

Adult Cochlear Implant Home-Based Auditory Training Manual

Postlingual Hearing Loss

Recipient's name:



Hear now. And always





Adult Cochlear Implant Home-Based Auditory Training Manual

Postlingual Hearing Loss



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About auditory training

Why do we do auditory training?

Listening with a cochlear implant enables you to hear sound. However, this sound is very different from natural hearing. Also, for some people it may be some time since they have heard sound or the full range of sounds in speech. In order to get the most out of your cochlear implant, it is important to practise listening. Auditory training helps you learn to understand the speech you hear with your implant and improve your communication. Listening practice should start in the weeks following switch-on of the cochlear implant.

How do we do auditory training?

This manual contains auditory training exercises for you to complete at home. You will be guided through the manual by your clinician. Everyone differs in how much they can hear initially and how quickly they learn to use their cochlear implant. Therefore, this manual includes a range of exercises covering abilities from identifying sound and speech to recognising and understanding speech. As you move through the manual, the exercises become more challenging. By the end of the manual, the exercises are done in background noise to make the task challenging and more like the environments in which we often find ourselves communicating.

How do I know which exercise to complete?

Included in this manual is an Auditory Training Exercise Plan. At each appointment your clinician will discuss with you which exercises you might like to try and will provide guidance about how to make the most out of this manual. Together with your clinician you can write your plan each session, and there is plenty of room for you to write notes about your successes and challenges on the exercises completed. The plan will be reviewed and updated each session as you progress.

Hard-copy exercises or computer-based exercises?

This manual includes a wide range of auditory training exercises. Computer-based training is also a good way to practise your listening skills. Some of the exercises in this manual can alternatively or additionally be done using a computer-based training program called Angel Sound™. While most of the Angel Sound exercises are different from the exercises in this manual, they can be used to train on the same skills. We have provided notes throughout the manual to let you know when Angel Sound exercises would be appropriate and which ones to do, for those who have access to a computer and wish to do exercises in this manner.

The hard copy exercises look like this:

 Exercise

The Angel Sound exercises look like this:

 Angel Sound™ Exercise

Angel Sound™ program

The Angel Sound computer program is an interactive auditory training program especially designed for cochlear implant recipients to practise hearing and recognising sound and speech. The level of difficulty is automatically adjusted to match the user's developing listening skills. The program provides feedback, highlighting areas the user can continue to practise. The training and testing results can be shared with your clinician, who can provide further advice on the auditory training.

The Angel Sound program can be downloaded and installed onto your computer. Alternatively, you can request to have a CD version mailed to you, which can then be installed on your computer. Information about Angel Sound, as well as the download link, is available on the following website: <http://angelsound.emilyfufoundation.org>. Refer to Appendix 2 for some tips on using Angel Sound.

How long do I need to continue doing auditory training?

This manual is aimed primarily at people who have just received their cochlear implant, to use during the first few months. The length of time that you need to do auditory training varies, depending on how long you have been with limited hearing, whether you were still able to use a hearing aid in your implanted ear in the period before your cochlear implant, and the availability of opportunities for listening and conversation with your cochlear implant in your everyday life. Regular auditory training during the first few months after you get your cochlear implant is beneficial.¹ Scientific studies have also indicated that auditory training is beneficial for some cochlear implant recipients who have been using the devices for many years.² Are there things you would like to be able to do but don't feel confident enough to try? There may be times when you will want to do some refresher training as well. Your clinician will guide you on using this manual and which exercises would be appropriate.

Tips for the training partner (speaker)

The clinician will guide you in the use of this manual. Below are also a few tips that may be helpful:

- It is a good idea to practise the listening exercises each day at home at the same time, so it is part of your regular routine.
- Initially find a quiet part of the home to do the training.
- Auditory training is mostly done with hearing alone (without lip reading). The best way to do the training is for the listener to look down so they can't see the speaker's face. Avoid covering the speaker's mouth as this changes the sound of the speech.
- Confirm the parts of the recipient's response that are correct.
- The speakers should give positive feedback. Good alternatives to saying "no, that was wrong" are: **"listen again"**, **"nearly right, listen to the end of the sentence again"**, or **"it sounds a bit like that word but it's a different word"**.
- If the recipient has difficulty with the exercise, the speaker may need to modify it using the tips provided in the manual. For example, the speaker can give a clue word, slow down their rate of speech, emphasise particular words or, if needed, let the recipient see the speaker's face. However, the speaker should always end by saying the word or sentence by hearing alone (without lip reading).
- Over time, as the recipient's listening skills improve, the speaker can make the exercises more challenging by:
 - increasing the distance between the recipient and the speaker (for example, by sitting across a table) or sitting on the non-implanted side

- offering less repeats – encourage more guessing
- gradually increasing the noise in the environment by turning on the radio "off station" with static noise in the background, or to a station with music or talking, increasing the volume of the noise as you progress
- speaking a little faster.

Essential tips for auditory training

- Auditory training will be the most beneficial if you:
 - concentrate on using listening alone (unless instructed to also use lip reading in the exercise)
 - listen with your cochlear implant alone (if you use a hearing aid in the other ear, turn it off during the training time)
 - practise in a quiet room at first
 - check that you are using the speech processor program and settings you hear best with before you start
 - use a conversational level voice
 - practise regularly – about 30 minutes a day on five days each week
 - practise when you are feeling fresh and relaxed

Auditory Training Exercise Plan

Exercises to complete – completed by clinician and recipient – note module/exercise and/or page number	Recipient notes – completed by recipient
---	--

Remember to look at the "Essential Tips" (page 7) before you start each session

Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____

Auditory Training Exercise Plan

Exercises to complete – completed by clinician and recipient – note module/exercise and/or page number	Recipient notes – completed by recipient
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Remember to look at the "Essential Tips" (page 7) before you start each session

Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____

Auditory Training Exercise Plan

Exercises to complete – completed by clinician and recipient – note module/exercise and/or page number	Recipient notes – completed by recipient
---	--

Remember to look at the "Essential Tips" (page 7) before you start each session

Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____
Date: ___ / ___ / ___	Time since switch-on: _____

Section A

Getting started

Practice working out the sound and speech from a list of possibilities, and repeating speech

Module 1: Environmental sounds checklist

Why?

To help you develop an awareness of the sounds around you in the environment and learn to identify these environmental sounds. There are some sounds that you may not have heard for a long time and you will need to re-learn them, and other sounds may sound quite different with a cochlear implant.

How?

Spend some time each day listening to the sounds around you and see if you can identify the sounds. Complete the following list as you go.

Exercise	
Lower pitched (deeper) sounds	
<input type="checkbox"/> fridge humming	<input type="checkbox"/> kettle boiling
<input type="checkbox"/> man's voice	<input type="checkbox"/> air conditioning
<input type="checkbox"/> car engine from inside the car	<input type="checkbox"/> wind
<input type="checkbox"/> fan	<input type="checkbox"/> a zipper
Higher pitched (squeakier) sounds	
<input type="checkbox"/> birds	<input type="checkbox"/> child's voice
<input type="checkbox"/> car indicators	<input type="checkbox"/> clothes rubbing together
<input type="checkbox"/> cicadas	<input type="checkbox"/> wire coat hangers on a metal rod
<input type="checkbox"/> tapping on computer keyboard	<input type="checkbox"/> microwave or washing machine beeps
<input type="checkbox"/> frying food	<input type="checkbox"/> light switch
<input type="checkbox"/> rubbing hands together	
Rhythmic sounds	
<input type="checkbox"/> phone ringing	<input type="checkbox"/> road crossing beeps
<input type="checkbox"/> footsteps	<input type="checkbox"/> knocking at the door
<input type="checkbox"/> tap dripping	<input type="checkbox"/> clock ticking
Continuous sounds	
<input type="checkbox"/> fridge motor	<input type="checkbox"/> vacuum cleaner
<input type="checkbox"/> rain on roof	<input type="checkbox"/> waves at the beach
<input type="checkbox"/> shopping centre	<input type="checkbox"/> clothes dryer

Very soft sounds			
<input type="checkbox"/>	own breathing	<input type="checkbox"/>	ice cubes melting
<input type="checkbox"/>	chopping apples or onions	<input type="checkbox"/>	rustling of tissue paper
<input type="checkbox"/>	pet drinking from a bowl	<input type="checkbox"/>	cat purring
<input type="checkbox"/>	gas escaping from a drink can	<input type="checkbox"/>	scissors opening and closing
<input type="checkbox"/>	spray from perfume or deodorant container	<input type="checkbox"/>	shuffling a pack of cards
Distant sounds			
<input type="checkbox"/>	traffic in distance	<input type="checkbox"/>	waves at the beach
<input type="checkbox"/>	neighbour coming and going	<input type="checkbox"/>	children at a playground
<input type="checkbox"/>	car coming down the road	<input type="checkbox"/>	aeroplane flying overhead
Louder sounds			
<input type="checkbox"/>	cutlery being placed in drawer	<input type="checkbox"/>	running water into the sink
<input type="checkbox"/>	toilet flushing	<input type="checkbox"/>	own chewing
<input type="checkbox"/>	cup on bench	<input type="checkbox"/>	motor bike passing by
<input type="checkbox"/>	dog barking	<input type="checkbox"/>	stirring a cup of liquid with a spoon
<input type="checkbox"/>	plastic bags or packaging	<input type="checkbox"/>	jangling keys
<input type="checkbox"/>	traffic		
List some sounds you heard in the first week with your cochlear implant that you had forgotten			

Module 2: Environmental sounds training

Angel Sound™ Exercise

Basic Module – Environment Sounds

Why?

