College of Agricultural, Consumer and Environmental Sciences

Consumer Decision Making
Study Guide 2026
Southeast District 4-H Contest

*Skin Care: Sunscreen- Novice & Junior Reasons

*Updated

Fitness Equipment

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Skin Care: Sunscreen

SUNSCREEN OVERVIEW

Sunscreen is one of the most important tools we have to protect our skin from the sun, yet nearly one third of Americans never use it. Too much sun exposure can cause sunburn, premature aging, wrinkles, and in many cases, skin cancer.

When used as directed, sunscreen can:

- Decrease your risk of skin cancers and skin precancers. Studies show that regular daily use of SPF 30 sunscreen, when used as directed, can reduce your risk of developing squamous cell carcinoma (SCC) by about 40 percent, and lower your melanoma risk by 50 percent.
- Help prevent premature skin aging caused by the sun, including wrinkles, sagging and age spots.

Unfortunately, many people think that a tan is a healthy look. But what these people do not know is that a tan is actually like a giant scab that your skin creates to try to protect itself from more sun damage.

It is impossible to completely avoid the sun, of course, but you can take precautions to ensure that you are protecting yourself from its harmful rays.

Know the 6 W's of Sunscreen:
WHO: Everyone under the sun except babies under six months old
WHICH: Broad spectrum SPF 15 or higher; Dermatologists recommend SPF 30
WHEN: Every day, 30 minutes prior to going outdoors. Reapply sunscreen at least every two hours, and more often if you're sweating or swimming.
WHERE: All exposed skin
WHAT: Apply one ounce (about two tablespoons) to your entire body for each application
WHY: Reduces your risk of skin damage and skin cancer

SUNSCREEN OVERVIEW (CONT.)

In addition, consumers should engage in sun protective behaviors, such as wearing protective clothing; wearing sunglasses and a hat that provides adequate shade; avoiding the sun during the hours of 10:00 AM and 3:00 PM and finding shade whenever possible during these periods of peak sunlight.

Consumers should also use adequate protection and appropriate precautions with sunlamps and tanning beds/booths. Both are sources of UV radiation that have been linked to skin cancer, skin burns, premature skin aging, and both short-term and long-term eye damage.
Sunscreen should not be used on babies under six months of age. Staying out of the sun, using shaded structures and sun-protective clothing are the best ways to safeguard infants.

Parents of infants and toddlers 6 months and older may apply a broad-spectrum, water-resistant sunscreen with an SPF of 30 or higher to all skin not covered by clothing, according to the instructions on the product label. When outdoors, sunscreen should be reapplied approximately every two hours, or as often as the label says. Sunscreens that use the ingredients zinc oxide or titanium dioxide, or special sunscreens made for infants or toddlers, may cause less irritation to their sensitive skin.

CHOOSING THE RIGHT SUNSCREEN: WHAT MAKES THE SUN HARMFUL?

The sun itself is not what harms our skin. It is the ultraviolet (UV) radiation that the sun gives off that actually causes the damage. There are three types of UV rays. They are UVA, UVB, and UVC.

- **UVA** rays penetrate deepest into your skin, reaching the new skin that lies far beneath the surface and are linked to long-term skin damage such as wrinkles. UVA damages your skin, resulting in a tan. It is the primary radiation used in tanning beds. It causes almost all forms of skin aging, including wrinkles. UVA damages the collagen and elastin in the skin and generates free radicals.

- **UVB** rays are responsible for most of the damage that your skin incurs from the sun, causing sunburn and most skin cancers. UVB damages the DNA in skin cells and causes DNA mutations that can eventually lead to melanoma and other types of skin cancer. UVB radiation from the sun can also cause cataracts. Cataracts happen when proteins in your eye lens get damaged. The proteins start to collect pigments that cloud your vision.

- **UVC** rays do not reach the earth's surface because they are blocked by the ozone layer; humans are only exposed to UVC radiation from artificial sources such as a lamp or lasers.

