Synchronized SATISFY:
Easy Steps Towards Optimal Hearing Benefit.
A primary goal of the hearing professional is to provide the optimal gain levels to achieve adequate hearing for speech and sounds in the environment. An important goal of the client is to hear a wide range of sounds at comfortable levels. Yet what is prescribed for optimal hearing ability may not be what is most comfortable for every new user. Individuals new to amplification, or those who have worn linear hearing aids previously, may require some time to acclimate to the way sounds are perceived with compression-based amplification. Everyday sound inputs such as conversational speech, the user’s own voice, and environmental sounds such as water running from a faucet will have a different loudness and quality to the newly fitted individual.

The acclimatization process is defined as the period of time in which the user becomes comfortable with and achieves optimal benefit from the amplification provided by a new hearing aid. The process begins with the fitting visit. Acclimatization to amplification—regardless of whether the user is new to hearing aid technology or is a previous user of different technology—is an individual, personal process, which can range from a few weeks to several months in duration. Due to the differences observed in groups of individuals, there is no strong agreement in the literature regarding the preferred gain settings among new users and users experienced with linear amplification.

In the case of previous users of linear amplification, certain individuals being fitted with wide dynamic range compression signal processing may report sounds are too soft. In particular, louder aspects of speech such as vowels will receive less amplification with compression processing than with linear processing. For these users, initially preferred settings would provide more gain for loud sounds (or decreased compression ratios) than the target settings.

For new users in particular who are uncomfortable with the prescribed gain settings, the hearing professional is faced with a dilemma. Reducing the gains to comfortable levels will not provide the adequate amplification to give the greatest hearing benefit. Yet if the client is very uncomfortable with the loudness, the risk is that they may reject wearing the hearing aids at all. When faced with this dilemma at the fitting, a compromise often must be made for the individual’s gain settings.

One approach to this compromise is to initially program the user’s gains at more comfortable settings. In the case of a typical new user, gains would be programmed lower than the recommended levels for optimal performance, based on the fitting rationale. This could be done manually or through the selection of a “new user” setting in the fitting software. When the client returns for the follow-up visit in a few weeks, the gains could then be increased to the prescribed target level.

Another option is to initially set the gains at a level halfway between the client’s preferred level and the prescribed target. At the follow-up visit, the gain would be increased to the target, or kept at the

RESOLVING THE DILEMMA OF OPTIMAL SETTINGS VERSUS COMFORT

In contrast, other studies have noted no difference in initial gain preference for new users as compared to experienced users. In fact, preference for prescribed gain levels over reduced levels has been observed among some new users. Further, some research indicates that no change in gain preferences may occur among new users over the first 12 months of use.

In the case of previous users of linear amplification, individuals being fitted with wide dynamic range compression signal processing may report sounds are too soft. In particular, louder aspects of speech such as vowels will receive less amplification with compression processing than with linear processing. For these users, initially preferred settings would provide more gain for loud sounds (or decreased compression ratios) than the target settings.

ABSTRACT

A common complaint of new users at the hearing aid fitting is that sounds are too loud. This problem, which stems from the abrupt change from unaided to aided loudness perception, is not insignificant. Depending on the motivation level and personality of the user, a negative first impression can be generated by this complaint, potentially leading to the dreaded “hearing aid in the drawer” or general non-adoption of the hearing aids. Synchronized SATISFY is a new feature in Beltone First™ hearing aids which incorporates ear-to-ear communication between ears to achieve optimal amplification without sacrificing user comfort at the fitting.
same level if it is still too loud for the client. However, the disadvantage is that the gain may never approximate the prescribed levels if the client is still uncomfortable with increased gain at the follow-up visit.

For a previous user of linear hearing aids, the new compression hearing aids can be set to a more linear response (e.g., an “experienced – linear” preset) at the fitting, and then altered to higher compression ratios at the follow-up visit. However, as with the previously stated options for fitting new users, if the client fails to return for the second visit or refuses a sudden increase in gain, the amplification would remain at suboptimal settings.