You can use this task to practise identifying common everyday sounds, such as the sound of a bird, a car horn or a doorbell. Being able to associate particular sounds with objects or events in your surroundings may assist you in developing your auditory memory abilities. You may find that sounds may be quite different with the cochlear implant and that you may need to re-learn some sounds.

How?

- On the main module screen, click on “**Basic Module**”, and then on the left hand side of the screen click on “**Environment Sounds**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the “**Preview**” button to practise listening to the environmental sounds. There are 100 different sounds, with 12 sounds on each page. You can access the next group of sounds by clicking on the “**Forward**” button.
- Click on the “**Training**” button to do the training task. In each task, a sound is presented and you choose which one you thought it was.
- There are four levels ranging from easier to harder:
 - Level 1: choose from two sounds (in quiet)
 - Level 2: choose from four sounds (in quiet)
 - Level 3: choose from six sounds (in quiet)
 - Level 4: choose from six sounds (in background noise)
- Your clinician will guide you on which levels to practice. You can also select the recommended training level if you have performed a test.
- Run a test (click on the “**Test**” button) every now and then so the program can recommend the appropriate training level for you.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.

Module 3: Identifying speech sounds (vowels and consonants)

Why?

Using your cochlear implant throughout the day gives you lots of practice and helps your brain learn to recognise speech. However, some speech sounds may remain difficult to tell apart and identify with the new and different sound heard through the implant. Recent research indicates that it may be helpful to do exercises to train the brain to learn to tell apart and identify speech sounds. This training involves actively listening to pairs of words that differ in one particular speech sound (for example, the middle vowel "ee" in "theme" vs "u" in "thumb") and learning to tell the sounds apart. Some types of vowels and consonants are harder to hear with a cochlear implant than others. Therefore, there is a range of exercises progressing from easier to more difficult.

How?

The speaker will say the two words, pointing to each, and then repeat one of the words. You then point to or say the word. If you are unable to work out which word was said, the speaker will then say the pair of words several times, pointing to the word as they say it. This will help to train you to hear the differences between the sounds.

Vowel identification – Level 1*

Exercise 1		
1	theme	thumb
2	sharp	ship
3	teach	touch
4	barn	bin
5	leak	luck
6	carp	cup
7	port	put
8	peep	pip
9	mast	must
10	wall	wool

* Adapted from Plant, G. (1984). Commtram:
A communication training program for profoundly deaf adults.
Sydney: National Acoustics Laboratories.

Vowel identification – Level 2*

Exercise 2		
1	bath	booth
2	spark	speak
3	tar	too
4	parch	peach
5	tart	toot
6	fast	feast
7	hard	who'd
8	barn	bean
9	bars	booze
10	park	peak

Exercise 3		
1	tea	too
2	pit	put
3	cap	cup
4	pit	pet
5	beat	boot
6	kid	could
7	bat	but
8	bid	bed
9	feed	food
10	pill	pull

* Adapted from Plant, G. (1984). *Commtram: A communication training program for profoundly deaf adults*. Sydney: National Acoustics Laboratories.

Consonant identification – Level 1*

Exercise 4		
1	rip	rib
2	cap	cab
3	mop	mob
4	pick	pig
5	duck	dug
6	lack	lag
7	lock	log
8	cod	cot
9	card	cart
10	hard	heart

* Adapted from Plant, G. (1984). *Commtram: A communication training program for profoundly deaf adults*. Sydney: National Acoustics Laboratories.

Consonant identification – Level 2*

Exercise 5		
1	pea	me
2	pop	mop
3	pie	my
4	peel	meal
5	pet	met
6	pen	pet
7	seen	seat
8	ban	bat
9	bean	beet
10	mean	meet

Exercise 6		
1	match	batch
2	man	ban
3	morn	born
4	mail	bail
5	me	be
6	hen	head
7	moon	mood
8	bun	bud
9	pan	pad
10	corn	cord

Exercise 7		
1	sum	numb
2	sea	knee
3	sap	nap
4	sit	knit
5	seed	need
6	moose	moon
7	horse	horn
8	mass	man
9	case	cane
10	dice	dine

* Adapted from Plant, G. (1984). Commtram: A communication training program for profoundly deaf adults. Sydney: National Acoustics Laboratories.

Consonant identification – Level 3*

Exercise 8		
1	lip	nip
2	law	nor
3	lap	nap
4	lit	knit
5	let	net
6	mean	meal
7	fine	file
8	coin	coil
9	spin	spill
10	skin	skill

Exercise 9		
1	chew	shoe
2	chin	shin
3	chip	ship
4	chewed	shoed
5	chore	shore
6	cheer	shear
7	chose	shows
8	chop	shop
9	cheers	shears
10	chair	share

* Adapted from Plant, G. (1984). Commtram: A communication training program for profoundly deaf adults. Sydney: National Acoustics Laboratories.

Consonant identification – Level 4

Exercise 10		
1	boat	goat
2	bub	dub
3	big	dig
4	dad	gad
5	bet	get
6	lab	lad
7	bag	bad
8	big	bib
9	bust	dust
10	wed	web

Exercise 11		
1	peer	tier
2	peak	teak
3	pour	tore
4	pair	care
5	tool	cool
6	hop	hot
7	bat	back
8	map	mat
9	cape	cake
10	lip	lit

Exercise 12		
1	fought	short
2	fine	sign
3	few	shoe
4	lass	lash
5	fell	shell
6	fit	sit
7	sam	sham
8	frill	shrill
9	buff	bus
10	fail	shale

Exercise 13		
1	mail	nail
2	mine	nine
3	sum	sun
4	gum	gun
5	meet	neat
6	boom	boon
7	more	gnaw
8	game	gain
9	lime	line
10	beam	been

Basic Module – Vowel Recognition and Consonant Recognition

Why?

In these exercises you gain practice in telling the difference between and identifying both vowels and consonants. With your cochlear implant you may be able to hear the vowels and consonants better than before, but some of them may still be difficult to recognise. Improving your vowel and consonant recognition may help to improve your ability to understand words and sentences.

How?

- On the main module screen, click on “**Basic Module**”, and then on the left hand side of the screen click on “**Vowel Recognition**” or “**Consonant Recognition**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the “**Preview**” button to practise listening to the words with different vowels and consonants.
- Click on the “**Training**” button to do the training.
- There are five levels ranging from easier to more difficult. Within each level, there are also a number of steps which get progressively more difficult.
 - **Level 1:** is a discrimination task where you listen for differences between the sounds. There are three buttons on the screen, one for each of the three words you will hear. Two words are the same, one is different. Choose which word is different.
 - **Level 2:** is a combination of discrimination and identification tasks. There are two words on the screen. You will hear the two words, and then one of the words again (spoken by a different speaker). Choose the word you heard.
 - **Level 3:** is an identification task. There are two words on the screen initially. You will hear one word, and you choose the word you heard. The number of choices increases (from two to nine for vowels and from two to six for consonants) as you progress through the steps.
 - **Level 4:** is similar to Level 3, except that the differences between the vowels and consonants are more difficult to hear. The number of choices increases from two to four as you progress through the steps.
 - **Level 5:** is an identification task and is the most difficult of the vowel and consonant training exercises. This time the words are played in a noisy background. Training on this task may help you hear speech in noise during conversation. To do this task you need to have made good progress on the exercises in quiet. The level of noise increases as you progress.
- Your clinician will guide you on which levels to practise.
- When your answer is incorrect, the words will be played so you can listen for the differences.
- Run a test (click on the “**Test**” button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.

Module 4: Recognising words (known topics)

Why?

To gain practice in recognising words when you know what the topic is.

How?

You do not see the list of words. The speaker tells you the topic and you repeat the topic. The speaker then says each of the words and you repeat them. If you cannot repeat the word after three attempts, the speaker will say the word with lip reading and then with hearing alone. You can also try having the words in front of you if you are having difficulty initially.

Exercise 1	
Topic: Animals	
1	tiger
2	snake
3	kangaroo
4	dog
5	chimpanzee
6	bear
7	elephant
8	spider
9	cat
10	hippopotamus

Exercise 2	
Topic: Months	
1	September
2	March
3	July
4	February
5	October
6	April
7	August
8	June
9	December
10	May

You can also make up your own sets of topics and words. Here are some ideas: colours, vehicles, foods, bicycle parts, days of the week. Fill in the topics and associated words in the tables at the end of the manual (Appendix 1).

Basic Module – Word Discrimination

Why?

This exercise helps you to listen to common words used in everyday speech, such as words for animals, foods and colours. In this module you will listen to whole words, as opposed to training to hear small differences between words in the Vowel and Consonant Recognition modules. This training may help you to recognise some of the commonly used words in everyday life.

How?

