


Applying neuroscience to the treatment strategy of a traumatised patient



Dr Nuri Gené-Cos

PhD, MRCPsych, LMS (MD)

Traumatic Stress Service
(Trauma & Dissociation Service)

Maudsley Hospital

Denmark Hill

London SE5 8AZ

nuri.genecos@slam.nhs.uk

Dr. Nuri Gené-Cos, Consultant
Psychiatrist

Traumatic Stress Service (TSS): trauma & dissociation



TSS is a national service. It offers out-patient psychotherapy and if required advice on medication to adult patients suffering from complex PTSD with or without co-morbid disorders.

We see patients with a range of clinical presentations including dissociative disorders, PTSD, PTSD with psychosis, PTSD in subjects with severe head injury, among others.

We offer treatments, short and long term; assessments, second opinions and legal reports.

Post Traumatic Stress Disorder



- ⌘ PTSD: Definition
- ⌘ Complex Versus Simple
- ⌘ Assessment and Management: Biological, Psychological and Social Issues
- ⌘ Co-morbidity
- ⌘ Clinical Case
- ⌘ Assessment
- ⌘ Treatment
- ⌘ Brief discussion of relevant anatomo-physiological systems

PTSD:

Definition and Main Symptomatology



DSM-IV AND ICD-10: Classify PTSD within anxiety disorders.

Essential Features:

- ⌘ Development of characteristic symptoms following exposure to an extreme traumatic stressor.
- ⌘ The person's response to the event must involve intense fear, helplessness or horror.

PTSD: Definition and Main Symptomatology



Characteristic Symptoms:

Re-experiencing of the traumatic events as:

- ⌘ Recurrent and intrusive recollections of the event, including images, thoughts or perceptions
- ⌘ Nightmares
- ⌘ Illusions, hallucinations, dissociative flashbacks
- ⌘ Intense physiological distress when reminded of the trauma
- ⌘ Physiological reactivity on exposure to cues that resemble/symbolise the trauma or parts of it

PTSD:

Definition and Main Symptomatology

(continued)



Avoidance:

- ⌘ Efforts to avoid thinking, talking, feelings associated with trauma
- ⌘ Avoiding activities, places, people that arouse recollections of the trauma
- ⌘ Marked diminished interest or participation in significant activities

Emotional Numbing:

- ⌘ Inability to recall important parts of the trauma
- ⌘ Feelings of detachment towards others
- ⌘ Feeling numb
- ⌘ Sense of not having a future

PTSD: Definition and Main Symptomatology (continued)



Hyperarousal:

- ⌘ Insomnia
- ⌘ Irritability
- ⌘ Anger
- ⌘ Poor concentration
- ⌘ Hypervigilance
- ⌘ Exaggerated startle response

PTSD: Complex Versus Simple




DSM-IV and ICD-10: No reference to Complex Trauma

- ⌘ Simple: As a result of a single traumatic incident
- ⌘ Complex: When persistent and prolonged traumatic events. Usually starting early in life, including child abuse, prolonged detention (e.g. Concentration Camp Experiences, kidnapping, persistent domestic violence)
- ⌘ Distinction is relevant for treatment and outcome purposes

Ann

- ⌘ 59 year old, Portuguese, linguist (spoke 5 languages), married, one child. No previous medical or psychiatric history prior to assault in 1998.
- ⌘ Attacked in street with knuckleduster: developed a sub-arachnoid haemorrhage: 2 successful operations required: first, right internal carotid artery aneurysms; second, a year later, left internal carotid artery aneurysm.
- ⌘ She was left with: persistent headaches, morning vomiting, right sided hemi-paresis, memory difficulties leading to losing all her languages and memories of her life.
- ⌘ Re-learned English with speech therapist; never recovered mother tongue and had no explicit memories of her childhood or early adult life prior to learning English.
- ⌘ Severe PTSD with profound psychological and social impairment:
 - constant images of the assault and marked hyperarousal symptoms; unable to leave house, look after family or herself; she required a carer through-out the day and, husband looking after her at night. Living in constant terror.

