

# Consumer Decision Making Study Guide 2025

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# Dental Products



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## DENTAL PRODUCTS

With so many dental care products on the market, deciding which to use can be a real challenge. Exploring general product categories for oral health will provide insight across the range of dental care products. According to the Centers for Disease Control (CDC), “oral health affects our ability to eat, speak, smile, and show emotions. Oral health also affects self-esteem, school performance, and attendance at work or school. Oral diseases—which range from cavities and gum disease to oral cancer—cause pain and disability for millions of Americans.”<sup>1</sup>

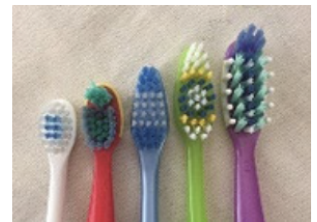
Home oral care recommendations from the American Dental Association (ADA) are based on data from clinic studies and systemic reviews. Oral care can help lessen the need for extensive dental intervention in the future.<sup>2</sup> The ADA recommends that you brush daily with fluoride toothpaste. They also recommend that you clean between your teeth regularly. Of course, eating a healthy diet and seeing your dentist regularly is a key to dental care. To explore dental care products more effectively, the following categories of products will be reviewed:

- Toothbrushes
- Toothpaste
- Dental Floss

## TOOTHBRUSHES

The ADA recommends brushing your teeth at least twice a day. However, how do you select the appropriate toothbrush? There are so many different brands and styles of toothbrushes. To complicate things even more, there are even manual and powered toothbrushes. The toothbrush is one of many tools to clean teeth, gums, and even your tongue. When choosing a toothbrush, consider the following:

- **Head Size**—A smaller head size makes the toothbrush easier to maneuver into tight areas that are trickier to access. A compact head is smaller and more maneuverable than a full-size head. Brush heads can also be straight or angled. Angled brush heads help reach the insides of your teeth, which are more susceptible to tartar buildup. Dentists suggest that a round-headed toothbrush provides a more versatile design.
- **Bristle Design** – Equally important, heads with varying-sized bristles are more popular among manufacturers, which help to get into deeper gaps between teeth and hard-to-reach areas. The shape of the bristle patterns can also vary. Diagonal patterns are good for cleaning the sides of the teeth and along the gum line. A cup-shaped design will be better for cleaning around teeth. A block design has all bristles the same size and type, while polishing bristles are made of rubber-like material arranged in circles to help clean surface stains without damaging the enamel. Other variations include wavy, crisscross, and tapered. These designs are more about comfort and preference.





- **Bristle Firmness** – Many consumers feel that the firmer the bristles, the better, but that is not accurate. While no oral hygiene can be harmful, so can the wrong oral hygiene. Firm bristles can damage teeth and gums. Soft bristles will do an effective job as the firmer variety without irritating your gums, which may contribute to a receding gum line. Toothbrushes are marketed as Extra Soft, Soft, Medium, and Hard. Generally, go soft unless there is some valid reason to go with a firmer or softer bristle. Packaging may also express bristle firmness in millimeters. A “soft” bristle brush may show 0.15 mm, while a “hard” bristle brush may show 0.23 mm, reflecting the thickness of the bristles.
- **Handle Design**—While less important than head size and bristles, a comfortable and secure handle should be your priority. There are lots of varieties, so picking one that fits well is important. Handles can be straight, contra-angle, non-slip grip, and flexible. The handle should allow you to comfortably reach every tooth surface, including the very back of your mouth.



Each of the design features referenced above is important for any toothbrush, regardless of the type in question. The traditional “manual” toothbrush is the foundation for more contemporary versions, including the increasingly popular powered/electric toothbrush. Here are some key features about both types of brushes and considerations when purchasing one or the other.

- **Manual**—These are the most inexpensive types of toothbrushes and are as effective in keeping teeth healthy as any other. While the toothbrush heads are of the utmost importance, manual toothbrush handle designs are extensive. However, the same selection principles referenced above apply. Furthermore, there is greater variability in head design among manual toothbrushes than its electronic counterparts. Manual brushing is estimated to result in about 300 brush strokes per minute.
- **Electric** – An electric toothbrush performs rotations or oscillations of its bristles, making it a bit easier to remove tartar in hard-to-reach places where manual motion may prove to be more difficult. These brushes have removable heads and tend to be considerably more expensive to replace than the manual ones. Most are either battery-operated or rechargeable. Some have timers to signal the user when to shift to other areas or stop altogether. Compared to manual brushes, these might be better at reducing the incidence of gingivitis and plaque, given that they increase the amount of brush strokes per minute. The ADA recommends electric toothbrushes for people with arthritis or other issues that prevent manual brushing from being effective. These brushes can also be divided into three sub-types:



- Standard power is a generic term to differentiate any powered toothbrush from the other two types of speed or movement. A standard electric toothbrush produces about 2,500 to 7,000 brush strokes per minute.
- Sonic power – this type moves the head fast enough to produce a hum in the audible frequency. Some models can produce up to 30,000 brush strokes per minute compared to a standard electric toothbrush. The benefit of this model is that it has a large sweeping motion to remove food particles and bacteria from the teeth and gum lines.
- Ultrasonic power—This brush is faster than a sonic-powered brush, reaching up to 2.4 million strokes per minute. The benefit of such a high speed is that it breaks up the bacteria chains found in the mouth, whereas cleaning occurs simply by placing the brush on the tooth without any manual motion. Some models have adjustable frequencies to allow for more sweeping motion.





### **TOOTHPASTE**

The ADA recommends that people use only toothpaste that contains fluoride. Toothpaste containing fluoride has been shown to prevent cavities. Also, any toothpaste packaging should be reviewed to make certain that the ADA's Seal of Acceptance is present. This means that the product has met ADA criteria for safety and effectiveness. Products that do not have the seal do not mean they are not safe or effective; they have not been studied or endorsed by the ADA. Toothpaste is also developed and marketed with specific problems in mind. For example, if tartar buildup is a problem, there are formulations that are designed to help with that. Toothpaste can contain ingredients that prevent enamel erosion or cosmetically affect the mouth, such as whitening or improving bad breath. They can come in the form of gels, pastes, or even powders.

- Types - They can come in the form of gels, pastes, or even powders.
  - Gel—made from silica, tooth gel is less abrasive and creates less foam and splatter. Compared to a paste, tooth gel has a less minty aftertaste.
  - Paste has a foamier texture when brushing, thicker, stronger flavors, and tends to be more abrasive than gels.
  - Powders contain dry ingredients like salt, baking soda, activated charcoal powder, and flavorings. They require adding water and are good for removing stains and plaque. However, they do not fight cavities as effectively and may be too abrasive. There is no ADA seal.

**Ingredients** – They contain both active and inactive ingredients. However, to be endorsed by the ADA, toothpaste must be fluorinated. Those are primarily for fighting cavities. Desensitizing agents are used for people who experience sensitivity due to toughness, temperature, and air current. Some formulations are designed to remove surface stains, often called “whitening toothpastes.” Formulations are also available to fight gum disease by destroying bacteria responsible for plaque and tartar buildup. Finally, some formulations are fluoride-free. Those products will not have the ADA seal. Due to small children's propensity to swallow small amounts of toothpaste, the ADA recommends that children 6 and under use very small amounts of toothpaste to avoid fluorosis.

The ADA Seal of Acceptance is an important part of selecting any type of toothpaste. However, there may be some circumstances where the seal is not present. Always consult your dentist before using any products that do not have the ADA seal.



