

Sense Organs

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Flashes &
Floaters

Macular
degeneration

Glaucoma

Retinopathy

Balance
problems

Tear troubles

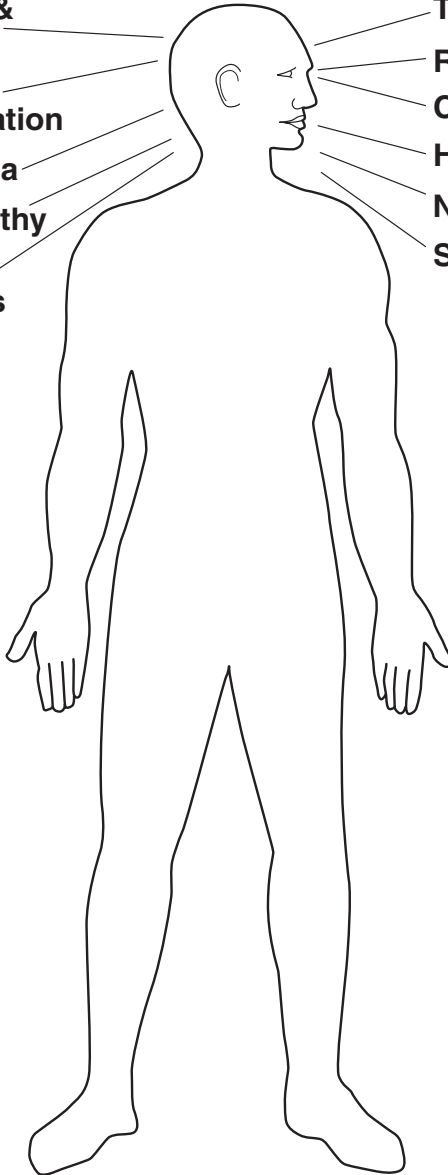
Reading problems

Cataracts

Hearing troubles

Nasal problems

Sinus trouble



Chapter 2

"Making sense of it..."

Sense Organs

Our sense organs tell us what is going on around us. For all these years our eyes, ears, nose, tongue, and skin touch receptors have kept us informed about our environment. Most of these organs undergo changes with time that alter their responsiveness, which affects our awareness of the world around us.

A. Eyes:

How they work:

It is said that 90% of what we learn comes through our sense of sight. Our visual system is a marvelous arrangement where small cameras (our eyes) form an image, which passes along a cable to the central computer (our occipital cortex or visual part of our brain) where we view the image. So we **look** with our eyes, but we actually **see** with our brain.

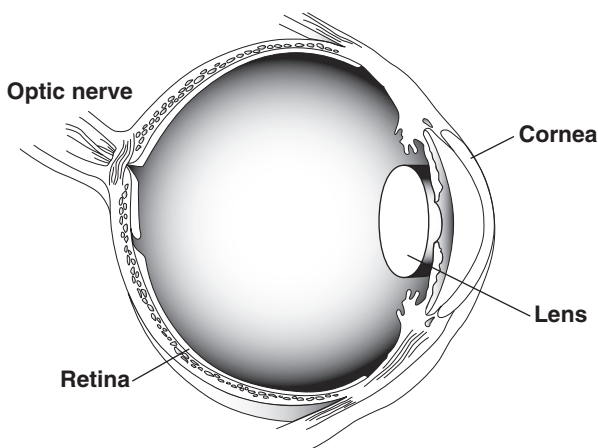
In order for your ocular camera to take a clear picture, the *front lens* (cornea) of the eye must be kept clean and smooth by a film of tears. The adjustable *interior* (crystalline) lens needs to be flexible and transparent, and the *film* in your camera (the retina) must be fresh and of high sensitivity. The connecting cable (optic nerve) must be healthy and have good circulation. (See Fig. 3)

What you can expect as you age:

9. Tear Troubles

A) Dry eyes: Tears flow from glands under your lid, over your eye, then drain into your nose, which explains why your nose runs when you cry. With time, your tear-producing glands

Figure 3. Normal eye: major parts of a healthy eye



slow down and your tear film becomes thinner and less abundant, producing dryness off and on, especially in the mornings. Reduced tear secretion is not only uncomfortable, but blurs your vision.