- On the main module screen, click on “**Basic Module**”, and then on the left hand side of the screen click on “**Word Discrimination**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- There are six different topics (Animal, Food, Colour, Family, Number, Time).
- Click on the “**Preview**” button to practise listening to words in each topic. A number of words are shown on each page and you can access the next group of words by clicking on the “**Forward**” button.
- Click on the “**Training**” button to do the training. Then select a topic. There are four buttons on the screen, each for a different word. You will hear one word and you choose the word you heard.
- When your answer is incorrect, the words will be played so you can listen for the differences.
- Run a test (click on the “**Test**” button) every now and then so the program can track the training progress for you.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.

Module 5: Recognising sentences (known topics)

Why?

To gain practice in recognising speech when you know what the topic is but you don't know what the possible sentences are.

How?

You do not see the sentences. The speaker tells you the topic and you repeat the topic. The speaker says the first sentence and you repeat the sentence. The speaker confirms which words you got right and encourages you to use strategies to clarify the sentence, such as "repeat" or "**did you say...?**" or "**can you say it a different way?**" If you have not been able to repeat the sentence after three attempts, the speaker will provide an important word in the sentence using lip reading cues, then repeat the entire sentence using hearing alone. If you are unable to repeat the sentence, the speaker will say the sentence with lip reading cues and then hearing alone once more. Another option if you are having difficulties is to put the list in front of you so you can see what the options are.

Exercise 1*

Topic: At a restaurant

- 1 How would you like your steak cooked?
- 2 You have a choice of soup or salad.
- 3 Good evening. May I take your order?
- 4 Would you care to dine at this restaurant again?
- 5 Would you like to use a credit card or pay cash?
- 6 Thank you. Do come again.
- 7 Would you like a table for two?
- 8 Is there anything else I can get for you?
- 9 You have potato on your chin.
- 10 Would you like pie, cake or ice cream for dessert?

* Pedley, K. Synthetic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd. Based on concept of Plant, G. (1984). Commtram: A communication training program for profoundly deaf adults. Sydney: National Acoustics Laboratories.

Exercise 2*

Topic: At the bank

- | | |
|---|--|
| 1 | Do you have an account at this branch? |
| 2 | Would you like to open a new account? |
| 3 | The teller at window number one will help you. |
| 4 | Is this a deposit or a withdrawal? |
| 5 | You forgot to sign this cheque. |
| 6 | This cheque has not been cleared. |
| 7 | Would you like to order a statement? |
| 8 | Your account is overdrawn. |

* Pedley, K. Synthetic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd. Based on concept of Plant, G. (1984). Commtram: A communication training program for profoundly deaf adults. Sydney: National Acoustics Laboratories.

You can also make up your own topics and sentences. Here are some ideas: at the post office, your last holiday, your favourite hobby, going to the beach. Fill in the topics and sentences in the tables at the end of the manual (Appendix 1).

Basic Module – Everyday Sentences

Why?

In this exercise you will practise recognising sentences, rather than identifying isolated words (Word Discrimination training) or recognising small differences between words (Vowel or Consonant Recognition training). While you may not hear all of the sentence, you may still be able to hear words you are familiar with and fill in the missing parts. Reading the sentences on the screen will help you to familiarise yourself with the possible responses. Some of the exercises are done in a noisy background. Developing your ability to recognise the spoken sentence while excluding the background noise is good practice for real-world listening situations.

How?

- On the main module screen, click on “**Basic Module**”, and then on the left hand side of the screen click on “**Everyday Sentences**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the “**Preview**” button to practise listening to the sentences.
- Click on the “**Training**” button to do the training.
- There are four levels of difficulty:
 - **Level 1:** The sentences are presented in quiet.
 - **Levels 2, 3 and 4:** The sentences are presented in background noise. The noise gets louder as you progress through the levels. Start with Level 1 and then try Level 2 and higher as you become more practised.
- There are four sentences on the screen. You will hear one sentence. You choose the sentence you heard.
- When your answer is incorrect, the correct and incorrect sentences will be played so you can listen for the differences.
- Run a test (click on the “**Test**” button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.
- For an extra challenge, try not to look at the response choices before the sentence plays; after the sentence finishes playing, look at the response choices to help you work out which sentence was said.

Module 6: Recognising link sentences*

Why?

To gain practice in identifying sentences when you know what the possible options are. This exercise is more difficult than the previous sentences as the topics are not known and there are many possible options.

How?


You have the table in front of you. The speaker starts by saying one of the sentences across a row. The recipient should try to identify which sentence you said. The recipient may be able to identify the sentence from hearing one or two words correctly, thus building confidence. Once the recipient can do this easily from the whole table without lip reading, the speaker can create new sentences by selecting one word from each column, for example, Bill bought eight yellow jackets. If the whole sentence was not correct, the speaker confirms which words you got correct and says the sentence again. If the response is still incorrect, the speaker says the sentence again, pointing to the words as they are spoken. If needed, you can reduce the number of items in the list (reduce the number of rows in the table).

Exercise*				
Name	Verb	Number	Adjective	Noun
Peter	owns	ten	old	jackets
Bill	sends	two	red	boxes
John	sees	seven	good	roses
Gary	bought	three	new	birds
Steven	won	six	green	windows
Nicole	gets	twenty	lovely	cars
Rachel	sold	eight	pretty	shirts
Barbara	gives	thirteen	big	dogs
Michelle	chose	twelve	yellow	gifts
Cathy	made	eleven	funny	balls

* Based on concept of Hagerman, B. (1982). "Sentences for speech intelligibility testing in noise," *Scandinavian Audiology*, 11: 79-87. Words adapted from Angel Sound.

You can also make up your own link sentences. Follow the format in the previous table and write the words into the table below.

Exercise				
Name	Verb	Number	Adjective	Noun

 Angel Sound™ Exercise

Openset Module – Concatenated Sentences

Why?
 To practise identifying sentences when the topic is not known but the possible words that make up the sentence are known. Each sentence includes five words in the following order: noun, verb, number, adjective and noun. This is the same type of training as the Link Sentence task above.

How?

- On the main module screen, click on “**Openset Module**”, and then on the left hand side of the screen click on “**Concatenated Sentences**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the “**Preview**” button to practise listening to all the words.
- Click on the “**Training**” button to do the training. Select the appropriate training level (Quiet, 10 dB, or 0 dB). Choose the quiet condition first. Once you are more practised you can try it in a noisy background (10 dB first, then 0 dB, which is the loudest background noise).
- You will see all the words in a table on the screen. You will hear one sentence, made up from words in the table (one from each column). You select each of the words you heard to make up the complete sentence.
- When your answer is incorrect, the correct and incorrect sentences will be played so you can listen for the differences.
- Run a test (click on the “**Test**” button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.

Module 7: Text following – passages read aloud

Why?

A good way to learn to hear the rhythm and pattern of sentences and individual words and then to identify the speech is to listen to text being read aloud. You can do this by listening to someone reading aloud from a passage, or by listening to an audiobook (see next section) and following along with the text on the printed copy.

How?

Choose a passage from a book, newspaper, magazine or one of the passages on the following pages. You will need two copies of the passage – one for yourself and one for your training partner. The speaker will read the passage aloud. You follow along pointing to each word as it is spoken. The speaker then stops at a random place and you stop at the same word. If you don't stop at the correct word, the speaker will show you.

Some handy tips:

- When you start this task, practise in a quiet room using materials that are easy to follow (for example, reading from children's books, or passages where content is easy to follow and you know the topic).
- The speaker should start by speaking slowly and stopping in places that are predictable, such as at the end of sentences or phrases. Passages can be read several times for practice.
- As you gain more experience with this task, you can use more difficult materials with longer sentences and where you are not familiar with the topic.
- When you start to find the task easier, listen in a room with background noise. To do this you can turn on a fan, or turn on the radio "off station" with static noise in the background, or to a station with music or talking, increasing the volume of the noise as you progress.
- You can also practise listening by reading aloud to yourself.

Exercise*

Australia

The continent of Australia is about 7000 miles southwest of California. It is both a continent and an island and is almost exactly the same size as the mainland United States. The Nullarbor is the second largest desert in the world and means "no trees" in Latin. Because of this huge desert, most of the population live around the coastal borders. There are seven states, including the island of Tasmania.

One of the most interesting features of this country is the animals. The most well-known is the koala bear, of course. In fact, the koala is not really a bear, because it has a pouch in which it carries its young. The koala lives in a special kind of eucalyptus tree, because the koala will eat only the leaves from this tree.

Another animal is the wallaby. This is a miniature kangaroo. It has very big eyes and very long claws and is more friendly than a kangaroo. There are several kinds of kangaroos: grey ones, red ones and brown ones. They have very large hind feet and a long tapered tail that make it possible for them to leap great distances. They can move faster than fifty miles per hour. In the north of Australia, kangaroos can be found in the wild very easily. However, wild Australian animals are not usually found wandering the streets of any major city.

There are many other interesting things in this land called "Down Under".

* Hunt, P. Analytic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd.

Audiobooks (recorded books)

Why?

A good way to learn to hear the rhythm and pattern of sentences and individual words and then to identify the speech is to listen to text being read aloud. You can do this by listening to someone reading aloud from a passage (see section above) or by listening to an audiobook and following along with the text on the printed copy.

How?

Listen to the audiobook and at the same time follow along on the text in the written book. Listen to the patterns in the speech and try to identify what the words are. If you find it difficult at first, you can repeat the passage several times to practice.