Just a bird



Every little sound is him
The opening of the door
Down the corridor
Those steps
And yours
The window
Are just a bird
Everyone
Your breathing
Wind on the balcony
Perhaps the radio
The silence
The kitchen tap dripping
Anything
And always him

Assessment



Sources for the assessment:

- ⌘ Referrer
- ⌘ Patient
- ⌘ Relatives and/or friends
- ⌘ Other professionals
- ⌘ Clinical documentation
- ⌘ Your own observations

In the case of Ann: she refused for me to have contact with husband and son; essential information lacking. The importance of negotiating with patient/client. In this case I allowed it. Alwaystake the situations as a co-working relationship

Assessment



Pre-morbid functioning:

- ⌘ Biological: very healthy
- ⌘ Psychological: intelligent; good early attachment and family life.
- ⌘ Social: well adjusted; sociable, working full time; good economical situation.

Post-trauma functioning:

- Biological: severe neurological deficits: headaches, paralysis, language and memory difficulties; needing daily care
- Psychological: loss of skills, emotionally cut off, severe PTSD, housebound
- Social: job loss; unable to socialise; strained family relationships.

Assessment summary



Main deficits:

Left brain injury:

- Severe language
- Memory difficulties
- Some frontal lobe damage
- loss of olfactory and taste senses.

- Decreased energy levels
- Some R weakness body (eye lids)
- Some mobility/ balance problems

Strengths:

Right brain:

- Good functioning
 - Perceptual abilities OK
 - Artistic OK
-
- Good visual skills
 - Motivated
 - Family support
 - No economical problems

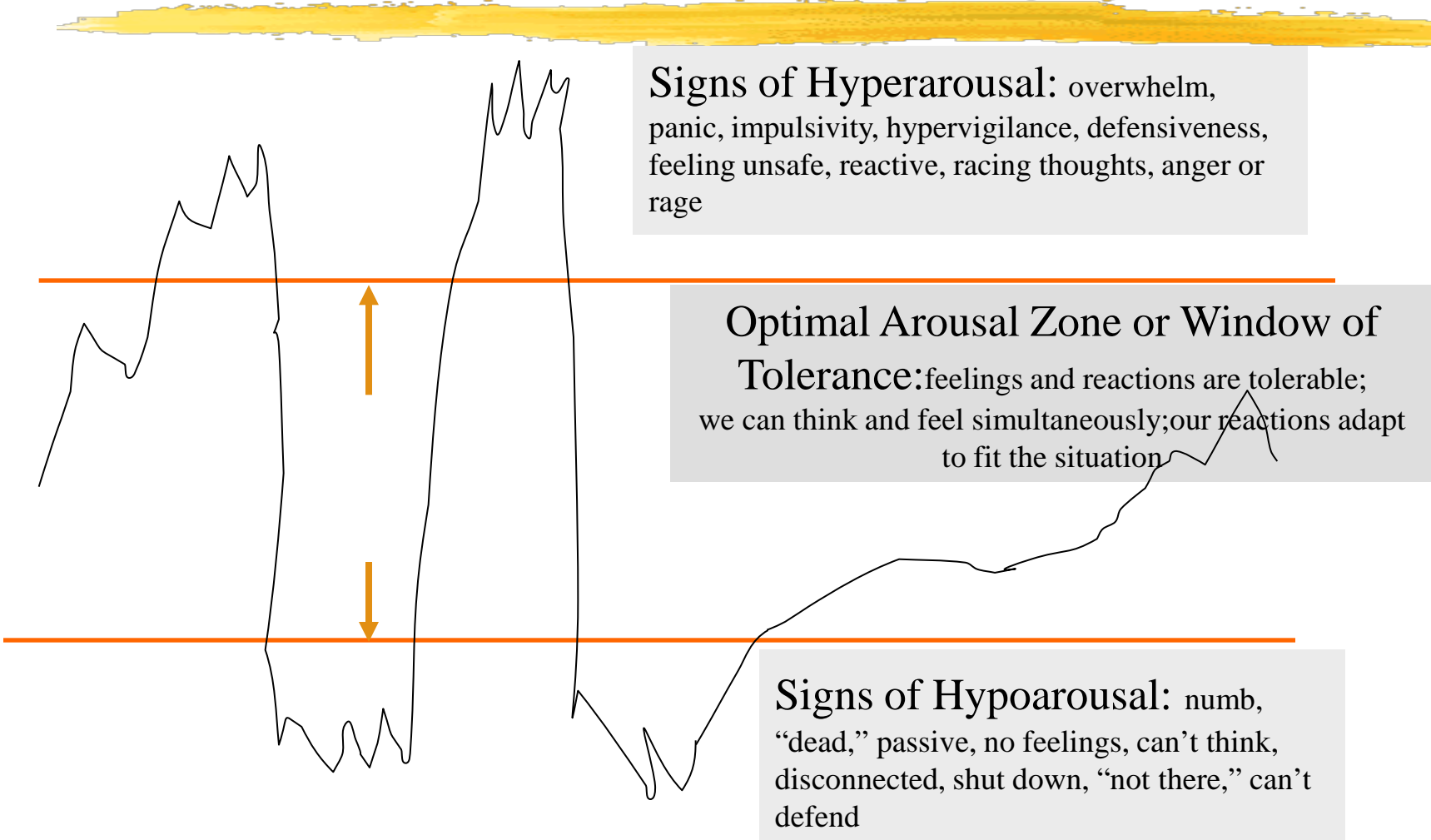
In general: brain had less capacity, less neurones and connections.