HOW SUNSCREEN WORKS

Sunscreen includes active ingredients that help prevent the sun's UV radiation from reaching your skin. Here's how the two types of sunscreen work for you:

1) Physical (mineral) sunscreen ingredients (including the minerals titanium dioxide and zinc oxide) reflect and scatter the rays (like a shield) before they penetrate your skin.

2) Chemical sunscreen ingredients (like avobenzone and octisalate) absorb UV rays (like a sponge) before they can damage your skin.

The U.S. Food and Drug Administration (FDA) has approved 20 human-made chemicals or natural sun blocking agents for use in sunscreens. The most common chemicals that protect you from UVB rays include: cinnamates, patamates, or benzophenones like oxybenzone and Dioxybenzone. The chemicals that protect you from UVA rays are titanium dioxide and zinc oxide. A good sunscreen will contain agents that block both types of radiation.

SUN PROTECTION FACTOR (SPF)

The sun protection factor (SPF) value indicates the level of sunburn protection provided by the sunscreen product. All sunscreens must be tested to measure the amount of UV radiation exposure it takes to cause sunburn when using the sunscreen compared to how much UV exposure it takes to cause a sunburn when not using the sunscreen. The product is then labeled with the appropriate SPF value.

Sunscreens are made in a wide range of SPFs. Higher SPF values (up to 50) provide greater sunburn protection. Because SPF values are determined from a test that measures protection against sunburn, SPF values primarily indicate a sunscreen's UVB protection. According to the FDA and the EPA, to get the most protection out of sunscreen you should choose a broad-spectrum sunscreen with an SPF of at least 15.

Some people incorrectly believe that SPF relates to the time of solar exposure. For example, some people believe that, if they normally get sunburned in one hour, then an SPF 15 sunscreen allows them to stay in the sun for 15 hours (e.g., 15 times longer) without getting sunburned. This is not true because SPF is not directly related to the time of solar exposure but to amount of solar exposure. The amount of solar exposure we experience depends on many factors.

For example, the sun is stronger in the middle of the day compared to early morning and early evening hours. That means your risk of sunburn is higher at midday. Solar intensity is also impacted by your geographic location, with greater solar intensity occurring at lower latitudes. Because of this, someone who is closer to the equator may experience greater solar exposure than someone who is farther from the equator but spends the same amount of time in the sun.

SUN PROTECTION FACTOR (SPF) (CONT.)

It is also important to remember that high-number SPFs last the same amount of time as low-number SPFs. A high-number SPF does not allow you to spend additional time outdoors without reapplication. As many individuals only apply about 20–50% of the amount of sunscreen needed to achieve the amount of SPF on the label, application of high-SPF sunscreens helps to compensate for this under-application. Sunscreen should be reapplied approximately every two hours when outdoors, even on cloudy days, and after swimming or sweating.

BROAD SPECTRUM

Broad spectrum sunscreens help protect against both forms of UV radiation - UVA and UVB. However, not all sunscreens are broad spectrum, so it is important to look for this description on the label. A sunscreen product's SPF value is primarily an indicator of the level of protection that product provides against UVB radiation, but broad-spectrum sunscreens also protect against UVA radiation. Broad spectrum Sunscreen provides protection against both by providing a chemical barrier that absorbs or reflects UV radiation before it can damage the skin.

The US Environmental Protection Agency (EPA) and the FDA recommend at least an SPF of 15. Dermatologists recommend an SPF of 30.

Sunscreens that are not broad spectrum or that lack an SPF of at least 15 must carry the following warning on their Drug Facts label:

Skin Cancer/Skin Aging Alert: Spending time in the sun increases your risk of skin cancer and early skin aging. This product has been shown only to help prevent sunburn, not skin cancer or early skin aging.

STORING YOUR SUNSCREEN

To keep your sunscreen in good condition and maintain its effectiveness, the FDA recommends you not expose sunscreen containers to direct sun. Protect the sunscreen by wrapping the containers in towels or keeping them in the shade while outside in the heat for long periods of time.

This is why sunscreen labels must say: "Protect the product in this container from excessive heat and direct sun."

Keep unused sunscreen in a safe place that is away from sun and heat.

