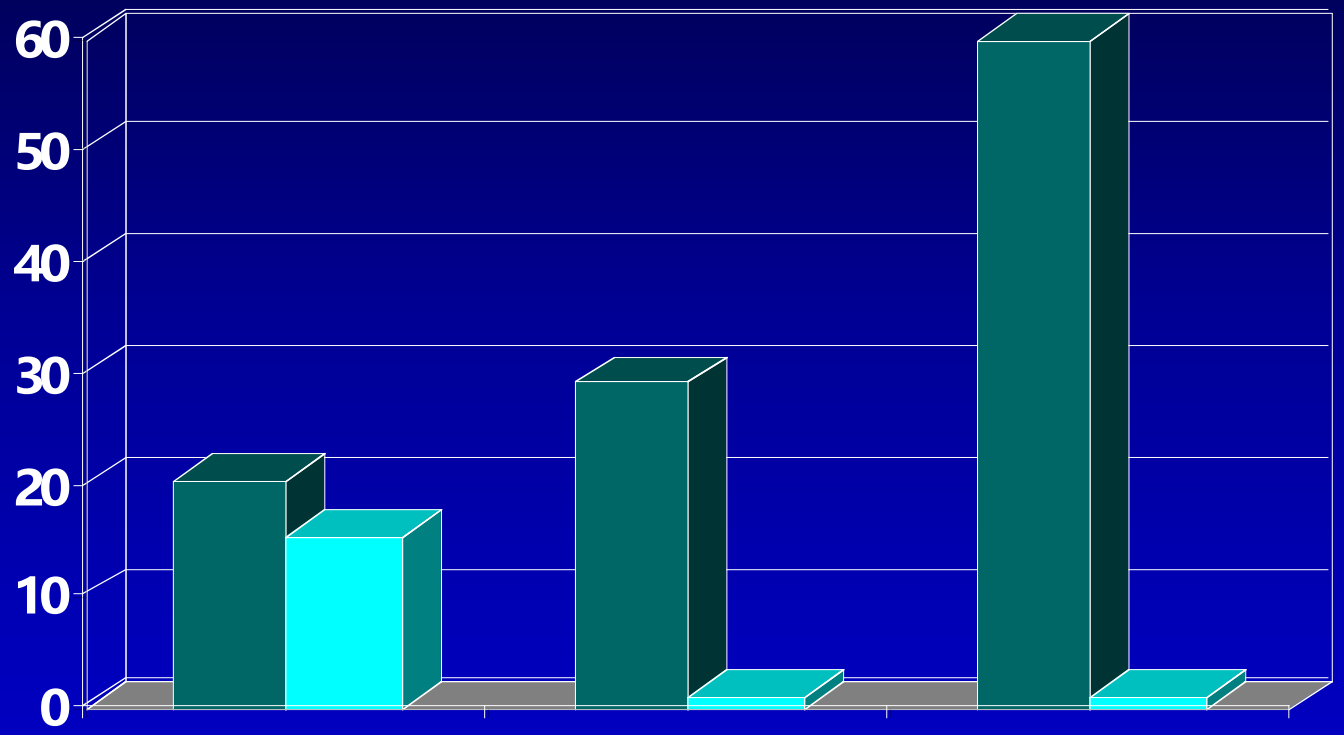
Overcoming trauma克服创伤

1. Re-establishing community重建社区
2. Effective action有效行动
3. Dealing with affect regulation应对情绪调节
4. Accessing the emotional brain- knowing one's self接近情绪脑 - 了解自己
5. **Processing traumatic memories加工创伤记忆**
6. Dealing with parts 处理各个部分
7. Re-wiring neural circuits (neurofeedback)重写神经环路（神经反馈）

Truth, like love and sleep
Resents approaches that are too intense真相，就像爱和睡眠一样，憎恨过于激烈的方式。

W.H Auden. 奥登

Good end-state function结束时的好功能:
CAPS score below 20
CAPS20分以下



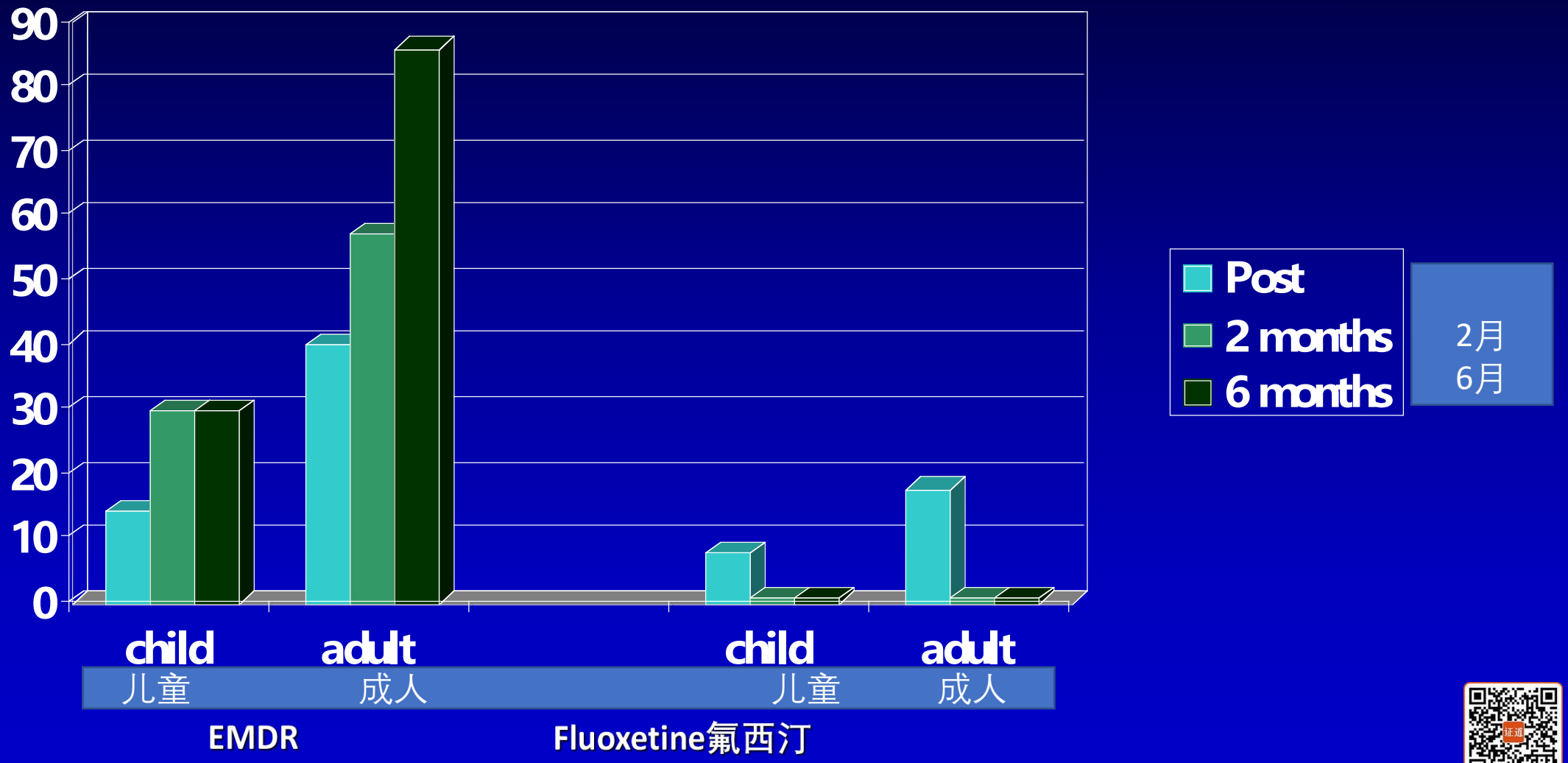
8周

16周

8个月

EMDR
氟西汀

Positive end-state function结束时积极的功能 (CAPS < 20)



证道心理

When trauma processing
何时加工创伤?

When a particular memory precipitates overwhelming

hyper or hyparousal

当一个特定的记忆激发压倒性的高度觉醒或低觉醒

EMDR is a Trauma Processing therapy

EMDR是创伤加工治疗

1. (re-)establishing community 重建社区
2. Effective action有效行动
3. Dealing with affect regulation应对情感调节
4. Accessing the emotional brain- knowing one's self加工情绪脑-了解你自己
5. **Being able to tell the truth - not keeping secrets能讲出真相-不保守秘密**
6. **Getting in touch with your parts**
   与你的各部分保持联系

Internal Family Systems内在家庭系统

- Because we are hurt in similar ways, and we have a limited number of ways to protect ourselves, there are common patterns to the roles that parts are stuck in.因为我们以类似的方式受到伤害，而且我们保护自己的方式有限，所以各部分所困住的角色也有共同的模式。

Some parts are protecting the system and others are being protected by them.有些部分正在保护系统，而其他部分则受到系统的保护。

- There are two kinds of protectors: 有两种保护者：
- - Managers 管理者
- - Firefighters消防员
- The protected parts are called exiles because they seemed to be locked in inner dungeons, cave and basements.被保护的部分被称为流亡者，因为他们似乎被锁定在内部地牢、洞穴和地下室中。

Exercise: Getting to Know a Part

- **Purpose:** To help you have a brief experience of IFS.目的：帮助您简要介绍IFS。
- **Directions:**方向

- Pick a part you would like to get to know better. Do not pick one you have extreme feelings about.选择一个你想要更好地了解的部分。 不要选择一个你有极端感情的部分

- It could be a thought pattern, emotion, sensation, inner voice它可能是一种思维模式， 情感，感觉， 内心的声音.

- Focus on it and find it in your body.专注于它， 并在你的身体中找到它

- Notice how you feel toward it.注意你对它的感受

- If you feel anything besides curiosity or compassion, then find the parts giving you those other feelings and ask them to step back.如果除了好奇或同情之外你还有其他感受， 那么找到给你那些其他感受的部分并让他们退后一步

- If they will not step back, just spend the time learning what they are afraid of.如果他们不退后，只要花时间学习他们害怕的东西

- If they will and you do feel at least curious, then get to know what the part wants you to know about itself 如果他们愿意并且您确实至少感到好奇， 那么就要了解这部分需要您了解的内容。

How Parts Become Exiles: I. Through Wounding部分如何成为流亡者：I. 通过伤害

• Were you ever humiliated, rejected, made to feel worthless or traumatized?你是否曾被羞辱，被拒绝，感到毫无价值或受到创伤？

• What did you try to do with the emotions, memories, sensations and beliefs from those episodes?您尝试对这些情节中的情感，记忆，感觉和信念做了什么？

• What did the people around you tell you to do with all that? Did it work?你身边的人告诉你对这些事情做什么？有效吗？

• Were you forced to take care of one or both of your parents emotionally, organizationally, or sexually, or did you have to parent your siblings?您是否被迫在情感，组织或性方面照顾您的父母中的一方或双方，或者您是否必须养育您的兄弟姐妹？

• If so, what parts did you have to push away in order to function in those roles?如果是这样，为了在这些角色中发挥作用，你必须推开哪些部分？

• How did those parts feel?这些部分是如何感觉的？

You do not wind up locking away just memories and emotions, but also the parts that carry those emotions – the parts that were hurt the most by those experiences.你不会把记忆和情绪锁起来，而是带走那些情感的部分 - 这些部分受到这些经历的伤害最大。

• Usually those are your most sensitive, creative, intimacy-loving, lively, playful and innocent parts.通常这些是你最敏感，最有创造力，亲密爱好，活泼，好玩和无辜的部分。

• By exiling them when they get hurt, they suffer a double whammy – the insult of your rejection is added to their original injury. 当他们受到伤害时放逐他们，他们遭受双重打击 - 你的拒绝的侮辱加在原来的伤害上。

Parts form a network of polarized and protective inner relationships with one another. Because of this network, it is very difficult for any one part to change without others changing first.
Created by trauma, i.e., fragments of the once unitary mind that was shattered – instead, trauma makes more extreme and polarized the pre-existing system of parts.