What to do: Use *artificial* tears to flush and moisten your eyes as often as necessary. There are many brands on the market, each with slightly differing ingredients. Try one at a time, until you find one you like. (Some popular artificial tears are Murine®, Refresh Tears®, Genteal®, Tears Naturale® and Soothe.®) For *simple* dry eye, avoid brands with decongestants or "redness relief" which can cause rebound *dryness*, actually accentuating your symptoms.

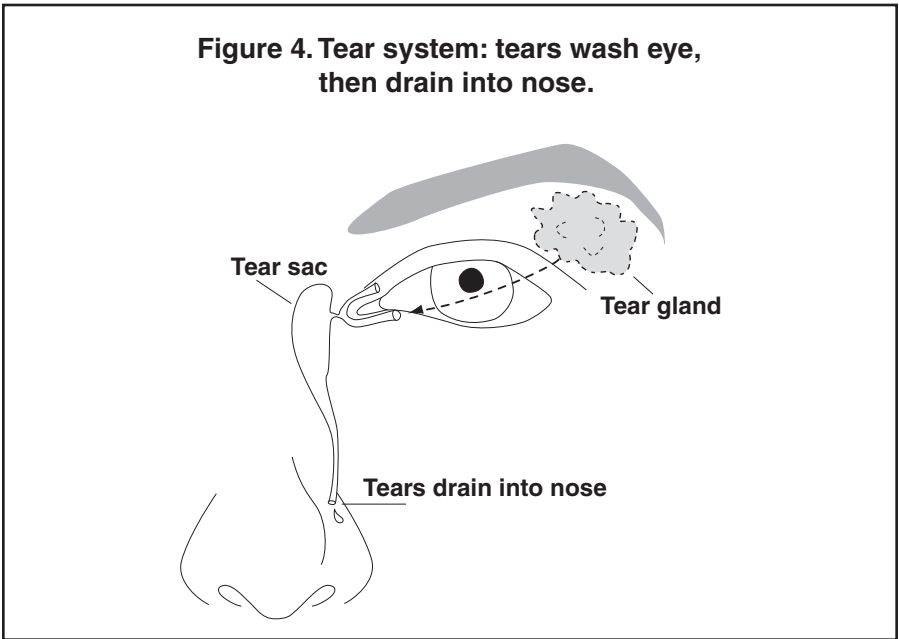
If your eyes are itchy and red, this is usually caused by *allergy*: when eyes are dry, they can't flush out pollen, mold, dander, etc. For itchy eyes, choose moistening drops with decongestant/anti-histamine (Naphcon-A®, Opcon A®).

For *severe* dry eye problems, your ophthalmologist can prescribe meds which may help to improve your tear-gland

output. If necessary, tiny silicone plugs ("punctum plugs") can be placed in the tear drainage canals, to retain your tears in contact with your eye. This is a quick, popular office procedure for relieving dry eyes.

B) Watery Eyes: Three situations may cause watering:

1) *Narrow drain:* Because the volume of your tears has reduced over the years, the drainage canal carrying tears down into your nose gradually narrows. With emotion or a minor lid irritation, the extra tears can't drain fast enough, so tears pool in your eye or spill over the lid, which proves annoying or embarrassing. This type of occasional tearing is usually in only one eye, and best ignored. (Fig. 4)



2) *Dry eyes:* Paradoxically, when *both* eyes water off and on, this is usually caused by chronic *dry* eyes. When our eyes become too *dry* and scratchy, our tear gland reflexly produces a *gush* of tears—as if to flush out a speck of dust or a foreign body.

These tears flood the eye and may run over the lid. Then the gland returns to its diminished 'basic secretion,' which soon results in return of dry-eye symptoms. When your eye again becomes really dry, it will call once more for help, producing yet another gush of flushing tears. You can prevent this cycle by keeping your eyes moist with artificial tears.

