

Adaptive Switches

Switches adapt equipment for individuals with disabilities to improve access to environment, movement, communication, computers, and mobile devices.

An adaptive switch is an accessible device that allows people with movement-limiting and/or cognitive disabilities to use technology and operate electronic devices. Adaptive switches allow a user to find easier movement solutions, such as pressing a button or tilting their head, instead of performing complex actions (e.g., turning a knob or pressing a key on a keyboard). Adaptive switches allow users with physical challenges and special needs to activate assistive technology devices in their environment.

Common Switches

Here are some common adaptive switches and input devices that can unlock independence for individuals with physical and cognitive disabilities:

Joystick: A joystick can activate four different devices, depending on the direction the switch is moved.

Buddy Button: The Buddy Button is great for controlling devices with hand, arm, or head movement.

Chin Switch: A chin switch can be positioned anywhere around the neck, and its flexible plastic tubing can be tailored to the user.

Head Switch: This switch is ideal for wheelchair users with limited mobility. It is activated with very light pressure and can be activated by a knee or elbow. The head switch can be easily attached to a wide variety of switch mounting system.

Micro Light Switch: This switch is perfect for use for those with limited hand or finger movement, or for use with slight shoulder or neck motion.

Pillow Switch: This switch is perfect for use in bed or in a wheelchair. The pillow switch can be used with hands, arms, shoulders, or head. It should provide auditory and tactile feedback.

Sip and Puff Switch: This switch is activated with either a "sip" or a "puff" of the mouth with the included small mouthpiece. It is perfect for users with

little to no neck movement, or in addition to other switches for customized control.

Taction Pads: These are clear, adhesive-backed plastic switches that are activated by contact with your skin.

An ability switch, in simple terms, is an alternative to a button that requires fine dexterity to push. Ability switches are designed for people with physical/cognitive disabilities, offering them an alternative means to interact with computers, speech generating devices, appliance controllers and switch adapted, battery-powered toys.

Connection Types: Bluetooth or Direct

A switch interface is required to be able to connect the switch(es) to a computer or mobile device, such as a tablet.

The Blue2 is the most widely used Bluetooth switch interface for tablets, phones, and computers. Blue2 allows you to connect one or two switches quickly and wirelessly with your device via a Bluetooth connection. It comes with a power cable to charge the battery.

Tapio is an adaptive switch. A single switch user can have complete access to an iPad or iPhone, and even macOS computers, using Apple's Switch Control function. Tapio comes with one of the following Apple Adapters:

- Lightning to USB
- Lightning to USB with recharge port
- USB type C to USB type A (for iPad Pro)

The Tapio is powered from the device and does not require external power. It connects directly to the device.

Types of Switches

For some learners, a switch offers a way to interface with the external world and can lead to levels of independence that may otherwise be difficult to achieve. A switch simplifies the operational process involved in controlling the whole function (or part of a function) of a battery or mains-powered item that would otherwise be difficult to control for reasons involving cognitive processing or physical access.

There are a variety of switches, so collaborate with your occupational therapist or speech-language pathologist to choose the right one(s).

- Standard switches (big red, jellybean, buddy button, etc.)
- Air pressure
- Cushioned
- Eye blink
- Grip
- Lever
- Math
- Mercury
- Plate, Proximity
- Sip/Puff
- Thumb
- Tongue
- Toy
- Wobble
- String

Learners who tend to pull on wires may need a wireless switch.

Styluses

Many individuals with mobility impairments may need a stylus with added weight, large diameter, ergonomic grip, flexibility and more.

[OTs With Apps Stylus List](http://otswithapps.com/2015/03/21/ots-with-apps-stylus-list) (otswithapps.com/2015/03/21/ots-with-apps-stylus-list)

Possible Goals and Objectives

Sample individualized education program (IEP) goals and objectives (replace switch with stylus):

Given a “device and switch” with a cause-and-effect relationship response that starts or stops producing an effect (music, sounds, names, pictures, etc.), Learner will move to activate the switch 3 out of 5 times during a session. (Using the following apps on a touch tablet)

1. Learner will reach out and attempt to touch the switch to activate a selected app/action/movement in the [Name] app.
2. Learner will activate the switch appropriately in response to an automatic scanning mechanism to indicate a choice.

Resources

[Alt+Shift](http://altshift.education) (altshift.education) offers a loan library with switches that are available to borrow and try before purchasing.

[What are some types of assistive devices and how are they used?](http://nichd.nih.gov/health/topics/rehabtech/conditioninfo/device)

(nichd.nih.gov/health/topics/rehabtech/conditioninfo/device)

[iOS and Switch Control: Tapio](http://perkinselearning.org/technology/posts/ios-and-switch-control-tapio) (perkinselearning.org/technology/posts/ios-and-switch-control-tapio)