Treatment



- ❖ **After surgery and physical rehab:**
- ❖ Initial treatment:
 - ❖ Speech therapy: for a period of several months. No further progress due to PTSD symptoms.
- ❖ **Then trauma focus therapy:**
 - ❖ Following NICE guidelines:
 - ❖ T-CBT: exposure therapy: after a few sessions, she was considered not suitable for this modality.
 - ❖ EMDR (eye movement desensitisation reprocessing): unable to follow therapy as much too aroused (at the TSS).
- ❖ Summary: she was considered to be untreatable but continued speech therapy once a month for a number of years.

Autonomic Arousal Model [Ogden, Minton & Pain, 2006]



Treatment

- ❖ 10 years later she was re-referred to the TSS
- ❖ First few sessions were used for assessment and a short trial period of therapy.
- ❖ “Catastrophic” responses were common
- ❖ Concrete terms were used for Ann to feel safe enough in the room:
 - Barricading door with several chairs
 - Distancing between Ann and therapist according to Ann’s needs
- ❖ Psycho-education using very simple terms and words that were accepted or recognised
- ❖ Shorter sessions as patient got tired easily
- ❖ Memory aid: tape recorder for Ann to take it home and listen to it at least the day before the next session
- ❖ As patient and therapist developed sufficient rapport, long term therapy was agreed

Treatment



- ❖ Subsequently 6 months of Sensorimotor Therapy:

Learning to habituate to noises around clinic.

This consisted essentially in:

For Ann to notice her own breathing and how noises around the clinic affected this.

Later on the same was done in relation to her marked trembling

- ❖ While this took place, doors had to be barricaded in each session.
The distance between therapist and patient decreased
In each session language had to be used carefully
Therapist noticed Ann started to dress better and her marked generalised tremor decreasing!