### **DENTAL FLOSS**

Flossing is a very important part of every oral hygiene regimen. Flossing once a day before bedtime decreases the likelihood of cavities and gum disease caused by food particles not removed from brushing alone. The benefits of flossing include removing bad breath-causing bacteria and plaque from below the gumline. It can reduce the likelihood of soreness, puffiness, and redness of the gums, and it helps prevent gingivitis. The most common types of dental floss are waxed and un-waxed thread, both made from nylon. There is no distinct advantage of either when it comes to improving your oral hygiene regimen except as noted below.





- **Waxed**—This type of floss contains a thin layer of wax on its surface, making it a little thicker but easier to glide between the teeth. Waxed floss is more likely to be flavored than unwaxed floss and is generally stronger. People with tightly spaced teeth may find it difficult to use waxed floss.
- **Un-waxed** floss is generally thinner than waxed and a bit more comfortable to move in and out of your teeth. It usually does not come in flavors, which, for some people, may be an advantage. Compared to the waxed variety, it is more likely to break during flossing but easier to get between tight-fitting teeth.

## RESOURCES

Basics of Oral Health. (2022, October 17). Centers for Disease Control and Prevention.  
<https://www.cdc.gov/oralhealth/basics/index.html>

Home Oral Care. (2022, October 23). American Dental Association. <https://www.ada.org/resources/research/science-and-research-institute/oral-health-topics/home-care>

# Wearable Technology



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## WHAT IS WEARABLE TECHNOLOGY?



Wearable technology describes any electronic device that consumers can wear on their body. "Wearables" have currently grown to include items ranging from smart watches to medical technology to jewelry to clothing.

Wearables can meet a variety of needs for consumers today and represent one of the largest growth areas for consumer electronics.

## HOW DOES WEARABLE TECHNOLOGY WORK?

Wearable gear integrates the form and functions of multiple devices. Most of these work in a similar manner but some in a variety of options. Multiple sensors capture changes the wearer's position, temperature, etc. and translate them into data. Then, microprocessors extract, transform, and load data to a transmittable format. Finally, transmitters wirelessly send data to a local device or cloud storage for further processing and reporting.





# GENERAL FACTORS TO CONSIDER BEFORE PURCHASING WEARABLE TECHNOLOGY

With so many brands offerings comparable wearable devices, choosing the right one takes careful research and planning. There are features to compare, different prices to consider, and product reviews to check. Before purchasing, you should consider the following factors:

## PURPOSE

Before you purchase any wearable tech, it's important to consider why you want it. Do you want an easier way to track your health, fitness or sleep habits? Do you want a device that can help you stay safe or keep you in touch with others? Knowing the qualities that you must have from your purchase will help you narrow down the number of choices.

## BUDGET

With more companies offering smart wearables, there are affordable and low-cost devices as well as new and innovative products available. Carefully compare the features you need in relation to the product price in order to get the best product that is within your budget.

## CAPABILITIES

Most smart wearable devices come with basic activity and biometric tracking capabilities. However, other capabilities, such as heart rate tracking, movement sensing, GPS tracking, and blood pressure monitoring, are less universal. Some devices offer both Wi-Fi® and Bluetooth® connectivity, while some only offer one or the other. Wearable devices can be water-resistant, waterproof, or swim proof. The list of capabilities varies by device type. Knowing which ones are ideal for your activities and needs is critical to your purchase decision.

## USER EXPERIENCE

If a wearable device is uncomfortable to wear, the potential health benefits you can enjoy are undermined. Likewise, if the wearable device's user interface is frustrating or hard to navigate, you may stop using your device altogether. To find out this information, check out consumer reviews of the product.



## **BATTERY LIFE**

The battery life of wearables varies greatly ranging from days, weeks, or even months on a single charge. In some devices, longer battery life comes with tradeoffs including limited capabilities. Consumers should consider the length of battery life, the type of charger needed, amount of time needed to charge the device and emergency communication capability with minimal or empty charge. Wearables should also be energy-efficient.

## **PERSONAL STYLE**

For some people, clunky devices or headsets are the image that comes to mind when they think about wearable technology. While many brands specialize in offering affordable devices that prioritize practicality over looks, some companies do pay more attention to the style and fashion aspects of wearable technology. Today, wearable consumers have many choices, with tech devices that offer state-of-the-art technology along with fashion.

## **COMPATIBILITY**

Consider if your new wearable will take the place of any of your existing devices and how it integrates and works with other devices you already own. Even if it is lightweight and convenient, another wearable is another device to carry and keep track of. Considering how your new wearable affects your existing network of devices results in better planning and results in a better buying decision.

## **PRODUCT REVIEWS**

Before you make the final decision on any device, reading reviews assures about its reliability and effectiveness, as well as answers any last-minute questions you might have. Product reviews from tech experts are helpful to learn more about the product's capabilities and specifications, while consumer reviews can reveal any potential issues or annoyances with the user experience. Reviews are especially important to consider if you are buying from a less reputable, new, or unknown brand to be certain the advertised experience is delivered.

## WHAT ARE EXAMPLES OF WEARABLE TECHNOLOGY?

Here are the most common current types of wearable technology:

- **Fitness trackers:** Smart wearable that can assist in developing healthier habits by giving a pat on your back. Monitors your heart rates and your movements and keeps track of your calorie burns and step counts and more.
- **Smart watches:** Connected watches that let the wearer answer phone calls, track fitness, track sleep, and much more.
- **Smart jewelry:** Tech jewelry including rings, bracelets, pins, charms, and necklaces that offer the functions of a smart watch or various special functions such as monitoring stress levels.
- **Advanced medical tech:** Includes a wide range of devices including wearable electrocardiograms (ECGs) that send your heart rhythm to your cardiologist, glucose monitors, and other lifesaving on-body technology.
- **Head-Mounted Displays (HMDs) and Smart Glasses:** Including VR headsets and other displays that create a more immersive gaming or web-surfing experience and wearable devices that utilize augmented reality to add digital displays and quick actions including video capability to glasses.
- **Action cameras:** Small, rugged, waterproof digital cameras designed for capturing immersive action shots that allow you to jump right in and become part of the adventure.
- **Wireless Headphones or Earbuds:** High-tech over-the-ear or in-ear devices that do more than transmit audio and sync up with your phone, tablet, computer, tv or other Bluetooth-enabled devices.

While there are similar criteria to consider across all types of wearable technology, each category has its own set of features and functionalities for consumers to know about.

# WHAT SHOULD YOU LOOK FOR WHEN PURCHASING WEARABLE TECHNOLOGY?

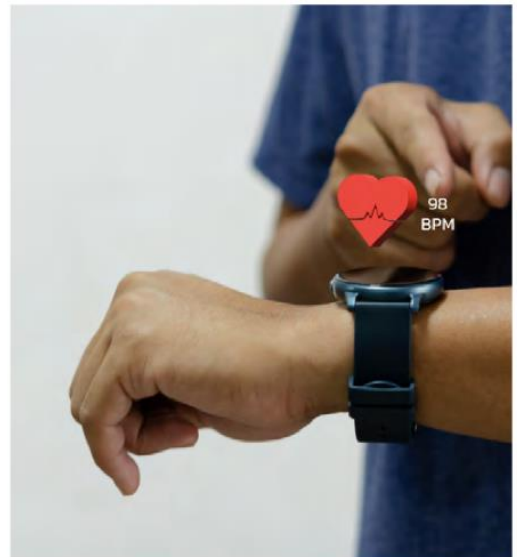
## SMART WATCHES

Smart watches primarily tell time while also displaying information supplied by the wearer's smartphone, such as email, social media notifications, SMS/MMS, call info, and media controls. Some smart watches also make and receive calls, take pictures, include games, allow for contactless payments, and provide some of the features of a fitness tracker. More advanced smart watches pair with other wearables (like wireless headphones) without even requiring the use of a smartphone or other primary device.