- What they first appear to be – that is just the role they were forced into and do not enjoy.
- Not simply metaphors – they cannot be imagined or created. They have a powerful inner existence and should be treated as such.
- Unidimensional – they are not mere bundles of emotion or thought, but are full range personalities, i.e., the angry part is not just angry, but, is often a teen who carries fear and pain, but is stuck in the role of the angry one.
- To be eliminated or even battled – instead, they are to be understood and appreciated.
- they quickly transform into something valuable once they feel understood and can unburden.

各部分形成彼此极化和保护性的内在关系网络。由于这个网络，任何一个部分都很难在没有其他部分改变的情况下进行改变。
由创伤创造，即曾被破碎的曾经单一思维的碎片 - 相反，创伤使得先前存在的部分系统更加极端和极化。

- 他们最初看起来是什么 - 这只是他们被迫进入和不被享受的角色。
- 不仅仅是隐喻 - 它们无法想象或创造。他们有强大的内在存在，应该这样对待。
- 一维 - 它们不仅仅是情感或思想的束缚，而是全方位的个性，即愤怒的部分不只是生气，而且，往往是一个带着恐惧和痛苦的青少年，但却被困在愤怒的角色中。
- 被淘汰甚至战斗 - 相反，他们应该被理解和欣赏。
- 一旦他们感到理解并且可以放松，他们很快就会变成有价值的东西。

Managers管理者

If exiles are hurt, they can break out and take over. Consequently there are parts whose job it is to never let that happen.如果流亡者受到伤害，他们就会爆发并接管。因此，有些部分的工作就是永远不要让这种情况发生。

- To protect our exiles and protect your system from them, these parts believe they have to manage your day-to-day life, and do so in such a way that nothing happens that could trigger the exile.为了保护我们的流亡者并保护你的系统，这些部分相信他们必须管理你的日常生活，并且这样做是为了不会发生任何可能引发流亡的事情。
- These managers are like parentified children who have no trust in your ability to protectthe system because you did not in the past.这些管理者就像身份不明的孩子，他们不相信你保护系统的能力，因为你过去没有。
- They are basically preemptive – trying to anticipate danger and to control your externaland internal environments to prevent the triggering of exiles.它们基本上是先发制人 - 试图预测危险并控制外部和内部环境以防止触发流亡者。
  - To control internally they can:要在内部控制，他们可以：

- Hijack your senses to distort your perception so that you deny troubling events or see only what they want you to see.劫持你的感官以扭曲你的感知，以便你拒绝令人不安的事件或只看到他们想要你看到的东西

- Numb your sensations and make you disconnected from your feelings or distract you from them by keeping you obsessed with something else.通过让你沉迷于别的东西，麻痹你的感觉，让你脱离感情或分散注意力。

- It is important to remember that managers carry huge burdens of responsibility and are in over their heads. While you may resent their stifling or nagging, they deserve your appreciation and compassion.重要的是要记住，管理者承担着巨大的责任和负担。虽然你可能会怨恨他们的沉闷或唠叨，但他们应该得到你的赞赏和同情。

What Happens When the Managers Don't Succeed?当管理者没有成功时会发生什么？

- Despite the managers' best efforts, life will trigger your exiles. When that happens it is

very scary, like there is an explosion inside and flames of emotion threaten to engulf you.

尽管管理者做出了最大的努力，但生活将触发流亡者。当发生这种情况时，非常可怕，就像里面有爆炸，情绪烈焰威胁着你。

Exiled Parts Can Be Dangerous流亡的部分可能是有危险的

- Because of being frozen in time during the trauma, and then locked away by you, your因为在创伤期间身体僵住，然后被你锁定，你的
- Exiles are often in very extreme states of despair, fear, shame, emptiness and neediness – they are like love-starved children.流亡者往往处于绝望，恐惧，羞耻，空虚和贫困的极端状态 - 他们就像极度缺爱的孩子。
  They think that the only way they can get any attention is to totally take over, so when given the chance, they do. 他们认为能够得到任何关注的唯一方法就是完全接管，所以当有机会的时候，他们就会这样做。
- Clients will come in with stories of how bad it was in the past when an exile took over and how they never want to feel that way again.来访者将会有一个故事，讲述过去流亡者接手时的糟糕程度，以及他们再也不想要那种感觉了
- Consequently other parts think that the state their exiles are in is who they are, and resolve to keep them locked up.因此，其他部分认为他们的流亡者的所在就是他们是谁，并决心将他们锁起来。
- In addition, some exiles are especially dangerous because they carry an intense drive to be redeemed by the person who originally made them feel worthless, or someone who resembles that person. As a result, they will keep making you open up to the wrong person who will keep hurting you. 此外，一些流亡者特别危险，因为他们带着强烈的驱力，要被最初使他们感到毫无价值的人或类似于那个人的人救赎。结果，他们会继续让你对那些会伤害你的错误的人敞开心扉。
  The point is that protectors have good reason to fear the exiles. Their fears should be respected and explored. 关键是保护者有充分的理由担心流亡者。他们的恐惧应该受到尊重和探索。

Consequently you have another set of parts that immediately go into action to either put out the fire somehow or dissociate you from it—they try to douse the fire with a substance, pacify it by finding a person to redeem or comfort you, create alternative sensation to distract from it or find a way to get you out of your body so it burns itself out.因此，你有另一部分立即采取行动，以某种方式灭火或将你与之分离 - 他们试图用一种物质扑灭火，通过寻找一个人来拯救或安慰你，创造另类的感觉来安抚它，分散注意力或找到一种方法让你离开你的身体，这样它就会自行消失。

• Firefighters tend to be:消防员往往是：

- Frantic疯狂

- Reactive反应

-Impulsive冲动

Will use whatever means necessary because often they believe your life is at stake将使用任何必要的手段，因为他们通常认为你的生命受到威胁

What is your first impulse when one of your exiles is triggered?当你的一个流亡者被触发时，你的第一个冲动是什么？

• Do you binge on food, work, television, internet, shopping, sex, flirting, cigarettes, and fantasies?你是否喜欢食物，工作，电视，互联网，购物，性爱，调情，香烟和幻想？

• When those do not work do their parts resort to more drastic measures – drugs alcohol, suicidal thoughts, rage, self-mutilation, compulsive sex, affairs, stealing, sudden pains or illnesses?当那些部分不工作时，他们采取更激烈的措施 – 药物 饮酒，自杀念头，愤怒，自残，强迫性行为，事务，偷窃，突发性疼痛或疾病？

The Goals of IFS

To help all your parts unburden and discover who they really are and what they want to do.帮助你的所有部分减轻负担，并发现他们的真实身份以及他们想要做的事情。

• To create a new network of harmonious relationships among your transformed parts.在你转变的各部分之间建立一个和谐的人际关系新网络。

• To help your parts know it is safe to let your Self embody and trust your Self to lead.为了帮助你的部分知道，让你自己呈现并信任你的自我引导是安全的。

• To create more Self-to-Self relationships with other people.与其他人建立更多自我与自我的关系。

• As all this happens:所有这些都发生了：

- There will be no more rigid managers, firefighters and exiles.将不再有严格的管理人员，消防员和流亡者。

- They will become many happy parts; some are playful children while others assist the Self in ways they enjoy; none are locked in rigid roles.他们将成为许多快乐的部分;有些是顽皮的孩子，有些则以自己喜欢的方式帮助自我;没有人被锁定在严格的角色中。

- You will feel more integrated but you will still have parts.你会感觉更加整合，但你仍然会有部分。

- Since they function harmoniously you will feel more unitary, like a flock of birdsor school of fish.由于它们和谐地运作，你会感觉更加单一，就像一群鸟类或鱼群。

- The symptoms that were the result of their protectiveness, attempts to get your attention or to sabotage you, will disappear.由于其保护性，试图引起注意或破坏你的症状，这些症状将会消失。

- Things that used to trigger you in the external world will not bother you much.过去在外部世界触发你的事情不会打扰你。

- You will find increasing clarity regarding what you are here to learn and to do.你会发现在这里学习和做的事情越来越清晰。

• Thus, the goal is not to simply accept and learn to cope with extreme parts, the goal is transformation因此，目标不是简单地接受并学会应对极端部分，目标是转型