Some handy tips:

- It's a good idea to start with the clearest and quietest signal possible.
- Audiobooks are available at most libraries, and also for sale at bookshops and online (CDs to buy or MP3/iPod files to download online).
- It's a good idea to start with easier books and build up to harder books as you get more practise. Starting with children's books may be easier. Then as you get more practise, listen to books for adults, starting with topics that you are familiar with and are of interest to you – perhaps a book you have read before and enjoyed.
- Some talkers are easier to hear than others, so it can be helpful to experiment with this.
- You can make the task more difficult by listening to the audiobook alone without reading along.
- Another way of challenging yourself is to add in background noise by opening windows if there is noise outside, turning on a fan, or turning on the radio "off station" with static noise in the background, or to a station with music or talking, increasing the level of the noise as you progress.

Module 8: Recognising common phrases

Why?

To gain practice in recognising commonly heard phrases.

How?

You do not see the list of sentences. The speaker will say the sentence without lip reading. Try to repeat as many words as you can. If you are not sure, fill in the missing words with your best guess. Remember, these are sentences that you hear every day. The speaker confirms which words you got right and encourages you to use strategies to clarify the sentence, such as **“repeat”** or **“did you say...?”** or **“can you say it a different way?”** If you have not been able to repeat the sentence after three attempts, the speaker will provide a key word in the sentence using lip reading cues, then repeat the entire sentence using hearing alone. If you are still unable to repeat the sentence, the speaker will say the whole sentence with lip reading cues and then hearing alone once more. For further practise you can also try making up your own phrases which are relevant to you.

Exercise	
1	What time is it?
2	I'll see you later!
3	How was your day?
4	Would you like a cup of coffee?
5	Wait just a minute.
6	What's the weather like?
7	Have a nice day.
8	What are we having for dinner?
9	You are looking well today.
10	Do you need a lift?
11	Would you like some help?
12	Please close the door.
13	Are you warm enough?
14	What would you like for breakfast?
15	Happy Birthday!
16	Let's go to the movies.
17	Pass the bread and butter please.

Section B

Making it more challenging

Practice repeating and understanding speech
in quiet and noisy backgrounds

PART 1: Practising in a quiet background

Well done on reaching the section for practising recognising and repeating speech when the topics and possible options are not known, and for practising understanding the message. This is getting more challenging!

Module 9: Recognising sentences (no topics)

Why?

To practise recognising speech when the topic and possible options are not known.

How?

The speaker says a sentence. You repeat the sentence. The speaker then confirms which words you got right and repeats the sentence two more times if needed. If you are having difficulty, the speaker can try providing a related topic or providing one of the words in the sentence with lip reading cues. If you can't repeat the sentence after three attempts, the speaker will say the sentence with lip reading cues and then again hearing only.

Exercise 1 (Level 1)*	
1	We must vote next Tuesday.
2	Press the pedal with your foot.
3	Pour the stew into the bowl.
4	She saw a cat in the house.
5	The sky was clear and bright.
6	Take the winding path to the lake.
7	Will you please answer the phone?
8	The fish swam in the tank.
9	The boy missed the boat.
10	The house was built of brick.

* Adapted from IEEE sentences. Institute of Electrical and Electronic Engineers (1969) IEEE recommended practice for speech quality measurements. IEEE Transactions on Audio and Electroacoustics, 17: 225-246. New York: IEEE.

Exercise 2 (Level 1)*

- 1 Always close the barn door tight.
- 2 After the dance they went straight home.
- 3 She was waiting at my front door.
- 4 Her dress was trimmed with a gold sash.
- 5 He found a pink shell on the beach.
- 6 The grapes were pressed into wine.
- 7 A break in the dam almost caused a flood.
- 8 The red apple fell to the ground.
- 9 The corner store was robbed last night.
- 10 Cut the pie into eight equal portions.

Exercise 3 (Level 2)*

- 1 The man went to the woods to gather sticks.
- 2 Next Sunday is the twelfth of the month.
- 3 Plant a bush near the front steps.
- 4 She called his name many times.
- 5 She sewed the torn coat quite neatly.
- 6 The sun came up in the eastern sky.
- 7 The term ended in June that year.
- 8 Use a pencil to write the first draft.
- 9 Come quickly when you hear the bell.
- 10 Wood is best for making toys and blocks.

* Adapted from IEEE sentences. Institute of Electrical and Electronic Engineers (1969) IEEE recommended practice for speech quality measurements. IEEE Transactions on Audio and Electroacoustics, 17: 225-246. New York: IEEE.

Exercise 4 (Level 2)*

- 1 A small creek cuts across the field.
- 2 Pencils with black lead are good for sketching.
- 3 Movie tickets cost five dollars on Mondays.
- 4 The round mat covered the mark on the floor.
- 5 A frog and a toad are hard to tell apart.
- 6 The night alarm woke him from a deep sleep.
- 7 The crew lost their lives in the raging storm.
- 8 The bomb raid left most of the town in ruins.
- 9 The curtain rose and the show began.
- 10 Drive the screw straight into the wood.

Exercise 5 (Level 3)*

- 1 Pick a card and place it under the pack.
- 2 The plant grew large and green in the window.
- 3 Raise the sail and steer the ship northward.
- 4 She danced like a swan, tall and graceful.
- 5 The salt breeze came across the sea.
- 6 There was the sound of dry leaves outside.
- 7 Turn on the lantern for light.
- 8 Twist the valve and release hot steam.
- 9 Watch the log float in the wide river.
- 10 We now have a new warehouse for shipping.

* Adapted from IEEE sentences. Institute of Electrical and Electronic Engineers (1969) IEEE recommended practice for speech quality measurements. IEEE Transactions on Audio and Electroacoustics, 17: 225-246. New York: IEEE.

Exercise 6 (Level 3)*

1	Canned pears lack full flavour.
2	A dash of pepper spoils beef stew.
3	The grey mare walked before the colt.
4	Boards will warp unless kept dry.
5	The rent was paid every third week.
6	The beetle droned in the hot June sun.
7	Bail the boat to stop it from sinking.
8	The copper bowl shone in the sun's rays.
9	The black dog crawled under the fence.
10	A rod is used to catch pink salmon.

* Adapted from IEEE sentences. Institute of Electrical and Electronic Engineers (1969) IEEE recommended practice for speech quality measurements. IEEE Transactions on Audio and Electroacoustics, 17: 225-246. New York: IEEE.

Angel Sound™ Exercise

Openset Module – Sentences

Why?

To gain practice in recognising speech when the topic and possible options are not known.

How?

- On the main module screen, click on "**Openset Module**", and then on the left hand side of the screen click on "**Sentences**". Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the "**Preview**" button to practise listening to the sentences.
- Click on the "**Training**" button to do the training. Start by choosing "**Quiet**" underneath the training button. See Part 2 – Practising in background noise, when you are well practised in quiet.
- The screen shows a keyboard. You cannot see the possible answers on the screen. Listen to the sentence and type in what you heard on the screen keyboard or on your computer keyboard.
- When your answer is incorrect, the correct sentence will be played so you can listen for the differences.
- Run a test (click on the "**Test**" button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the "**Result**" button to see the previous test results, the amount of training time, and the training progress.

Module 10: Recognising words (no topics)

Why?

To gain practice at recognising speech when the topic and possible options are not known.

How?

The speaker starts by saying the first word. You repeat the word. If you do not get the word completely correct, your speaker can give you tips, such as “**nearly; listen to the last letter again**”, or “**almost right, but this word doesn't begin with p**”. After three attempts, the speaker should then write down the test word and the word that was said and then say them several times, pointing to each in turn. Also, make a note of the error so that your audiologist can give you exercises to work on this.

Exercise 1*			
1	dip	6	shed
2	can	7	chop
3	boot	8	verse
4	cheese	9	notch
5	jug	10	fib

Exercise 2*			
1	jam	6	rough
2	leg	7	talk
3	caught	8	yes
4	can	9	zoom
5	bath	10	pave

Exercise 3*			
1	mesh	6	path
2	him	7	weave
3	term	8	dawn
4	thought	9	hook
5	girl	10	sheep

Exercise 4*			
1	fuss	6	them
2	reef	7	latch
3	save	8	nil
4	daze	9	sheep
5	wash	10	sage

* Adapted from Angel Sound.

Openset Module – Words

Why?

To gain practice in recognising speech when the topic and possible options are not known.

How?

- On the main module screen, click on “**Openset Module**”, and then on the left hand side of the screen click on “**Words**”. Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.
- Click on the “**Preview**” button to practise listening to the words.
- Click on the “**Training**” button to do the training.
- Start by choosing “**Quiet**” underneath “**Training**”. See Part 2 – Practising in background noise, when you are well practised in quiet.
- The screen shows a keyboard. You cannot see the possible answers on the screen. Listen to the word and type in what you heard on the keyboard.
- When your answer is incorrect, the correct word will be played so you can listen for the differences.
- Run a test (click on the “**Test**” button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the “**Result**” button to see the previous test results, the amount of training time, and the training progress.

Module 11: Interactive stories

Why?

To gain practice in understanding the message rather than just repeating what is heard.

How?

