Chapter 6

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The *Camperdown Program*

Purpose of the chapter combined with short theoretical introduction

The main purpose of this chapter is to describe the *Camperdown Program*, a speech restructuring treatment program for adults and adolescents who stutter, which uses an individualised fluency technique based on prolonged speech. The program is a concept-based, behavioural treatment that focuses primarily on the reduction of the client's stuttering but provides the opportunity to treat speech-related anxiety as well by adding CBT-components. For speech-language pathologists (SLP) who are not familiar with delivering CBT-components, suggestions on how these can be added without the involvement of the speech-language pathologist are given further in this chapter. A second purpose of this chapter is to describe the *Camperdown Program* in a broader context of stuttering treatment for adults. Even though the *Camperdown Program* is supported by strong research evidence, a final purpose of this chapter is to highlight the importance of applying the three types of evidence (patient evidence, practice evidence, and research evidence) and concrete suggestions are proposed to do this.

Key Terms and Definitions

Key terms: stuttering, adults, prolonged speech, speech restructuring

Treatments for Adults who stutter (AWS)

Despite the importance of social media in society nowadays, having face-to-face conversations with people such as colleagues, strangers, friends, or family members

remains essential. About 0.72% of society (Yairi & Ambrose, 2013) face an obstacle to this seemingly "straightforward" event, and that obstacle is stuttering.

AWS often talk less and simplify their language (Spencer et al., 2009). They do not want to stay engaged in a conversation and fail to vary the structure of their utterances, such as emphasising words to highlight information. Besides their speech, their thoughts and general well-being are also often affected (Craig et al., 2009). AWS are six or seven times more likely to develop anxiety disorders than adults who do not stutter (Iverach et al., 2009a), and about 50% of AWS suffer from social anxiety (Menzies et al., 2009). According to Messenger et al. (2004), the anxiety of AWS is mostly related to feared negative social evaluation by others because of their stuttering.

These two aspects, (i.e., speech and thoughts, or in a broader sense, cognition), play an important role in stuttering treatment.

Blomgren (2013) observes that most stuttering treatments for adults use one of these two treatment approaches: (1) speech restructuring, where the focus lies on speech and (2) stuttering management (based on cognitive theory), where the focus lies on cognition. The amount of attention that each aspect receives in a treatment depends on the main goals of the individual treatment.

The main goal of the speech restructuring treatment approach is to teach those who stutter a different way of speaking that can control stuttering (Blomgren, 2013). This new way of speaking involves considerable practice in order to control stuttering over the longer term. A disadvantage is that it never feels completely natural. The most frequently used technique to achieve this goal is prolonged speech. Prolonged speech is also referred to as 'stretched syllables' or 'slow speech'.

By contrast, the main goal of the stuttering management treatment approach is to accept the stuttering, to reduce anxiety and fear associated with the stuttering, and to teach AWS to stutter with less effort (Blomgren, 2013). Treatments that follow stuttering management principles focus primarily on desensitisation of stuttering through techniques such as voluntary stuttering. Desensitisation of stuttering leads to accepting stuttering. Most stuttering management treatments include basic elements of cognitive behaviour therapy (CBT) to reduce social avoidance and anxiety. In addition, speech modification techniques are often used to decrease the effort of speaking, and include techniques such as pull outs, cancellations, and preparatory set techniques.

Besides these two treatment approaches that focus mainly on one aspect (either speech or cognition), Blomgren (2013) reports recent attempts to develop comprehensive stuttering treatments that address both aspects equally in one treatment.

Three types of evidence to consider

Speech-language pathologists provide evidence-based care if they consider three types of evidence (Sackett et al., 1996) when they decide which treatment to deliver. Dollaghan (2007) explains: "E3BP refers to the conscientious, explicit, and judicious integration of (1) best available external evidence from systematic research, (2) best available evidence internal to clinical practice, and (3) best available evidence concerning the preferences of a fully informed patient" (p. 2). McCurtin and Carter (2015) call this research evidence, practice evidence and patient evidence.

In determining the choice for treatment, it is extremely important that the three types of evidence are taken into consideration. Speech-language pathologists need to listen to the client's reason for seeking help. Is their primary aim to reduce or modify their stuttering? Do they wish to address their anxiety and perhaps seek assistance to become more accepting of themselves as a person who stutters? Or do they want help with all these things? In a first encounter, clients need to receive the necessary information about stuttering and stuttering treatment in order to make an informed decision about treatment and to possibly adjust their expectations of treatment. Speech-language pathologists need to present evidence for existing treatments in a non-judgemental way, and they need to explain the main goals of each treatment approach. They need to make sure that they possess the skills to deliver the treatments they propose, or that they collaborate with colleagues who can assist in providing the skills they lack.

Through the answers to written questions of 28 AWS, Plexico et al. (2010) constructed shared beliefs about the effectiveness of treatments and speech-language pathologists. About two-thirds (64.3%) described ineffective speech-language pathologists as those who are dogmatic in their approach to treatment, who are likely to focus on techniques, and who are failing to address the cognitive and attitudinal aspects of stuttering. About the same number of AWS (60.7%) described the impact of a treatment as effective when they are more motivated and feel the desire to attend therapy because they are understood and accepted by their speech-language pathologist.

McCurtin and Carter (2015) conclude from a focus group study with 48 speech-language pathologists that "treatment is not a recipe that a speech-language pathologist can routinely follow to produce a perfect intervention episode" (p. 1144). Also, they emphasize that speech-language pathologists possess a unique set of skills and tools that grow over time and with experience:

> Knowing what works contributes to the speech-language pathologist's comfort; this, in turn, impacts upon retention within their toolkit... Thus, experience can re-

> sult in a degree of automaticity in practice where things are done 'without thinking' or when favoured approaches are automatically adopted (p. 1145).

Finally, research evidence in the domain of clinical speech-language pathology is being published more frequently and this is regarded as positive by speech-language pathologists. It can create a change; for example, some practices are rejected and not used anymore, and speech-language pathology treatment becomes more scientific. But some speech-language pathologists also regard research evidence more negatively. According to them, not all articles possess the same methodological standards ("crap articles", p. 1146) and they do not always relate to what speech-language pathologists are doing in daily practice, or they are a means to commercialise treatments. Critical evaluation seems necessary when evaluating the research evidence about a treatment.

Evidence for stuttering treatments for adults

There have been multiple (systematic) reviews about the effectiveness of stuttering treatments for adults. The most recent (Baxter et al., 2015) provides an extensive overview, however, it does not provide any conclusions about which treatment is the most effective or efficacious. The majority of studies were rated as at higher risk of bias. On the other hand, many studies included a lengthy follow-up period.