Treatment

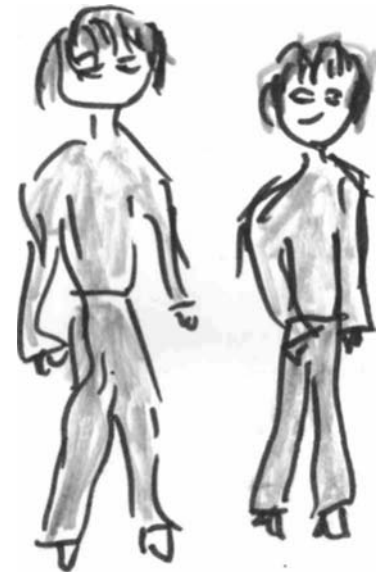
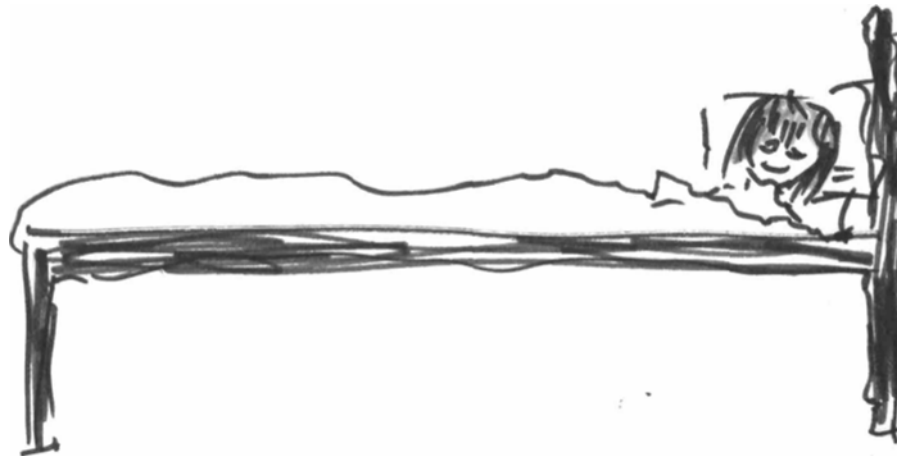


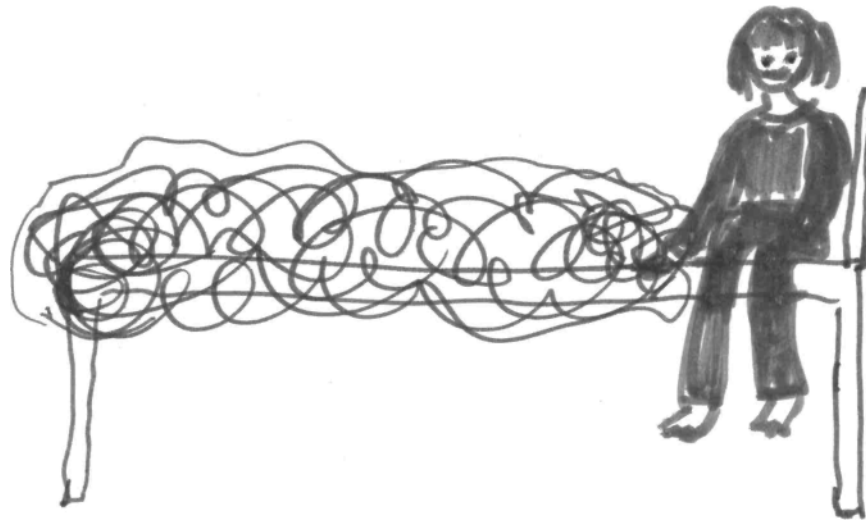
- ❖ After the initial 6 months, therapy dealing with traumatic memories started. This phase lasted approximately 12 months:
- ❖ Sensorimotor Therapy using “window of tolerance” in relation to minor traumatic event was followed by work with main trauma, including assault, brain surgery experience and dealing with the aftermath of all the losses.
- ❖ Sensorimotor Therapy and sessions of EMDR were interwoven.
- ❖ Therapy came to a stand still due to marked increase of Ann’s hyper arousal which affected her language, energy levels and difficulties with having to leave her home and come to clinic where she may have the chance to encounter black people.

Reassessment



- ⌘ Reassessment of difficulties and strengths highlighted the following:
- ⌘ Apart from the initial 6 months, most of the therapy sessions used language as a point of entrance
- ⌘ Ann's right brain was not damaged:
Programmed change to suit patient's language difficulties; drawings and body sensations rather than words, as focus of the therapy.