The speaker reads out the paragraph without lip reading (you do not see the paragraph or the topic). The speaker then asks you questions about the paragraph. If you are having difficulty, your speaker could give you the topic clue, or you can start by reading the paragraph with lip reading and then asking the questions with hearing alone.

Exercise 1 (Level 1)*

Story 1: Breakfast

Breakfast is probably the most important meal of the day. It gives us energy to go through the morning. Most people eat breakfast at about seven o'clock in the morning. I like cereal, toast and juice for breakfast. On Sundays, it's nice to go out to a restaurant for breakfast.

- 1 What was I talking about?
- 2 What time do most people eat breakfast?
- 3 What time do you eat breakfast?
- 4 Do you like eggs for breakfast?
- 5 What do you like best for breakfast?
- 6 Do you ever go to a restaurant for breakfast?

* Pedley, K. Synthetic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd.

Exercise 2 (Level 2)*

Story 2: The disappointed cat

One day, a little bird sat in a tree and looked around. He wanted something to eat and saw a piece of bread on the ground. He flew down and began to eat it. An old black cat saw the bird and crept up behind him. She almost caught him, but the little bird heard her and flew back into the tree. The cat was disappointed. She lay down on the steps and went to sleep. Then the little bird flew down again and ate the bread.

- 1 How big was the bird?
- 2 What did the bird see on the ground?
- 3 Did the cat catch the bird?
- 4 What colour was the cat?
- 5 Where did the cat fall asleep?
- 6 Did the bird get to eat the bread?

* NSW Department of School Studies (1990). Courtesy of the NSW Department of Education and Training.

Exercise 3 (Level 3)*

Story 3: Garlic

The simple bulb of garlic as we know it is certainly nothing special. However, garlic has a long and fascinating past. The Babylonians and ancient Greeks called it the "stinking rose" and believed it had peculiar powers. People rubbed it on their bodies, buried it with their dead, and wore it round their necks.

The Egyptians went so far as to pray to garlic. They maintained that it possessed the secret of physical strength. When garlic supplies ran short for the workers building the Great Pyramid, they reportedly went on strike. Big servings of garlic were also fed to soldiers for strength in battle and to athletes for better performance.

It was also believed that garlic had many therapeutic values. Remedies have been recorded for snakebite, measles, colds and cholera, to name but a few. A more bizarre practice was to string it around the neck to repel vampires.

While garlic is certainly not a cure for all sickness, it is a powerful antiseptic. It has also been used with good results as a pesticide. At the present time, the real value of garlic is in cooking. For some time, though, it was frowned upon as something smelly that only people from the Mediterranean ate. This view is changing, and no chef, who takes pride in cooking, would be without it.

Since most people worry about bad breath, it should be remembered that this only occurs with raw garlic. It is perfectly safe to eat when cooked. A final reassurance comes from the Japanese, who are presently working on a strain of odourless garlic. This breakthrough should win over many who refrained from eating garlic previously because of fear of bad breath.

- 1 What was garlic called in the time of the Babylonians?
- 2 Name two ways that garlic was used in the past.
- 3 Why were soldiers and athletes fed so much garlic?
- 4 What were the garlic remedies supposed to cure?
- 5 What do we use garlic for in modern times?
- 6 What is the major shortcoming of garlic?
- 7 What is in the process of happening to garlic to make it better to eat?

* Pedley, K. Synthetic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd.

Module 12: Information transfer – complete the missing information*

Why?

To gain practice in understanding the message rather than just repeating what is heard.

How?

The speaker's copy of the exercise is below and your copy is in Appendix 1. You and the speaker both have the same table, but you each have different and complementary missing details. The task is to fill in the missing information on both of your sheets by taking it in turns to ask and answer questions. For example, you may ask the recipient: **"What street is the house on?"** The recipient may ask you: **"Is the condition of the flat modern, quite modern or not very modern?"** When the recipient hesitates, encourage them to request clarification.

Exercise		
Detail	Flat	House
Street	King Street	
Size	big quite big small	big quite big ✓ small
Condition	modern ✓ quite modern not very modern	modern quite modern not very modern
Number of rooms	three	downstairs – upstairs –
List of rooms	a living room a kitchen a bedroom	
Central heating	Yes	
Near the shops		No
Distance from town centre	1 km	
Rent		\$1600 a month
Any other information	You share the toilet and bathroom on the first floor.	

* Watcyn-Jones, P. & Howard-Williams, D. (2001). Grammar games and activities, Book 1. London: Penguin, Reproduced by permission of Penguin Books Ltd.

Module 13: Information transfer – describe, perceive, draw*

Why?

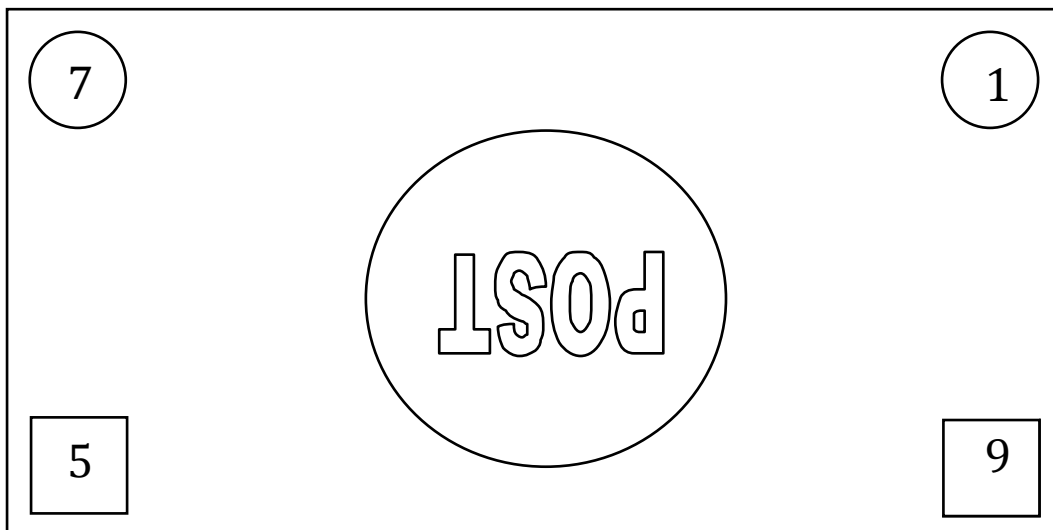
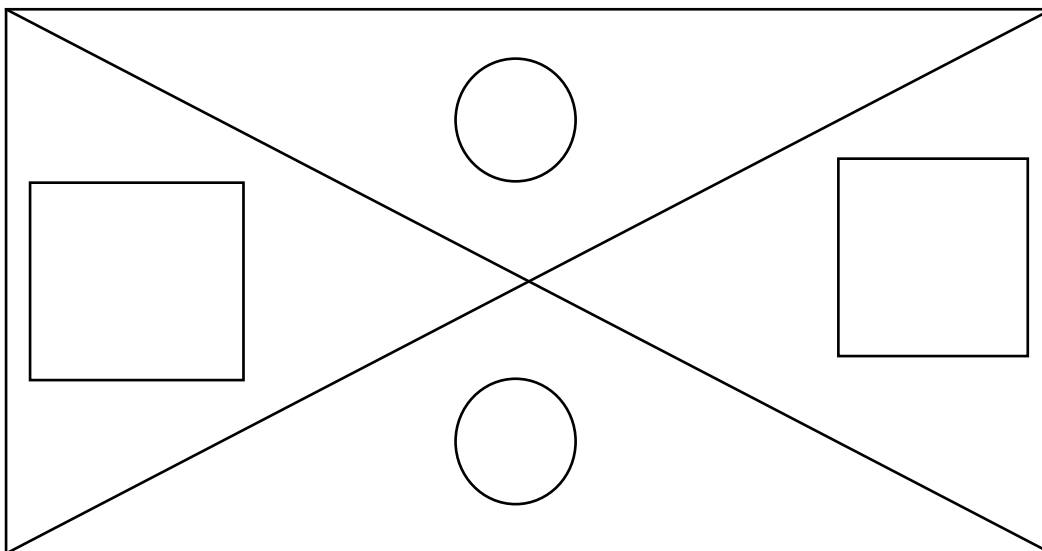
To gain practice in understanding the message rather than just repeating what is heard.

How?

The speaker gives you a set of verbal instructions to draw or write objects and symbols on a blank rectangle (see Appendix 1) to form a pattern. Example patterns for the speaker are shown below. You carry out the instructions, using clarification strategies whenever you are unsure of any details. Once you have completed the exercise, the speaker will show you the correct pattern and discuss any errors.

The following presentation tips may be useful for the speaker:

- Use a number of short sentences initially, building up to longer, more detailed instructions when the recipient is achieving the task.
- If the recipient is reluctant to ask for clarification, encourage them to repeat or paraphrase each instruction to ensure it has been correctly perceived.
- Do not automatically repeat the instruction if the recipient hesitates. Wait for them to question details so they begin to take responsibility for repairing the communication breakdown.



* Adapted from Plant, G. (1991). *Syntrex: Synthetic training exercises for hearing impaired adults, Part 1 Therapist's Handbook*. Sydney: National Acoustics Laboratories.

Module 14: Role Play*

Why?