At the start of this chapter, treatment approaches focusing on either speech or cognition were introduced. Therefore, only research evidence related to these two treatment approaches is discussed here. Baxter et al. (2015) recognise that treatments focusing on cognition can be used in isolation or in combination with treatments focusing on speech. Outcomes of these cognitive treatments are varied, ranging from direct speech gains, psychological well-being gains, which lead to improved speech, or gains related to living successfully with stuttering. Different treatment foci and different outcome measures make it difficult to compare treatments in order to conclude which is the best. Blomgren (2013) concludes that stuttering does not automatically reduce after cognitive treatment, and that anxiety and avoidance related to stuttering can be treated successfully, even in the absence of a reduction of the stuttering.

Baxter et al. (2015) conclude that treatments focusing on speech through speech restructuring mainly included studies with the *Camperdown Program*, in which a speech technique based on prolonged speech is taught (O'Brian et al., 2018). Baxter et al. (2015) report that a reduction in percentage of syllables stuttered (%SS) is often maintained up to five years after treatment. Bothe et al. (2006) mention that treatments within the speech restructuring approach differ from each other but in-

clude common components such as direct changes in how AWS speak, schedules to record performance, self-evaluation, a variety of situations in which to practice speaking in groups, and activities to help generalise stuttering control into everyday speaking situations. They observed that a long-term follow-up period (maintenance phase) is required to achieve a positive long-term outcome. Blomgren (2013) concludes that speech restructuring treatment is an evidence-based approach to reduce stuttering frequency. Speech restructuring in isolation, however, rarely has an impact on negative feelings, unhelpful thoughts and attitudes, or anxiety provoked by the stuttering. Iverach et al. (2009b) claim that treatments that only focus on speech restructuring do not achieve sufficient success in AWS, if they also suffer from social anxiety disorder. Co-occurring anxiety disorders frequently affect the long-term gains of stuttering treatment, both in terms of stuttering frequency and the amount of situation avoidance. Addressing both speech and cognition in stuttering treatment for adults seems essential.

In this chapter, the speech restructuring program for AWS, for which most evidence exists at the moment, is discussed: the *Camperdown Program*.

Treatment components of the *Camperdown Program*

The *Camperdown Program* (O'Brian et al., 2018) is a speech restructuring program focussing on the speech of AWS. It does not routinely incorporate treatment components that focus on cognition, but during Stage 3 of the program (the program consists of four stages), CBT-components can be added to the program when and if necessary.

The fluency technique in the *Camperdown Program* that those who stutter learn to use, is based on prolonged speech. Each client's individualised technique is the mechanism to control stuttering; it is in no way a means to cure stuttering. Learning to use the fluency technique can be compared to learning any other physical skill. For example, when learning a new sport or to play a musical instrument, only massed practice leads to success, and only long-term practice leads to maintaining the skill. The same is true for prolonged speech in the *Camperdown Program*.

The procedures of the *Camperdown Program*

The procedures of the *Camperdown Program* are similar to other speech or language treatments. In Stage 1, AWS learn the specific skills (fluency technique and measurement scales) they will be using throughout the program. In Stage 2, they gradually shape their unnatural sounding fluency technique towards natural sounding speech. During this stage, important self-evaluation skills are refined and problem-solving

skills are introduced. Stage 3 facilitates the transfer of their fluency technique to control stuttering from practice situations to everyday situations. Most of the focus is now on everyday speech practice and problem-solving. In Stage 4, the fluency technique, which is the mechanism for controlling the stuttering, is maintained. To reach the end of Stage 3, evidence suggests that 10 to 20 hours of treatment is required for adults.

To know whether the *Camperdown Program* meets the expectations of each AW, it is important to listen to what the client wishes to achieve in treatment, and to provide information about program commitment, client responsibility, and time involved (O'Brian et al., 2018). Responsibilities of the client include: formulating their own realistic expectations; evaluating their speech performance on a regular basis; committing to daily practice tasks; learning to engage in, and problem-solve, every day speech challenges; learning to identify individual or environmental variables that increase or reduce stuttering; evaluating their speech-related anxiety and avoidance behaviours; and planning strategically for long-term control of the stuttering during daily life.

The program here is described as an individual clinic-based treatment. This can be implemented either in the clinic or via webcam technology. However, other clinical formats of the *Camperdown Program* such as intensive treatment or group treatment are feasible. At the end of this chapter when the evidence for the efficacy of the *Camperdown Program* is discussed, these formats are briefly described.

Stage 1

A session during Stage 1 typically requires 45 to 60 minutes.

During Stage 1, the stuttering severity scale, the fluency technique, the fluency technique scale, and anxiety measures are introduced. The scales are a means of communication between the client and the speech-language pathologist. Hence, it is extremely important to teach the significance and proper use of the scales so that the speech-language pathologist knows what is happening beyond the clinical session.

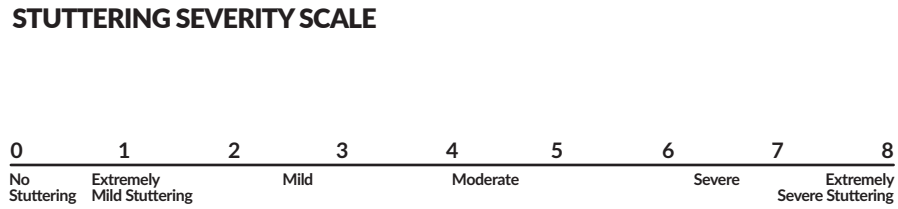

Figure 1: Stuttering severity scale

Clients who stutter learn to use the stuttering severity scale to 'measure' the severity of the stuttering during different everyday speaking situations. Calibration of the scores occurs at the beginning of each treatment session during the first conversation between the client and the speech-language pathologist. This conversation is recorded. Before listening to the recording, the speech-language pathologist asks the client to assign a stuttering severity score for the conversation. Then they both listen to the recording and score the conversation again. Differences in the scores between the client and the speech-language pathologist and the reasons for the scores are discussed. The scores of the clients provide an insight into how they view their speech. This process can also be undertaken using home recordings presented each week.

Calibration of the scores is a standard item in the *Camperdown Program*. Each treatment session starts with a conversation that is scored before and after listening to the recording. Only when the scores of the client and speech-language pathologist differ by no more than one scale value is agreement reached. Only then does the speech-language pathologist know that the scores that the clients bring from speaking situations beyond the clinic session are trustworthy. Calibration of the scores is repeated regularly after agreement has been reached to ensure that agreement is maintained.

The stuttering severity scale is used for different purposes throughout the treatment. At the beginning, it is mainly used to describe the initial stuttering severity status. Throughout treatment, clients are asked to provide a typical score for either a typical day, a specific period, a specific situation, or a specific practice exercise, depending on the goal of treatment at the time. Besides a typical score, a maximum or minimum score can be given too. The scores are recorded on the daily measurement chart (Figure 2), an e-form downloadable from the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022), or on a device such as a smart phone.