3) *Blocked drain*: Rarely, when non-stop tearing involves only one side, the cause is usually a blockage of the tube that drains the tears into our nose (the nasolacrimal duct and tear sac), so that the tears back up and overflow.

What to do: If watery eyes are bothersome, have your ophthalmologist determine the cause. After age 60 simple dry eye is usually the cause, which is best treated with artificial tears, as above. If your drainage system is narrowed or blocked, it can usually be opened in a simple office procedure, although sometimes tear-sac surgery may be required.

How to buy reading glasses:

- *For most people without optical problems (such as astigmatism, near sightedness, or far sightedness), simple "drugstore" reading glasses ("cheaters") are harmless and usually quite satisfactory. These come in dioptric powers (diopters) from +1 to +3.5, in full size or half-glasses.*
- *The smaller "half-eyes" are preferable, allowing you a clear distance view over the top. Buy the lowest power that works for you, to keep the greatest depth of focus.*
- *Bring along to the drugstore something you want to read, such as a piece of the newspaper or phone book. Start with the +1 readers, and test yourself at a comfortable distance, usually 16 inches---not too close!*
- *For special tasks, measure the distance required (such as from your cheek to the computer screen or music stand) and test the glasses at that distance in the store. When in doubt between two powers, choose the lower power that works.*
- *If reading glasses don't allow you to read as well as you want, see your eye-care professional.*

*"Tears, idle tears, I know not what they mean,
Tears from the depth of some divine despair."* – Alfred L. Tennyson.

10. Presbyopia (presby= old; opia = sight): All your life, the flexible interior lenses of your eyes have been shifting your focus back and forth, from far to near. With age, our lenses become harder and less flexible, and we lose our ability to focus up close. We need to hold material further away, and feel that our arms are too short. We all noticed this reduction in our near vision around age 45. It has progressed since then, but usually stabilizes by age 65.

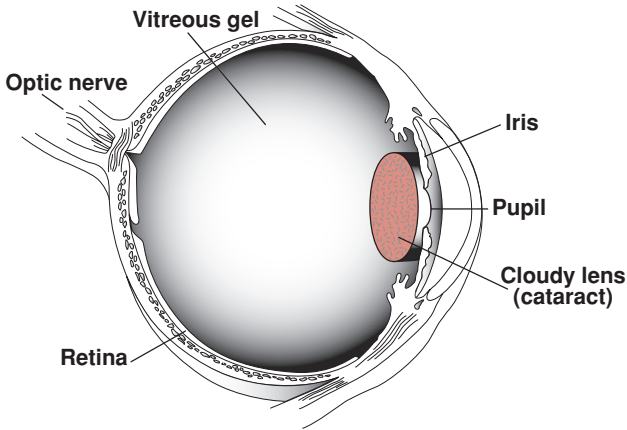
What to do:

Reading glasses are the best choice if you already have clear distance vision. If you need vision correction for both distances, choose combined far and near lenses (bifocals or the newer 'progressive addition' lenses). Hand magnifiers are very helpful for special tasks at your desk, and credit-card sized (Fresnel) magnifiers are great for restaurants; some of these are even illuminated.

*"I am getting to an age when I can only enjoy the last sport left.
It's called hunting for your spectacles."*– Edward Grey

11. Cataract: When your eye's interior crystalline lens becomes clouded, we call this 'cataract'. (Fig. 5) The lens becomes gray or yellow (blurring your vision) and the power may change (requiring new glasses). You may notice increased glare, poor night vision, double or multiple images, or a fading of bright colors. We all get cataracts if we live long enough. Get over it.

