

# How to Choose and Take Care of Your Contact Lenses

## Classification of Contact Lenses (1): Types of Lenses

Type	Property	Advantages	Disadvantages
<b>Hard Contact Lenses</b>	<ul style="list-style-type: none"> <li>■ Non-Gas permeable</li> <li>■ Made of Acrylic Film e.g. PMMA</li> </ul>	<ul style="list-style-type: none"> <li>■ Hard and solid: not easily distorted, smashed and worn</li> <li>■ Comparatively durable</li> <li>■ Less likely to breed germs</li> </ul>	<ul style="list-style-type: none"> <li>■ Shorter wearing time, 8 hours per day</li> <li>■ Easily dislodge, causing discomfort and blurred vision</li> </ul>
<b>Rigid Gas Permeable Lenses</b>	<ul style="list-style-type: none"> <li>■ Gas permeable</li> <li>■ Made of oxygen permeable plastics e.g. Siloxane Acrylates Fluoro-Siloxane Acrylates</li> </ul>	<ul style="list-style-type: none"> <li>■ Wearing time is 12 to 14 hours per day (longer than that of hard contact lenses)</li> <li>■ Compared with hard lenses, stay more firmly on the cornea, less likely to dislodge or cause discomfort, but still not as stable as soft lenses</li> </ul>	<ul style="list-style-type: none"> <li>■ Comparatively fragile</li> <li>■ More likely to accumulate dirt and get worn</li> <li>■ Care procedure more complicated than that of hard contact lenses</li> </ul>
<b>Soft Contact Lenses</b>	<ul style="list-style-type: none"> <li>■ Gas permeable</li> <li>■ Made of water absorbent plastics e.g. HEMA Silicone hydrogel</li> <li>■ The thinner the lens or the higher the water content, the more gas permeable</li> </ul>	<ul style="list-style-type: none"> <li>■ Comfortable, easy to adapt</li> <li>■ Longer wearing time, 12 to 16 hours per day</li> <li>■ Less likely to dislodge and cause discomfort</li> </ul>	<ul style="list-style-type: none"> <li>■ Not easy to detect cracks</li> <li>■ Prone to tearing by nails</li> <li>■ Care procedure more complicated and more likely to breed germs</li> <li>■ Shorter life span, need to be replaced every 12-18 months</li> </ul>

## Classification of Contact Lenses (2): Wearing Time

Type	Wearing Time	Characteristics of Lenses
<b>Daily-wear Contact Lenses</b>	<ul style="list-style-type: none"> <li>■ 12 to 16 hours per day</li> </ul>	<ul style="list-style-type: none"> <li>■ Not to be worn during sleep</li> <li>■ They can be hard contact lenses, rigid gas permeable lenses or soft lenses</li> </ul>
<b>Extended-wear Contact Lenses</b>	<ul style="list-style-type: none"> <li>■ Ranging from one day to continuous wearing for 7 days, depending on individual case</li> </ul>	<ul style="list-style-type: none"> <li>■ Higher oxygen permeability, some people can wear them during sleep</li> <li>■ Either rigid gas permeable lenses or soft lenses</li> </ul>
<b>Disposable Contact Lenses (including 1-day, 2-week and 1-month)</b>	<ul style="list-style-type: none"> <li>■ Ranging from one day to continuous wearing for 7 days, depending on individual cases</li> </ul>	<ul style="list-style-type: none"> <li>■ Higher oxygen permeability, some people can wear them during sleep</li> <li>■ Lenses will be discarded or replaced after wearing for one day or up to one month: lenses that are removed and cleaned daily can be used for up to one month, while those worn continuously for 7 days need to be replaced weekly</li> <li>■ Available in soft contact lenses only</li> </ul>

## How to Choose Contact Lenses

While selection of ordinary eyeglasses can be determined according to personal preference, you need to have your eyes checked by a registered optometrist before selecting contact lenses based on your needs. Some generalised advice is listed below for reference:

1. Hard lenses are non-gas permeable, so they are generally not recommended. Whether to choose rigid gas permeable lenses or soft lenses depends on three major principles: health effects, comfort levels and clarity of vision.
2. Choose daily-wear contact lenses as far as possible. If you choose extended-wear contact lenses, you remove them every day before sleep. Wearing contact lenses for a long period of time without removal will have adverse impact on your eyes.
3. People who work irregular hours or need to wear contact lenses for 24 hours continuously can consider extended-wear contact lenses. However, they should consult an optometrist first and remove the lenses before sleep.
4. It is better for soft contact lens users to choose the disposable ones, although the cost may be higher.
5. Sportive persons should choose soft contact lenses. As the eyes are in quick motion during sports activities, hard and rigid gas permeable lenses may easily dislodge. In addition, when sports injuries occur, the trauma caused by soft contact lenses to the eyes is comparatively minor.