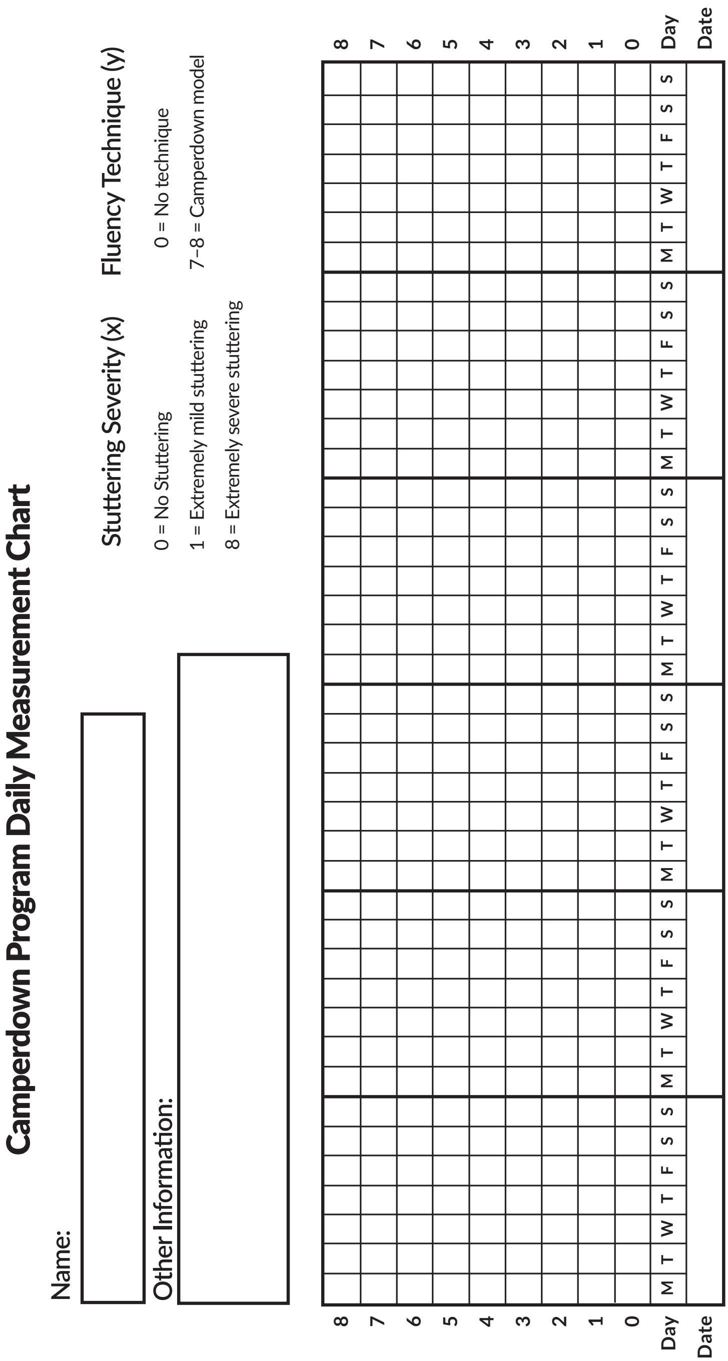

Figure 2: Daily measurement chart

Initially, clients are asked to provide a typical score for five or six different daily speaking situations that reflect the variability of their stuttering severity. These situations provide a baseline for later comparison and may be targeted later in treatment. To practise using the severity scale, speech-language pathologists could ask clients to record extra, short everyday talking situations, such as talking on the phone or talking with a colleague or friend, and score these. The scores can be discussed during the next treatment session.

Fluency technique

The fluency technique refers to the prolonged speech technique and is taught from a pre-recorded speech model, available on the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022). Models are provided of male and female adolescents and adults. Clients are warned that the speech model demonstrates slow and exaggerated prolonged speech, and they are reassured that talking this way is only temporary. Clients try to copy the technique as much as possible. Descriptors of the speech, such as hard or soft contact sounds, are not provided because (1) research shows a lack of agreement between speech-language pathologists about whether or not clients use the behaviours correctly (Onslow & O'Brian, 1998), (2) descriptors do not seem necessary for the treatment process (Packman et al., 1996), and (3) each client is encouraged to develop his or her own technique, based on what they find most successful to control their own stuttering. At first, clients read the text in silence along with the pre-recorded speech model. The speech-language pathologist asks clients to describe the prolonged speech of the model and uses the client's descriptors for future discussion and feedback during treatment. The speech-language pathologist gradually teaches the client to imitate the pre-recorded speech sample by first reading aloud with the model, then by repeating the model phrase by phrase or sentence by sentence. Each attempt is recorded and compared to the model, which the client evaluates. That way clients learn and are guided to self-evaluate their speech. The ultimate goal of this process is that clients are able to read the entire passage independently without the model, while sounding like the model and feeling in control of their stuttering. This usually takes several sessions. Clients download the pre-recorded speech model to their phone or other device and practise this between clinic sessions. In the next step, clients read other passages using their technique in the same way, then while talking in monologue or describing a picture, and finally in conversation with the speech-language pathologist. Clients should not speed up the speech but should practise the exaggerated, slow prolonged speech like the model. They need to feel completely in control of their stuttering. The speech-language pathologist uses nor-

mal speech during conversation, apart from isolated brief moments of imitating the speech model. The speech-language pathologist gives clients home assignments to practise their fluency technique, so that it sounds just like the model, while reading aloud, in monologue and in conversation with a partner, following the sequence of the steps taken during the clinic sessions. Clients record the attempts and bring them to the clinic session to discuss them with the speech-language pathologist.

Fluency technique scale

Once clients can produce the prolonged speech fluency technique well, they are introduced to the fluency technique scale. The fluency technique scale records how much technique they use during a conversation. Similar to the stuttering severity scale, a 9-point scale is used with 0 = "no speech technique" and 8 = "similar to the training model with maximum technqiue" (Figure 3).

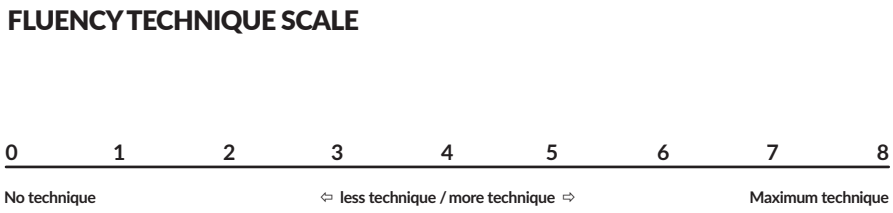

Figure 3: Fluency technique scale

Even though clients only actively begin to increase the naturalness of their fluency technique in Stage 2, it is useful to introduce the scale in Stage 1 so that clients have an idea of how they will ultimately sound. Pre-recorded training models at different prolonged speech fluency technique levels can be found on the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022), or the speech-language pathologist can demonstrate them. These can be used to illustrate the different levels of using the technique (and consequently, sounding more or less natural).

Anxiety measures

Anxiety as a consequence of stuttering is common in AWS. Anxiety can be an obstacle for achieving treatment goals, and it needs to be documented and monitored during treatment to obtain maximal gains from the program. In some cases, referral to a psychologist is recommended.