Figure 5. Cataract: cloudiness of the lens inside the eye



The chief causes of cataract:

- age ("When your hair turns gray, your lens turns gray.")
- heredity (some families experience cataract much earlier or later than others)
- ultraviolet (UV) exposure (especially sailors and roofers) or infrared rays (glassblowers)
- disease (diabetes), drugs (steroids), toxins (alcohol and other poisons)
- eye injury or inflammation (uveitis)

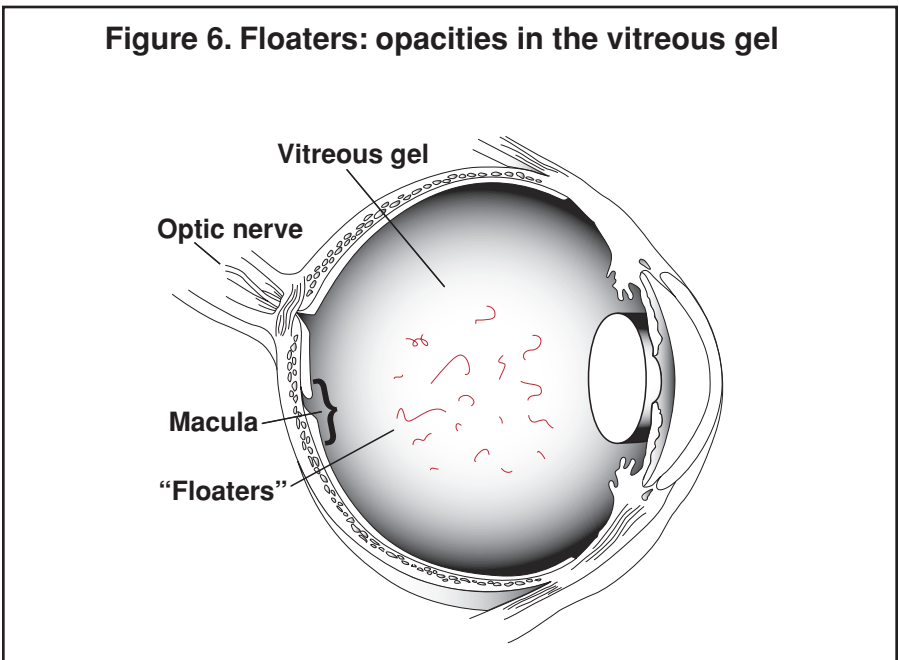
What to do: The best cataract *prevention* is good nourishment (see box pg. ?), while always wearing UV blocking sunglasses and a hat with a brim or visor outdoors. Stop smoking, drink only moderately, and have a comprehensive eye exam every two years. And it certainly helps to choose the right parents!

Treatment: When you can no longer see to do the things that you need to do, despite the best eyeglass correction for your cataracts, it is time to remove your cloudy lens and replace

it with a new, clear lens (intraocular lens implant, or IOL). The average age for surgery is about 70. Cataract/implant surgery is a quick, painless, safe procedure often done in the office without shots, stitches, or even a bandage. The new, implanted plastic lens is usually permanent, and you won't feel it or see it.

Heads up: We all have some clouding of our lenses by age 60. The mere presence of a "cataract" is not an indication for surgery. So long as your vision is acceptable to you, there's no harm in leaving your cataracts alone. Only you can decide when you need to see better. But don't wait too long if you really need improved vision, since the procedure is usually easier and more successful on early (immature), rather than late (mature) cataracts.

12. Flashes and floaters: A clear jelly (vitreous humor) fills the space between the crystalline lens in the front of our eyes, and the retina in the back. (See Fig. 6)



With time, this gel liquifies like old Jello®. As the gel collapses and shrinks, we may see various spots, beads, or shadows floating in our field of vision, especially when reading or looking at a bright sky.