## How to Take care of Your Contact Lenses

Contact lenses should be cleansed, rinsed and disinfected every day and none of the three steps can be omitted.

1. **Cleaning:** Different cleansers should be used for different types of lenses. For soft contact lenses, put the lens in your palm, shake the cleanser and add one or two drops onto the lens. Rub it gently with your middle finger to remove the dirt. After cleaning one side of the lens, turn it over and clean the other side. It takes 1-2 minutes to clean one lens. For hard and rigid gas permeable contact lenses, apply the cleanser, hold the lens and rub it with your index finger and thumb so that both sides of the lens can be cleansed simultaneously.
2. **Rinsing:** The purpose of rinsing lenses is to thoroughly wash away the cleanser, which is detrimental to the eye. Contact lenses must be rinsed with bottled sterile saline, not home-made saline or tap water. For rinsing, put the cleansed lens on your palm, add some sterile saline onto the lens and rub it with your middle finger to wash away the cleanser.
3. **Disinfecting:** After cleaning, the lenses should be disinfected before wearing again. It is relatively simple to disinfect hard contact lenses or rigid gas permeable lenses as you only need to place them in the storage solution. However, disinfecting soft contact lenses is more complex and below are three methods:
  - **Heat disinfection:** Put the cleansed and rinsed lenses into the lens case, add some sterile saline into the case before heating it to 80 degrees Celsius for 15 minutes. The disinfection procedure is then completed. The lenses can be used after cooling down. The advantages of this method are that it is effective and no eye allergy or discomfort will be caused as only sterile saline is used in the process. The disadvantage is that the heat may cause damage to the lenses and shorten their life span. Usually, the lenses have to be replaced within a year.
  - **Hydrogen peroxide disinfection:** Put the cleansed and rinsed lenses into hydrogen peroxide solution for disinfection. As hydrogen peroxide is detrimental to the eye, the lenses disinfected by hydrogen peroxide solution have to go through a neutralization process before wearing. There are many ways for performing the neutralization process. You can use a neutralizing pill or a neutralizing metal ring. The whole disinfection and neutralization process takes tens of minutes to several hours. The advantage is that eye allergy can be avoided if the hydrogen peroxide is completely neutralized. The disadvantage lies in the complexity of the process, which includes disinfection and neutralization, and neither of them can be omitted. Moreover, the lenses must never be used before the neutralization process is completed.
  - **Chemical disinfection:** Put the cleansed and rinsed lenses into a disinfection solution where its chemical components can disinfect the lenses. The process generally takes 4 to 6 hours. The advantages are its simplicity and the fact that the lenses can be worn immediately after being taken out of the solution if necessary. The disadvantage is that the chemical components can diffuse into the lenses. While wearing the lenses, the chemicals may cause discomfort to people who are sensitive to them.

**Removing Protein:** Apart from daily cleansing, rinsing and disinfecting, rigid gas permeable lenses require protein removal on a weekly basis. Putting the cleansed and rinsed lenses and a protein-removing pill into the sterile saline for 20 to 40 minutes. The lenses should then be taken out for cleaning and rinsing again before disinfecting. The purpose of using the protein remover is to remove the protein built up from tears. This is particularly important for those who have chosen heat disinfection, where the protein removing process must be conducted weekly. The reason is that heat can denature the transparent protein previously deposited on the lenses, forming another kind of opaque protein and resulting in permanent damage to the lenses.

## How to Choose Care Procedure for Contact Lenses

Similar to choosing your contact lenses, you must consult a registered optometrist before choosing a suitable care procedure for your contact lenses. Some general points are listed below for reference:

1. Caring procedures for hard contact lenses and rigid gas permeable lenses are relatively simple and consistent, without too many steps to follow.
2. Soft contact lens users who are sensitive to chemical disinfection solution can switch to hydrogen peroxide or heat disinfection.
3. Heat disinfection may cause damage to the lenses, particularly extended-wear contact lenses.
4. Users who find hydrogen peroxide disinfection complicated and its steps difficult to follow may choose chemical disinfection which is simpler.
5. Hydrogen peroxide disinfection should not be used on coloured soft contact lenses because they will be bleached by the hydrogen peroxide.