Anxiety measures include measures of distress and level of avoidance. Subjective Units of Distress Scale (SUDS) refer to a 11-point scale with 0 = "no anxiety" and 10 = "extreme anxiety" (Figure 4).

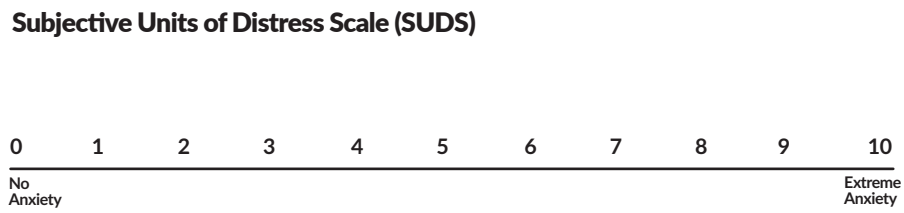

Figure 4: Subjective units of distress scale

Situation avoidance can be described as 'rarely', 'sometimes', or 'usually'. Scores of distress during everyday situations and situation avoidance can be recorded on the situations measurement chart (Figure 2) or on an e-form downloadable from the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022), along with the severity scores (and in Stage 2 also with the fluency technique scores).

Stage 1 end-criteria

The goal of Stage 1 is that clients master the prolonged speech technique at fluency technique level 7–8. No attempt should be made to lower the amount of technique at this stage of the program. Clients need to be stutter-free when using the technique throughout the clinic session. They are frequently asked to focus on the absence of stuttering and to feel the control over their stuttering, not on how their speech sounds. Clients can move to Stage 2 when (1) the stuttering severity scores of the client are in agreement with those of the speech-language pathologist, (2) they can consistently use the prolonged speech fluency technique at level 7–8 and stuttering severity level 0 in conversation, and (3) they can recognise various fluency technique scores when demonstrated by pre-recorded models or by the speech-language pathologist.

Stage 2

In Stage 2, individualised, natural-sounding, stutter-free speech is gradually established during conversation with the speech-language pathologist. Clients who stutter severely may end with a new way of speaking that is not extremely natural. It is the choice of the client to accept no stuttering in less natural speech due to

more use of fluency technique or more stuttering in more natural speech and less use of fluency technique.

During Stage 2, clients continue to consolidate their use of the training model fluency technique, work towards their own natural sounding fluency technique that is sufficient to control their stuttering, practise self-evaluation skills for stuttering severity and fluency technique, and develop problem-solving skills to use in the next stage of treatment. They achieve these goals by practising in fluency cycles. This is recorded on the fluency cycles chart (Figure 5) or on the e-form, downloadable from the Australian Stuttering Research website ("Australian Stuttering Research Centre", 2022). A video explaining how to use the chart can be found on the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022). Stage 2 can be organised in a group session (e.g. O'Brian et al., 2003).

Fluency cycles

Each fluency cycle has three parts that each take approximately five minutes: (1) Fluency technique practice, (2) Experimentation, and (3) Planning. Clients complete as many fluency cycles over as many weeks as is necessary to establish their own, natural sounding fluency technique to control their stuttering.

Part One: Fluency technique practice

The goal of this part is to consolidate the fluency technique learned during Stage 1. Just like a sports person who continually practises the basic skills in his /her sport, so the person who stutters needs to practise the basic skills to control stuttering. The speech during this part does not sound natural but should completely control the stuttering. As seen in Figure 5, the goals have been pre-set: stuttering severity is 0 and the goal of fluency technique is 7–8. The task should vary in each cycle, and clients can choose between practising along with the model, reading aloud from any book, talking about a predetermined topic, describing a picture, or having a conversation with the speech-language pathologist. Clients need to justify why they chose the activity each time. Self-confidence in a situation or the cognitive load of that situation often influences the choice of task. Recording the task during fluency technique practice is useful for discussion afterwards. Clients evaluate their performance for stuttering severity and fluency technique. Initially it may be necessary to listen to the recording. Later in Stage 2, this may not always be necessary.

Camperdown Program Fluency Cycles Chart

Name: _____ **Other information:** _____

		FLUENCY TECHNIQUE PRACTICE					EXPERIMENTATION							PLANNING
		GOAL			EVALUATION		GOAL			LIVE EVALUATION		RECORDING EVALUATION		My plan for the next cycle Stuttering severity 2+ FLUENCY TECHNIQUE PRACTICE Stuttering severity 0–1 FLUENCY TECHNIQUE PRACTICE or EXPERIMENTATION Every third cycle go to FLUENCY TECHNIQUE PRACTICE
		Scores to achive while speaking like the Training Model. What task? Why			Score I gave myself while speaking like the Training Model		Scores I aim to achieve next. Why? What task? Why?			Scores I think I achieved BEFORE listening to the recording		Scores I think I achieved AFTER listening to the recording		
Date	**Cycle**	**Stuttering severity**	**Fluency Technique**	**Task**	**Stuttering severity**	**Fluency Technique**	**Stuttering severity**	**Fluency Technique**	**Task**	**Stuttering severity**	**Fluency Technique**	**Stuttering severity**	**Fluency Technique**	**Plan for Next Cycle**
	1	0	7–8				0							
	2	0	7–8				0							
	3	0	7–8				0							
	4	0	7–8				0							
	5	0	7–8				0							
	6	0	7–8				0							
	7	0	7–8				0							
	8	0	7–8				0							
	9	0	7–8				0							
	10	0	7–8				0							
	11	0	7–8				0							
	12	0	7–8				0							
	13	0	7–8				0							
	14	0	7–8				0							
	15	0	7–8				0							
	16	0	7–8				0							

Figure 5: The fluency cycles chart

Part Two: Experimentation

Over a number of weeks, clients develop their own fluency technique, continually making it sound more natural while still controlling their stuttering. This can happen gradually by systematically decreasing a fluency technique score over many cycles, or clients can experiment with different amounts of technique until they find a level suited to them. The goal of stuttering severity is always 0 (see Figure 5), as the clients are always trying to maintain control of their stuttering. Clients decide for themselves on the goal of the fluency technique, to match their level of skill. Their level of skill is based on successful attempts in previous cycles. Goal-setting is determined by the client, not by the speech-language pathologist, as this helps the client to develop their problem-solving skills. They justify their goals to the speech-language pathologist; for example, that they lost control during the previous cycle and, therefore, need to increase the amount of fluency technique they will use next time to regain control. Again, clients choose the task between reading, speaking in monologue, or having a conversation or debate with the speech-language pathologist, and tell the speech-language pathologist the reason for their choice. Increasing self-confidence usually leads to more difficult tasks. The tasks during experimentation are recorded for future discussion. For the first fluency cycle, clients need guidance to help select the appropriate fluency technique goal. For later cycles, goals will be determined by performance in previous cycles. It is important to remember that control of stuttering is the primary goal, with experimenting with fluency technique scores being a secondary goal.