A few relevant points



- ⌘ Realisation that verbal language is in general more flexible/ malleable in therapy meant that ways of working with drawings had to include:
- ⌘ changing drawings according to needs in therapy
- ⌘ both patient and therapist used techniques such as blurring the drawing, destroying old material, creating new drawings, altering distance and transparency of the material; changing colours and sizes
- ⌘ the importance of ritualising this process

This approach was created as the process evolved

Outcome



- ⌘ Ann is currently going out on her own, using walking stick and minicabs.
- ⌘ Joined an art group, IT course, and goes on holidays with family.
- ⌘ Uses tape recorder as memory aid and attends appointments on her own.
- ⌘ Still needs helper to get her out of bed due to severe headaches and vomiting in the mornings.
- ⌘ She is enjoying life! And likes to look smart.
- ⌘ She still has to re-learn English when she forgets, but able to appreciate jokes.

Summary



- ⌘ The importance of a multidisciplinary assessment, get an expert report on neurological problems and implications on practical levels.
- ⌘ Explore with the patient what is easier for them, don't take for granted you know it; if not able to know, explore this along the way (in this case, no right brain injury: artistic capacity intact)
- ⌘ Be clear about deficits, discuss with patient ways to work around them.
- ⌘ Be flexible and curious, share this with the patient.

Summary



⌘ Sessions may need to be shorter, according to patients' capacity to concentrate and or pain levels.

⌘ "Panic reactions" and "catastrophic responses" very common, decrease the level of sensory/emotional input...too much will flood this patient easily.

⌘ Remember that they may need aids, including tape recorders and other treatment including medication and pain control.

⌘ Don't forget, they can respond to treatment. If you cannot work with them, see who can.

Cortical vs subcortical processing



- ⌘ Le Doux (1996) found that the memories of fearful experiences involve at least 2 neuronal organisations:
- ⌘ 1) An implicit emotional memory system (associated with amygdala)
- ⌘ 2) A declarative or explicit memory (linked with hippocampus) associated with conscious recollection.
- ⌘ Both usually operate simultaneously and in parallel but the functioning can be dissociated (LeDoux 1994.)
- ⌘ In severely traumatised subjects accessing cognitive functioning is very difficult as frontal cortex functioning is reduced including language and the emotions linked to amygdala, such as anger/fear dominate the presentation.

Cortical vs subcortical processing



- ⌘ Accessing these emotions at the level of intervention in therapy is a challenge; this is also relevant in child parts work, where at times the arousal level takes over the more functioning, accessible, apparently normal part of the personality (ANP: Nijenhuis et al, 2004)
- ⌘ The lower automatic level of processing of emotions can hijack brain processing before a more complex system (more cognitive) can be connected.