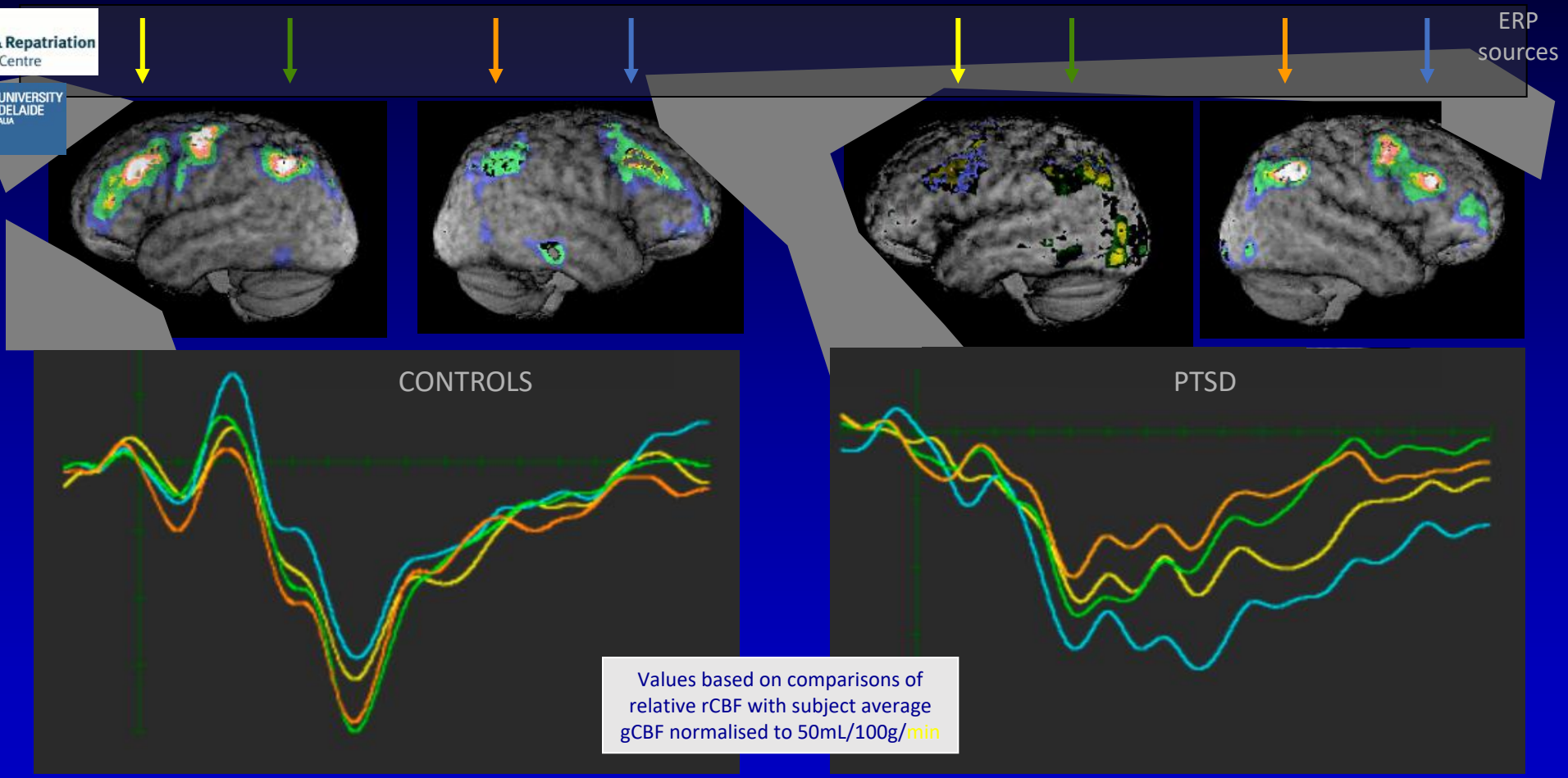
Overcoming trauma

1. (re-)establishing community（重新）建立社区
2. Effective action有效的行动
3. Dealing with affect regulation应对情感调节
4. Accessing the emotional brain- knowing one's self接近情绪脑-了解你自己
5. **Processing traumatic memories加工创伤记忆**
6. Dealing with parts处理各部分
7. **Re-wiring neural circuits (neurofeedback)**重新连接神经回路（神经反馈）

Breakdown in cortical timing in PTSD
PTSD皮层定时崩溃

Austin & Repatriation Medical Centre

THE UNIVERSITY OF ADELAIDE AUSTRALIA



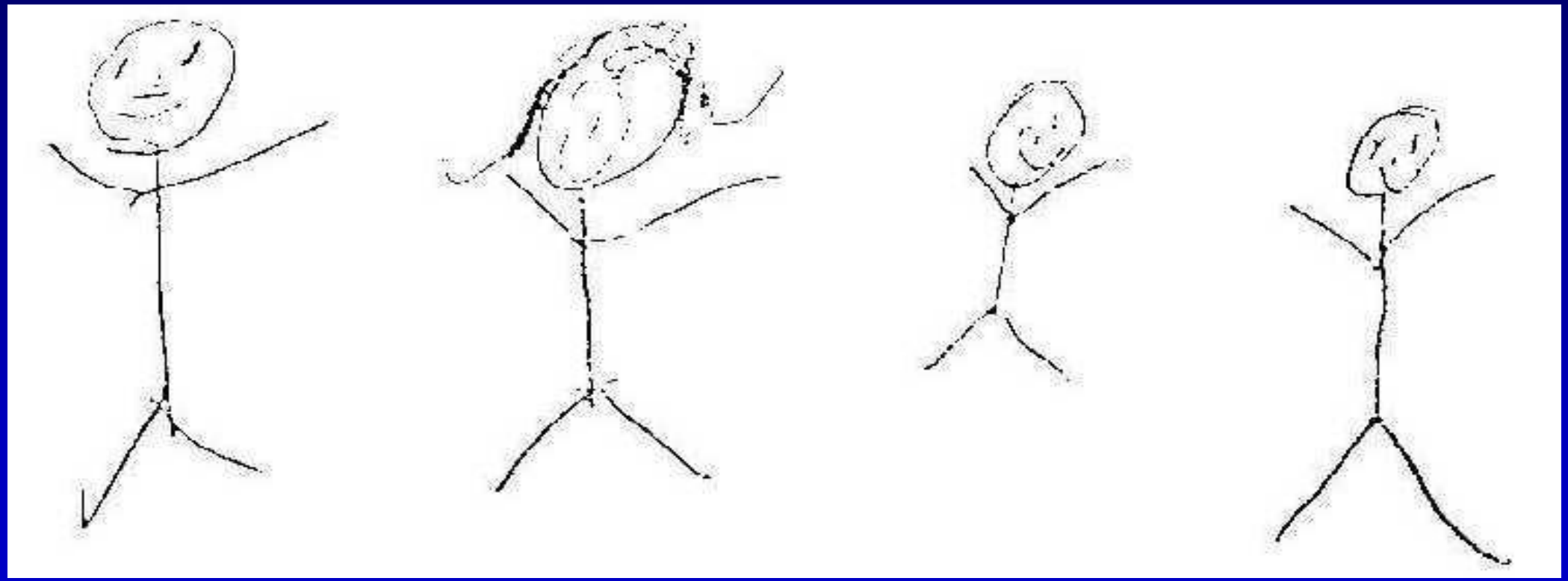
Values based on comparisons of relative rCBF with subject average gCBF normalised to 50mL/100g/min

Clark, Egan, McFarlane, Morris, Weber, Sonkkilla, Marcina, Tochon-Danguy. (2000) Human Brain Mapping. 9(1): 42-54

Clark,McFarlane,Morris,Weber,Sonkkilla, Marcina, Egan (in submission)