Clients evaluate their performance for stuttering severity and fluency technique straight after the performance ('Live evaluation' in Figure 5), and also after listening to their recording ('Recording evaluation' in Figure 5). The speech-language pathologist does not discuss the scores given straight after the performance but does so after listening to the recording in order to validate the client's scores.

Part Three: Planning

Initially, the speech-language pathologist helps clients to plan strategies and to set goals for the next fluency cycle. A stuttering severity of greater than 1 during the previous cycle indicates that a client was not in control of his/her stuttering. This would suggest a need to practise the technique again at the start of the next cycle at fluency technique practice (part 1 of the cycle, Figure 5). By contrast, if a stuttering severity score of 0 or 1 was achieved in the previous cycle, this would indicate reasonable control of stuttering and clients can choose to start the next cycle either with fluency technique practice (part 1 of the cycle, Figure 5) or with experimentation (part 2 of the cycle, Figure 5). Clients should start at least every third cycle with fluency technique practice (part 1 of the cycle, Figure 5). When clients are

consistently successful in controlling their stuttering during the cycles, it may be appropriate to set the fluency technique goal at 4 or 5 for the fluency technique practice (part 1 of the cycle, Figure 5).

The above instructions are written on the fluency cycles form ('Planning' in Figure 5) to guide the client in the process. It is helpful for the client to complete as many fluency cycles as possible at home with a supportive person, between two clinic sessions. This creates the massed practice referred to earlier in the chapter in the analogy with learning a sport. Reading and monologue can be done, but conversation with the supportive person should be the main task in the self-administered fluency cycles.

In order to get used to the stuttering severity scores, clients are encouraged to record stuttering severity scores for daily situations even though the scores do not have an immediate use (only in Stage 3).

Stage 2 end-criteria

The goal of Stage 2 is to establish an individualised, natural sounding fluency technique which can be used to control the client's stuttering when and where he/she wishes. Clients can move to Stage 3 when they can use their individualised fluency technique during their everyday talking and throughout the entire clinic session in conversation with the speech-language pathologist, while sounding natural and controlling their stuttering with a stuttering severity score 0 or 1.

Stage 3

The aim of Stage 3 is for clients to generalise their stuttering control using their fluency technique to everyday speaking situations. The level of commitment to practise in everyday talking, and the ability to problem-solve well, impact on the ease of this generalisation. Progress is monitored by using the daily measurement chart (Figure 2) and the situation measurement chart (Figure 7, below). Both serve different purposes, i.e., to record fluency technique scores over time and to record stuttering-related scores (including anxiety, naturalness, ...) in different speaking situations. It is important that clients are able to control their stuttering to an acceptable level while using an acceptable level of fluency technique. Also, during Stage 3, clients develop and follow an individualised hierarchy of speech transfer tasks. The following procedures typically occur during each weekly Stage three session.

Camperdown Program
Situations Measurement Chart

ADD SITUATIONS TO REPRESENT YOUR EVERYDAY LIFE					
SITUATIONS	TYPICAL STUTTERING SEVERITY 0–8	HIGHEST STUTTERING SEVERITY 0–8	FLUENCY TECHNIQUE 0–8	ANXIETY (SUDS) 0–10	AVOIDANCE Rarely Sometimes Usually
Family					
Friends					
Social situations					
Boss or authority figure					
Clients at work					
Phone calls at work					
Formal presentations					
Ordering food or drink					

Figure 6: Situations measurement chart

Consistent control of stuttering

Throughout each clinic session, clients should speak without stuttering or with minimal stuttering and constantly evaluate their speech. The speech-language pathologist and the client have a conversation at the start of each clinic session. As mentioned before, this situation can be used to calibrate scores.If clients are not in control of their stuttering during this conversation, it is likely that they won't be during more challenging everyday talking situations. In such cases, strategies to gain control of stuttering again are then discussed and implemented before discussing and addressing everyday speaking progress.

Three types of practice

Clients continue to practise their fluency technique at home between clinic sessions. The speech-language pathologist reviews the amount and type of practice done by the client during the week, and together they determine whether it was appropriate to assist and maintain progress. Practice can be roughly divided into three types: (1) practising the basic fluency technique, (2) practising in controlled speaking activities, and (3) practising in planned everyday conversations.

(1) The aim of this type of practice is to consolidate the fluency technique in very simple tasks. Usually, the technique level used would be around 5–8, and frequently this practice is done by the client alone. Tasks for practising the basic fluency technique may include: reading the training text together with or after the pre-recorded model, reading other material, describing a picture or speaking in monologue. Sometimes it helps to start the activity at a high technique level (6–8) and then gradually move to a moderate technique level (3–5) and finish at a level acceptable to use in "the real world" (1–2). Practising the basic fluency technique is necessary when clients have difficulty maintaining control of the stuttering.

(2) The aim of this type of practice uses natural-sounding technique in more complex or challenging situations but ones which can still be controlled. It will typically involve another person. Such controlled speaking situations may include talking with a practice partner or other supportive person, reading a book to a listener, rehearsing a speech or presentation out loud, or having a conversation with a practice partner over loud noise (e.g., TV or radio). Public role-playing programs, for example, Scenari-Aid (Meredith, 2020), can also be used.

(3) The aim of this type of practice is to use "real world" situations, but ones the client has planned in advance and over which he/she has some control. Tasks include talking on the phone to make an enquiry, visiting a shop or business, talking to the

person at the counter of a supermarket, ordering food in a restaurant or bar, talking to a colleague during lunch or break, or introducing yourself during a social gathering.

Embedding practice into a client's routine makes it more likely to be done. A reminder system such as putting an alarm on a smart phone may also be useful.

Reporting scores and evaluation of recordings

Clients document stuttering severity scores, fluency techniques scores, and anxiety scores of situations during everyday speaking situations between visits. The daily measurement form (Figure 2) and the situation measurement form (Figure 7) can both be used for this purpose. Clients may assign a typical stuttering severity score and a highest score for each day with a corresponding fluency technique score for each. The speaking situation to which the highest severity score was assigned is described. It will become clear which situations are challenging for the client, and these can be documented on the situation measurement form (Figure 7) and targeted later on in treatment. It is important to also document anxiety scores.

During the clinic sessions, the speech-language pathologist discusses the scores, listens to any of the recordings, and evaluates with the client their proposed strategies to address any difficulties. If clients are in control of their stuttering but they use a lot of fluency technique, it is necessary to problem-solve towards using a more acceptable amount of fluency technique. If clients are not in control of their stuttering, the speech-language pathologist problem-solves with them as to why they are not in control. Possible reasons are that the fluency technique is not used or inappropriately used, that the linguistic or cognitive demands of some situations are challenging, or that clients are anxious in some situations. Most often all three issues overlap and need to be addressed.

Systems can be developed to help incorporate practice routines. If linguistically or cognitively demanding situations generate difficulties in using the fluency technique, gradually increasing the complexity of the tasks during practice is useful; for example, simple time-pressure tasks or debates. If anxiety scores are high, it may be necessary to add CBT-components to the treatment.

