# Ageing and changing abilities

With increasing age people often experience changing abilities. The following statistics and research performed by the [WAI-AGE Project](https://www.w3.org/WAI/WAI-AGE/) in 2010 provides an insight the impact and prevalence of age-related impairments that affect web use.

## Ageing and hearing loss

**Impact of hearing loss:**

* Audio can be difficult to discern
* Background sounds can be difficult to filter out
* Higher pitch sounds can be missed

### Prevalence of hearing loss:

* 47% of people 61 to 80 years experience some hearing loss
* 93% of people 81+ years experience some hearing loss

Hearing starts to decline at around 50 years and affects a person's ability to hear higher pitched sounds as well as discern the foreground from background audio such as music or other sounds. Some hearing loss is experienced by 47% of people 61 to 80 years and 93% of people over 81 years. Moderate or severe hearing loss or profound deafness is experienced by 20% of people aged 61 - 80 and 75% of people over 80.

## Ageing and vision decline

### Impact of vision decline:

* Decreasing ability to focus on near tasks
* Changing color perception and sensitivity
* Decreasing contrast sensitivity

### Prevalence of significant vision loss:

* 16% of people 65 - 74 years
* 19% of people 75 - 84 years
* 46% of people 85+ years

Vision decline includes:

* Decreasing ability to focus on near tasks, including a computer screen
* Changing color perception and sensitivity - less violet light is registered, making it easier to see reds and yellows than blues and greens, and often making dark blue and black indistinguishable
* Decreasing contrast sensitivity from pupil shrinkage - resulting in the need for more light and higher contrast (an 80 year old typically has 80% less contrast sensitivity than a 20 year old)

Vision decline often starts in a person's mid-40s with 86% of Australians over 40 requiring reading glasses to correct for near vision. Significant vision loss (that can't be corrected) affecting everyday life is estimated to affect 16% of people 65 to 74 years, and 46% of those over 85 years in the UK.

## Ageing and physical decline

### Impact of ageing and physical decline:

Motor skill decline can result from many conditions including arthritis, essential tremor, and Parkinson's Disease:

* Difficulty using mouse or keyboard
* Difficulty with clicking small targets
* Strain from non-ergonomic tasks

The following figures are from a study carried out by the [WAI-AGE Project](https://www.w3.org/WAI/WAI-AGE/) in 2010, but are still relevant today.

### Prevalence of ageing and physical decline:

(Conditions most commonly reported)

* Arthritis - affects at least 50% of people over 65
* Essential tremor - affects up to 20% of people over 65
* Parkinson's Disease - affects approximately 4% of people over 85

Motor skill decline impacts on dexterity and can result from many conditions, for example arthritis with associated joint stiffening and reduced fine motor control, and essential tremor or Parkinson's Disease with associated hand trembling, making mouse use difficult or impossible for some and also affecting keyboard use. In particular, older people with physical impairments may have difficulty clicking small links, selecting radio buttons, and using many fly-out or pull-down menus.

Arthritis is estimated to affect at least 50% of people over 65; essential tremor (one of many forms of tremor) is estimated to affect up to 5% of those over 40 and up to 20% of people over 65; and Parkinson's affects around 4% of those over 85.

## Ageing and cognitive decline

### Impact of ageing and cognitive decline:

Navigation, comprehension, and task completion can be affected by:

* Short term memory limitations
* Difficulty with concentration
* Distraction from movement or irrelevant material
* Difficulty coping with information overload

### Prevalence of ageing and cognitive decline:

(Conditions most commonly reported)

Dementia (UK):

* 1.4% of people 65-69 years
* 24% of people 85+ years

Mild cognitive impairment (MCI) is more common:

* Around 20% of people over 70 years are estimated to experience MCI

Cognitive decline is also common, though only dementia and mild cognitive impairment are commonly reported. While Dementia (including Alzheimer's disease) is experienced by some older people (1.4% of people 65-69 years increasing to 24% of people over 85 years in the UK), forms of mild cognitive impairment (or MCI) are much more common, affecting over 20% of those over 70 years. MCI can result in:

* Short term memory limitations (which may result in a person forgetting the purpose of a website visit if they lose orientation on the site)
* Concentration and distraction issues (consider the volume of information on some pages, and the multiple animated advertisements that are sometimes present)