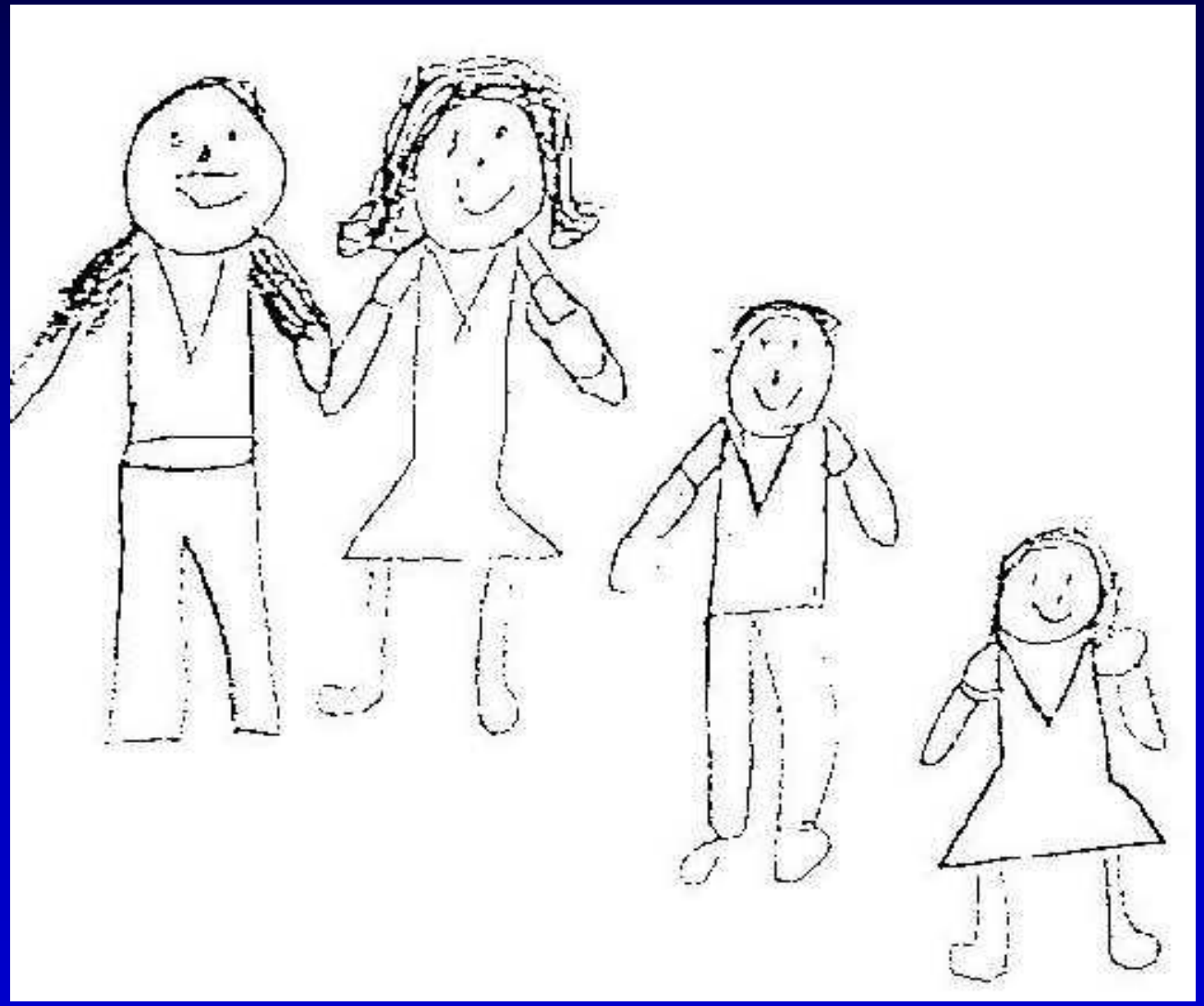
证道心理

Child's Family Drawing at Beginning of NF - 8/3/94



Drawing after Twenty Sessions - 9/8/94

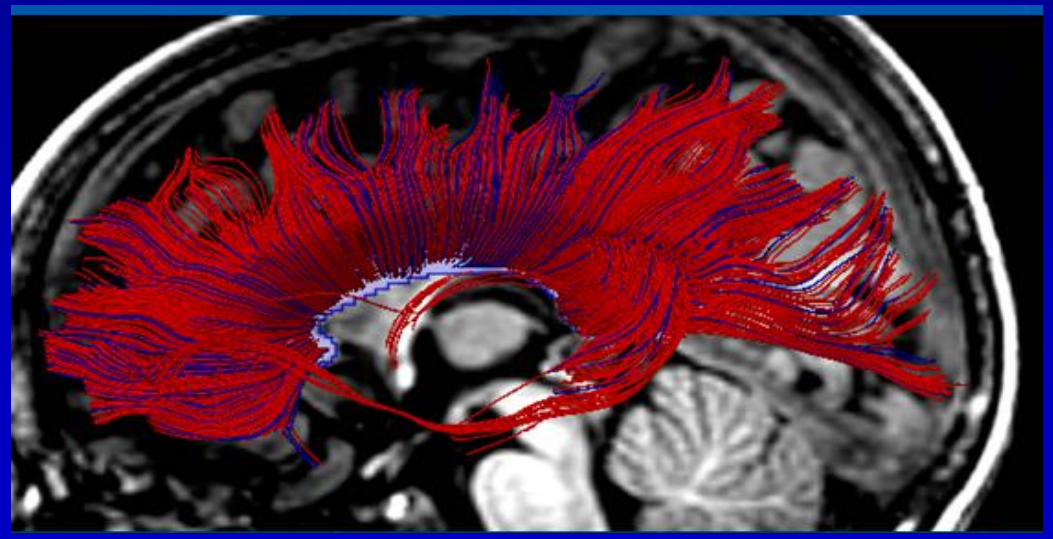
Drawing after forty sessions - 11/25/94

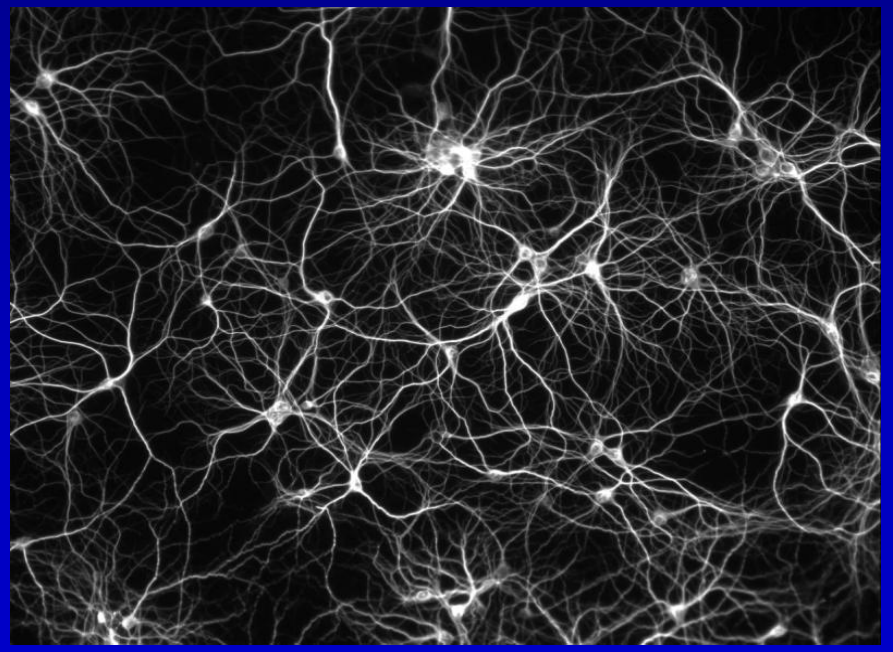


In adult centers the nerve paths are something fixed, ended, immutable.
Everything may die, nothing may be regenerated.
It is for the science of the future to change, if possible, this harsh decree.
-Santiago Ramon y Cajal, 1928,
founder of modern neuroanatomy

在成人中心，神经通路是固定的，发展终止的，不可改变的。一切都将枯萎，没有任何东西可以再生。未来的科学可能改变这个严厉的裁决。？-Santiago Ramon y Cajal，1928，现代神经解剖学的创始人

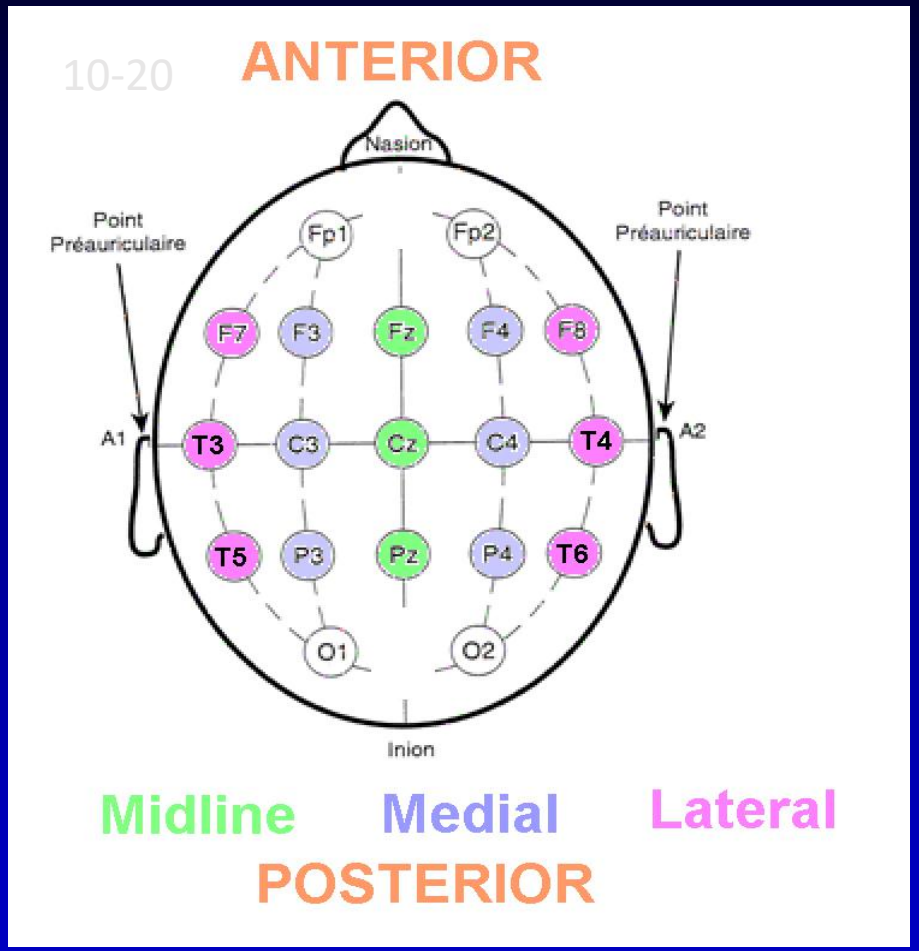
Anatomy is destiny – *Freud*解剖学即命运 - 弗洛伊德

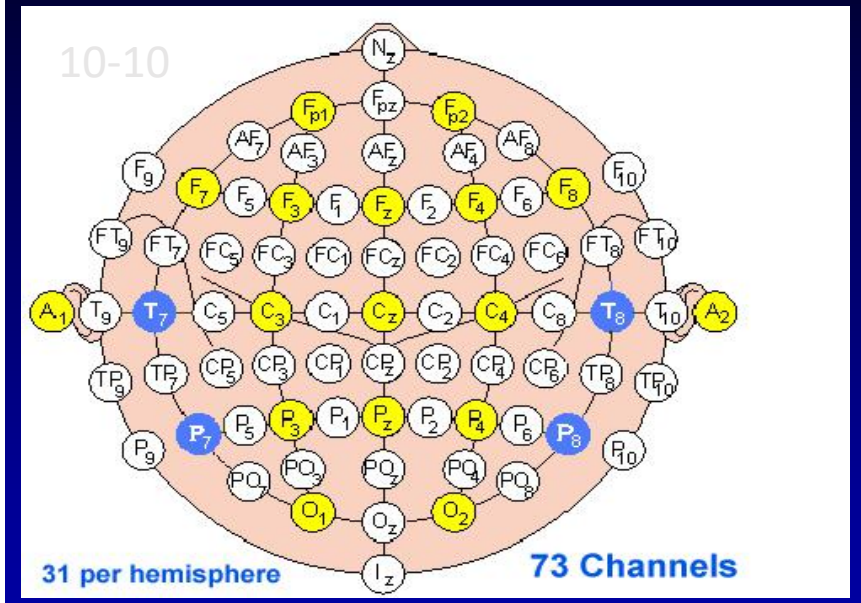




证道心理

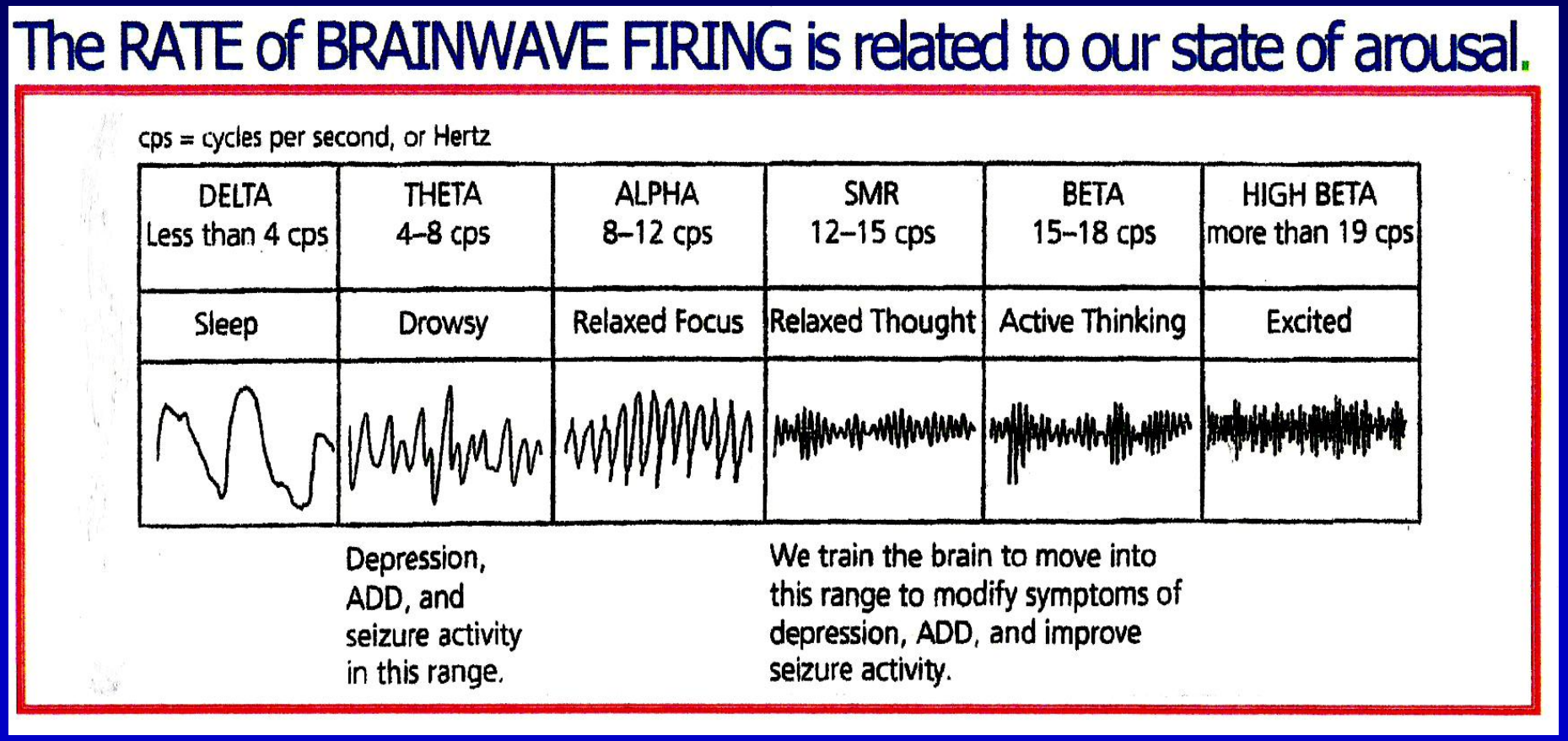
International System of Electrode Placement (1958; 1974)
电极放置的国际系统