Addressing anxiety

The *Camperdown Program* does not incorporate standard CBT-components in the treatment; however, they are easily integrated into the program when or if needed. For example, anxiety often becomes an issue during Stage 3 generalisation activities, and may lead to the loss of control of the stuttering. Sometimes it is necessary to refer clients to a psychologist with specialist CBT-training. Clients can

often be helped with an internet CBT-treatment; for example, the iGlebe program. The iGlebe program can be accessed on the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022). This is a stand-alone internet-based treatment with strong evidence of efficacy when used with AWS and who have co-occurring anxiety disorders (e.g., Helgadottir et al., 2009; 2014). The speech-related anxiety reduced or disappeared, albeit without improvement of the speech. More details about the iGlebe program can be found below. It can be done together with the speech-language pathologist or by the clients themselves. Menzies et al. (2019a) showed only minor differences between iGlebe and CBT-treatment delivered by a clinical psychologist at the clinic. The iGlebe program is free of charge and can be accessed on the website of the Australian Stuttering Research Centre ("Australian Stuttering Research Centre", 2022).

If speech-language pathologists know how to deliver basic CBT-components, they can deliver them in conjunction with the *Camperdown Program*. A tutorial developed by Menzies et al. (2009) for speech-language pathologists can support this delivery. Menzies et al. describe four CBT-components: exposure, behavioural experiments, cognitive restructuring, and attentional training.

Individualised speech task hierarchy

Not all clients find the same speech tasks easy or difficult. It is essential that clients evaluate their speech in different situations and then make an individual list of speech tasks to address. The client and the speech-language pathologist can then work together to work out why clients find situations difficult (underlying reason), and work out strategies to address the difficulties. Treatment needs to focus on underlying reasons and not on simple practice. Over time, clients are encouraged to do this problem-solving without the assistance of the speech-language pathologist. In this way, they become able to maintain gains over time and avoid relapse.

Planning

At the end of each clinic session, and based on the information and performances of the client, the speech-language pathologist and client together plan the new strategies or changes for the practice tasks for the coming week.

Stage 3 end-criteria

The goal of Stage 3, and the criteria for progressing to Stage 4, is for the client to be able to use their fluency technique at an acceptable level to control stuttering

in their everyday speaking environment, without avoiding situations. Sometimes, clients may only wish to use their technique some of the time or in some situations. That is entirely their choice and needs to be discussed with the speech-language pathologist. Some clients decide it is acceptable for them to have some more stuttering while using less fluency technique and some clients prefer the opposite. Stage 3 is finalised when these personal goals are achieved.

Stage 4

Stage 4 aims to maintain previous treatment benefits. Clinic sessions are scheduled less frequently as clients demonstrate they are maintaining the treatment gains. Consistent practice of the fluency technique is essential. Attending self-help groups can be useful at this stage.

During the clinic sessions in Stage 4, clients are required to maintain control of their stuttering throughout the session. They present stuttering severity scores, fluency technique scores, and anxiety scores that are acceptable within the set goals and they bring recordings of some everyday situations. They show the speech-language pathologist how they implemented strategies in situations that evoked increased stuttering.

Realistic expectation

It is necessary that clients have realistic expectations about their stuttering. Without practice, clients will not maintain the achieved treatment gains. Stuttering is a relapse-prone disorder. Stuttering may increase at times when clients do not practice sufficiently or when their lives become stressed. Clients need to remember that the fluency technique is like playing a sport – the skill is maintained with practice. On the other hand, it may be possible that clients choose not to practise for some time and only use the fluency technique in some periods in life.

Different clinical formats for the *Camperdown Program* and its evidence

The *Camperdown Program*, as described here, is the standard clinical format. AWS see the speech-language pathologist during individual, face-to-face sessions at the clinic. The *Camperdown Program* was trialled with 30 adults, 16 of whom were followed up for 12 months (O'Brian et al., 2003). They achieved no, or nearly no, stuttering in everyday speaking situations up to 12 months after starting the program. On average 20 hours of clinic sessions were necessary to achieve the treatment outcome.

The *Camperdown Program* can also be delivered to adolescents who stutter. Slight modifications, such as different training models, have been developed for this age group. They tend to take more time to master the fluency technique and also need more assistance with problem-solving. Parents of the adolescents are involved in the treatment; the degree of involvement depends on the age of the adolescent, the organisational skills of the adolescent, the availability of the parent, and the relationship between the adolescent and the parent. Despite the involvement of the parent, the adolescent needs to be included in every decision made in treatment.

Hearne et al. (2008) showed that the *Camperdown Program* in adolescents who stutter can be delivered but produced mixed results. They organised individual, face-to-face clinic sessions with one intensive group practice day for three adolescents who stuttered. One adolescent achieved minimal stuttering 12 months after treatment, one halved his stuttering severity, and one did not benefit from treatment. Two further studies of the program were conducted with adolescents via webcam. These two trials (Carey et al., 2012, 2014), consisting of 53 participants, produced group mean reductions in stuttering of 66%, and around 82% respectively, with the number of clinician hours decreasing still further to an average of between 10–12.

The *Camperdown Program* has also been trialled with adults by phone or webcam in a one-to-one set-up. O'Brian et al. (2008) showed the viability of the *Camperdown Program* by phone with 10 AWS. There was variation in outcomes with this method but, overall, the group showed an 83% reduction in stuttering immediately post-treatment and a 74% reduction 12 months later. Carey et al. (2010) showed no difference between treatment outcomes of 20 AWSed and received the *Camperdown Program* face-to-face at the clinic, versus 20 adults who received the *Camperdown Program* via webcam. Treatment outcome was measured immediately post-treatment and 6 months and 12 months post-treatment. These days, it is much easier to transfer the recordings and weekly data via electronic forms (see "Australian Stuttering Research Centre", 2022, for electronic versions of all *Camperdown* forms).

The *Camperdown Program* can also be run in group intensive formats and with students under clinical supervision (Cocomazzo et al., 2012). This study achieved similar outcomes to previous clinical trials of the program.

Case study

Assessment

Howard is a 37-year-old male, married with no children. He works as leader of an accounts team in a large business. He has stuttered since early childhood.

At assessment, he presented with moderate stuttering, rated Severity Rating (SR) 5 in the clinic, but he described his stutter as varying from SR 2–6 depending on the situation. With family and close friends, he could be around SR 2 but, in some work situations in particular, he could be as high as 6. Anxiety was not an over-riding issue but he admitted he did occasionally get anxious about his speaking in some situations.

He had previously received treatment about 15 years ago when he took part in an intensive group "smooth speech" program. He had a good result from this, but the benefits gradually reduced over the next 6–12 months. He was primarily seeking to regain control of his stutter, but wanted strategies to reduce the chance of relapse again.