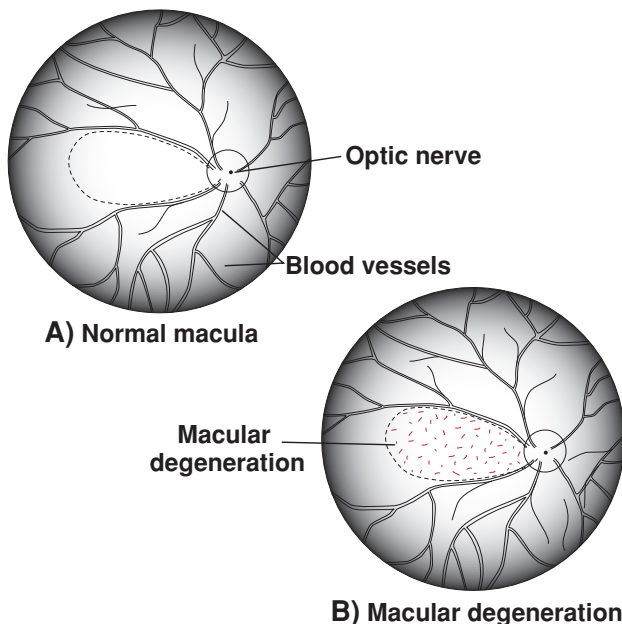
Most people have a few of these old **floaters**, which may be annoying but are harmless. But if you suddenly see a bunch of *new* floaters, your ophthalmologist should promptly take a careful look through a dilated pupil, to check the condition of your retina, making sure that nothing has bled or torn loose. Call and say "new floaters," to be sure they see you promptly.

When this collapsing jelly pulls or bumps the seeing (retinal) tissue, you may notice "**flashes**" of light, like lightning or sparks, especially at night or when turning your eyes quickly to one side. If you experience a persisting *series* of these flashes—especially if you've noticed some new floaters—this a likely sign of a **retinal tear**. Call your ophthalmologist immediately and report "flashes with new floaters." Insist they see you promptly, to rule out a torn retina, which can lead to a *retinal detachment*.

A typical **retinal detachment** begins as a slow loss of side vision, such as a curtain rising or a cloud covering a portion of your view in one eye, especially if preceded by flashes or new floaters. This is an ocular emergency: contact your ophthalmologist *immediately*!

13. Macular degeneration: When the macula (Fig. 7), the main seeing part in our retina—the area we use when we "look at" something—deteriorates, we notice distortion and loss of central—or straight ahead—vision. Lines appear bent or wavy, and letters seem to be missing or broken. Loss of central vision leads to difficulty reading, driving, recognizing faces, or inter-

Figure 7. Macular degeneration: dry type



Inside the eye as seen by your doctor.

preting expressions. Macular degeneration is often inherited and seems more common in women, smokers and the obese. It increases with age, and can be incapacitating, but macular degeneration *never leads to blindness*.

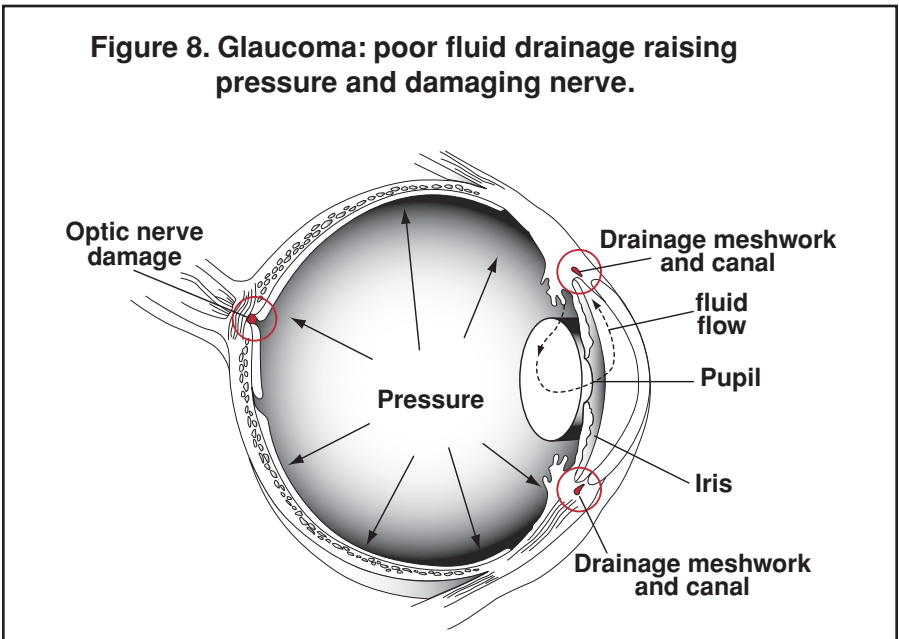
What to do: If your ophthalmologist diagnoses macular degeneration, he/she may recommend high dose anti-oxidants and zinc formulations to reduce the risk of progression. Some cases, called "wet type" can be treated with drugs or laser, although the majority, called "dry type" cannot. Many promising new treatment options are becoming available for macular degeneration.