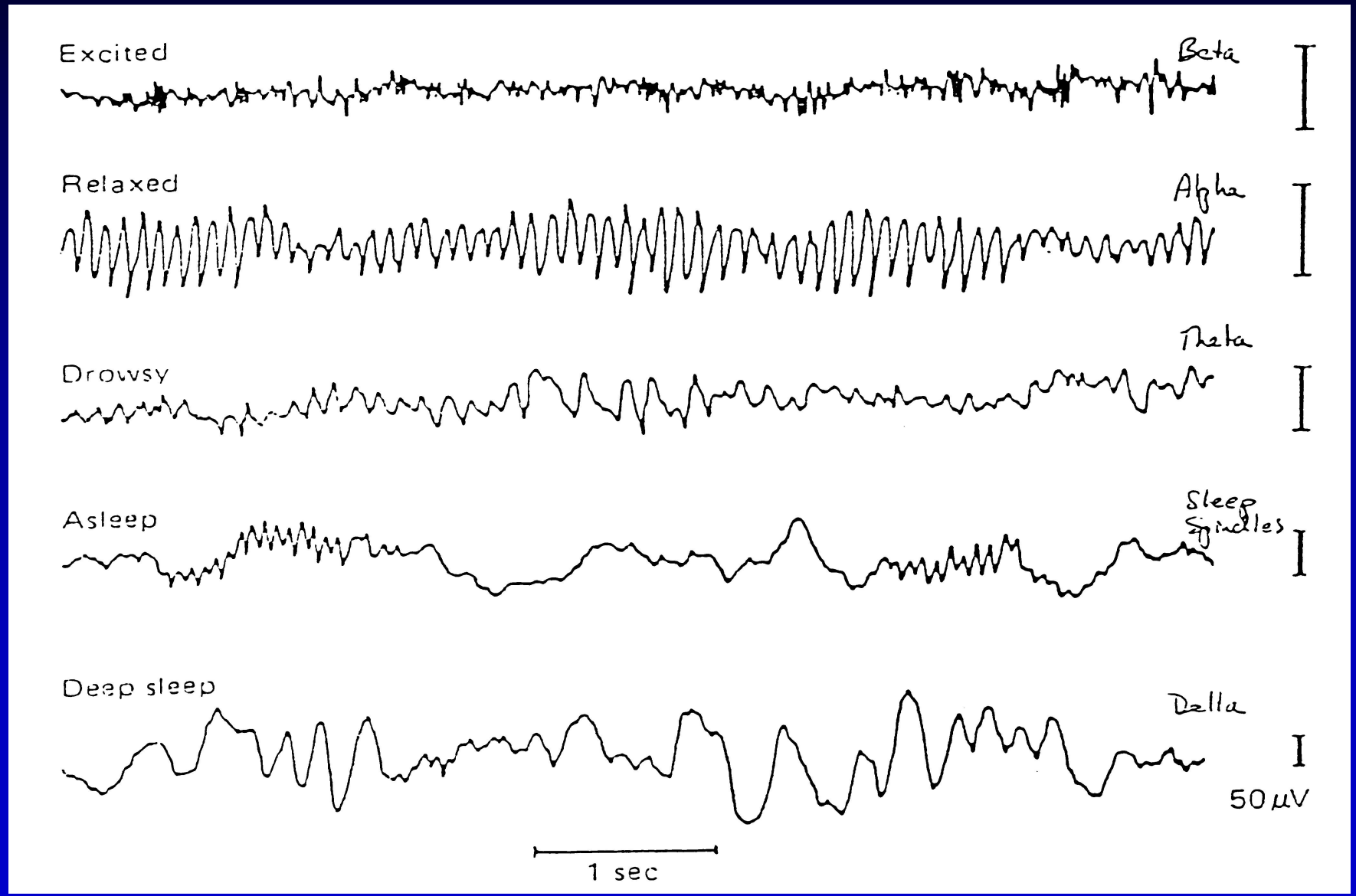
证道心理

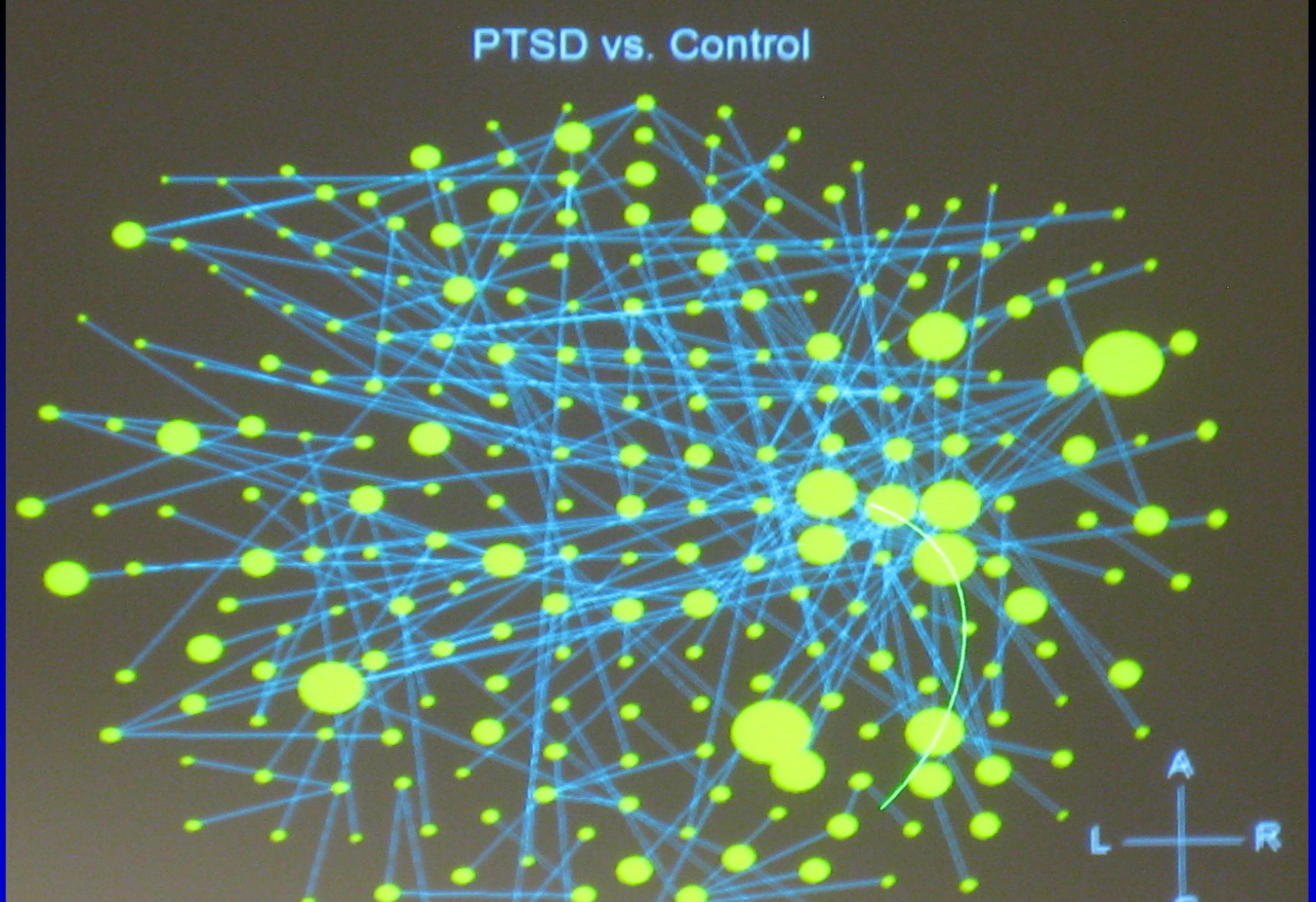
Many conditions result from problems with regulation of arousal许多情况是由唤醒调节的问题引起的