Features: Showing time, tracking weather data, fitness tracking, games, media player, compass, GPS, speaker, camera, phone, altimeter, accelerometer, barometer, and endless apps to make this a true mini-phone or computer (with proper connectivity).

Consider:

- o Uses
- o How to access/share data
- o Durability and Water resistance
- o Accessories
- o Your lifestyle
- o Cost
- o Need for separate cellular plan?
- o Ability to customize interface
- o Charging method



## WHAT ARE RISKS OF WEARABLES?

Consumers under eighteen (18) years old should use wearables under adult supervision. There are three main categories of risks that wearable tech companies and consumers face:

- **Cyber security:** The data transmitted via wearables must be properly secured; otherwise, companies are at risk of class action lawsuits, costly fines, and injury to their reputation. Consumers should make a point to review company privacy policies and stay educated about how their data could be used. Consumers who want to upgrade their wearables should first be certain to remove all personal information from their existing device. Consider recycling these items to prevent e-waste, donating them or reselling them.
- **Bodily injury risks:** Malfunctioning devices can cause injuries, illnesses, and even death to wearers or patients. Manufacturers of defective devices may even face product liability lawsuits.
- **Technology errors and omissions risks:** Companies can be held liable for economic losses from the failure of their devices to work as intended. Some wearable technology may require continual software updates to work at optimal levels.

## THE FUTURE FOR WEARABLES

The future for wearables is very bright. Every day brings new advances in technology resulting in exciting, new wearables in the marketplace.

Use these tips to help you make the best consumer decision when purchasing wearable technology that is currently on the market and to think critically about future products.

# Water Bottles



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# Water Bottles

Water bottles are made from a variety of materials and can vary greatly in shape and size. There is sure to be a water bottle to fit the needs of every consumer.

## Materials

### **Plastic**

- **Versatility:** Plastic water bottles come in limitless shapes, colors, and textures.
- **Weight:** Plastic is a lightweight material compared to other options.
- **Affordable:** Plastic water bottles are generally inexpensive.
- **Health and Safety Concerns:** Plastic water bottles that are a hard plastic labeled with the number 7 have BPA (Bisphenol A). BPA is a widely used chemical that is found in polycarbonate plastics, epoxy resin, food storage containers, and eye wear. It has been linked to all kinds of health issues like obesity and infertility. This is worsened when the bottle with BPA sits in the sun or has a hot beverage inside.
- **Bad for the Environment:** While plastic water bottles are designed for more than single-use plastic bottles, they tend to wear out quickly compared to other materials. They will then go into the landfills.
- **Durability:** Plastic water bottles make denting and breaking nearly impossible.
- **Taste:** With time, plastic water bottles will take on the taste of liquids stored in the bottle.
- **Smell:** Plastic bottles often have scents that attach to their chemical bonds, causing the bottle to smell over time.
- **Insulation:** Plastic bottles do not hold cold very well and will lose their temperature quickly.
- **Washing:** Generally, hard plastic water bottles are dishwasher safe.



### **Recycled Plastic**

- Potentially have more health dangers than regular plastic water bottles, due to PET plastic (Polyethylene Terephthalate).
- Polyethylene Terephthalate (PET) is a strong synthetic fiber made from ethylene glycol and terephthalic acid. It is commonly used in carbonated drink beverage bottles. It is the most common type of plastic that is recycled.

- **Eco-Friendly:** The ability to melt the plastic back to original form and reuse allows plastic to stay out of landfills.
- **Recycled plastic material** has the same characteristics as regular plastic water bottles.

## **Glass**

- **Washing:** Glass bottles are generally safe to put in the dishwasher.
- **Color:** Glass can come in clear and a variety of colors to be able to track the amount of water you take in.
- **Taste:** Glass water bottles have no impact on the taste of water or drink.
- **Smell:** Glass water bottles have no smell associated with them.
- **Insulation:** They do not provide any insulation, so your beverage will not remain cold or hot.
- **Durability:** Glass can shatter easily when you drop it.
- **Weight:** Glass water bottles are among the heaviest. They are great for those who do not travel with their bottle during the day.



## **Single-Walled Stainless Steel**

- **Weight:** Second to plastic, this is the lightest bottle option. Great for backpacking.
- **Durability:** Will not break when you drop them. Often will dent upon dropping, but will still hold liquids.
- **Health risks:** No known health risks.
- **Affordable:** Considering their lifespan, stainless steel is a great option.
- **Taste:** Single-walled stainless steel water bottles have no impact on the taste of water or drink.
- **Smell:** There is no smell associated with single-walled stainless steel.
- **Transfers Heat:** Because it is single-walled, hot beverages will be conducted easily and may injure your hand.
- **Insulation:** Cold drinks will lose their temperature quickly because they are single-walled and will take on the outside temperature.
- **Washing:** Single-walled stainless steel is dishwasher safe.



## Insulated Stainless Steel

- **Insulation:** Because of the insulation, typically a double-wall, they maintain the temperature of the contents, both hot and cold.
- **Durability:** The double-wall gives an added layer of protection against dents, and the risk of breaking is virtually non-existent.
- **Portable:** Because the insulation prevents heat transfer, condensation will not form on the bottle. This ensures your hands will not get burned or chilled when you hold your bottle. They are not as heavy, so they can be carried easily.
- **Taste:** Insulated stainless steel water bottles have no impact on the taste of water or drink.
- **Smell:** There is no smell associated with insulated stainless steel.
- **Health Risks:** Because it is stainless steel, they pose no known health risks.
- **Color:** They come in a variety of colors and finishes (matte, opaque, or shiny).
- **Affordability:** Can be affordable, especially considering their lifespan and durability.
- **Weight:** They are heavier than plastic, but lighter than glass.
- **Washing:** If they are vacuum insulated, you can only hand wash them.



## Aluminum

- **Weight:** Aluminum is very light weight, so it is a great alternative to plastic.
- **Affordable:** Aluminum is a cheap material to produce.
- **Health Risks:** Aluminum bottles require a lining because the aluminum can emit toxic chemicals. The linings are often made of plastics or resins, which can contain BPA.
- **Taste:** Traces of the flavors of your drinks can cling to the lining of the bottle affecting the taste.
- **Smell:** The water bottles may take on the smell of liquids over time.
- **Insulation:** Not well insulated. Cold water will lose temperature quickly.
- **Durability:** Aluminum dents easier than stainless steel. However, it will not break if you drop it.
- **Washing:** Not dishwasher safe and will need to be hand washed.



## Silicone

- **Weight:** Silicone is a light material, so it is easy to carry around.
- **Durability:** Silicone is a resistant material. It won't break upon dropping. It can be punctured with sharp materials.
- **Washing:** They are dishwasher safe and can withstand high temperatures. This makes them easy to clean.

- **Health Risks:** Silicone water bottles are made without harmful chemicals that are used in plastic water bottles. It is a non-porous material that prevents bacteria and mold growth.
- **Environmentally Friendly:** They are reusable and long-lasting.
- **Insulation:** Does not keep cold well. Silicone keeps heat longer.
- **Taste:** Silicone can have a slight plastic taste when first purchased, but a proper wash before using can eliminate it. Flavored drinks may also cling to the material and affect taste if not washed properly.
- **Smell:** Silicone can have a slight plastic smell when first purchased. A proper wash before use can eliminate it.
- **Discoloration:** They may show discoloration or staining over time.
- **Collapsible and easy to store.**



## **Sizes**

### **Small**

- **Size Range: 5-16 ounces**
- 6-8 ounces: Best for long-distance runners so they can easily lift a water bottle from their waist and take a drink.
- 16 ounces: Great for home, travel, work, and short hikes. Can easily clip onto a backpack or slide into a cup holder without adding much weight.

