IN WHAT WAS TERMED 'the decade of the brain', in the last few years STARTTS has expanded its systemic approach to the healing of refugee survivors of trauma. Increasingly, techniques based on neuroscience are being integrated with psychological and body focussed therapies, with STARTTS establishing the world-first Neurofeedback clinic in 2007. ***DEBBIE GOULD*** *reports on the presentations made by some international experts.*

Using Neuroscience to Treat Refugee Trauma:

Neurofeedback Training at STARTTS

Neurofeedback in practice at STARTTS. PHOTO: PHIL CROSSIE

Lately STARTTS has hosted several seminars reinforcing the need to therapeutically address the neuro–biological component of the trauma response. Presenters have included Bessel van der Kolk and Dan Siegel and most recently, Sebern Fisher. A psychotherapist and Neurofeedback practitioner, who presented a seminar in Sydney in August 2010, focussing on her work with Neurofeedback Training (NFT). This opened up the opportunity to discuss the use of NFT.

Along with Bessel van der Kolk, Dan Siegel, Lou Cozolino and Alan Schore, Sebern has been part of the emergence of neuroscience into the mainstream discourse in the field of trauma. Neuroscience is the interdisciplinary study of the nervous system and the area of research and practice that is guided by the position that neurology, emotion and the development of the mind are inseparably linked. Philosophically, it represents a shift away from a mind/body split that has characterised mainstream approaches to psycho–logical healing.

This view has been put to particular use in conceptualising the impact of trauma on the human mind and in developing treatments that best address this complex interplay of variables. NFT is one such treatment that Sebern Fisher has applied to the treatment of a variety of psychological conditions in a variety of treatment contexts. This sparked the interest of Bessel van Der Kolk, a leading researcher, author and clinician in the area of developmental trauma who consults with Sebern on his use of NFT.

Sebern is also a consultant to staff at the STARTTS Neurofeedback clinic. Although she is not specialised in refugee trauma, she provides consultation on the application of NFT principles in an area where there are no existing treatment protocols.

Sebern's area of interest is development and attachment trauma. Her perspective is both psychodynamic and neurodynamic. In line with a growing body of 'attachment neuroscientists', she sees neurological development as being strongly influenced by the attachment relationship between infant and primary caregivers. The area of the brain primarily responsible for moderating the stress or threat response, the right orbito-frontal cortex, is deeply sensitive to the nature of this attachment that requires of the parent to be attuned and responsive to the infant's changing states. There are clear evolutionary benefits to this arrangement – out of the attachment relationship comes the capacity to respond appropriately to threat and thus to survive.

However, sometimes attachment is distorted and the maternal-child relationship does not protect the child from abuse or wilful neglect. This is pertinent when reflecting on refugee children. Many refugee children were not fed. Their caregivers were unable to provide safety, no matter how strong the attachment bond. In these cases, emotional attunement is still possible but difficult for parents plagued by their own trauma. This raises the issue of where to focus treatment.

While this article will focus on a direct, specialised treatment for trauma, it assumes the provision of prevention and early intervention services particularly those that facilitate having infants longer in the care of emotionally accessible and attuned parents.

In vulnerable families, like refugees, early intervention strategies would provide the support and containment to enhance parents' capacity for attunement and responsiveness. This might involve support for parents in engaging with their infants, for example using tone, gaze and touch to facilitate their capacity to self-regulate.

Disturbances in emotional regulation can emerge from developmental trauma as well as from severe, interpersonal trauma in the context of war, for example rape and torture. In post-traumatic responses, fear is the primary affect that has to be regulated. It is what maintains the trauma through a vicious cycle: "If I feel afraid there must be something to fear". Areas of the brain responsible for thinking about (or 'mentalising') trauma and for dampening the continued trauma response are compromised due to the damaging effects of trauma on pathways between the cortex and limbic system: An over reactive limbic system maintains the sense of continued threat, while the frontal cortex is unable to evaluate it accurately and instigate appropriate responses. Dysfunctional responses alternate between physiological over arousal with concomitant anxiety and numbing with possible dissociation.