PTSD: physiological arousal model



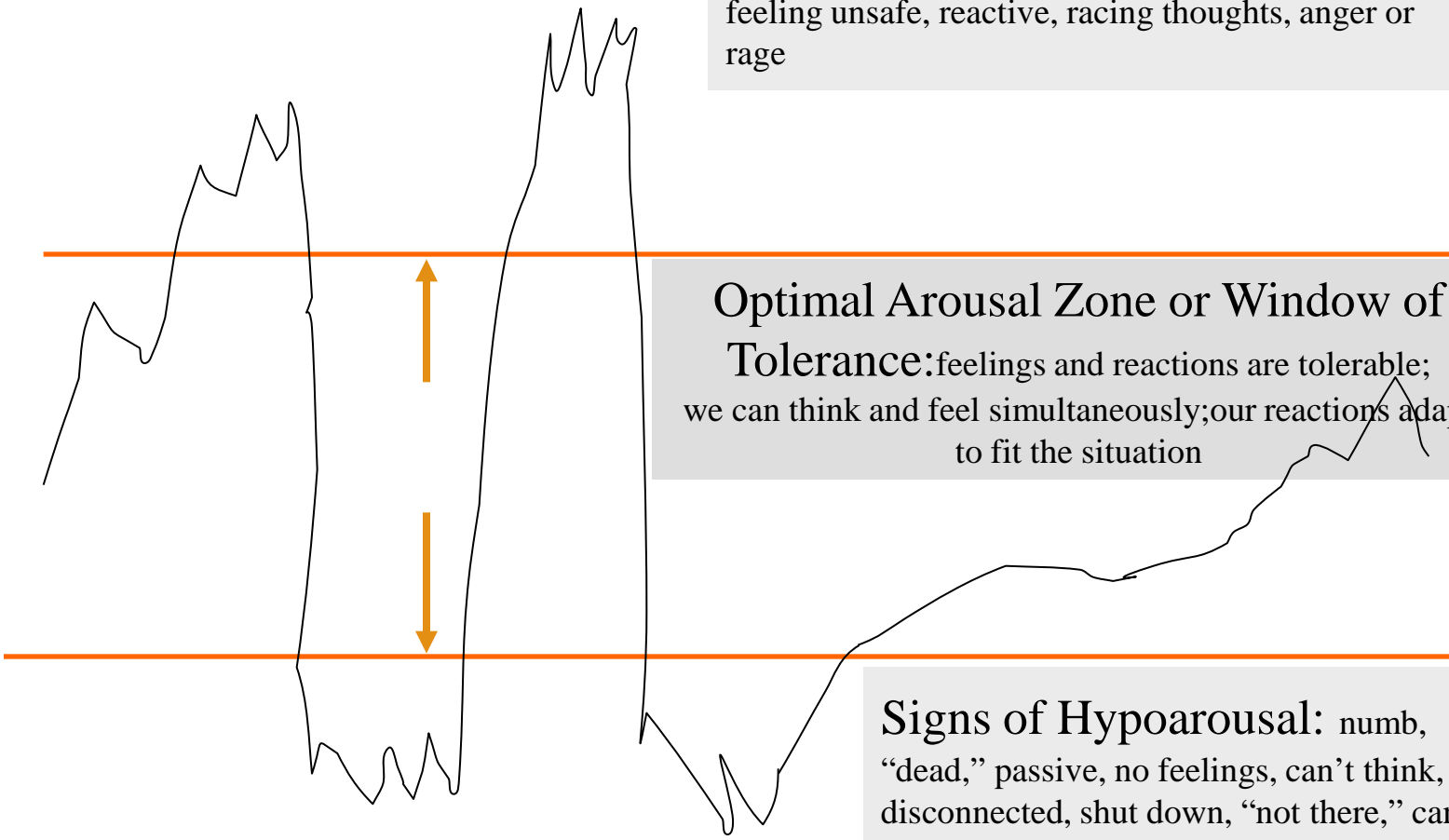
- ⌘ Hyperarousal to intense but neutral stimuli and or loss of stimulus discrimination may be due to abnormalities in habituation to the acoustic startle response (Shalev et al. 1992, Ornitz & Pynoos 1989).
- ⌘ The failure to habituate to acoustic startle suggests that traumatised people have difficulty evaluating sensory stimuli and mobilising appropriate levels of physiologic arousal (Shalev et al. 1992).
- ⌘ These patients suffer from heightened physiologic arousal in response to sounds, images, and thoughts related to specific traumatic incidents, responding with increases in heart rates, skin conductance and blood pressure (Malloy et al. 1983, Pitman et al. 1987).

Autonomic Arousal Model [Ogden, Minton & Pain, 2006]

Signs of Hyperarousal: overwhelm, panic, impulsivity, hypervigilance, defensiveness, feeling unsafe, reactive, racing thoughts, anger or rage

Optimal Arousal Zone or Window of Tolerance: feelings and reactions are tolerable; we can think and feel simultaneously; our reactions adapt to fit the situation

Signs of Hypoarousal: numb, “dead,” passive, no feelings, can’t think, disconnected, shut down, “not there,” can’t defend



Dr. Nuri Gené-Cos, Consultant Psychiatrist

The earliest acoustic Memory: Mismatch Negativity (MMN)



- ⌘ The ability to detect unusual and possibly dangerous events in the environment is fundamental in ensuring the survival of biological organisms (Tiitinen et al. 1994).
- ⌘ MMN may form part of an acoustic detection system that humans and some animals have as part of their survival mechanism.
- ⌘ MMN: generated by an automatic (attention-independent) preconscious neural process that contrasts ongoing sensory inputs with a memory trace encoding the physical features of preceding (standard) stimuli.
- ⌘ MMN indexes a preconscious cognitive process that is of great importance to the subsequent "conscious" behaviour of the animal (Tiitinen et al. 1994).