To gain practice in understanding the message rather than just repeating what is heard.

How?

You will pretend to be in a specific place with a task to achieve. Your speaker will give you basic information about the conversation context and purpose, and an introductory sentence with lip reading. Your speaker will then ask you questions related to the situation without lip reading. To play your part, try to give appropriate answers. If needed, ask your conversation partner to repeat the question, or use prompts such as “**Did you say...?**” or “**Are you asking...?**”

Exercise 1

Situation: Purchasing a train ticket at the ticket office

- 1 Where would you like to go?
- 2 When would you like to go?
- 3 What time of the day would you like to travel?
- 4 How many people will be travelling with you?
- 5 Would you like a one-way or a return ticket?
- 6 Will you be returning on the same day?
- 7 How would you like to pay for the ticket?

Exercise 2

Situation: Obtaining a replacement cable for a speech processor

- 1 Was your speech processor fitted at this clinic?
- 2 What model is your speech processor?
- 3 Would you like the cable posted to you?
- 4 How long have you had this speech processor?
- 5 What length of cable would you like, 6 cm or 8 cm?
- 6 What colour would you prefer: beige, brown, grey or black?
- 7 Do you need any other spare parts?

* Watcyn-Jones, P. & Howard-Williams, D. (2001). Grammar games and activities, Book 1. London: Penguin, Reproduced by permission of Penguin Books Ltd.

Module 15: Scripted conversation

Why?

To gain practice using prediction and topic cues to anticipate what your speaking partner is saying.

How?

You will start the conversation about the preparation for an imaginary trip you will both take for a picnic. Below are the sentences and questions that you will say. Your speaking partner will make the appropriate responses. Try to repeat back what your partner says before moving on to the next sentence.

Note to your speaker: Encourage the recipient to guess. If the recipient cannot correctly repeat the information, provide assistance as follows:

- Repeat the whole answer.
- Repeat the answer emphasising the incorrect part.
- Repeat only the incorrect part.
- Confirm the parts correctly repeated.

Adjust the predictability and complexity of your replies to suit the skill level of the recipient (for example, embed the answer, use proper nouns) so the exercise remains challenging but manageable.

Exercise	
Topic: Organising a picnic	
1	Let's go for a picnic. Where shall we go?
2	Who should we invite along?
3	Which day will we go?
4	Whose car shall we take?
5	How long do you think it will take to get there?
6	What food should we take?
7	What other activities shall we do at the picnic site?
8	What shall we do if it rains?
9	How long shall we stay there?
10	Do you want to take anything else with you?

Module 16: Quest?ar*

Why?

To gain practice in understanding the message rather than just repeating what is heard.

How?

Your speaker (conversation partner) will decide on a topic to discuss (see topic examples below). You and your conversation partner can both see the list of questions (see page 56 for copy of questions). You ask each question, and your conversation partner will answer. The conversation partner asks the recipient to repeat what they have understood of the response. Encourage the recipient to request clarification, and for the recipient and conversation partner to work together to clarify what was said.

Topic examples:				
museum	restaurant	post office	shopping	camping
doctor	zoo	beach	airport	swimming
mountains	picnic	music	lesson	supermarket

 Exercise	
1	Where did you go?
2	Why did you go there?
3	When did you go?
4	How many people went with you?
5	Who were they? (give names)
6	What did you take with you?
7	Where is (the place that you went)?
8	How did you get there?
9	What did you see on the way?
10	What time did you get there?
11	What did you do first?
12	What did you see?
13	How many? What colour?
14	What happened at (the place where you went)?
15	What else did you do?
16	What were the other people doing at (the place where you went)?
17	What was the most interesting thing that you saw?

18	What was the most interesting thing that you did?
19	What did you buy?
20	What kind? What flavour? What colour?
21	How much did it cost?
22	Did anything unusual happen? What?
23	How long did you stay?
24	What did you do just before you came home?
25	When did you leave?
26	How did you get home?
27	What happened on the way home?
28	What time did you get home?
29	How did you feel then?
30	When are you going back
31	Do you think that I should go sometime? Why?

* Adapted from Erber, N. (1996). Communication therapy for adults with sensory hearing loss (2nd ed). Clifton Hill: Clavis.

PART 2: Practising in background noise

Well done on reaching the section for practising in background noise. Now it's getting quite challenging. Many of the everyday environments in which we communicate are noisy. The noise may be steady such as an air conditioner or fan, or may be loud and variable such as traffic noise, and often it is a background of other people talking or of music. As you know, it is much more difficult to communicate in a noisy background. So when you are well practised at recognising speech in quiet, it is important to practise listening in noisy backgrounds.

You can start with low levels of noise and increase the noise level as you progress. This practice will help your brain sort out the message you want to hear from the noise and help you learn to fill in the gaps when you don't hear all of the message. You can practise listening in background noise with both the hard-copy exercises and Angel Sound™ exercises. Below are the instructions for how to practise in background noise.

Exercise

- All of the exercises in the manual can be practised in noisy backgrounds.
- You can create background noise by opening windows if there is noise outside, turning on a fan or air conditioner, or turning on the radio "off station" with static noise in the background, or to a station with music or talking.
- Increase the level of the noise as you progress:
 - Start with the noise at a level where you are just aware of it until you can get > 90% correct on your chosen exercise.
 - Next, increase the noise level so that you have to really concentrate on the speaker but the speaker is still louder than the noise. Practise until you can get > 80% correct.
 - Increase the noise so that it is the same level as your speaker. At this level, sentence-type exercises work best. Remember to listen for meaning rather than every word.

Why?

To practise listening in background noise.

How?

- Follow the general instructions for the Angel Sound exercises throughout the manual and add in background noise using the instructions below.
- As for the other Angel Sound exercises:
- Click on the **“Preview”** button to practise listening to the words.
- Click on the **“Training”** button to do the training.
- When your answer is incorrect, the correct word will be played so you can listen for the differences.
- Run a test (click on the **“Test”** button) every now and then so the program can adjust the difficulty of the exercise.
- You can click on the **“Result”** button to see the previous test results, the amount of training time, and the training progress.
- Refer to Appendix 2 (Tips for using the Angel Sound™ program) if needed.

Noise Module – Medial Vowels and Initial, Medial and Final Consonants

How?

- In the main module screen, click on **“Noise Module”**, and then on the left hand side of the screen click on **“Medial (middle) Vowels”**, **“Initial Consonants”**, **“Medial Consonants”** or **“Final Consonants”**.
- These exercises are similar to the Vowel Recognition and Consonant Recognition exercises in the Basic Module, except that these training exercises are done in background noise.
- You will see four words on the screen. You will hear one of the words – choose the word you heard. As you go through the exercise, when you get the answer incorrect the noise will get softer and when you get it correct the noise will get louder. This way you will be training at the point where you find it challenging. There are three types of noise: speech babble, low-pass noise and white noise. Select speech babble to practise hearing speech in a background of other talkers, and low-pass or white noise to practise hearing speech in steady noise backgrounds.

Noise Module – Numbers

How?

- On the main module screen, click on **“Noise Module”**, and then on the left hand side of the screen click on **“Numbers”**.
- You will see four numbers on the screen. You will hear one of the numbers – select the number you heard. As you go through the exercise, when you get the answer incorrect the noise will get softer and when you get it correct the noise will get louder. This way you will be training at the point where you find it challenging. Select speech babble to practise hearing speech in a background of other talkers, and low-pass or white noise to practise hearing speech in steady noise backgrounds.

Openset Module – Words and Sentences

How?

- On the main module screen, click on “**Openset Module**”, and then on the left hand side of the screen click on “**Words**” or “**Sentences**”.
- Click on the “**Training**” button to do the training.
- Under “**Training**” choose first the softer noise background (10 dB) and then try the louder noise background (0 dB).

Openset Module – Recognition Threshold

How?

- On the main module screen, click on “**Openset Module**”, and then on the left hand side of the screen click on “**SynSent**” (this is the same type of exercise as Concatenated Sentences).
- Click on the “**Training**” button to do the training.
- As you go through the exercise, when you get the answer incorrect the noise will get softer and when you get it correct the noise will get louder. This way you will be training at the point where you find it challenging.

PART 3: Practising on the telephone

Most recipients who were able to use the phone with their hearing aid learn to use the phone again with the cochlear implant. Success depends on how much you understand without lip reading with your cochlear implant, how you manage the conversation when you are unsure of what is said, and how well you manage the speaker at the other end of the line.

Voices will sound different on the telephone through the cochlear implant, as not all the tones available in your speech processor are transmitted down the phone line. It is also less clear and natural than talking with someone in person with your cochlear implant. You may not always identify the caller. If you begin by initiating the calls yourself, you can remove one source of "telephone-stress".

Getting started

Before trying any exercises over the phone, your audiologist will show you the different ways to use your technology: for example, you can use the phone on speaker, or hold the receiver against the microphone of your processor, or use the telecoil inside your processor.

Using your chosen method, start with an exercise you can already do easily with your speaking partner without lip reading. Try to repeat back what is said. Remember to listen for the key words and aim to get the gist.