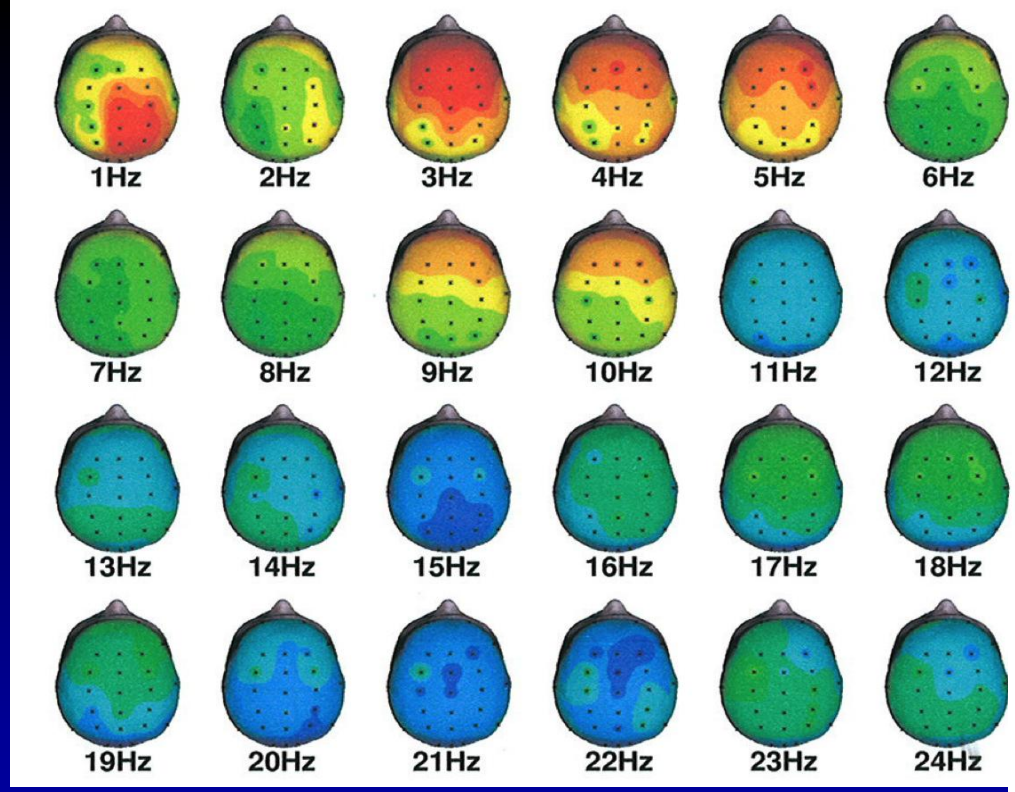


证道心理

State of Arousal and EEG Wave Patterns







12 Year old Somali refugee boy with serious impulse control and concentration problems, making classroom attendance impossible.
12岁的索马里难民男孩有严重的冲动控制和注意力集中问题，无法上课。
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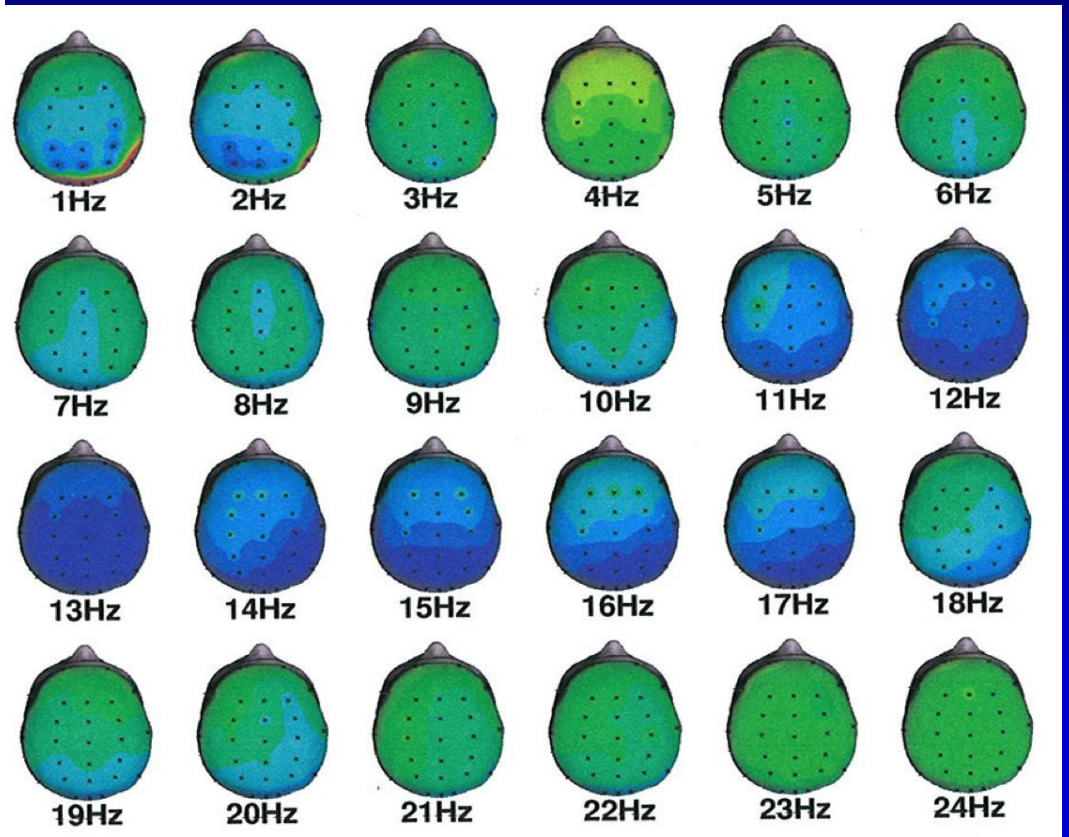
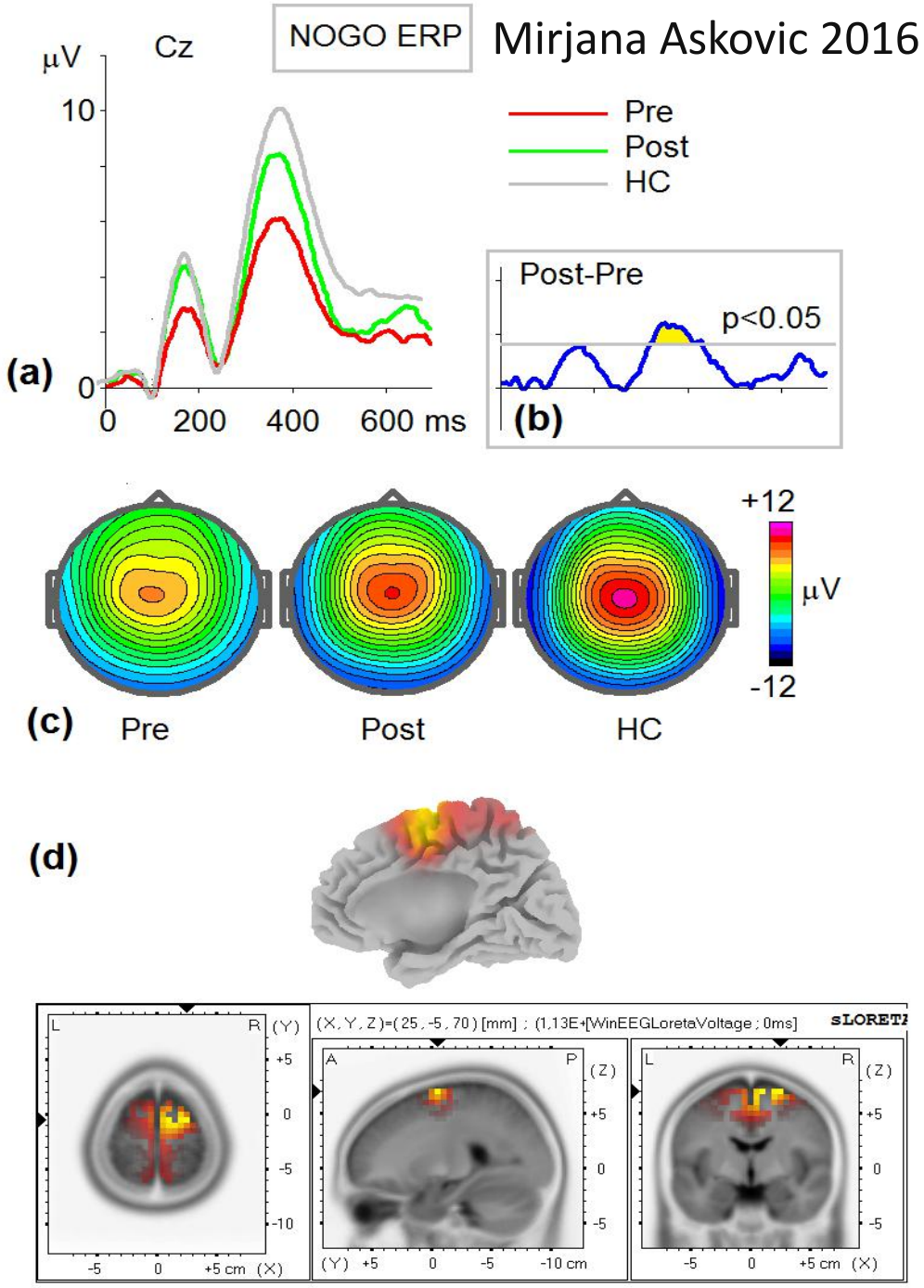


20 weeks of F3-F4 down training of frontal Δ, resulting in good adjustment
数周的前额Δ F3-F4向下训练，导致良好的适应



In PTSD (N=13) pr) and after post 25 sessions of neurofeedback . Grand average ERPs at Cz for NOGO stimuli in the group of PTSD patients before (red) and after (green) neurofeedback sessions in comparison to healthy subjects, same age (N=49). Post-Pre difference wave with the confidence level of statistical significance at p<0.05. Maps computed at maximums of P300 for Pre, Post and healthy control (HC) subjects sLORETA images of the Post-Pre difference waves.

创伤后应激障碍（N = 13）pr）和25次神经反馈后。与健康受试者相比，在相同年龄（N = 49）的神经反馈前，在创伤后应激障碍患者组中，在创伤后应激障碍患者组中的NOGO刺激的Cz的平均ERP高。具有统计显著性的置信水平的Post-Pre差异波在p <0.05。对于Pre，Post和健康对照（HC）受试者，在Post-Pre差异波的sLORETA图像的最大P300下计算的差异。

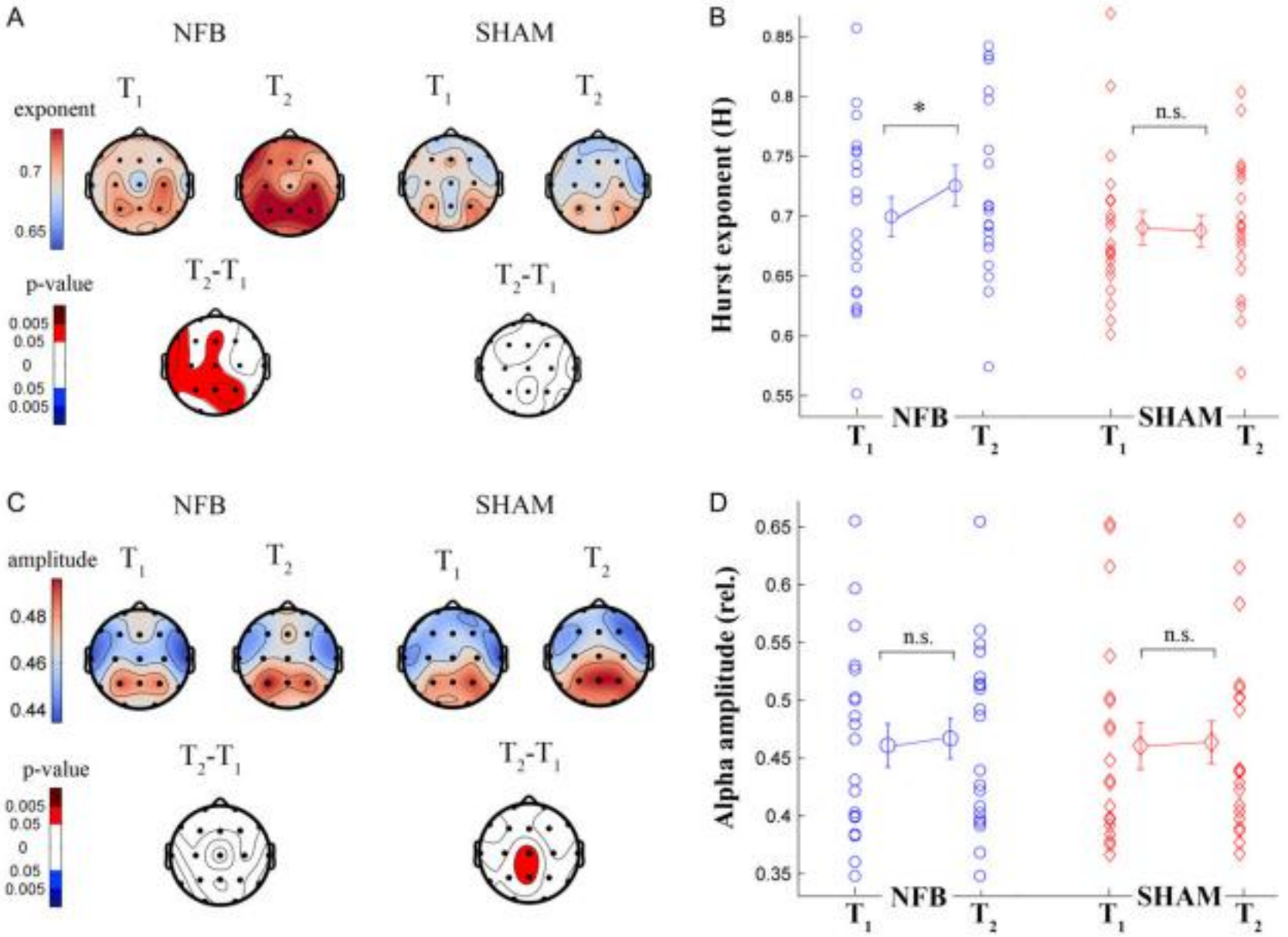


Figure 3. Pre (T_1) and post (T_2) resting-state changes in NFB and sham (SHAM) groups. (*A*) Topography of Hurst exponents in the alpha-band reflecting LRTCs; (*B*) mean alpha Hurst exponents; (*C*) mean alpha Hurst exponents; and (*D*) mean alpha amplitudes of individual NFB subjects (blue circles) and SHAM subjects (red diamonds). Grand averages indicate all subjects, error bars denote ±SEM. *Significant difference at $P < 0.05$, n.s., not significant.

