

## Too loud...too soft...just right

It's a challenge to get the sound quality/level just right at our various dance venues. There are plenty of variables – equipment, musicians, the caller, hall size/shape, number of dancers, style of music, etc. Our sound technicians do the best job they can to make sure the sound quality/level suits the dance's needs. Sometimes, despite our best efforts, sound quality is unsuitable. As an example, we were never satisfied with the sound at Hermann Sons Hall in Petaluma, the regular site of our first Friday contra dance during 2007. Even though this is a lovely hall, without decent sound quality the dance experience suffered. As a result, we moved the Petaluma contra dance to Petaluma Womens Hall (the first Sunday at 6:30 p.m. beginning January 2008) where the sound quality is excellent.

Over the past year, we've had a few complaints that sound levels are too high at a number of our contra dance venues. Last Fall, a dancer made a presentation to the NBCDS Board of Directors regarding the impact of loud volumes on hearing and the potential for hearing loss. The Board determined to investigate sound volume in response to these concerns.

It is important to note that exposure to excessively loud noise can cause hearing loss and is related to other health issues. As sound levels increase, the duration of daily exposure becomes an important risk factor for hearing loss. A number of good articles about sound volume and hearing loss can be found on the internet - for more reading, try searching for "noise levels and hearing loss."

We decided to measure sound levels at our NBCDS contra dances. We purchased a digital Sound Level Meter and took sound measurements at San Rafael, Santa Rosa, Petaluma, and Sebastopol contra dances between September and November, 2007. Measurements were taken at various hall locations at different times during the evening, measuring both "time-weighted average" (TWA) and maximum sound volume (i.e., the loudest sound during the measurement period (typically 20 seconds)). The TWA volume ranged from 77 – 88 decibels (readings in whole numbers only), with a mean TWA of 84 db. Maximum volume measurements ranged from 88-99 db, with a mean maximum volume of 94 db.

How do our dances "measure up" in terms of safe noise levels? OSHA's action level for hearing conservation programs in the workplace is employee exposure to an 8-hour time-weighted average of 85 decibels. For each increase in 3-5 dB, exposure time should be reduced in half, according to various authorities (OSHA says 5 dB, the American Conference of Governmental Industrial Hygienists says 3 dB). Below 8 hours per day at 85 dB, below 4 hours per day at 88 dB, or below 1 hour per day at 94 dB, do not put hearing at significant risk (providing no other exposure to hazardous sounds). Because our contra dances are about 3 hours long, with significant breaks in the music, exposure to TWA levels of 77-88 dB are not actionable levels, according to governmental criteria.

We encourage all dancers to take personal responsibility for hearing protection. Please let the dance manager know if the sound is too high or too low. There is also a suggestion

box at each dance venue to give feedback regarding dance concerns. There are many inexpensive, high quality ear plugs and related products which can assist you if you regularly experience discomfort at our dances. If you have further questions or concerns, please let an NBCDS Board member know. We're listed on the web site and in the *Hands Four* newsletter.

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