### **Medium**

- **Size Range: 17-24 ounces**
- 20 ounces: Easy to clean and light weight. Commonly used for home, travel, work, picnics, and average length hikes.

### **Large**

- **Size Range: 25+ ounces**
- 32 ounces: Meets half daily water consumption needs. Common for fitness and athletic training, day trips, and longer hikes.
- 40 ounces: Commonly used for fitness and athletic training, day trips, longer hikes, family activities, and camping.

## **Shape**

**Width:** Aside from the volume the bottle can hold (refer to size section), the exterior width of the bottle is important. Ensure it fits your space, your hand, backpack sleeve, waistband loop, or cup holder.



**Height:** Some bottles may be too tall to fit in coffee machines or water dispensers, so you will need to consider the uses before choosing a bottle.

**Interior Angles:** The shape of the bottle relates to the ease of cleaning. If a bottle has sharp corners, it can be more difficult to clean.

### **Mouth**

Mouth refers to the opening at the top of the bottle.

#### **Wide-Mouth**

- Wide enough to fit ice cubes.
- Easy to clean.

#### **Narrow-Mouth**

- Difficult to reach inside to clean.
- Reduced likelihood of water splashing.

### **Handle Types**

**No Handle:** No handle attached to the water bottle at all.

**Bottle Handle:** Handles are built into the water bottle and are rigid and cannot change.

**Cap Handle:** This handle is attached/built into the cap of the water bottle. These can be rigid or soft. You can switch out caps for another one with a different handle.

### **Cap Types**

There are a variety of types of caps available for water bottles. Each type has its own advantages and disadvantages, and you need to choose the one that best fits your needs and preferences.

#### **Screw-On Cap**

- Cap screws on firmly in place, minimizing the amount of possible leakage.
- Must open the cap each time to take a drink.
- Water can easily spill or splash out if you are moving while opening the cap.

#### **Push-Pull Cap**

- Push to close and pull to open the cap of the bottle.
- Opens to a spout within the bottle.
- Common in sports bottles.





## Flip-Top Cap

- Hinged lid that flips open with a push button or by pulling it up.
- Opens to reveal straw or spout.

## Straw Cap

- Cap has a straw built in that extends into the water bottle.
- Straw can flip up or can be permanently up.

## Cleaning

Water bottles should be washed daily and deep cleaned once a week. Water bottles should be cleaned regularly if you are sick, if the water bottle was left outside, or on the ground at the gym.



## Daily Cleaning Method

Materials Needed: warm water, dish soap, bottle brush

- Step 1: remove the water bottle cap
- Step 2: add a squirt of dish soap into the water bottle
- Step 3: fill the water bottle with warm water
- Step 4: add the cap back on and shake the water bottle
- Step 5: remove the cap again and scrub the bottle with the brush
- Step 6: scrub the cap with warm water and dish soap using the brush
- Step 7: rinse the cap and water bottle with warm water and set out to dry

## Deep Cleaning Method

Materials Needed: vinegar, cool water, paper towel/dishcloth

- Step 1: remove the water bottle cap
- Step 2: fill the bottle halfway with vinegar
- Step 3: fill the rest of the bottle with cool water and allow it to sit overnight
- Step 4: empty and rinse the bottle with warm water
- Step 5: dry the bottle with a paper towel or dishcloth

For an extra clean, if the water bottle is dishwasher safe, place the water bottle in the dishwasher for a cleaning cycle

## Sources

GearLab: How to Choose A Water Bottle

<https://www.outdoorgearlab.com/topics/camping-and-hiking/best-water-bottle/buying-advice>

Healthy Human: Best Water Bottle Guide

<https://healthyhumanlife.com/pages/best-water-bottle-guide>

VeryWellFit: How to Choose the Best Reusable Water Bottle

<https://www.verywellfit.com/how-to-choose-a-reusable-water-bottle-7559465>

National Institute of Environmental Health Sciences: Bisphenol A (BPA)

<https://www.niehs.nih.gov/health/topics/agents/sya-bpa>

Real Simple: How to Clean a Water Bottle-Because You Might Not Wash It Enough

<https://www.realsimple.com/home-organizing/cleaning/how-to-clean-water-bottle>

Taste of Home: 11 Genius Ways to Store and Organize Water Bottles

<https://www.tasteofhome.com/collection/water-bottle-storage-ideas/>

Britannica: Polyethylene Terephthalate

<https://www.britannica.com/science/polyethylene-terephthalate>

Bottle First: Is Silicone Water Bottle Safe? Yes Explanation!

<https://bottlefirst.com/is-silicone-water-bottle-safe/>

Green Queen: Recycled Plastic Bottles Are Good for the Planet, Terrible for Human Health, Study Finds

<https://www.greenqueen.com.hk/recycled-plastic-bottles-health-risks/>

The Outdoor Insider: How Big is a Water Bottle in Inches: The Size Unveiled

<https://theoutdoorinsider.com/hiking/hydration-and-beverages/how-big-is-a-water-bottle-in-inches/#:~:text=Standard%20Water%20Bottle%20Dimensions%201%20Small%20Water%20Bottles,Large%20Water%20Bottles%20%2833%20oz%20and%20Above%29%20>

Written March 2024 by Kari Helgoe, NDSU Family & Community Wellness Extension Agent, and Jadah Poepping, Center for 4-H Youth Development Student Worker

# Skin Care: Sunscreen



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# Skin Care: Sunscreen

## Why Sunscreen?

Sunscreen is an important part of any skincare routine. It helps protect the skin from the sun's harmful ultraviolet (UV) rays, which can cause sunburn, skin aging, and increase the risk of skin cancer.

## Sun Safety & Risks of UV Exposure

Ultraviolet (UV) radiation comes from the sun and artificial sources like tanning beds. UV rays are invisible, but they can damage your skin year-round, even on cloudy or cool days.

### Types of UV Rays:

- UVA: Penetrates deep into the skin; causes aging and long-term skin damage.
- UVB: Causes sunburn and plays a key role in the development of skin cancer.

### Health Risks of UV Exposure:

- Sunburn
- Skin cancer (including melanoma)
- Premature aging (wrinkles, sun spots)
- Eye damage, including cataracts
- Immune system suppression



### Sun Safety Tips:

- Apply sunscreen daily—even on cloudy days
- Seek shade between 10 a.m. and 4 p.m. when UV rays are strongest
- Wear protective clothing, hats, and sunglasses
- Avoid tanning beds
- Use broad-spectrum sunscreen with SPF 30 or higher



## Types of Sunscreen

### 1. Physical (Mineral) Sunscreen

- Ingredients: Zinc oxide or titanium dioxide
- Works by sitting on top of the skin and reflecting UV rays
- Pros:
  - Immediate protection
  - Gentle on sensitive skin
  - Often reef-safe
- Cons:
  - May leave a white cast
  - Thicker texture





## 2. Chemical Sunscreen

- Ingredients: Oxybenzone, avobenzone, octinoxate, etc.
- Works by absorbing UV rays and converting them to heat
- Pros:
  - Lightweight, blends easily
  - Often available in sprays, gels, and lotions
- Cons:
  - May cause irritation
  - Requires 15–30 minutes before exposure
  - Some formulas are not reef-safe



### Top Recommended Sunscreens (2025)

According to Consumer Reports' 2025 testing, the following products are top-rated:

- La Roche-Posay Anthelios Kids Lotion SPF 50 – Excellent protection and ideal for sensitive skin.
- Eucerin Advanced Hydration Lotion SPF 30 – Highly rated for both protection and skin hydration.
- Thrive Bodyshield Lotion SPF 50 – Great coverage with eco-conscious ingredients.