"Don't let aging get you down. It's too hard to get back up."

– A. John Wagner.

14. Glaucoma is a condition wherein the optic nerve in the back of your eye, which sends images to your brain, becomes damaged. Usually, this happens because of increased fluid *pressure* inside your eye.

We secrete clear fluid (aqueous humor) within our eyes which drains out through a meshwork (trabeculum) into veins around the eye. (Fig. 8) If this drain becomes clogged over time, fluid backs up and the pressure slowly rises throughout the eye. The increased pressure restricts circulation in the tiny capillaries of the optic nerve, producing slow, painless loss of *side vision*.



A) Chronic (*open angle*) glaucoma: Patients often see well straight ahead and have no *symptoms* at all until too late, when they begin bumping into objects beside them because of "tunnel vision." This "sneak thief of sight" causes permanent loss of vision.

What to do: After age 40, have your eye pressure and optic nerve checked every two years, particularly if glaucoma runs in your family. Glaucoma is usually controlled by eye drops to decrease fluid pressure, although laser or surgery may be necessary.

B) Acute (*closed angle*) glaucoma is an uncommon *sudden* increase in eye pressure, producing painful red eye with loss of vision, nausea, headache, and often vomiting. This high pressure results from an abrupt drain blockage inside your eye, and your ophthalmologist will urge immediate laser or surgical treatment to save your sight.

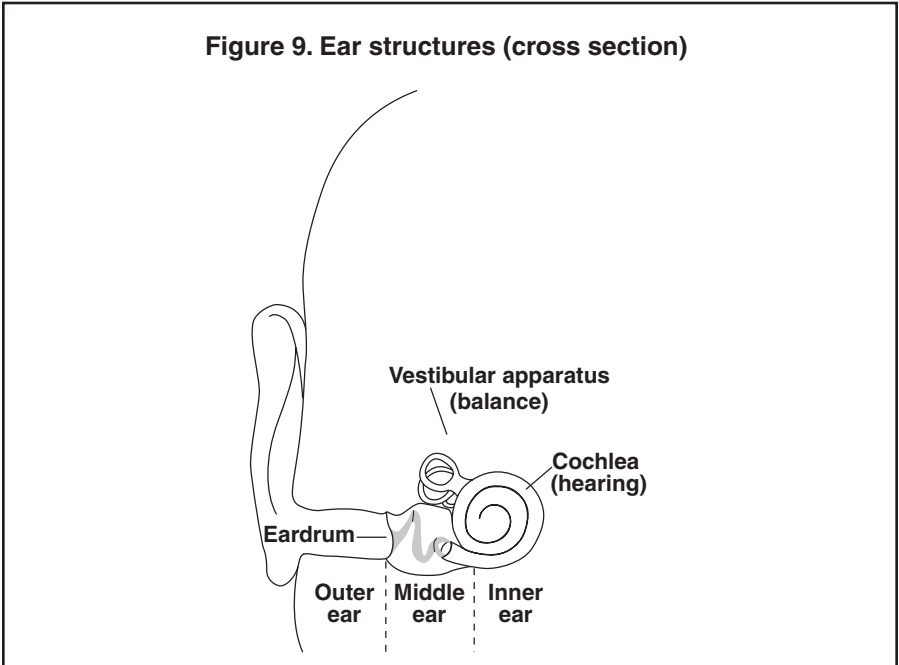
"It's hard to feel middle-aged because how can you tell how long you are going to live?" – Mignon McLaughlin

15. Diabetic Eye Disease (Retinopathy): In patients with long-standing diabetes, the retinal blood vessels develop abnormalities which can leak or burst, causing bleeding inside the eye. This bleeding produces floaters in the vitreous with mild to severe loss of vision.