We discussed the *Camperdown Program* with him as a treatment to help control his stuttering. We also discussed that the focus of the treatment was to teach him to problem-solve any issues with his stuttering and to help him to gradually take over management of his own stuttering control on a day-to-day basis.

Stage 1

SR Scale

Howard was introduced to the stuttering SR scale. His rating of his speech matched the speech-language pathologist's score fairly quickly. He recorded his speech in different situations over the next few weeks and confirmed his SR scores with those of the speech-language pathologist. Agreement in the use of the scale was reached very quickly.

Fluency technique

He was introduced to the fluency technique training model. At first, he was very focused on getting the technique "correct", going back to earlier training he had done using soft contacts, gentle onsets, etc. It took some time to explain that there is no such thing as a "correct" technique – every person will develop their own technique, individual to them, which will control their stutter. He had to focus on the features he needed to use to feel in control of his stutter. Once he had come to terms with this approach, he felt much more comfortable about what he needed to do to control his stuttering.

Fluency Technique Scale

Howard had no trouble with the fluency technique scale, giving mostly similar numbers to the speech-language pathologist for different technique levels.

Moving to Stage 2

After three sessions, he was reliable with his use of both the SR scale and the fluency technique scales. He was able to use his individualised fluency technique to control his stuttering at fluency technique level 7–8 while conversing with the speech-language pathologist throughout the entire session. These criteria meant he could move to Stage 2 of the program.

Stage 2

Fluency cycles

The aim of Stage 2 for Howard was two-fold: 1) to gradually make his speech sound more natural in the clinic while continuing to control his stutter and 2) to start to develop his evaluation and problem-solving skills so that he could decide how to manipulate his fluency technique to control his stuttering in different tasks. Initially he wanted the speech-language pathologist to tell him what to do next during the fluency cycles. But once he realised that he needed to do the evaluating and the thinking, he really enjoyed the fluency cycles process. He could very quickly see how he was learning what he needed to do to control his stuttering rather than the other way around.

He performed many of the cycles at home between visits, often with his wife, which made his progress reasonably fast. In the last couple of weeks, the speech-language pathologist and Howard focused on getting him to practise his technique under different conditions during fluency cycles while still in the clinic. He needed to work out how to adjust his technique to control his stutter when there were other competing demands; for example, when talking over loud noise, when doing a secondary task at the same time, when required to give quick answers to questions, or when others interrupted him. After seven sessions, he was using a technique level that was acceptable to him (fluency technique level 2) while completely controlling his stuttering. He had met criteria to move to Stage 3.

Stage 3

Generalisation

In Stage 3, Howard was introduced to the three different types of speech practice that he needed to do in order to consolidate and maintain his fluency technique.

He was a tennis player, so an analogy with this sport was given. He needed to 1) consolidate his fluency technique in simple exercises – practising his technique at high fluency technique numbers in simple situations (tennis analogy: 20 forehands, 20 backhands, 20 smashes, 20 volleys, making sure his grip and footwork were good), 2) practise his technique in simulated real situations over which he had complete control (tennis analogy: practising real games with his coach), and 3) practise his technique in planned real-world everyday situations (tennis analogy: real game under pressure, against different players, in different weather conditions). We developed a practice schedule that suited his daily routine and which encompassed doing these three types of practice.

Howard then started to use his fluency technique to control his stuttering out in the real world, as opposed to the clinic with just the speech-language pathologist. Initially, he was told to try to use it in situations where he felt comfortable and wanted to control his stuttering. He recorded his daily SR and fluency technique ratings and also his anxiety on his daily measurement chart. He also documented his highest SR for the day and the situation in which it occurred. Over the first couple of weeks, he worked out which situations were easy for him, and which were a bit more difficult. Then we started to analyse each of the tricky situations one at a time together, still with the emphasis on him trying to do most of the problem-solving himself, with assistance.

He was introduced to the specific process of problem-solving involving the three general areas where problems typically arise: issues with practice, issues with cognitive or linguistic demands, and issues with anxiety. He learnt to look at each difficult situation in terms of why his fluency technique was failing him. Did he need to change the type of practice he was doing to target a specific situation? Was anxiety affecting how he used his fluency technique? He and the speech-language pathologist often discussed some simple CBT-strategies to allow him to deal with minimal anxiety. Anxiety was not a major problem; referral to a psychologist was not necessary.

One-by-one he learnt to analyse each difficult situation he encountered and plan strategies to address the difficulty he was having. He commented that he felt far more in control of his speech than ever before. He did not expect to always have minimal stuttering, but he knew how to analyse any situation and work out a plan to address the difficulty. He knew how to address relapse before it took hold.

During the course of Stage 3, and as Howard felt more able to deal with any difficulties that arose, his sessions with the speech-language pathologist were spread further apart. Often, he would come to the clinic after a break of a couple of weeks and describe which situations had been tricky and how he had managed to address them. After 8 sessions spread over about 5 months, he moved into Stage 4, as he

showed evidence of maintaining acceptable levels of stuttering, using acceptable fluency technique in most everyday situations, and had also demonstrated confident problem-solving skills to address any setbacks.

Stage 4

Maintenance

The focus of Stage 4 was to ensure that Howard continued to feel confident to address any fluctuations in his stuttering. He knew that he could not be in control of his stuttering 100% of the time and that some situations would be more difficult to control than others, but he needed to feel confident that he had the skills to address any problems as they arose, and, therefore, that major relapse was unlikely. Stage 4 lasted for about a year with the time between visits stretching to about 6 months.

Summary

Howard took 18 sessions over about 8 months to complete Stages 1–3 of the program and his progress was monitored for another year of infrequent sessions after moving into maintenance (stage 4). He felt confident that he had developed good problem-solving skills that should allow him to deal with fluctuations in his stuttering control in the future.

Discussion/implications

In this chapter, the *Camperdown Program*, a speech restructuring program for AWS, is put into context, described and discussed. The *Camperdown Program* is a speech restructuring treatment with the primary focus on reducing stuttering, but with a secondary focus on addressing associated speech-related anxiety when it becomes an issue. The individual, face-to-face clinic format is the most common method of implementation used in community clinics and is described in detail in previous sections.