These products were recognized for high SPF accuracy, water resistance, and broad-spectrum coverage.

### Comparison Chart of Top Sunscreens

Product Name	SPF	Type	Water Resistant	Skin Type	Notable Features
La Roche-Posay Anthelios Kids SPF 50 	50	Mineral	Yes (80 mins)	Sensitive	Pediatrician-tested, fragrance-free
Eucerin Advanced Hydration SPF 30 	30	Chemical	Yes (40 mins)	Dry, sensitive	Moisturizing, non-comedogenic
Thrive Bodyshield Lotion SPF 50 	50	Mineral	Yes	All skin types	Plant-based, eco-conscious, reef-safe



## Key Features to Consider

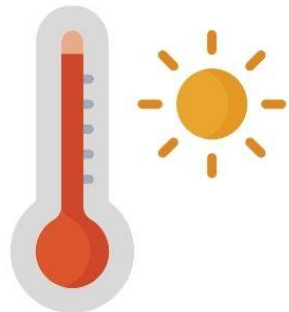


*\*SPF refers to how long a person will be protected from a burn. (SPF 15 means a person can stay in the sun 15-times longer before burning.)  
SPF only refers to UVB Protection.*

Feature	What to Look For	Why It Matters
SPF (Sun Protection Factor)	SPF 30 or higher	Blocks ~97% of UVB rays. Higher = more protection.
Broad Spectrum	Labeled “Broad Spectrum”	Protects against both UVA and UVB rays
Water Resistance	40 or 80 minutes	Protection during swimming/sweating
Skin Type Suitability	Sensitive, oily, dry, acne-prone	Choose based on skin needs
Application Type	Lotion, spray, stick, gel, etc.	Based on preference and ease of use
Ingredients	Active & inactive	Check for allergens, irritants, or reef-safety

## Common Label Claims & What They Mean

Label Claims	Meaning
Reef-Safe	Free of harmful ingredients like oxybenzone or octinoxate
Non-comedogenic	Won't clog pores – good for acne-prone skin
Hypoallergenic	Less likely to cause allergic reactions
Fragrance-Free	No added scent – preferred for sensitive skin
Dermatologist-Tested	Tested by skin professionals



## Packaging Considerations

- Pump/Lotion Bottle: Great for home use
- Spray: Fast but may miss spots; not for face
- Stick: Ideal for small areas
- Travel Size: Convenient for sports bags or backpacks



## Environmental & Safety Considerations

- Reef-safe = safer for oceans and coral reefs
- Avoid expired products – less effective
- Watch for ingredients that may irritate sensitive users
- Throw away sunscreens after 1-2 years
- Some sunscreens may lose their effectiveness when applied with insect repellents. You may need to reapply more often.



## Tips for Use

- Reapply every 2 hours or after swimming/sweating
- Use about 1 oz to fully cover the body
- Don't forget ears, scalp, neck, tops of feet and backs of hands.
- Always check the expiration date



## First Aid for Sun Exposure

Understanding how to respond to overexposure to the sun is an important aspect of skincare and sun safety. Here are some basic first aid tips:

### 1. Sunburn Relief

- Move out of the sun immediately
- Apply cool (not cold) compresses or take a cool bath
- Use aloe vera or a gentle moisturizer to soothe skin
- Stay hydrated – drink plenty of water
- Avoid breaking blisters

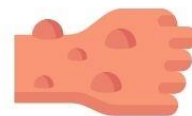
### 2. Heat Exhaustion/Heat Stroke

- Move to a cooler, shaded area
- Loosen tight clothing
- Apply cool, wet cloths or take a cool shower
- Sip water slowly
- Seek medical attention if symptoms worsen (confusion, fainting, rapid heartbeat)



### 3. When to See a Doctor

- Severe blistering sunburns over large areas of the body
- Signs of dehydration (dizziness, dry mouth, no urination)
- Fever, chills, or signs of infection
- For outdoor activities, always keep a basic first aid kit on hand with items like aloe vera, cooling gel packs, water, and pain relief medication.



## References

American Academy of Dermatology Association. (n.d.). *How to select a sunscreen*.  
<https://www.aad.org/public/everyday-care/sun-protection/sunscreen-patients>

Consumer Reports. (2025). *Best Sunscreens of the Year*.  
<https://www.consumerreports.org/health/sunscreens/best-sunscreens-of-the-year-a7763432372/>

Environmental Working Group. (2023). *EWG's Guide to Sunscreens*.  
<https://www.ewg.org/sunscreen/>

FDA. (2023). *Sunscreen: How to Help Protect Your Skin from the Sun*.  
<https://www.fda.gov/drugs/understanding-over-counter-medicines/sunscreen-how-help-protect-your-skin-sun>

Hawaii State Department of Land and Natural Resources. (2022). *Reef Safe Sunscreen Information*. <https://dlnr.hawaii.gov/dar/reef-safe-sunscreen/>

Mayo Clinic. (n.d.). *First Aid for Heat Exhaustion*. <https://www.mayoclinic.org/first-aid/first-aid-heat-exhaustion/basics/art-20056651>

Mayo Clinic. (n.d.). *First Aid for Heat Stroke*. <https://www.mayoclinic.org/first-aid/first-aid-heatstroke/basics/art-20056655>

Mayo Clinic. (n.d.). *First Aid for Sunburn*. <https://www.mayoclinic.org/first-aid/first-aid-sunburn/basics/art-20056643>

Mayo Clinic Staff. (2022). *Sunscreen: How to help protect your skin from the sun*.  
<https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/sunscreen/art-20045110>

Skin Cancer Foundation. (n.d.). *How to Choose the Best Sunscreen*.  
<https://www.skincancer.org/skin-cancer-prevention/sun-protection/sunscreen/how-to-choose-the-best-sunscreen/>

# Invitations – Seniors Only



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**New Mexico State University**



# *A History of Invitations*

Traditionally, written invitations are used for larger scale “life events” such as weddings, anniversaries, graduations, birthdays or baby showers. Invitations, however, are not a modern concept. Here is a brief overview of the history of invitations:

The first, written invitations to formal events dates back to the middle ages. They were considered a luxury item. At that time, only the wealthiest of families could afford this type of service. They would employ monks, who were skilled in the art of calligraphy, to handwrite each invitation.

Later, in the middle of the 1600's, most invitations were created by engraving. The engraving process involved hand engraving the text -- in reverse -- on a metal plate. The invitations would then be printed from the metal plate. However, the ink used in the engraving process would easily smudge. So, to protect the ink from doing this, it became a necessary custom to place a piece of tissue-like paper on the top of the invitation. This tradition carries on today whereby a small piece of tissue paper and/or vellum are placed on top of the invitation before placing it in the envelope.

Of course, in the 1600 and 1700's, the postal system was new and all deliveries were made by horse. To protect the invitation throughout its travels, an outer envelope was used to ensure that the invitation and envelope were safe from outside elements. This is where the double envelope tradition began that is still used today for formal invitations.

By the middle of the 20th century, thermography was used to print invitations. Thermography is a special type of printing process that produces raised letters without etching or engraving. This process made invitations affordable to the masses.

Today, formal, printed invitations are still used. However, it is also very popular to select and/or create and buy invitations from an online vendor.