CHECK EXPIRATION DATES

FDA regulations require all nonprescription drugs to have an expiration date unless the manufacturer's stability testing has shown that the product will remain stable for at least three years. That means a sunscreen product that doesn't have an expiration date should be considered expired three years after purchase.

To make sure that your sunscreen is providing the sun protection promised in its labeling, the FDA recommends that you:

1) Do not use sunscreen products that have passed their expiration date (if there is one listed).

2) Do not use sunscreen products that have no expiration date and were not purchased within the last three years.

3) Discard expired sunscreens because they may not be safe and effective anymore. If you do not know how old your sunscreen is, discard it.

WHAT TYPE SHOULD YOU USE?

The best type of sunscreen is the one you will use again and again. Just make sure it offers broad-spectrum (UVA and UVB) protection, has an SPF of 30 or higher, and is water resistant.

The kind of sunscreen you use is a matter of personal choice and may vary depending on the area of the body to be protected. Available sunscreen options include lotions, creams, gels, oils, butters, pastes / ointments, wax sticks, and sprays.

Creams are best for dry skin and applying on the face.

Gels are good for oily complexions and hairy areas.

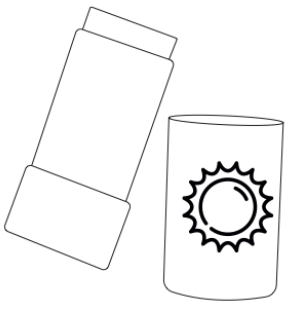
Sticks are good to use around the eyes.

Sprays are sometimes preferred by parents since they are easy to apply to a child's skin. However, the challenge in using sprays is that it is difficult to know if you have used enough sunscreen to protect all sun-exposed areas of the body.

To evenly cover the skin and use spray sunscreen safely, follow these tips:
1) Spray until your (or your child's) skin glistens, then rub the sunscreen into the skin to get even coverage.

2) Do not apply spray sunscreen near heat or close to an open flame.

3) Avoid inhaling spray sunscreen by never spraying it around or near the face or mouth and not spraying it into the wind.



WHAT TYPE SHOULD YOU USE?

Tinted sunscreens add protection against visible light, in addition to the sun's UVA and UVB rays. Research has shown visible light can worsen dark spots caused by the sun. Tinted sunscreen that matches with your skin tone can also help you avoid the white residue or "cast" that some sunscreens leave on your skin.

Dermatologists don't recommend sunscreen with insect repellant. Purchase and apply each product separately, as sunscreens need to be applied generously and often; however, insect repellent should be used sparingly and much less frequently. Some moisturizers and cosmetics have SPF. While these products are convenient, remember that sunscreen needs to be reapplied approximately every two hours when you're outdoors.

In addition, keep in mind that while some sunscreens are water resistant, no sunscreen is "waterproof" or "sweatproof." Sunscreen manufacturers are not allowed to use these terms, as they would be misleading. When using a water-resistant sunscreen, you should reapply it after swimming or sweating.

The directions for using sunscreen products can vary according to their forms. Always read the label before using a sunscreen product.

Other factors to consider:

- Your skin cancer risk factors: Your skin type and family history will determine the level of protection needed for you.

- Photosensitivity: No matter your skin type, certain medications and disorders make your skin highly sensitive to the sun, raising your protection requirements.

- Skin conditions: You can choose from sunscreens for dry skin, oily skin, acne-prone skin and sensitive skin.

CHOOSING THE RIGHT SUNSCREEN--COST

Sunscreens can vary in price from a few cents per ounce for generic brands to a few dollars per ounce for designer brands. Studies show that the price of sunscreen is not related to its effectiveness. However, for some high-risk individuals who are especially sensitive to the sun's rays, cost may make a difference.

Often, the sunscreen's cost suggests a special way that the product was made. For example, a sunscreen made especially for young children may cost more than regular sunscreen, but the difference in price is worth it when you figure that the baby's sunscreen was created with a special formula that won't burn if it gets in the baby's eyes.

For most people though, any sunscreen that contains an FDA-approved sun blocking agent will provide adequate protection. Your best bet is to try out several different products and find the one that works best for you.

