

# HEALTH AND SAFETY IN THE GOLF COURSE WORKPLACE

## HEARING — THE SENSE THAT DESERVES MORE ATTENTION

By Cheryl Lange

I was very happy when I was invited to write this article for the GRASSROOTS. The subject of hearing loss due to noise exposure is a very timely one for Golf Course Superintendents. My husband, Ric Lange, is the Golf Course Superintendent at Reedsburg Country Club and I have often wondered if the daily noises from golf course machinery that he and his crew are exposed to are loud enough to cause hearing problems. Writing this article gave me the perfect opportunity to get over to his shop and measure just how loud the machines are while they are being used.

Noise is a part of everyone's life. Barely a day goes by that we aren't exposed to loud music, traffic noise, aircraft noise, screaming children and so on. The noises that come from these and other sources are often loud enough to cause temporary hearing loss. It is possible that everyone has, at one time or another, experienced the effects of exposure to loud noises. Those effects often include a ringing in the ears (tinnitus) and some temporary hearing loss (temporary threshold shift — TTS). However, with continual exposure to high noise levels these temporary disturbances may become permanent.

As an example, farmers are a typical population for which noise induced hearing loss can occur. A farmer operates his or her machinery on a very regular basis. Tractors usually emit very high noise levels while in use and the operator may be exposed for many hours. At first the farmer may only notice slight tinnitus. However, as the years progress, he or she may become more aware of accompanying hearing loss. Usually, by the time the hearing loss is noticed and interfering with understanding speech, it is no longer reversible.

This is due to the fact that noise induced hearing loss (NIHL) begins very gradually and, at first, affects only the higher pitches or frequencies of human hearing. As exposure continues, more frequencies are affected and more loss is experienced.

The Occupational Safety and Health Act (OSHA) was developed to protect the worker from unsafe working conditions, including unsafe noise levels. OSHA developed maximum allowable noise levels and exposure durations to help protect the worker from NIHL, at least while at the work place. These levels were decided upon the basis that higher noise levels and longer exposure would likely cause temporary or permanent hearing loss. I have listed these levels should you ever have the opportunity to measure the noise levels in your shop and want to make comparisons.

Exposure Length (T) Hours/Day	Loudness Level in dBA (Standard Measure Used)
16.0	85
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25 or less	115

The following formula also allows you to measure the effects of using one machine with a certain noise level for part of the day and another machine for part of the day:

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_n}{T_n} = 1$$

where C = Length of time at a particular measured noise level, and T = Time permitted from above table. If the equation finds a sum of more than 1, there is a strong possibility of causing hearing loss.

I borrowed a sound level meter, the instrument used to measure how loud a sound is, and measured the noise levels from some typical golf course equipment. The results are as follows:

Machine Tested	dBA Loudness*	(Hours/Day) Exposure
1. Jacobsen Greensking GK62221	90	3
2. Jacobsen Greensking GK62219	88	5
3. John Deer 820	94	8
4. Jacobsen F-10	91	6
5. National 84	92	8
6. Toro 70" Professional	91	1
7. Cushman 1979	90	3
8. Smithco Easy-Rider Bunker Rake	89	4
9. McCullough PM 1010 Chain Saw	106	3
10. Lahman Skid-Steer Loader	95	4
	(106 w/ Hydraulics)	
11. Wards Garden Mark Leaf Blower	92	2

\*Measured with a Quest 215 Sd Level Meter

\*\*A malfunctioning hydraulic system — even a clogged filter — can emit dangerously high noise levels.

\*\*\*All measurements were made with machinery running outside. Noise levels may increase when machines are operated inside a shop. Additionally, this is just a sample; your machinery may differ somewhat.

As you can see from the measurements and average exposure times, there are several pieces of golf course equipment used regularly that may cause noise induced hearing loss. A perfect example is the John Deer 820 in this sample test. It commonly is used an average of eight hours per day. This exposure would probably cause tinnitus and temporary hearing loss after only one day of use. Continual use will eventually cause permanent hearing loss.

You've probably been thinking, "Great. I have damaging noise coming from my equipment. Now what?" There are three basic things you can do. One, a most unlikely choice, is to no longer use the piece of machinery emitting the noise. I doubt that this idea is very feasible. Here are two

other more practical ideas. The first is to change the machine in some way — add an improved muffler system, for example — that would decrease the sound levels coming from the machine. This is often difficult to do or even impossible, so the next idea is probably the best solution.

