

Auditory Hazards of Air Bags

March 27, 1997

Dr. Ricardo Martinez, Director
National Highway Traffic Safety Administration (NHTSA)
400 7th Ave. SW
Washington, DC 20590

Dear Dr. Martinez:

As the President of the National Hearing Conservation Association (NHCA), I am writing to you about the problems created by the government mandate requiring air bags to be installed in all new U. S. automobiles. Although we are sensitive to the fact that airbags have saved approximately 1500 lives, that is only part of the story. As the President of an association whose mission is the prevention of hearing loss due to noise and other environmental factors, I urge you to reconsider your position.

The NHCA is an organization of professionals who share a common goal - the prevention of noise-induced hearing loss. The Association is composed of audiologists, physicians, industrial hygienists, safety specialists, engineers and scientists, occupational health nurses, equipment manufacturers, and others, all of whom are concerned with the prevention of hearing loss for the 30+ million Americans who are exposed to hazardous noise at work. NHCA's interests extend to all situations in which hazardous noise exists, whether occupational settings in industry, construction, farming, or the armed forces. As well, NHCA is interested in preventing noise-induced hearing loss in non-occupational applications in the consumer and recreational sectors.

Although it is true that airbags can save lives, data as reported on the NHTSA web page indicate that approximately 60 lives have been lost due to airbag deployments. It does seem tragic indeed that drivers have no choice about whether they put a potentially lethal device in their cars, when alternatives such as lap and shoulder belts exist and are finding increasing use among the public. This does not even take into account the facts that we are writing you about at this time, which concern cases of hearing loss, hyperacusis, and tinnitus, that arise from being exposed to the noise of airbag deployments.

Because we live in such a visual world, many of us take our hearing for granted. We are not aware of the impact that hearing disorders can have on our lives and our loved ones until it is too late. Hyperacusis is one of the rare ailments that few of us have even become aware of. It is an extreme sensitivity to sound which causes many of those afflicted to be unable to function in society or to leave their homes. Virtually all sounds are painful. Hearing protection must be worn to even leave the house, and the most effective of hearing protectors are sometimes inadequate to provide relief. The underlying physiological processes of hyperacusis are unknown, but exposure to loud and/or impulsive noises has been implicated as a cause in many reported cases, and some of those cases have been attributed to airbags.

Tinnitus, another auditory disorder that is often due to exposure to sudden and very loud sounds, can be equally as onerous in its effects. Tinnitus is the technical term for head noises, such as ringing, hissing, humming, or buzzing in the ears, that occur in the absence of actual sounds in the environment. Imagine if you will a visual analog - a bright red dot in the middle of your visual field. It never, ever, goes away, whether your eyes are open or shut, whether you are looking in illuminated rooms or in the dark. The only way to cover it up is to look into daylight so bright that it is uncomfortable. For those afflicted with serious and unremitting tinnitus, the experience may be similar. The tinnitus also never goes away. Concentration and sleep can become difficult. When it is oppressive enough, tinnitus sufferers will sometimes resort to broadcasting loud sounds into their ears to cover it up. Hardly a desirable solution, but often the only one available.

Because airbags have been designed to fully protect average-weight adult males in 30 mph frontal collisions, the sound levels created by airbags are so high (about the same as a howitzer going off in the car) that they can cause permanent hearing loss, and the onset of hyperacusis and tinnitus in noise-sensitive individuals. This was recently reported by Dr. Richard Price of the U. S. Army at the Spring Meeting of the Acoustical Society of America. His findings are based upon experiments with anesthetized cats as well as an advanced theoretical model of the ear. [G. Richard Price (1996). "Hearing Hazard from the Noise of Air Bag Deployment," J. Acoustical Society of America 99(4, Pt. 2), p. 2464.]. Thus, even though the airbag may save a life in an accident, it can cause other problems. Furthermore, regardless of how over-designed and safe airbag systems are, there will be unnecessary and/or accidental deployments that may cause needless auditory or other physical injury to those riding in the car.

In addition to the scientific data cited above, there are numerous anecdotal reports that have come to our attention, from articles in Tinnitus Today and Hyperacusis Newsletter, and from conversations with those afflicted with horrible and debilitating auditory disorders arising from exposure to airbag deployments. This is all the more tragic since these persons had no warning, no choice, and no option - they were victims of a bureaucratic mandate that removed from them the personal decision to disable the airbags and to use an effective and safer alternative method of protection, namely safety belts.

Of course, besides the auditory issues cited above, airbags can and do cause ocular damage in children and others as reported earlier this year in USA Today ("Big Three Lobby for Safer Air Bags," Aug. 26, 1996, p. 4B).

Additionally, those who sit close to the steering wheel or who may drive with their wrists and elbows on the steering wheel between their body and the wheel, are especially susceptible to airbag injuries. And, please recall that bags are only effective in a limited percentage of crashes, namely frontal impacts.

With this in mind, we join other professional organizations such as the American Academy of Otolaryngology - Head and Neck Surgery (AAO/HNS) in petitioning you to not just allow deactivation of driver and passenger airbags at the purchasers choosing, and to explore designing airbags that deploy with less force and less noise, but more importantly you must require the installation of on/off switches so that drivers and passengers can easily make the choice. Otherwise, how are concerned individuals to deal with the situations arising when driving rental cars or riding in a friends vehicle? Furthermore, all airbag-equipped cars should come with warning labels about the potential harmful effects from the blast of deployment.

For all of the above reasons, I urge you to modify the air bag requirements for American automobiles. It is simply unjust to require countless others to continue to experience hearing and other disabilities from future airbag deployments when they should have the option to choose less hazardous alternatives for their protection.

Sincerely,

Mary M. McDaniel, MS, CCC-A
President, National Hearing Conservation Association

cc:

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