What to do: If you have diabetes, keep close to your internist, minding your diet, exercise, and medications, while having careful annual ophthalmic evaluation. Stop smoking. Extensive retinal laser treatment may be required to prevent or halt bleeding in the eye.

B. Ears:

How they work: Your ears handle both your hearing and your balance. **Hearing** is accomplished by an exquisite network of hairlike receptor cells in the *cochlea* of our inner ear. (Fig. 9)



Balance and spatial orientation are achieved through an ingenious *vestibular system*, consisting of semicircular fluid canals, oriented in several axes to tell us which way our head is tilted, and sacs of fine granules which respond to gravity, telling us which way is down.

What you can expect as you age:

16. Hearing Troubles

A) Hard of Hearing (Presbycusis) (presby=old, cusic = hearing): After decades of noise, we lose some cochlear hair cells which respond to high-pitched sounds, so we miss out on the higher musical notes, grandchildren's squeaky voices, and

some alarms and telephones. About one in three of us over 60 has significant hearing loss, especially after repeated exposure to rock concerts and other environmental noise. Certain toxic drugs, hereditary conditions, diseases (especially high blood pressure and diabetes), and even earwax build-up can also cause hearing loss. It's never too late to protect your ears from loud noises: wear ear plugs or sound-deadening ear protection when using noisy machinery. Noise-cancelling headsets are nice but unnecessary.

B) Ringing in the Ears (Tinnitus): In addition to high frequency hearing loss, we usually acquire some ringing, hissing, or buzzing sounds in our ears, especially when taking aspirin or other drugs. These sounds are usually harmless and can be ignored. If troublesome, consult your ENT specialist.

Paradoxically, hearing loss can also be associated with an increased *sensitivity to noise* (**hyper-acusis**), making you want to cover your ears when the kids turn up the music. Hearing loss progressing to **deafness** is rare, but can lead to isolation and depression.

What to do: *Amplification:* When everyone seems to mumble and speech discrimination becomes a problem, when "Say again?" and "Pardon me?" become a part of your conversation, it is time to see the ENT specialist and audiologist for a hearing evaluation (audiogram), and a trial of amplification (hearing aids). More than 40% of us can benefit from these devices, which are programmable to our specific frequency loss and are relatively inconspicuous and comfortable.

You'll look a lot older cupping your ears and saying, "What was that again?" than when wearing these tiny devices, and your spouse and family will thank you. They are fed up with repeating themselves and telling you to turn down the TV. You'll

seem less "out of it" when you don't miss half the conversation!

Implants: In rare cases of deafness due to cochlear disease, cochlear implants are available to restore hearing.

17. Balance Problems:

A) Loss of Balance: Changes in the fluid in our semi-circular canals or their gravity granules can create a *sluggishness* in their movement, or we may experience a slowing of our *responses* to these signals. Both of these may reduce our awareness of changes in our head position and posture, which affects our balance while walking or standing, especially if we turn our head quickly, bend over, or lean abruptly to one side.

Loss of balance is the chief cause of serious **falls**, which can lead to a cascade of consequences, including fractures, immobilization, and even death. Serious falls happen all too easily, especially in the tub or shower, on wet floors or icy sidewalks, and can result in a broken hip or other fractures, as well as major bruises and sprains.

What to do: If you notice you sometimes tend to tilt too far or occasionally lose your balance when quickly changing position, you simply must begin to move more slowly and carefully, particularly in risky situations. Be especially cautious when the footing is slippery or wet. Beware of throw rugs, unfamiliar bathtubs or terrain, or low lighting conditions.

"Think before you move." If you feel unsteady, move more slowly and don't be shy about asking for help. Stand "like a sailor," with your feet planted a little further apart for stability. Steady yourself with one hand. Consider grab bars, sensible shoes, and better lighting. See the attached list for suggestions. (Box: "10 'Quick Fixes' to increase home safety.")

"When you fall down, you often wonder what else you can do while you're down there."