CHOOSING AND USING THE RIGHT SUNSCREEN

Putting it on- Sunscreen works best when it is applied about 30 minutes before you head out into the sun. The best way to apply sunscreen is to smooth it in lightly with your fingertips and then allow it to dry before you put on clothes so that it does not have a chance to rub off. Many sunscreens will stain clothing, so it is a good idea to let the sunscreen dry completely before dressing.

Water resistance– There are two water-resistance categories for sunscreen: "water-resistant" and "very water-resistant." Water-resistant sunscreens are those that retain their labeled SPF after being worn in the water for 40 minutes. Very water-resistant sunscreens retain their labeled SPF after 80 minutes in the water. It is important to note that no sunscreen is truly "waterproof," and claims to that effect are false.

CHOOSING AND USING THE RIGHT SUNSCREEN (CONT.)

Keeping it on- For the best protection, you should reapply sunscreen whenever you come out of the water or every 30 minutes if you are sweating heavily. If you are involved in normal activities, reapplying sunscreen every one to two hours should be sufficient.

Cover all areas- When you are applying sunscreen, it is important to cover those hard-to-reach areas. Be sure to apply sunscreen to your eyelids, lips, ears, neck, feet, and hands.However, you should be careful when you are applying sunscreen around your eyes to make sure that you don't get any in your eyes.

Choosing a sunscreen that is thicker (like a cream) is a better bet on your face because it is easier to control. It should take about 1-ounce of sunscreen to cover your entire body. This means that a 6-ounce bottle of sunscreen should last for only six applications. Because it can be hard to remember where you have already applied sunscreen, the sunscreens that have added color but dry clear are helpful, especially with children. Sunscreens with added color can also be more fun for kids to wear, so they might not mind getting slathered in it as much. However, before you purchase a sunscreen with added color, make sure it has all of the other requirements of a good sunscreen.

Skin reactions- The first sunscreens relied on a chemical called para-amnobenzoicacid or PABA. This product caused skin irritation for many people, so sunscreens have changed to milder chemicals. A PABA-free sunscreen is an especially good choice for those with sensitive skin. Additionally, fragrances added to sunscreens can cause allergic reactions in some people who use them. There are fragrance-free alternatives that protect just as well.

CHOOSING AND USING THE RIGHT SUNSCREEN (CONT.)

Safety concerns- There have been past incidents in which people applying and wearing sunscreen spray near open flames caught fire and, as a result, suffered significant burns that required medical treatment. Although the specific products reported to have been used in these incidents were voluntarily recalled from the market and are no longer on store shelves, there are many other sunscreen spray products which still do contain flammable ingredients, like alcohol.

Flammable products are required to have a label warning indicating that they are flammable and should not be used near an open flame.

To stay safe while using sunscreen sprays, do the following:

- When you choose a sunscreen, think about where you'll be using it. If you'll be anywhere near a flame source, avoid any product with a flammability warning, and choose another non-flammable sunscreen product instead. This recommendation is particularly important when it comes to choosing a product for children, since they are frequently active and may be near flame sources.

- While applying and wearing sunscreen products labeled as flammable, avoid open flames.

Using these sunscreen tips, along with other protective measures, makes a difference in how well you can protect yourself and your family from sunburn, skin cancer, early skin aging and other risks of overexposure to the sun.

Sources: EPA, FDA, American Academy of Dermatology Association, Kenvue

Fitness Equipment

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 ride3. 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 lobs, 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

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Water Bottles

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

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Dental Products

DENTAL PRODUCTS

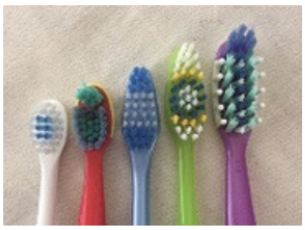
With so many dental care products on the market, deciding which to use can be a real challenge. Exploring general product categories for oral health will provide insight across the range of dental care products. According to the Centers for Disease Control (CDC), "oral health affects our ability to eat, 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."1

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.2 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.

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