## *Ordering Invitations from an Online Source*

While online invitations can result in a much quicker turn-around time and in many instances allow you the freedom to create your own design work, there are many things to consider when selecting and ordering invitations from an online source. Consider the following:

## *Ordering Invitations from an Online Source continued*

### **Printing Processes**

- Type of printing process(es) used include:
  - **Digital Printing (also known as Flat Printing)** -- the most common and cost effective printing method available. Much like our home inkjet or laser printers except that the large, professional printers result in high quality prints.
  - **Foil Stamped Wedding Invitations** -- Foil invitation add elements of sparkle and shine to part of an invitation by pressing shiny metallic paper (comes in a variety of colors besides gold) into the invitation to create a deep impression. Most often used to create high-end wedding invitations.
  - **Digital Foil Printing (Scodix Printing)** -- Digital foil is a new digital printing method that uses heat to adhere foil to paper. For small print jobs, it is less expensive to use than traditional stamped foil. However, it costs much more for a larger quantity. Unlike stamped foil, digital foil has an embossed (raised) effect.
  - **Screen Printing** -- Like digital printing, screen printing is also an affordable print technique. It is also a budget-friendly print alternative to gold foil. Screen printing comes in both flat and raised options.
  - **Embossing** -- This is a good method for creating a monogram or large-scale text. Blind embossing is an ink-free method that uses metal plates to stamp letters into the paper and create a raised-relief surface. This method is not typically used for printing invitations, but rather is used for a reply card or thank-you note.

# *Ordering Invitations from an Online Source continued*

## **Printing Processes**

*continued*

- **Laser-cut Printing** -- Used to create fine art paper artwork such as intricate floral designs, mesh pattern or any other art cut into the paper. The end result is a delicate look. Cost depends on how long each piece takes to cut -- the more intricate the design, the more it will cost.
- **Letterpress Printing** -- Even though this is a old printing technique, the most luxurious invitations printed today are created using letterpress printing. This type of printing creates exquisite textures on thick, soft, cotton paper.

## **Services Provided**

- Photo retouching options
- Conversion of photos to black and white, grayscale or sepia
- Eco-friendly options -- such as recycled paper, soy inks
- Rush order availability
- Invitation addressing service -- available to address all types of cards such as save the dates, invitations and thank you cards. Your guest names and addresses will be printed in ink on the front of the envelopes, using fonts that match your chosen design.
- Invitation assembly services -- puts the invitation, RSVP cards, etc... in envelopes and will add postage and mail them on your behalf for a fee.

## **Company Reputation:**

- How long has the company been in business
- Number and type of reviews
- Contact information

## **Product Options:**

- Options for: color, paper type (including artisan and handmade options), font, ink
- Character limits -- a limit to the number of words or letters that can be used

# *Ordering Invitations from an Online Source* continued

## **Product Options**

*continued*

- Options for budgets and styles
- Use of images including formats
- Availability of new trends in colors and styles
- Invitation sizes (Are non-standard sizes available?)
- Availability of envelopes and inserts
- Lettering styles available for addressing
- Flat or foiled options

## **Printing, Shipping Options and Delivery Time**

- Printing time
- Delivery time
- Shipping methods
- If the invitation involves multiple pieces and invitation assembly is used, how will the invitation assembly time affect the delivery date?
- Will the lettering push back my delivery date?
- Payment type and due date
- Proofing -- An opportunity to review and make changes before it goes to print. If changes are required, how does this affect delivery time? Is there an extra fee for making changes?
- If my printed invitations do not match my approved proof, will my invitations be reprinted with corrections at no additional cost? How does this affect the delivery time? If a rush order results, will you pay for the expedited shipping costs?
- How much additional time will it take to redo my order if there is a problem?

## **Costs**

- Do you have a refund policy if for some reason I need to cancel my order?
- Is there a minimum required?
- Is there a price break -- less cost for certain amounts
- Any additional extra fees -- for extras? reprinting? foiling? lettering? assembly? expedited shipping?
- Preferred payment type? Is a deposit required?



## Useful Tips:

- **Proofs:** Insist on getting a proof. Have at least two other people review all your proofs before you sign off on them to ensure that you catch all errors.
- **Color Resolution:** If ordering online, remember that color resolution can vary drastically between screens. To guarantee the exact color you want, ask that a sample be snail-mailed to you.
- **Contracts:** If you order your invitations from an online company, make sure your contract states that they will correct mistakes they make for free.
- **Extras:** Order 20–30 extra save-the-dates and/or invitations with envelopes in case you have to add to the guest list or you make a mistake when assembling or addressing the envelopes. Don't forget, you will want a keepsake for yourself!
- **Consolidate for Consistency:** Consider working with one stationer or graphic designer for all of your printed materials to ensure that all of the components convey a consistent design concept.
- **Evites:** Evites create an electronic invitation that are great to use for more casual events. They are also ideal for supporting events -- like a bachelorette party for a wedding. They especially work great if you are not going to have time to order and mail traditional invitations. One of the best features of evites is that they allow for guests to automatically RSVP. No wait time is needed for snail-mail.

## Invitation Etiquette

### Graduation:

- Send announcements a month before the ceremony if you want them to attend or a month after if you want them to be aware.
- Include the name of the graduate, the date and year of the event, and the name of the college or high school from which the student is graduating.
- Use black or blue ink if you're sending handwritten announcements.
- Address the envelopes using the formal Miss, Mrs., Ms., Mr., Dr., etc... before the surname.

## *Invitation Etiquette continued*

### **Birthday parties:**

- Generally 4-6 weeks is fine for birthday parties. For a milestone birthday event (think sweet 16, 21st, 39 and holding, 40 and over the hill, etc...) and you want to make sure certain people can be there, you may want to clear the date with them ahead of time, or at least give them a longer lead time with your invitations.
- For a child's birthday party, be sure to include the following information:
  - Child's name and age
  - Identify if the party is a drop-off event or whether parents and siblings can attend
- All birthday party invitations should include the following:
  - Party theme (if applicable)
  - Preferences regarding gifts if you have them -- such as no gifts, bring a canned food donation for charity instead of gift, educational gifts only, etc.)
  - Party duration -- provide both a start time and an end time
  - Dress code, if applicable. For instance, if it is a swim party, invitees will need to be reminded to bring such things as a swimsuit, towel, flip flops, sunscreen, etc...
  - Directions and instructions regarding where to/how to park, if applicable

### **Weddings:**

- Send Save the Date cards 8 to 12 months prior to the wedding (or send them earlier for a destination or holiday weekend).
- For a local wedding, it is appropriate to send invitations out two (2) months in advance. For destination weddings, your guests will need more time to book accommodations, so sending out invites three (3) to four (4) months in advance is more appropriate.

### **Formal Parties:**

- Parties like formal dinners, debutante, or charity balls require a little more time because guests typically bring a guest and need to plan special attire! Four (4) to six (6) weeks prior to the event is the appropriate time to send invitations.

## *Invitation Etiquette continued*

### **Holiday Parties:**

- Holidays are always busy, so invitations for Christmas or New Years Eve parties should be mailed at least a month before to be safe.
- If you holiday party is more informal, it is appropriate to mail your invitations three (3) weeks or less.

### **Others:**

- Other parties such as teas, going-away, retirements, anniversaries, cocktails and/or housewarmings can follow the three (3) weeks or less rule as these events are typically more informal.

## *Resources*

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*The history of the invitation* (n.d.) Purple Rose Graphics; <https://www.purplerosegraphics.com/the-history-of-the-invitation/>.

Farias, S. (2023, May). *The most used wedding invitations printing methods*. VS Invitations.com; <https://www.vsinvitations.com/blog/the-most-used-wedding-invitation-printing-methods>.