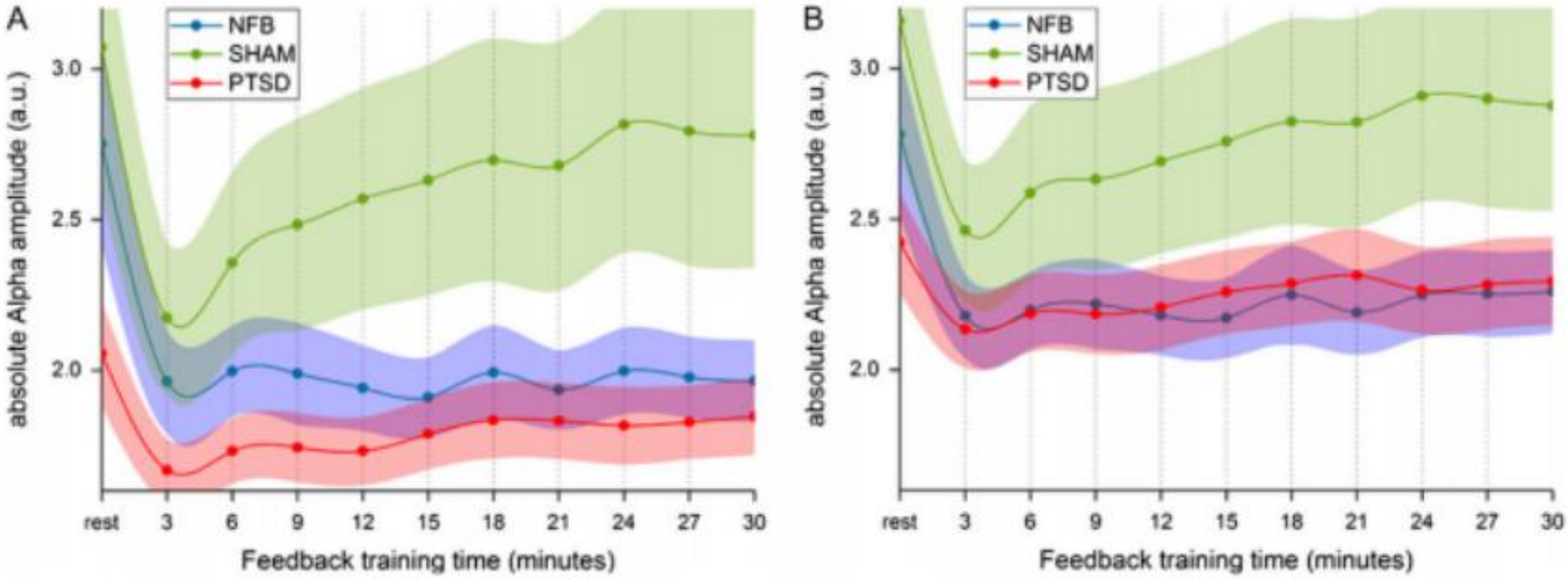
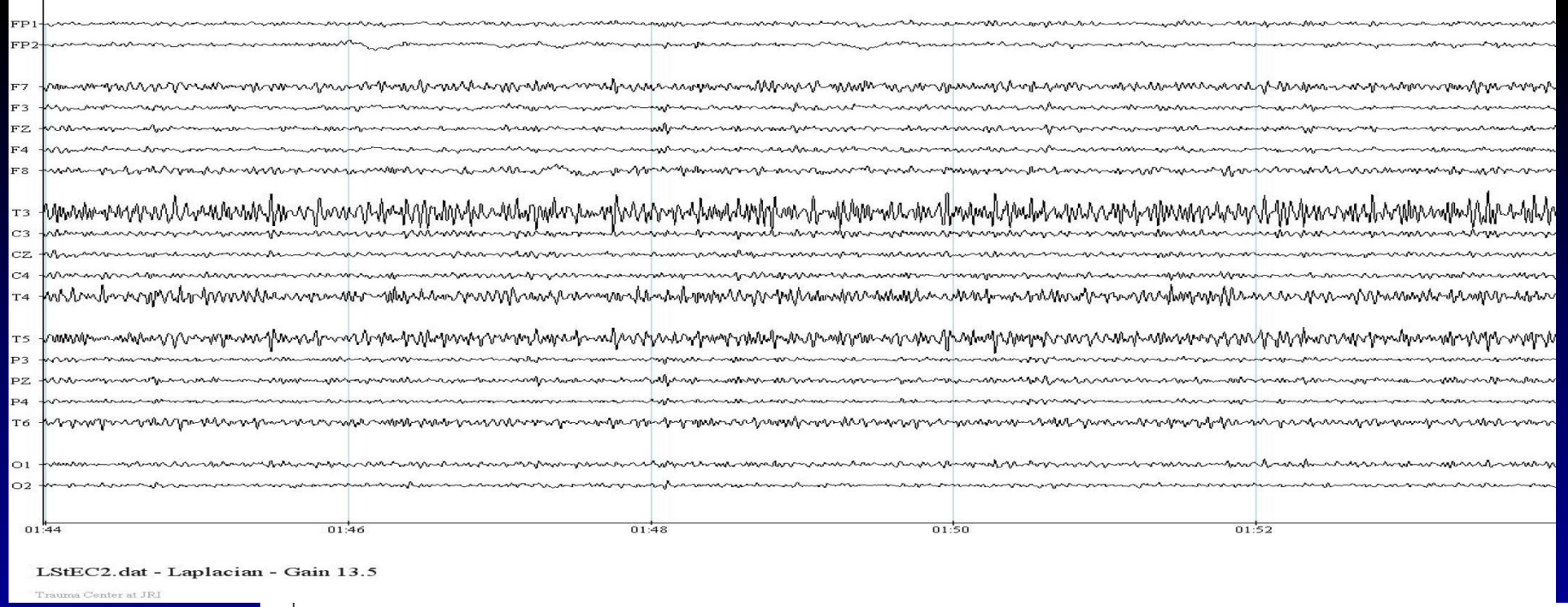


Figure 7. Temporal evolution of alpha amplitude "during" feedback training, for real-NFB healthy subjects (NFB), sham-feedback healthy subjects (SHAM), and PTSD patients. Rest represents the initial 3-min resting-state recording (i.e., T_3). The subsequent feedback training was subdivided into 10 periods (3–30 min). (A) absolute alpha amplitude at the feedback site (channel Pz); (B) absolute alpha amplitude globally (i.e., mean of all channels).



LStEC2.dat - Laplacian - Gain 13.5

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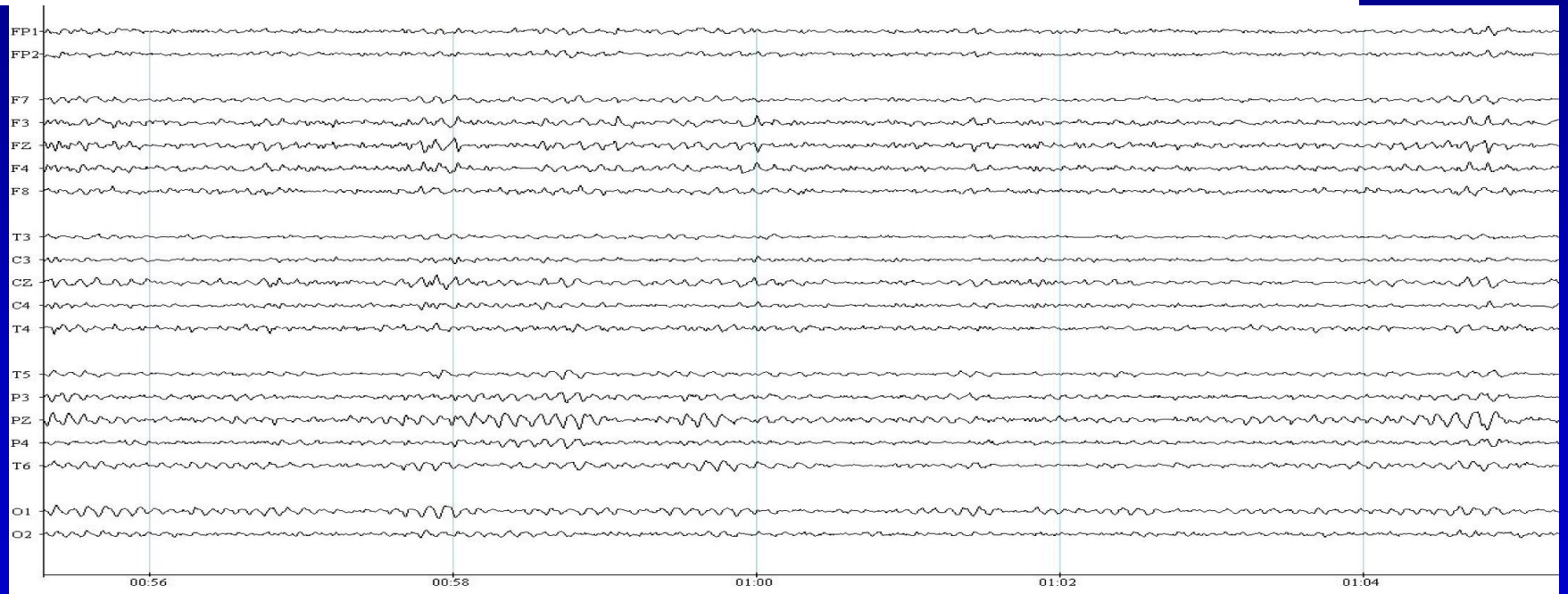

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慢性PTSD神经反馈的随机对照研究

PLOS ONE

RESEARCH ARTICLE

A Randomized Controlled Study of Neurofeedback for Chronic PTSD

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Abstract

Introduction

Brain/Computer Interaction (BCI) devices are designed to alter neural signals and, thereby, mental activity. This study was a randomized, waitlist (TAU) controlled trial of a BCI, EEG neurofeedback training (NF), in patients with chronic PTSD to explore the capacity of NF to reduce PTSD symptoms and increase affect regulation capacities.

Study Design

52 individuals with chronic PTSD were randomized to either NF (n = 28) or waitlist (WL) (n = 24). They completed four evaluations, at baseline (T1), after week 6 (T2), at post-treatment (T3), and at one month follow up (T4). Assessment measures were:1. Traumatic Events Screening Inventory (T1); 2. the Clinician Administered PTSD Scale (CAPS; T1, T3, T4); 3. the Davidson Trauma Scale (DTS; T1-T4) and 4. the Inventory of Altered Self-Capacities (IASC; T1-T4). NF training occurred two times per week for 12 weeks and involved a sequential placement with T4 as the active site, P4 as the reference site.

Results

Participants had experienced an average of 9.29 (*SD* = 2.90) different traumatic events. Post-treatment a significantly smaller proportion of NF (6/22, 27.3%) met criteria for PTSD than the WL condition (15/22, 68.2%), $\chi 2$ ($n = 44$, $df = 1$) = 7.38, $p = .007$. There was a significant treatment condition x time interaction ($b = -10.45$, $t = -5.10$, $p < .001$). Measures of tension reduction activities, affect dysregulation, and affect instability exhibited a significant Time x Condition interaction. The effect sizes of NF ($d = -2.33$ within, d = - 1.71 between groups) are comparable to those reported for the most effective evidence based treatments for PTSD.