Hearing protection is probably the easiest and most cost effective way to protect the worker from NIHL. There are two basic types of hearing protectors — ear plugs and ear mufflers. Ear plugs are generally made of soft rubber material and can decrease the noise level of sound reaching the ear by up to 25 dB. This would mean that the John Deere 820 could be ridden safely without risking a possible hearing loss. Another more comfortable hearing protector is the ear muff. Ear muffs can reduce noise levels an even greater amount, up to 35 dB. If noise levels are very high, this is above 120 dB, a combination of plugs and muffs can be worn to ensure maximum protection.

One warning is needed here about hearing protection. Since new tiny stereo radios with small earphones have come available in the marketplace, there has been much confusion. Many people feel that by wearing the tiny earphones and listening to music to mask out the machinery noise they are protecting their hearing. **This is absolutely false.** These radios have the capacity to reach levels up to 140 dB and can very easily cause damage to the hearing nerve. Increasing the volume of these radios to mask the machine noise makes the sound level loud enough to cause as much, or more, damage than the machine itself. They are tiny radios — not hearing protection. **Don't use them while operating loud machinery.**

This article was written to provide an overview and some general information regarding noise induced hearing loss on the golf course. I have only written about chronic exposure because this seems to be the biggest problem on the golf course. However, one very loud blast of sound may also be enough to cause permanent hearing loss.

I hope I have convinced you to take a closer look (or listen!) at your golf course equipment. It helps to think about noise and

hearing in this way...we wear gloves to protect our hands, heavy boots to protect our feet and safety glasses to protect our eyes. Our ears deserve the same protection. Since the possibility of NIHL can be lessened, why wait until our hearing is diminished and say, "I should have...it!"

For more information on NIHL and what can be done about it, contact any Audiologist or the Wisconsin Department of Industry, Labor and Human Relations.

## WARNING: SUNSHINE MAY BE HAZARDOUS TO YOUR HEALTH

By Cheryl Miller, R.N.

The rapid approach of the summer season is a good time to remind ourselves that too much of a good thing, including the sun, may be bad for us. This is particularly true for Golf Course Managers and their employees. They spend many of their working hours in the direct sunlight and should be aware of the danger of skin cancer.

Certain people are more sensitive to skin cancer than others. The person with fair skin, blue eyes, reddish hair and freckles is the most susceptible. Also at great risk for developing skin cancer are those who spend a great deal of time in direct sunlight. In addition to those who work on a golf course, this group includes construction workers, sailors, lifeguards, farmers and habitual sun worshippers. It is believed that the ultraviolet rays of sunlight destroy the ability of the skin cells to replicate adequately and, over a period of years, the cells become cancerous.

Prevention is the best way to deal with skin cancer, but fortunately it is the most curable of all cancers. Basal cell carcinoma, the most common of the skin cancers, has a cure rate of more than 90 percent, **when it is caught early.** The basal cell cancer is characterized by pearly appearing growths. They do not spread to other parts of the body and are, therefore, the most curable. Other forms of skin

cancer include squamous cell carcinomas, which have a scaling appearance and can sometimes spread. They can, however, be cured if detected early.

Malignant melanoma is a form of skin cancer that comes from cancerous moles. It accounts for only about five percent of all skin cancers, but it results in 75 percent of all skin cancer deaths. Always be suspicious of moles that change in size, that have an irregular surface contour, that are irregularly shaped or notched, change to multiple shades of color or become irritated or bleed.

There are relatively painless ways to protect oneself from the risk of skin cancer caused by the sun. My husband has a mower — an HF-5 — that has a canopy on it. Any protection such as that will protect operators from being in the sun hour after hour. Workers that are in the sunlight for extended periods should be encouraged to wear caps to help protect them. Light clothing with long sleeves that breathe, such as those made from cotton, offer protection on especially bright days. I've been told that dress codes for golf course staff members frequently require the wearing of shirts for men and prohibit halter tops for women workers. These kinds of codes are beneficial to them because of the protection afforded. You should never allow yourself to get a sunburn, either. Those with a beautiful tan today may suffer dearly in years to come. People with sensitive skin should consider the use of sun screens — formerly known as suntan lotions.

Protecting yourself from the dangers of skin cancer are relatively easy. Enjoy the sunshine of summertime, but also beware of its potential danger.

*Editor's Note: The authors of these two articles focusing on "Health and Safety in the Golf Course Work Place" represent one of the strengths of the WGCSA — spouses of our members. Cheryl Lange is originally from Oak Park, Illinois. She received her Bachelor of Science and Masters of Science degrees in Audiology from the University of Wisconsin — Madison. She currently resides in Reedsburg, Wisconsin where her husband Ric is Golf Course Superintendent at Reedsburg Country Club. Cheryl Miller is also a graduate of the University of Wisconsin—Madison where she earned a Bachelor of Science degree from the School of Nursing. Her husband Monroe is the Golf Course Superintendent at Blackhawk Country Club in Madison*