B) Vertigo and Dizzy Spells: At some time or other, 70% of people over 60 report problems with dizziness. The sensation that either we—or our environment—is spinning around can be disquieting—even sickening. Vertigo results from various afflictions of our balance system, particularly *circulatory* changes (high and low blood pressure), viral *infections*, or even tumors. Vertigo may also arise from within your central nervous system itself.

In addition to the discomfort, dizzy spells can lead to serious falls (p. 25).

Improve Your Balance

You can *improve* your balance by regular exercise:

- Stand on one leg, close to the wall or a chair to catch yourself
- Close both eyes as long as you can.
- Fifteen seconds is your goal.
- Keep trying to improve your time.
- Do it twice daily.

What to do: If you suffer from dizzy spells, you must get a diagnosis. Because of the complexity of underlying causes and their treatments, the diagnosis and management of dizziness is best handled by your internist, ENT specialist, or neurologist. Don't put it off! Visit vestibular.org for more information.

"I don't do alcohol anymore. I get the same effect just standing up quickly."

C. Nose:

How it works: Airborne particles are trapped and dissolve in the fluid covering the mucus membranes in our nose. Odor receptors (which respond to more than 1000 scents) send signals to our brain. We quickly adapt to whatever smell we perceive. This way, the first sensation we perceive on

encountering an odor tells us good or bad news, but if it persists, we soon become unaware of the odor.

What you can expect as you age:

Our sense of smell decreases only slightly with age, but our adaptation seems to happen more rapidly, so that we may take less notice of persisting odors. This apparent *lack of awareness* of odors can be a problem, particularly when we are the source of the smell!

"Inside every older person is a younger person wondering what happened." – Jennifer Yane

18. Nasal Problems:

A) Dry nose and hyposmia: The tears from your eyes drain into your nose to moisten the tissues. (Fig. 4) This way, *dry eye* conditions can produce dryness in the nasal tissues as well. In addition to being uncomfortable, **dry nose** reduces your sense of smell (*hyposmia*), and predisposes you to infection and bleeding, particularly under low humidity conditions, such as indoors in winter.

What to do: Artificial tears for dry eyes may help relieve dryness in your nose. If uncomfortable, try saline nose sprays from any drugstore (Nasal® or Ocean®), which are safe to use whenever desired. They moisten your nasal tissues while flushing out mucus and bacteria. For simple dryness, avoid decongestant nasal sprays (Afrin®, Neo-synephrine®), since they can worsen the situation by creating "rebound dryness." Smear a light application of Vaseline® or similar bland ointment inside your dry nose to seal and lubricate the mucous membranes, add comfort, and prevent further loss of moisture.

B) Wet Nose (Runny nose, rhinorrhea): Your nasal tissues produce watery fluids to flush out allergens (pollen and dust), viruses (colds or flu), pollution, etc. This is a good

thing, except when the watering becomes excessive. If so, decongestants (Sprays, such as Afrin®, or pills such as Sudafed®) or antihistamines (Claritin®, Benedryl®) can offer symptomatic relief.

If your nasal discharge is yellow or green, this suggests an infection. If this persists or is associated with a fever, call your doctor.

"I am at the age where my nose runs and my feet smell." – Kilroy

19. Sinus Troubles: Sinuses are hollow spaces in your skull surrounding your nasal cavity. (Fig. 10) A **"stuffy nose,"** with difficulty breathing through your nose, is *not* "sinus trouble." Blockage from swollen tissues results from a cold, allergy, pollution, or emotion. Use decongestant sprays (such as Afrin® or Neo-synephrine®), or anti-histamine/decongestant pills (Allegra-D® or Claritin-D®) if due to allergy.

Sinusitis is an inflammation or infection of these cavities which blocks their drainage, causing pressure or pain in the face, which is worse when you bend over or lie down.

Sinus infections are not common, but usually follow a cold, are associated with headache or face pain, purulent (yellow or green) discharge and fever. See your doctor if these symptoms persist.

Figure 10. Sinuses: hollow spaces in your skull, surrounding your nose.