Exercises that work well over the phone include:

- Sentences people say every day like those in Module 8.
- Words with a common theme like your family names, months of the year, similar to Module 4.
- Sentences on a specific topic such as booking a restaurant or arranging a trip to the movies or a picnic, similar to Module 5.
- Following and repeating a passage of text over the phone, such as Module 7. Material that works well includes recipes, children's stories, a description of a TV program in a TV guide. You could email a piece of familiar text to your phone buddy and ask them to read it to you over the phone, so that you can become accustomed to their voice.
- Ask your speaker to say 10 things about themselves and repeat back each item, for example, I have brown hair, I am 6 ft. 2 inches tall, I work on a farm, I ride a motorbike, my favourite hobby is football.
- Try information transfer exercises like that in Module 12. Ask your phone buddy to look out of the window and describe the house across the road, while you repeat back.

What to do when you are unsure what the speaker says

- Always try to repeat back as much as you can to check understanding using "**Did you say...?**"
- If you still can't get a word or phrase after two repeats, ask the speaker to use a different word or say it a different way – this is the fastest way to get back on track.
- Ask the speaker to spell the word – it's easier if you have pen and paper near the phone.

Managing the speaker

It's important to be very specific when asking your speaker to help you. Saying "**I can't understand you**", or "**I can't get that**" or "**sorry?**" is likely to result in the speaker talking more loudly, which may sound distorted in your cochlear implant processor. Ask your speaker to use a normal level voice, to speak more slowly and to make it clear when they change the subject, for example, "**Can we talk about the arrangements for dinner next week?**"

Tips

1. Practise, practise, practise – most recipients who are confident phone users speak on the phone every day.
2. To get a good receiver-to-cochlear implant position quickly, practise listening for the dial tone. Replace and re-position over and over.
3. Once you have a good position with the receiver against the microphone at the top of your speech processor, keep the receiver still!
4. Start with a “phone buddy” – someone in the family whose voice you know you understand quite well. It helps if the person has observed your audiologist work with you on the phone.
5. Keep the first phone calls short. Chalking up a few successes will do a great deal for your confidence.
6. When you first start, it helps if the speaker at the other end is in a quiet place. If you can hear a lot of background noise, explain to the caller that you will ring them at home later.
7. Landlines can be clearer than mobiles and hands-free devices. Initiate your first calls to a home phone line. This also means the person is in a quiet situation at the other end.
8. If you are using the telecoil, you may reduce interference by moving away from electronic items such as computers and fluorescent lights.
9. If you are still struggling on the phone, talk to your audiologist about changing the balance of sound between your microphone and your telecoil, and discuss direct auditory input and Bluetooth® options.
10. If you wear a hearing aid in the other ear, use the phone on speaker so that you can listen with two ears.

Appendix I:

Extra exercise copies

1. Extra exercise tables

Exercise	
Topic:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Exercise	
Topic:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

2. Recipient copy of Module 12: Information transfer – complete the missing information*

How?

You and the speaker both have the same table, but you each have different and complementary missing details. The task is to fill in the missing information on both of your sheets by taking it in turns to ask and answer questions. For example, the speaker may ask you: **"What street is the house on?"** You may ask: **"Is the condition of the flat modern, quite modern or not very modern?"**

Exercise		
Detail	Flat	House
Street		Park Road
Size	big ✓ quite big small	big quite big small
Condition	modern quite modern not very modern	modern quite modern not very modern ✓
Number of rooms	three	downstairs – two upstairs – three
List of rooms		a living room a kitchen two bedrooms a bathroom/toilet
Central heating		No
Near the shops	Yes	
Distance from town centre		2 km
Rent	\$250 a week	
Any other information		There is a large garden and a garage.

* Watcyn-Jones, P. & Howard-Williams, D. (2001). Grammar games and activities, Book 1. London: Penguin, Reproduced by permission of Penguin Books Ltd.

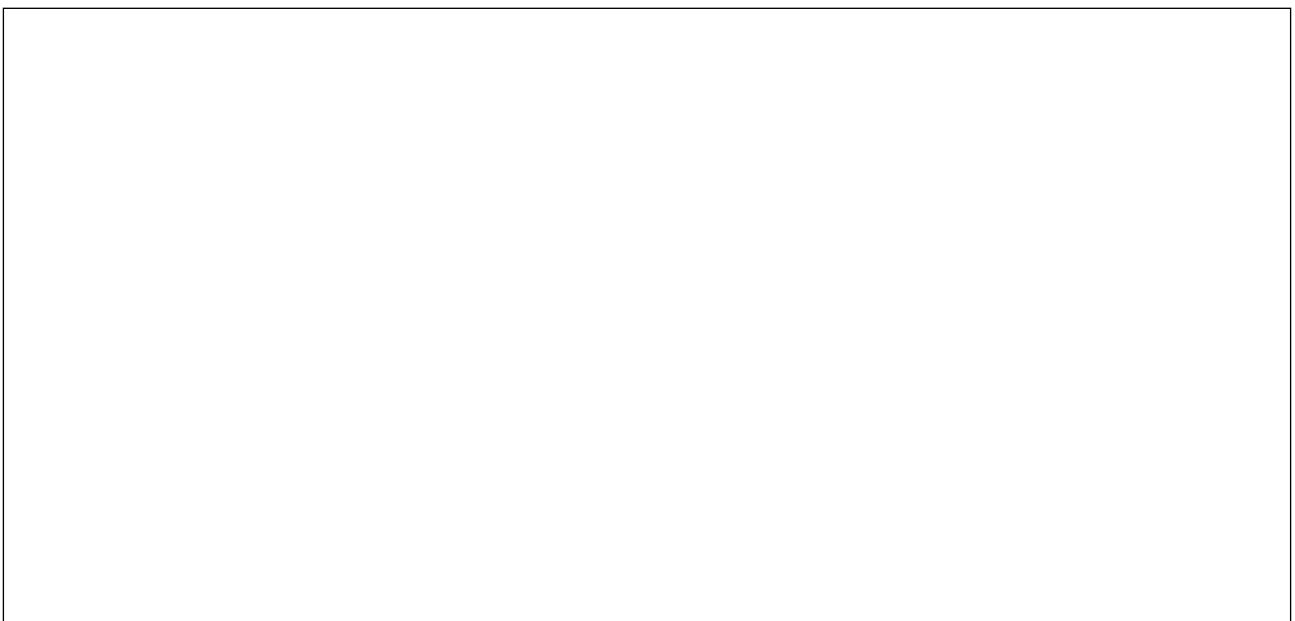
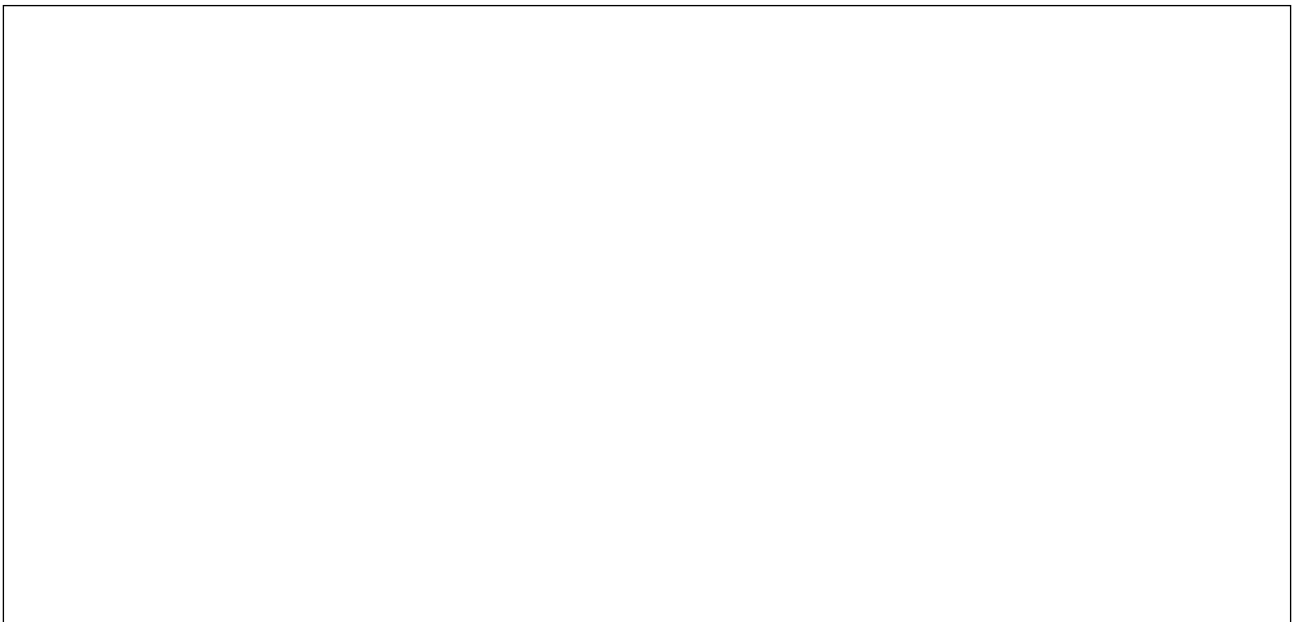
3. Recipient copy of Module 13: Information transfer – describe, perceive, draw*

How?