How to achieve regulation of this fear response is one of the fundamental differences between various therapeutic approaches for treating trauma, including early psychoanalysts, like Pierre Janet, and contemporary

"In post-traumatic responses, fear is the primary affect that has to be regulated. It is what maintains the trauma through a vicious cycle."

PHOTO: PHIL CROSSIE

psychotherapeutic approaches which recommend cognitive reappraisal, a containing therapeutic relationship and so on. All of them ultimately do prioritise safety for the traumatised person. A major component of this safety, from a neuroscience perspective, is a stable nervous system.

NFT is a method that has been developed to stabilise the nervous system, originally in cases of Epilepsy and Attention Deficit and Hyperactivity Disorder but increasingly so in trauma. It is a form of biofeedback guided by Quantitative Electroencephalogram (qEEG) readings. The qEEG provides a detailed picture of brain waves across several areas of the brain where specific as well as general impacts of trauma can be seen.

Most readers will be familiar with biofeedback using blood pressure measurement, skin temperature, breathing and pulse. When applying NF the client receives feedback about the electrical activities in their brain that accompany subjective experiences of state of mind, including both calm and alert states.

NFT appears to involve a person playing a computer game without hand controls. They fix their attention on the screen and observe changes in colours, sounds, points in the games that reflect rewards that would be given in most hand co-ordinated computer games, for example swallowing the monster and outrunning the rocket. These rewards are given when the client engages areas of the brain needing stimulation or disengages those needing 'down tuning'.

However, the current treatment protocols were not developed with many qEEGs of people who have suffered psychological trauma, particularly refugees. As part of developing a neuroscience approach, STARTTS has recently joined a large international study aimed at developing a database of qEEG patterns for this population. This provides opportunities to define and fine-tune protocols that will inform international NFT trauma protocols.

While several STARTTS staff members have been trained to use the method, two psychologists, Mirjana Askovic and Sejla Tukelija are the primary clinicians developing the programme, co-ordinating referrals and providing training to clients. Several case studies have been published in peer reviewed journals by the NF team. These, as well as international conference and workshop presentations, have been well received.

The majority of the clinic's work is with children whose social, cognitive, emotional and behavioural lives show the impact of their own as well as their parent's trauma on their vulnerable nervous systems.

'Non-verbal' therapeutic approaches, including NFT, are more appropriate for children and provide a platform for quicker neurological stabilisation. The computer interface is also particularly engaging for children.

In addition, many refugees do not use the English language to express emotions so their route to healing is often not verbal. Trauma also impacts on the language centres of the brain reducing the ability to express feelings or access memories.

Where the person is able to talk, the act of speaking the trauma can stimulate the fear centres in the brain (primarily the amygdala) in the present. This state replicates the original trauma state and generates the need to react and/or defend in ways that would jeopardise the processing of the trauma – the person either dissociates or becomes hyperaroused and thus can't think or talk.

The success of NFT is measured by standardised tests, by changes in the qEEG and feedback from clients and those around them. From a scientific perspective, these outcomes do not differentiate between the effectiveness of NFT and that of the relationship between the clinician and client. However, a therapeutic connection between the client and the clinician is crucial for emotional stabilisation. In this case, the clinician is a therapist as well as a trainer. They have to be attuned to subtle changes in the client's mood, level of arousal and to the EEG and must reflect these to the client. This attunement is experienced at a profound level by most clients as it parallels early experiences of attunement and response.

Sebern Fisher reports success in using NFT to treat affect dysregulation in people whose early experiences have undermined their neurological resilience. STARTTS' use of this technique further focuses on neuro-affective shifts that frequently accompany violent trauma.

NFT is fast becoming integrated into STARTTS' comprehensive services for refugee trauma survivors. With its dual role in "coal face" research and treatment, NFT is neuroscience in action. **R**