*Getting to Know Your Invitation professional* (n.d.) Here Comes the Guide <https://www.herecomestheguide.com/wedding-ideas/questions-to-ask-when-ordering-your-wedding-invitations>.

Shutterfly Community (2019, December 6). *When to send party invitations*. <https://www.shutterfly.com/ideas/when-to-send-party-invitations/>



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# Fitness Equipment – Seniors Only



**BE BOLD.** Shape the Future.  
**New Mexico State University**





## FITNESS EQUIPMENT

Your personal health can be positively impacted by including physical activity in your regular routine. It can improve your physical health and other facets of living a healthy life. “Regular physical activity can improve your brain health, help manage weight, reduce the risk of disease, strengthen bones and muscles, and improve your ability to do everyday activities,” according to the Centers for Disease Control (CDC).

According to the National Institute of Health, four basic types of exercise can improve health and physical activity. Each of them has different benefits, and the use of multiple types can magnify the benefits regardless of age. Types include:

- **Endurance** — This activity increases breathing and heart rate. It is often referred to as “aerobic” or “cardiovascular (cardio).” “Walking, cycling, swimming, climbing, dancing, and running are all endurance-building activities. A range of fitness equipment products can be used for endurance.
- **Strength** — Muscle strength can help you become a better athlete, increase work productivity, and make strenuous daily activities easier. It can also help you with your balance. Equipment and products to help build strong muscles may include “strength training” and “resistance training” equipment. The CDC recommends two days of strength training per week.
- **Balance—Balance** is an important part of physical fitness and focuses on maintaining proper posture over the body’s base of support. Improved balance can prevent falls among the elderly, increase an athlete’s ability to generate power in a vertical jump, and increase the force or resistance placed upon the body to increase strength. A range of products on the market can help improve balance for all ages and purposes.
- **Flexibility** — Exercises that stretch muscles can greatly impact your body’s ability to stay flexible. Muscle flexibility allows for greater freedom of movement for other exercises as well as for everyday activities. It may also help you avoid discomfort when combined with small spaces for extended periods of time like a meeting, classroom, plane flight, or even a car/bus ride<sup>3</sup>. Equipment/products used to improve flexibility can be quite simple and inexpensive compared to other types of fitness equipment. However, the impact on your physical fitness can be quite dramatic over time.

A wide range of products is available in this product category, and there is an even wider range of uses for them. In addition, one should consider their physical fitness goals. Fitness equipment can provide benefits, although different, depending on the user’s age and current physical ability. However, most of the equipment referenced in this guide can be used across ages and abilities, depending on the type of equipment and the person’s ability to use the equipment towards their fitness goals effectively. This product category includes the following types of fitness equipment but may include others not listed or referenced here.

- Dumbbell Set
- Treadmill
- Stationary Bicycle
- Barbell Set



### **DUMBBELL SETS** (✗Endurance    Strength    Balance    Flexibility)

Dumbbells are small bars that fit in your hand and have equal weights on either side. They weigh as little as 2 pounds and go up to over 100 pounds. Depending on their range of uses and anticipated benefits, dumbbells can range from simple small sets to very large extensive sets. Some are more appropriate for single-person use in your home, while others may be more appropriate for multiple people to use at the same time as studio sets in a gym setting.

- **Materials** – Dumbbells can be made from various materials, including rubber, neoprene, urethane, steel, and cast iron. In addition, some may include a combination of both, such as rubber-coated cast iron products. Each has advantages and disadvantages based on the type of use, space, and storage. The types of materials used can also be reflected in the cost. For example, the rubber-coated hexagonal weights may be more expensive than the non-coated equivalent due to the extra materials used. In addition, rubber may be less likely to scuff or scar a delicate floor.
- **Types** – Dumbbells come in three general types: fixed, adjustable, or plate loadable. Fixed dumbbells have a single grip, which is permanently fixed between the billets and cannot be altered. Adjustable dumbbells consist of a series of weight plates mounted in a base with a mechanical handle or dial that can be adjusted for a specific plate, which adjusts the amount of weight. The plate loadable is also a varied type of dumbbell that includes a handle that can be loaded with varied weight plates and secured with a barbell collar. Depending on their intended purpose and use, one type may be more advantageous than another. For example, smaller sets of 2, 3 & 5-pound weights may not be expandable within the set, unlike the larger studio sets that may range from 5 to 50 pounds each.
- **Shapes**—Dumbbells can be round/circular, hexagonal, square, or globe. Depending on how and where they will be used, the shape can impact which is preferential. For example, hexagon-shaped dumbbells are less likely to roll away if set down on the floor, on a flat surface, or when stored. Circular dumbbells distribute their weight more uniformly than other shapes, and their ability to roll can be both an advantage and disadvantage.
- **Handles**—The handle is a very important feature of any dumbbell. Variations in grip thickness, shape, texture, and finish can make a big difference when selecting the best one for you. Some have revolving grips, which allow the grip to spin separately from the dumbbell to avoid torque in the wrists when changing hand positions.





### **TREADMILLS** ( ✓ Endurance ✓ Strength ✓ Balance ✓ Flexibility)

The treadmill is a stationary exercise machine that features a walking or running belt designed primarily for cardio exercise. However, they can be used for all types of exercise depending on the type and features of the individual model. Treadmills can offer a variety of speed and incline settings that are ideal for varied cardio fitness levels. Some models even offer Bluetooth connectivity for audio/visual and programming. Some have LCD touchscreens for interactive controls, including streaming training programs. Treadmills can provide some unique advantages for their users to include:

- Offering cushioned running/walking surfaces for shock absorption reduces high impact for runners, which can lead to back, knee, and ankle problems over time.
- Low-impact cardio helps build a stronger heart and bones, reduce blood pressure, and even help with weight loss.
- Building leg muscles and improving core strength.
- Improves mental health through endorphins released through aerobic exercise.

Treadmills can be grouped into 4 different types. Each may share similar features and benefits as well as have some features unique to each type. Since treadmills can be a very versatile piece of fitness equipment, evaluating the scope of its use is important when selecting the best one for your own use.

- **Manual** – These products are generally lighter and the least expensive treadmill types. They generally offer fewer features than the others as an electric motor does not power them. The primary features include handrails and the treadmill belt. They are powered exclusively by the person walking or running. As a result, when you stop walking/running, the treadmill stops as well. This is a much safer option at home if there are small children around. They are usually foldable, making them much easier to store. They are generally smaller and lighter than their motored counterparts.
- **Motorized** – These products require a main power source for the electric motor and other powered features like LCD displays, speakers, and streaming capabilities. Motorized treadmills are generally heavier than manual ones but may be equipped with rollers to make moving them easier. The motorized belt and deck may have adjustable speeds and inclines for extended capabilities. Commercial versions may include vitals sensors to monitor heart rate. Their more rugged construction may be more appropriate for extended or heavy use and will likely be more expensive than the home-type models. However, they also work well at home despite the cost.
- **Hybrid**—These products are generally more expensive and durable than other models. Their hybrid designs can include “tread climbers” that combine traditional designs with elliptical machines.







- **Medical**—These are very specialized machines but also have their place depending on their intended use. Sometimes referred to as “zero gravity” or “anti-gravity” treadmills, they allow the user to walk or run at a lower percentage of their own body weight. This is especially valuable for preventative rehabilitation or therapy. They function primarily like a standard treadmill except as noted above.



Treadmill safety is very important, especially for any version that will be at home and may be accessible to small children. Great care should be taken when selecting a treadmill. Ensure that it has important safety features, such as emergency stop systems like a panic button, a tether with a shut-off clip, or both.