Below is an empty box. Your speaker is going to help you to draw a pattern of objects and symbols in the box by telling you what to draw and where to draw it. Listen carefully and then draw the items in the box. If you are not sure, use one of the following strategies for clarification, but do not look at the speaker's drawing:

- Ask the speaker to repeat the whole instruction.
- Repeat back what you think the instruction was, for example, "**Did you say the top left hand corner?**" Your speaker will provide feedback as to which parts you heard correctly.
- Ask your speaker to clarify any parts you are not sure of, for example, "**I heard you say 'circle', but I am not sure where to draw.**"

When you have finished, compare your drawing to the speaker's drawing.



* Adapted from Plant, G. (1991). *Syntrex: Synthetic training exercises for hearing impaired adults, Part 1 Therapist's Handbook*. Sydney: National Acoustics Laboratories.

4. Recipient copy of Module 14: Role play*

Exercise 1

Situation A. Railway ticket office

Task: To obtain a train ticket for your journey home/to visit family.

Introductory sentence: "I would like to buy a train ticket please."

Exercise 2

Situation B. The reception area at your cochlear implant clinic

Task: To obtain a replacement/spare cable for your speech processor.

Introductory sentence: "I would like a new cable for my speech processor, please."

* Pedley, K. Synthetic training. In: Pedley, K., Lind, C., & Hunt, P. (2005) Adult Aural Rehabilitation: A guide for cochlear implant professionals. Sydney: Cochlear Ltd.

5. Recipient copy for Module 16: Quest?ar*

Topic examples:				
museum	restaurant	post office	shopping	camping
doctor	zoo	beach	airport	swimming
mountains	picnic	music	lesson	supermarket

Exercise	
1	Where did you go?
2	Why did you go there?
3	When did you go?
4	How many people went with you?
5	Who were they? (give names)
6	What did you take with you?
7	Where is (the place that you went)?
8	How did you get there?
9	What did you see on the way?
10	What time did you get there?
11	What did you do first?
12	What did you see?
13	How many? What colour?
14	What happened at (the place where you went)?
15	What else did you do?
16	What were the other people doing at (the place where you went)?
17	What was the most interesting thing that you saw?

18	What was the most interesting thing that you did?
19	What did you buy?
20	What kind? What flavour? What colour?
21	How much did it cost?
22	Did anything unusual happen? What?
23	How long did you stay?
24	What did you do just before you came home?
25	When did you leave?
26	How did you get home?
27	What happened on the way home?
28	What time did you get home?
29	How did you feel then?
30	When are you going back
31	Do you think that I should go sometime? Why?

* Adapted from Erber, N. (1996). Communication therapy for adults with sensory hearing loss (2nd ed). Clifton Hill: Clavis.

Appendix 2:

Tips for using the Angel Sound™ program

Once you have installed Angel Sound, there will be an Angel Sound icon on your computer desktop. Follow these instructions and further instructions throughout the manual to use Angel Sound.

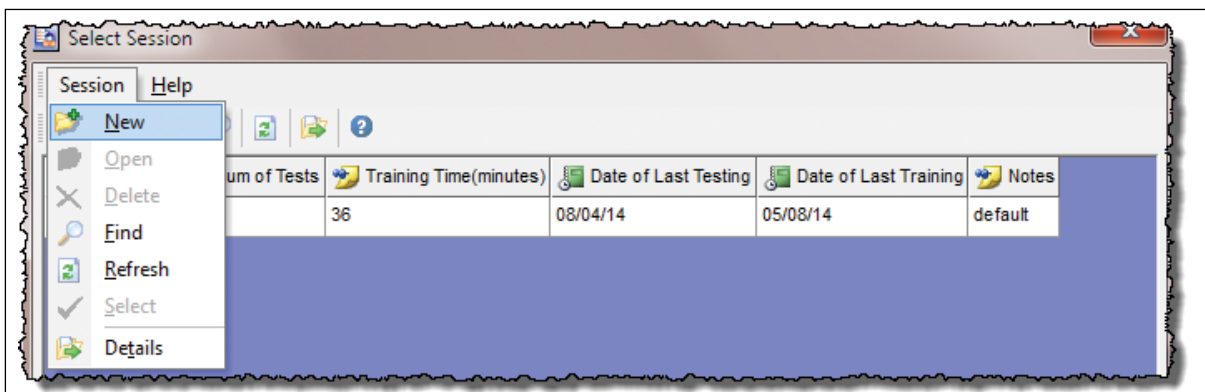
Step 1: Start the program

Click on the Angel Sound icon, then click on the following banner on the screen.



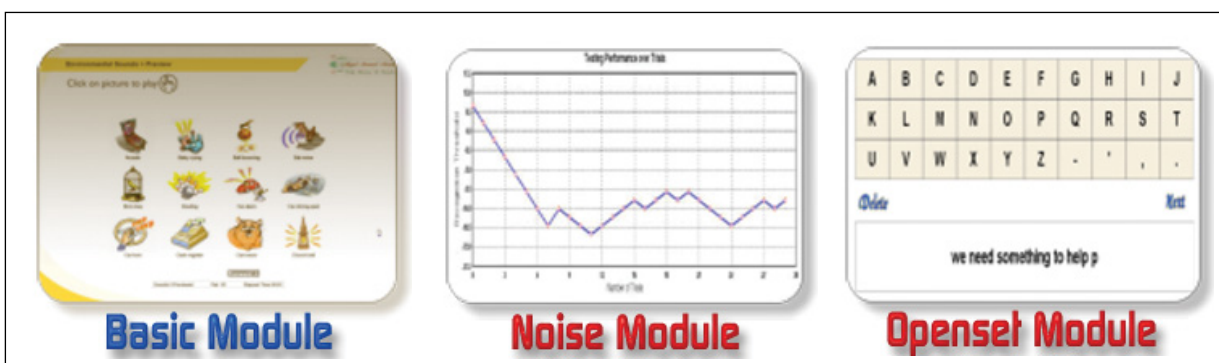
Step 2: Select session

A "Select Session" box appears – if this is your first time using Angel Sound, at the top left of the box select "Session" then "New" and "Create a new session" (note that you can use any text as your session name), click "Save" and you will then enter the program. If you have created a session before, simply double click the session name you want to use.



Step 3: Select module

There are a number of modules to choose from. Click on the module you want to use (as instructed in this manual). The modules used in conjunction with this manual include Basic, Noise and Openset.



Step 4: Select training group

The "Introduction" screen tells you a bit about the module. Each module has several different training groups (or training types); these are listed on the left side of the screen. Click on the training group you want to do (as instructed throughout this manual).



Step 5: Select preview, training, test or result

Across the top of the screen it says:

INTRODUCTION PREVIEW TRAINING TEST RESULT


Select one of these, as instructed in this manual. Further instructions are given in the manual for each particular exercise.

- Introduction: Gives brief information about the exercise. If you would like more detailed information about the exercise, please click the “**Learn More**” button in the top right corner of the screen.

- Preview: Gives you some listening practise to familiarise yourself with the materials that are used in the exercise. Click on any item and the sound will play.
- Training: This is where you do the training exercises. There are several training tasks in each group. The difficulty of these training tasks varies. In general, the task in Level 1 is easiest, and the higher the level, the more difficult the training task.

Example: Basic Module, Environment Sound training. You will hear one of these four sounds and you choose the sound you heard.

Example: Basic Module, Vowel Recognition training. You will hear one of these four words and you choose the word you heard.

Listen to the sound 



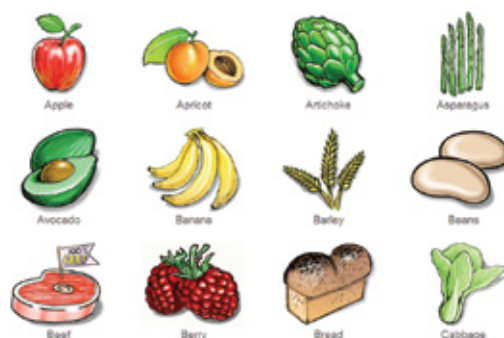
Click on the matching sound 



Example: Basic Module, Consonant Recognition training. You will hear one of these two words and you choose the word you heard.

Example: Basic Module, Word Discrimination training. You will hear one of these 12 words and you choose the word you heard.

Click on the matching sound 



- Test: Monitors your progress and adjusts the difficulty of the training task. You should run a test every now and then. You will hear a word or sentence and you respond. No feedback is given during the test session. You will see the results at the end of the test. According to your score, the program will then automatically recommend the appropriate training level (indicated in green).
- Result: Contains all the training and test results.

- If you are interested in reading more detailed information about the program, click the “**Help**” button in the top menu of the screen. The program will load the “Quick Start” section of the Angel Sound website (http://angelsound.emilyfufoundation.org/angelsound_help.html).
- Volume: Click on the “**Preview**” button and then click on any item on the screen to play sounds. Adjust the volume of your computer or external speakers to be comfortably loud.

References

1. Fu QJ, Galvin JJ 3rd. Maximizing cochlear implant patients' performance with advanced speech training procedures. *Hear Res.* 2008 Aug;242(1-2):198-208.
2. Oba SI, Fu QJ, Galvin JJ 3rd. Digit training in noise can improve cochlear implant users' speech understanding in noise. *Ear Hear.* 2011 Sep-Oct;32(5):573-81.

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