The ideal solution to this problem would be to gradually and inconspicuously increase or change the gain settings over time, between the fitting and follow-up visits. This functionality was introduced in past Beltone products through the SATISFY feature. SATISFY is an acronym that stands for “Slow Adaptation To Ideal Settings For You.” Through SATISFY, gradual changes in gain, compression, and frequency response can be programmed to occur over a set time frame. The goal of SATISFY is to start the new user or experienced user of linear amplification with a more comfortable level of gain at the fitting, and incrementally increase the level to the prescribed, optimal target level by the date of the follow-up visit or another set end date.

**BELTONE SATISFY**

When SATISFY is activated through the fitting software, a fixed change in the gain (the “delta, ∆”) is added to the user’s comfortable settings or user experience preset. This delta is the difference in gain between the final or target settings and the initial settings (Figure 1).

Fine tuning can be done at the fitting and added to the SATISFY delta, and/or at the follow-up visit after SATISFY has completed the gain changes (Figures 2a-b). This allows for individual preferences to be incorporated while incremental gain changes still occur over the acclimatization process.

**SYNCHRONIZED SATISFY**

SATISFY clearly is a true solution to resolving new user complaints about sounds being too loud at the first visit, while still achieving the desirable gains at the end of the time period. Commonly, binaural hearing aid users wear their devices equally and open the battery doors on the devices when the hearing aids are not in use. The result of this common use case is that the gain adjustments per hearing aid are naturally matched in their progression toward the end target. However, if for some reason one hearing aid is not used, is lost, or is sent in for repair, or if the user forgets to open the battery door for one hearing aid at night, the progression of SATISFY will be unequal for each hearing aid in a binaural pair. For example, the right hearing aid may have progressed 75% to the target levels while the left hearing aid may only have progressed to 25% of the target. This may lead to a noticeable difference in sound quality or loudness between ears when both hearing aids are worn again as a pair.

Figure 3 shows the Synchronized SATISFY feature in Solus Pro 1.6. Once activated, the duration and average estimated daily usage can be set. The hearing care provider can choose from durations ranging between one week to six months, and average daily usages ranging from 2 hours to 16 hours. Fine tuned gains can be preserved or not preserved from the initial programming, for either or both ears. It is also possible to employ SATISFY for only one hearing aid. Leaving the check box to synchronize the feature unchecked results in standard SATISFY functionality. At the follow-up visit, the progress of Synchronized or standard SATISFY can be observed through Data Logging.
The default setting for Synchronized SATISFY with Beltone First devices is 'off' for both hearing aids, as the literature is not in strong agreement that an acclimatization period with respect to hearing aid gains is necessary for all new users.9-10 However, Solus Pro provides great flexibility for hearing professionals to provide comfortable amplification to clients who require this acclimatization process to achieve optimal gains.

To account for situations such as these, Synchronized SATISFY was developed. Taking the general functionality afforded by SATISFY to the next level, Synchronized SATISFY incorporates ear-to-ear synchronization of the gain adjustments over the time period. If the use time for each hearing aid is different, this feature will match the SATISFY progress for each hearing aid, to be congruent when the hearing aids are worn together again. In the example provided in the preceding paragraph, both hearing aids would be set to 25% progression towards the end target.

CONCLUSION

Synchronized SATISFY may not be necessary for all new users. Yet the availability of such a feature may mean the difference between a successful fitting at the follow-up visit and non-adoption of hearing aids. Further, different individuals may require different amounts and time periods for the acclimatization process to occur. The flexibility offered through Solus Pro provides the hearing professional with the necessary tools to achieve an optimal and comfortable fit for the individual client, resulting in user acceptance and ultimate benefit with hearing aids.

REFERENCES

4. Smeds K. Is normal or less than normal overall loudness preferred by first-time hearing aid users? Ear Hear. 2004:25(2);159-72.