As mentioned at the beginning of the chapter, it is important that when delivering the *Camperdown Program*, speech-language pathologists remember to integrate the three types of evidence: patient evidence, practice evidence, and research evidence (McCurtin & Cater, 2015). Most importantly, speech-language pathologists need to make sure they listen to, and address, the specific complaints and needs of each client. If an AWS has concerns primarily about cognition (for example, reducing the speech-related anxiety), these should be addressed before considering a stuttering reduction treatment such as the *Camperdown Program*. The various treatment options should always be discussed with each client. AWS who

request the *Camperdown Program* need to be informed about the effort required to achieve and maintain treatment gains: that it involves long-term control of stuttering; and that it is not a "quick fix". Internal motivation is essential. While the *Camperdown Program* guide (O'Brian et al., 2018) presents the treatment concepts in a recommended sequence, it is anticipated that each concept will be individualised, as each client presents with a different set of problems, beliefs, and expectations. Speech-language pathologists need to make sure they are open-minded to learn about different treatment approaches. Restricting their skill set to a few treatments (McCurtin & Carter, 2015) does not offer the best possible care for the client. Broadening their knowledge and skill set, for example, to learn (in this case) about the *Camperdown Program*, needs to involve formal teaching by attending a workshop or by thorough self-study and monitoring from an experienced clinician. Finally, it is important to read and critically evaluate the research publications about the treatment that speech-language pathologists plan to deliver, in this case the *Camperdown Program*. Several clinical trials with the *Camperdown Program* have been conducted, and it became clear that not all adults or adolescents who stutter achieved the same goals. As Baxter at al. (2015) reflect about stuttering treatment for adults: "Establishing what a good outcome following [stuttering] treatment should be, is a key issue for the field" (p. 689). It is, therefore, important to set realistic expectations and to discuss the individual goals with the client prior to starting the *Camperdown Program*.

The *Camperdown Program* uses a self-report stuttering severity rating scale to measure stuttering reduction throughout the program. This feature is based on evidence that clients are able to use this measure reliably (O'Brian et al., 2004). O'Brian et al. (2020) propose the self-reported speech outcome (stuttering severity score) as an alternative for %SS as an outcome measure, even though the latter is used in most research publications. It is not surprising to observe that %SS and the self-reported severity scores do not correlate, as %SS is primarily a stutter count measure, while self-reported severity ratings take into consideration stuttering type as well as frequency. By looking what both outcomes entail, however, it may be less surprising: %SS describes the frequency of stuttering based on the total number of syllables, whereas self-reported severity scores take both frequency and type of stuttering moments into account. When looking at the distributions of the treatment outcomes in the study of O'Brian et al., %SS shows a highly positive skewed curve (more stuttering documented at lower values), while self-reported severity scores shows a more normal distribution.

Karimi et al. (2018) propose the Communication in Everyday Speaking Situations scale as an overarching outcome measure for treatment evaluation which takes into account stuttering features, cognitive features, and quality of life. This outcome

measure is the answer to one question: "Considering all the issues associated with your stuttering, how satisfied are you with your communication in everyday speaking situations at the present time?" AWS answer this question with a 9-point scale, starting at 0 = extremely satisfied to 9 = extremely dissatisfied. By looking at the correlation of the Communication in Everyday Speaking Situations scale with existing scales, it revealed a significant and strong correlation with the self-reported severity scores, the *Unhelpful Thoughts and Beliefs Scale* (UTBAS, St Clare et al., 2009) and the total *Overall Assessment of the Speaker's Experience of Stuttering* (OASES, Yaruss & Quesal, 2010). The Communication in Everyday Speaking Situations scale did not correlate with %SS. This scale could be added to the evaluations throughout the *Camperdown Program* and other stuttering treatments to have a quick tool for evaluating overall improvement.

In the *Camperdown Program*, AWS are asked to make recordings of speaking situations when they are using their fluency technique. These recordings can be audio- or video-recordings. O'Brian et al. (2015) observed that the evaluations of audio- and video-recordings did not differ. If one were to use %SS, it would be necessary to use video-recordings because evaluations via audio- and video-recording significantly differ, with the latter being more reliable.

In the early days of the speech restructuring treatments, the focus of the treatment was often solely on the reduction of stuttering. However, research has made clear that speech restructuring treatment is often not sufficient for AWS, given the frequent co-morbidity with speech-related anxiety in AWS (Iverach et al., 2009b). The *Camperdown Program* incorporates the opportunity to also work on cognition, more specifically on the speech-related anxiety. O'Brian et al. (2018) suggest using the iGlebe program (as introduced before) for AWS (e.g., Menzies et al., 2019b) to address anxiety during implementation of the *Camperdown Program*. Menzies et al. (2019b) compared the treatment outcome of 32 adults who received three days of speech restructuring practice in an intensive group format followed by one clinic group session each month for five months. The program was based on the concepts of the *Camperdown Program* but did not include its stages three or four. Half the group received access to the iGlebe Program for five months after the intensive speech treatment. Treatment outcome in the group who had access to the iGlebe Program was clinically significantly better for self-reported stuttering severity scores and for the quality of life at 12 months after treatment.

The iGlebe Program has also been trialled with an international group of participants. Menzies et al. (2016) gave 267 AWSed from around the world access to the iGlebe Program. Most of these adults were native English-speaking and resided in Australia (n = 151), UK (n = 25), Canada (n = 24), US (n = 22), New Zealand (n = 9), South Africa (n = 6), and Ireland (n = 1). AWS from non-English speaking countries also partic-

ipated, including those from Spain, India, Croatia, Singapore, Brazil, the Netherlands, Finland, China, Pakistan, Nigeria, Denmark, Indonesia, France, Austria, Iran, and Israel. About a fifth (18.4%) completed the program along with the post-treatment assessment. This was an acceptable response rate for participation in a standalone internet health program. Treatment outcome was similar to treatment outcomes of earlier trials with the iGlebe Program (e. g., Helgadottir et al., 2009; 2014).

Conclusion and future directions

If an adult or adolescent who stutters requests assistance specifically to target stuttering reduction, the *Camperdown Program* is an *Evidence-based treatment* to consider for multiple reasons. The *Camperdown Program* is a concept-based, behavioural treatment with the primary focus on client stuttering reduction. The fluency technique that is used is based on prolonged speech and is taught by imitating a model. During Stage 3, when the client transfers the fluency technique from the practice tasks to everyday speaking situations, it is also recommended that treatment directed at speech-related anxiety (CBT-components) is implemented, if appropriate for the client. One way to incorporate the CBT-components, if speech-language pathologists do not possess the necessary skills, is to give clients access to the iGlebe Program, which is free of charge. Access to this program can be found on the Australian Stuttering Research Centre website ("Australian Stuttering Research Centre", 2022). The *Camperdown Program* is supported by several clinical trials that can help speech-language pathologists to formulate realistic expectations for and with clients.

Multiple Choice Questions

1. The *Camperdown Program* is a program for
   a) AWS
   b) adolescents who stutter
   c) adults and adolescents who stutter
2. In the *Camperdown Program*, clients learn a new speech pattern based on
   a) gentle onset
   b) prolonged speech
   c) rhythm and prosody
3. The *Camperdown Program* consists of
   a) two treatment stages

   b) three treatment stages
   c) four treatment stages
4. The aim of the *Camperdown Program* is
   a) to achieve no, or low levels of, stuttering in all situations, for all clients
   b) to achieve lower levels of stuttering in all situations
   c) to achieve low levels of stuttering in some or all situations, depending on what the client seeks help for
5. To the *Camperdown Program*
   a) CBT-components are added in the treatment phase for all clients
   b) CBT-components are added in the treatment phase, if clients require help for anxiety related to the stuttering
   c) CBT-components can never be added, even if the clients require help for anxiety related to the stuttering

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