



# ***Maintaining the Home:***

## ***Hand Dexterity, Strength and Range of Motion***

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## **Touch and Hand Dexterity**

Problems with the sense of touch may make it difficult for people to discriminate between textures and shapes or hot and cold surfaces, or to sense changes in pressure. Their hands, arms or legs may feel numb, which can affect dexterity. Dexterity is the ability to execute fine finger movements— pinching, gripping, turning and twisting. It is closely related to touch. For people with arthritis or similar conditions, operating controls and switches, gripping objects such as doorknobs or using tools are major problems.

Problems with touch and dexterity can make it hard to adjust small controls on appliances or thermostats. Such problems may also limit a person's ability to grip, twist and turn faucet handles and bottle and jar lids. Locking or unlocking doors and windows may be a challenge, as may plugging in or unplugging electrical cords and opening packaged goods.

People who have lost some sense of touch may unknowingly sustain a burn from a stove, or a cut from a knife. They may fall easily because of numbness in the feet. They also risk being scalded at the sink or in the tub or shower.

## **Modifications for Touch and Dexterity**

One way to modify the home is to heighten tactile sensation by making the surfaces of walls and counters more distinctive. Brick, vinyl and wood are useful for this purpose.

Another approach is to enhance safety by lowering the temperature setting on the water heater to lessen the danger of scalding, installing temperature-limiting mixer valves on existing tubs and showers or using visual markers on faucets to indicate preset or desired temperatures. Some new tubs and showers have pressure-balance valves to compensate for the flush of a toilet or other sudden change in water pressure. Other products that improve safety are covers for stove burners and guards for radiators. Some ranges have indicator lights that remain on to warn that a turned-off burner may still be too hot to touch. If dexterity is also an issue, there are touchless faucets (activated or deactivated by heat sensors) with preset temperatures.

Lever controls and handles that do not require pinching or gripping movements can replace others that do. You can install these on doors, cabinets, drawers and sinks. Light switches with rocker panels, touch pads, toggles and push-button combination locks also may help. Some new appliances have easy-to-grasp controls to make them easier to use.

To determine whether a person with limited dexterity can use a control, try the following rule of thumb. If an able-bodied person can operate the control with his or her fist closed, then almost anyone, regardless of hand disability, will be able to operate the control.

## **Loss of Strength and Range of Motion**

Reduced strength in the arms and the legs

may render people unable to sustain physical effort—standing for long periods or carrying heavy items even short distances. People who have diminished strength also may have difficulty lifting, pushing and pulling objects or raising or lowering themselves. Because of most home designs, important household tasks such as cooking and washing dishes require one to stand for long periods. Other tasks require some upper-body strength, including making the beds, taking out the trash and transporting items around the house. When strength is an issue, pushing or pulling doors and drawers is a challenge, as is moving heavy items down from high storage areas or up from low storage areas.

Range of motion refers to the extent of movement possible, including how high people can raise their arms above their shoulders or rotate their arms from the shoulders or how far they can bend their elbows or their knees. People with decreased range of motion may have trouble reaching, bending, stooping, kneeling and crouching. A person's height can affect range of motion. A short person may not be able to reach high shelves without a step stool. A tall person may have trouble reaching into floor-level cabinets and lower shelves.

A person in a chair or wheelchair is limited to a maximum side reach of 54 inches and a maximum frontal reach of 48 inches. The lowest easy reach from a seated position is approximately 9 inches to the side and 12 inches to the front. A standing person has a very different range of reach. When you undertake any home changes, remember these differences.

### **Modifications for Strength and Range of Motion**

Some modifications enhance existing strength or provide support. Examples are a stool to sit on in the kitchen or bathroom or a harness to hold a person in a standing position at a sink or counter. Grab bars in the bathroom are another example.

Other modifications reduce the amount of strength needed. It is easy to adjust the tension needed to open and close storm and screen doors and some kinds of cabinet doors. Remote controls can be used with lamps, appliances, televisions and videocassette recorders. Placing equipment and utensils on rolling storage carts that fit under counters brings them to a convenient height. Installing C or D-shaped loop handles on drawers and cabinets and easy-gliding hardware on drawers, can be helpful. A spray attachment at the sink can be fitted with an extra-long hose so that pans can be filled after they are placed on the stove. A trash compactor and a garbage disposal will reduce the volume of trash that must be carried to trash bins. There also are pneumatic lifts to help people get from a sitting to a standing position.

Compensating for limited range of motion involves bringing controls closer to people. Switches, thermostats and electrical outlets can be moved to a zone more comfortable for all people. This is usually defined as an area between 27 and 48 inches above the floor, with a maximum depth of 20 inches. Other useful products are stoves and ranges with controls mounted on the front or the side; side-by-side, frost-free refrigerator-freezers; front-loading washers and dryers; offset bathtub controls; Lazy-Susans in corner cabinets and refrigerators; and rolling carts for under-the-counter storage.

To make work and storage space more accessible, construct separate work surfaces at different heights for persons in the same household who are of different ages, heights and ability levels. Adjustable shelves in kitchen cabinets, pantries and closets can be moved as children grow and adults age. There are many other products for making cabinets and closets more efficient.

Sinks and counter-tops in kitchens and bathrooms also can be made adjustable.

*This resource is one in a series on **Maintaining the Home** which include:*

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