### **STATIONARY BICYCLES** ( ✓ *Endurance* ✓ *Strength* ✓ *Balance* ✓ *Flexibility*)

Stationary bicycles or “exercise bikes,” like treadmills, are a type of stationary fitness equipment that provides some of the same fitness benefits as cycling with some important benefits over being out on an open road. Aside from the cardiovascular benefits of this type of activity, stationary bicycles also help with weight loss, burn fat, strengthen leg and lower body muscles, and provide a low-impact workout. This equipment allows for interval training and is much safer than road cycling for obvious reasons.

The most common and basic design of a stationary bicycle includes a metal frame, single wheel, seat, and some type of handlebar. From this point, the variations begin and have a great impact on its use and versatility. Other features can include vitals monitoring sensors, LCD screens, audio input ports, Bluetooth, and streaming program capabilities.

There are five general types of stationary bicycles: indoor cycling bikes, recumbent bikes, upright bikes, air bikes, and folding bikes. Each has its own unique characteristics and fitness benefits. Depending on your fitness goals, you should select the type and model that best fits your needs.

- **Indoor Bike** – This is likely the most common type of stationary bicycle. It includes the basic design with the handlebars positioned forward of the cycle (above the front wheel) to allow the rider to lean forward, like being out on the open road. What makes this type unique is the exposed flywheel that uses friction or magnetic resistance to create different levels of intensity. The control is either a manual control (knob) or electronic control (digital). These models are great for high-intensity workouts and have a smaller footprint than some of the other types. You can even stand up on the pedals and ride in that position. One fault is that they generally provide no upper-body workout.
- **Recumbent Bike** – This type is unique in that it places the rider lower to the ground and repositions the pedals in front of the rider as opposed to directly below. As a result, this type is considered the lowest-impact type of bike. Unlike the Indoor Bike’s narrow seat, this one provides a wider seat and a backrest, putting the rider into an almost reclined position. People who might experience pain on a bike might be more comfortable with this type of bike. It may also be beneficial to someone recovering from injury, someone with balance problems, older people, or even someone with a disability. This bike gives up intensity for comfort and stability. There is no upper body or hand movement with these models, making it less versatile.







- **Upright Bike** – This model is like the Indoor Bike but with one major difference. The handles are closer to the rider to keep the rider from leaning forward at any point during the ride. For some, this position might be a bit uncomfortable for long rides. This also creates a more compact footprint than other types. In addition, the seat tends to be smaller than on the recumbent bike. This model provides a more robust and intense workout than the recumbent bike, but there are fewer choices for this type of bike on the market.



- **Air Bike** – While the Indoor Bike uses a flywheel, an air bike uses a fan to generate resistance while pedaling. The faster you pedal, the faster the fan turns and the more resistance you create. These models tend to be noisier than others, so if noise is an issue, this may not be the best choice. The pedals are located directly below the rider, like the Indoor Bike, and the seat size varies depending on the model chosen. One of the unique features of most Air Bikes is the moveable handles that add to an upper body workout. It works like an elliptical where your upper body movement can assist you with your lower body workout.



- **Folding Bike** – These models are designed with space as a priority. These are not your sturdiest designs but are functional and great for small spaces. They are designed to be folded up and stored away easily. These models have the handlebars in front of you and the pedals below. Your ability to get an intense workout from these models is very unlikely, but they do provide a decent cardio workout. Many do have low maximum weight capacities and generally do not come with any “extras.” This makes them very affordable.



### **BARBELL SETS** (✓ Endurance ✓ Strength ✓ Balance ✓ Flexibility)

- A barbell set is a piece of fitness equipment generally purchased as a set, although individual pieces can be purchased and is primarily used for weight training to build strength. While it can be used to address other fitness benefits relative to alternatives, this option is generally more expensive. A set includes a barbell and a long bar (4' to 8') designed to accept weight plates on either end to increase or decrease the total weight. Collars are used to prevent the plates from moving outward unevenly. It is one of the simplest pieces of fitness equipment in most gyms. However, it is much more complicated to learn how to use it correctly and effectively. In exchange, a barbell set for weight training requires using multiple muscle groups at once. This can make complete workouts more efficient. Sometimes, you can work your entire body with a single move, which is great for budding athletes. The two basic components of barbell sets include the weight and the barbells (with collars).



- **Weights** – The plates of any barbell set are the most important consideration. Most sets are available with cast-iron or bumper plate styles. Your choice will influence how you set up your gym, how many can be stacked onto a barbell, and other factors. Cast-iron plates are the most traditional options for a set. They can be thinner than coated plated, allowing more stacking on any given barbell. However, cast iron can rust if exposed to moisture or damp basements/garages. They are also a bit noisier as they clank together during your workouts. Bumper plates are generally made from a rubber base and, as a result, can be thicker than cast-iron plates, reducing the number that can be stacked on a barbell. These also tend to be a bit pricier than the cast-iron plates. As far as sets, they can range from as little as 65 pounds and as high as 600 pounds. Unless you expect to be lifting that much, a mid-range set at 300-350 pounds is a good place to start.



- **Barbells** – Most sets include a Standard or an Olympic barbell that is about 7' to 8' in length and weighs approximately 45 pounds. They have a "sleeve" on either end that holds the plates of weight secured by a collar. Each different type of barbell has different qualities and a special design that serves its specific purpose. In addition to varying shape and size, they may also feature different amounts of knurling (grippy lining on the metal), amount of whip (the way the weight changes as the bar moves), and sleeves.

- Standard Bar: 35-55 lbs, versatile lifts, static sleeves
- Olympic Bar: 33-44 lbs, versatile lifts, spinning sleeves
- Trap (Hex) Bar: 30-70 lbs, great for deadlifts, not very versatile
- Swiss Bar: 35 lbs, good for those with limited shoulder mobility, holds less weight
- Safety Squat Bar: 50 lbs, good for beginners, not very common
- Curl Bar: 25-35 lbs, good for arm lifts, varied hand positions, limited to arm lifts
- Cambered Bar: 85 lbs, good for lower body lifts, hard to find
- Log Bar: 135 lbs, specialized lifting, good for very heavy weight, hard to find
- Deadlift Bar: 45 lbs, flexes for deadlifts, deeper knurling, relatively expensive
- Powerlift Bar: 45 lbs, stronger steel, great for heavy weights, not for beginners



- **Collars** – There is a range of different collars that fit on barbell sleeves to secure the weight plates. They include spring collars, spinlock (threaded) collars, lockjaw collars, and muscle clamp collars to name a few. When it comes to securing the weight plates, make sure your collar is designed for the sleeves on your bar to prevent the weight plates from moving.



As anyone could imagine, barbell sets take up much more space than other forms of fitness equipment. In addition, their size and total weight make storing them after each use impractical. Depending on the size of the set, it might include racks for the bar(s) and weight plates. That is a big consideration when choosing to add this to your home gym. Plenty of space is a must.



### RESOURCES

Benefits of Physical Activity. (2022, September 23). Centers for Disease Control and Prevention.

<https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm#print>

Four Types of Exercise Can Improve Your Health and Physical Ability. (2022, October 14). National Institute of Health. <https://www.nia.nih.gov/health/four-types-exercise-can-improve-your-health-and-physical-ability>

Flexibility Exercise (Stretching). (2022, September 23). American Heart Association.

<https://www.heart.org/en/healthy-living/fitness/fitness-basics/flexibility-exercise-stretching>

Elliptical Buying Guide. (2022, October 14). Consumer Reports.

<https://www.consumerreports.org/health/ellipticals/buying-guide/>