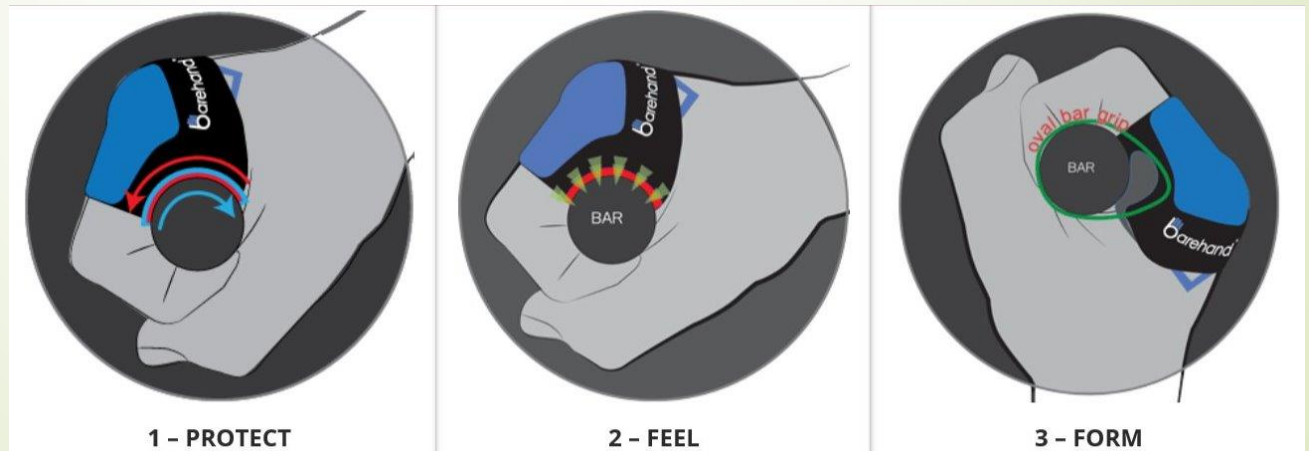
Copyright - Univ. of Washington - WATAP 2020







# BareHand Gloves (\$12)



# Ergonomic Hand Tools

- ▶ Awkward positioning combined with repetition increases pressure on medial nerve and other structures in and around wrist
- ▶ Resulting in tendinitis, pain and fatigue

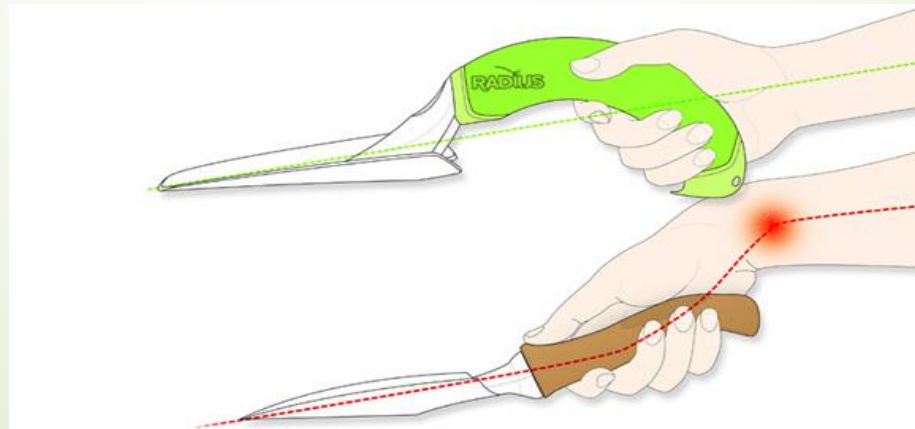


# Ergonomic Hand Tools



## “Radius Transplanter”

- Designed with a natural grip that minimizes hand & wrist stress
- Amazon \$16



# Easi Grip™ Garden Tools - Set of 4

Workers with arthritis, stroke, hand, wrist, arm, and shoulder disabilities can securely grip and control their Easi Grip Garden Tools without bending the wrist.

➤ \$65.00





# Slip or Grip Problems?

## Tennis Racket Grip Tape

- Easy to Install
- Anti-Slip / Soft Grip
- \$9.99



## Cat Tongue Grip Tape

- 2" Wide X 10' Long
- Easy to cut and customize shapes to fit
- \$19.95



# “My arches and back keep me from digging a new trench for any length of time”

- Prior crushing foot injury, aging, degenerative foot issues
- Pain with bending/lifting, prior back strain/injury





# Root Assassin Options



# Radius Garden Green Pro Transplanter

Amazon (\$60+)



- ▶ large "O" handle provide four times the gripping surface of conventional tools
- ▶ room for both hands
- ▶ extra-wide raised forward kick for reduced strain and better balance





# Emerging Technology





**WARNING**

# **TECHNOLOGY DISCLAIMER**

**This is a rapidly changing world**

**Be aware that some of the following  
information may be disturbing to some  
people**

**Change is not easy for some people**

**And that some of the following information  
is already out of date!!**

# No More Injections!!!

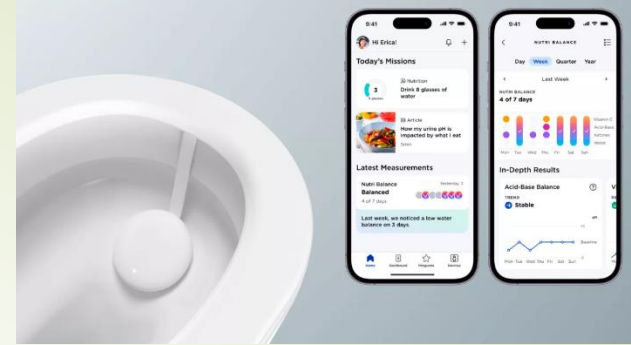
(diabetes, fear of needles....)



- Pills will painlessly inject drugs into the lining of the stomach
- Each capsule contains several tiny injectors or “Nano Needles”
- Pills self-right on floor of the stomach
- At the base of the needle is a compressed spring held in place by sugar. When the sugar dissolves in the stomach, the needle is fired down into lining
- Technology proven to be effective on animals, but to date has not been tested on humans



# U-Scan Urinalysis



- ▶ Low-energy radar sensor ID's Individual using toilet
- ▶ Delivered to iPhone or Android -- \$499
- ▶ Acidity (pH balance), carbohydrate levels (ketones), vitamin C levels, and hydration (water balance)
- ▶ Also tests nutritional balance, and female cycle-tracking
- ▶ Withings is currently seeking FDA clearance

# The Pho Waiter



# BioServo Iron Hand

- ▶ Sensors and motors in each finger automatically respond to the level of force that the wearer applies to his or her hand when lifting or gripping something resulting in less strain on the hand and arms.
- ▶ Can be worn via backpack or hip pack.
- ▶ [www.bioservo.com](http://www.bioservo.com)





# Wrap up

Reminder...

- Assistive technology will range from low to middle to high tech. Use the least amount necessary to achieve successful task completion.
- Identify essential function of task and duration of AT necessary.
- Important considerations: the person, tasks and the environment

# AT Website Resources



<http://agrability.org/Toolbox>



<https://www.thewrightstuff.com/>



<http://disabilityworktools.com>



<https://askjan.org>