The earliest acoustic Memory: Mismatch Negativity (MMN)



- ⌘ The process generating MMN may represent a "call" from pre-attentive mechanisms to focus attention on a sudden and unexpected change in the auditory environment (Näätänen 1990)
- ⌘ The observation that MMN plays a role in alerting an organism to the introduction of novelty into its environment suggests that disturbances of MMN may relate to abnormalities of arousal and to disrupted processing of auditory stimuli relevant to the development of psychopathology.

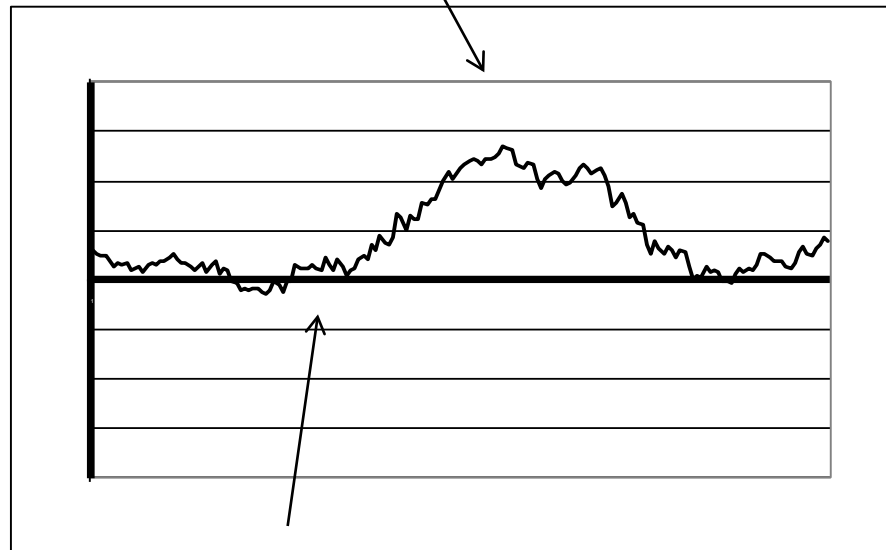
MMN in PTSD



- ⌘ MMN amplitude increases and latency decreases in states of higher vigilance (Lang et al. 1995).
- ⌘ MMN abnormalities have been obtained in PTSD studies including smaller amplitudes (Menning et al. 2008), and shorter duration (Gene-Cos, 2009). A reduced response in PTSD could represent a compensatory mechanism for chronic hyperarousal and a shorter duration of the MMN could be interpreted as a protective mechanism in order not to be overwhelmed by the arousal levels, a shutting down process would have occurred, electrophysiologically reflected as a shorter MMN duration; clinically this would show as a dissociative phenomena?
- ⌘ MMN dampened down as a possible protective inhibition to the increased arousal or anxiety symptoms associated with this condition?

MMN WAVEFORM

— Peak amplitude




onset

Sensorimotor Psychotherapy

Sensorimotor Psychotherapy is a body-oriented talking therapy developed in the 1980s by Pat Ogden, Ph.D. and enriched by contributions from the work of Alan Schore, Bessel van der Kolk, Daniel Siegel, and Ellert Nijenhuis. **Sensorimotor work combines traditional talking therapy techniques with body-centered interventions that directly address the neurobiological effects of trauma.** By using the narrative specifically to evoke the trauma-related bodily experience and making that the primary entry point in therapy, **we attend first to how the body has “remembered” the trauma and then to cognitive and emotional meaning-making**

Ogden, 2002

Sensorimotor Psychotherapy
Institute



*“Therapy is not simply
method and technique, at the
heart of it all is the spirit of
our work”*

(Ron Kurtz)