Discussion

Compared with the control group NF produced significant PTSD symptom improvement in individuals with chronic PTSD, as well as in affect regulation capacities. NF deserves further

OPEN ACCESS

Citation: van der Kolk BA, Hodgdon H, Gapen M, Musicaro R, Suvak MK, Hamlin E, et al. (2016) A Randomized Controlled Study of Neurofeedback for Chronic PTSD. PLoS ONE 11(12): e0166752. doi:10.1371/journal.pone.0166752

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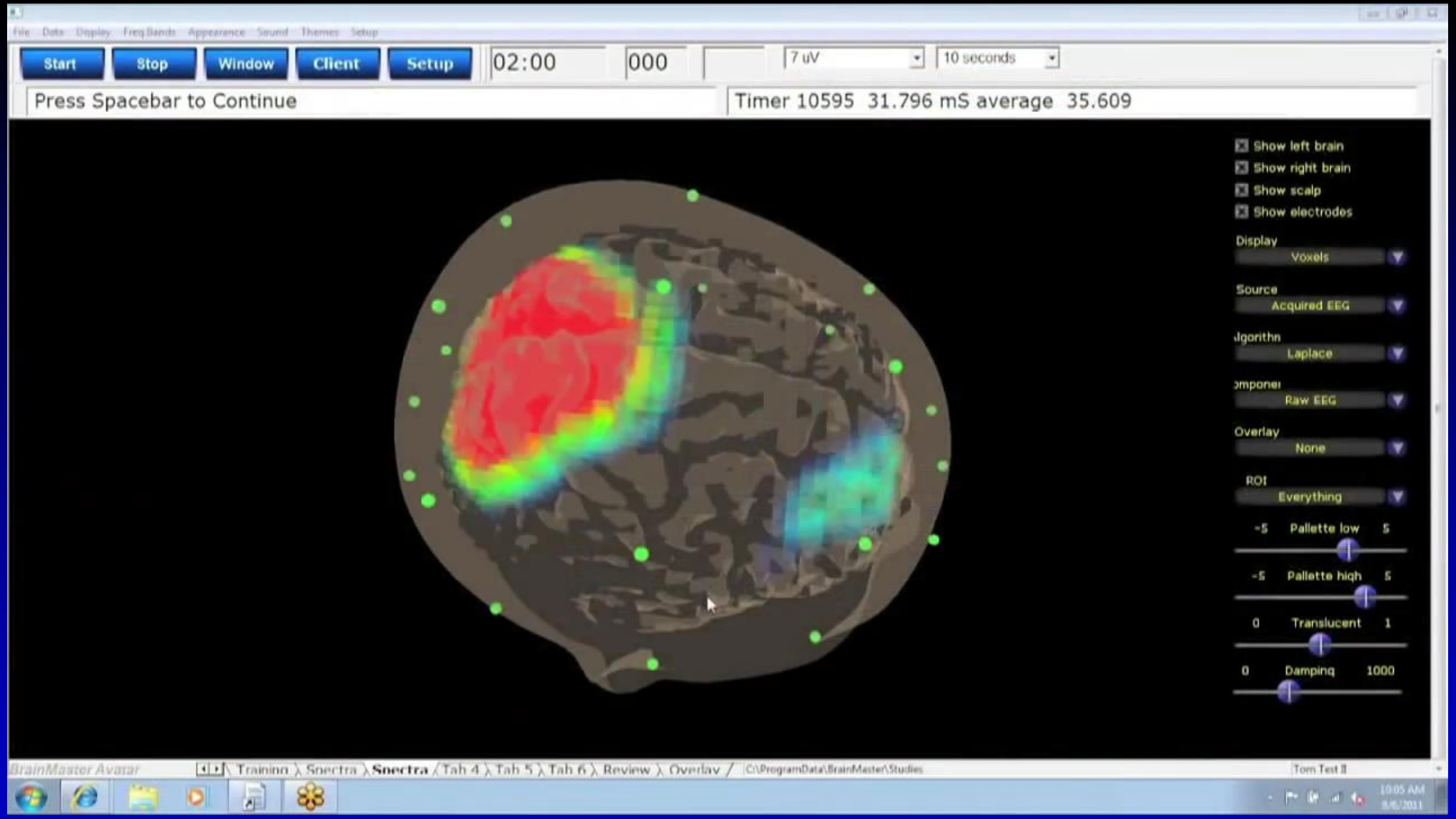
Competing Interests: No competing interests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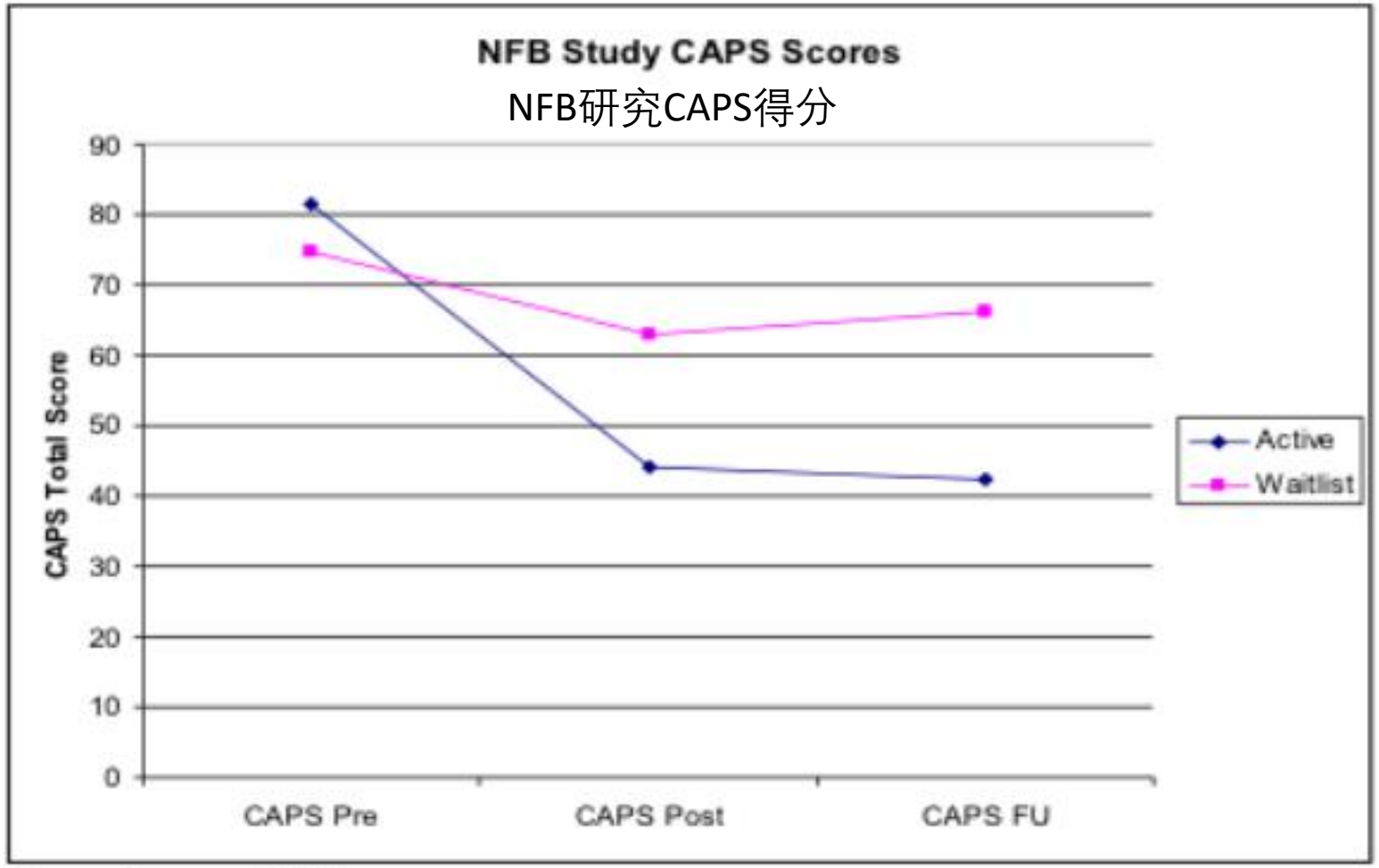


Group Means: CAPS

	CAPS Pre	CAPS Post	CAPS FU
Active (N = 16)	82	44	42
Waitlist (N = 16)	75	63	66

		N	Correlation	Sig.
Pair 1	iasc affect dysregulation total scale at baseline & iasc affect dysregulation total scale at T24	16	.596	.015
Pair 2	iasc identity impairement total scale at baseline & iasc identity impairement total scale at T24	16	.784	.000
Pair 3	iasc idealization-disillusionment scale at baseline & iasc idealization-disillusionment scale at T24	16	-.015	.956
Pair 4	iasc abandonment concerns scale at baseline & iasc abandonment concerns scale at T24	16	.505	.046
Pair 5	iasc susceptibility to influence scale at baseline & iasc susceptibility to influence scale at T24	16	.836	.000
Pair 6	iasc interpersonal conflicts scale at baseline & iasc interpersonal conflicts scale at T24	16	.638	.008
Pair 7	iasc tension reduction activities scale at baseline & iasc tension reduction activities scale at T24	16	.733	.001

1. 情感调节

2.同一性受损

3.理想化-幻灭

4.担心被抛弃

5.易受影响性

6.同一性受损

7.减压活动

Profound effect on executive functioning
对执行功能的深入影响

1) Planning and decision making 计划与决策
2) Error correction and trouble shooting 纠正错误与解答问题
3) Mental flexibility 精神灵活性
4) Figuring out novel & unfamiliar situations找出新奇和不熟悉的情况
5) Dealing with danger 应对危险
6) Resisting temptation and being able to resist habitual impulses
   抵制诱惑，能够抵抗习惯性冲动
7) Self-regulation 自我调节

抑制总分

转变

情感控制

自我监测

主动性

工作记忆

Table 2. Pre-treatment and One-Month Post-treatment Brief levels and Change Estimates

治疗前和治疗后一月 简明水平和估计的改变

Breif Subscale

Change Model	Level-1 Variance	Tx Con	Pre Est. (95%CI)	*g*	1M Post Est. (95%CI)	*g*	Pre-1M Post Change Est. (95%CI)	*g*
Inhibit Total								
linear	32.10%	WL	16.44 (14.92, 17.96)		16.63 (15.20, 18.07)		0.19 (-0.97, 1.35)	0.05
		NF	15.71 (14.28, 17.13)		13.54 (12.15, 14.92)		-2.18 (-3.30, -1.05)	-0.59
		Diff.	0.01 (-0.06, 0.08)	0.00	-3.10 (-5.09, -1.10)	-0.81	-2.37 (-3.97, -0.77)	-0.64
Shift								
ls	53.70%	WL	11.11 (9.90, 12.31)		10.92 (9.81, 12.04)		-0.18 (-1.07, 0.70)	-0.06
		NF	10.93 (9.79, 12.06)		9.45 (8.38, 10.52)		-1.47 (-2.33, -0.61)	-0.50
		Diff.	-0.07 (-0.38, 0.25)	-0.02	-1.47 (-3.02, 0.08)	-0.52	-1.29 (-2.53, -0.05)	-0.44
Emotional Control								
linear	24.50%	WL	20.52 (19.22, 21.82)		20.14 (18.79, 21.48)		-0.38 (-1.32, 0.56)	-0.12
		NF	19.06 (17.83, 20.28)		17.40 (16.11, 18.69)		-1.66 (-2.57, -0.75)	-0.52
		Diff.	-0.02 (-0.08, 0.03)	-0.01	-2.74 (-4.6, -0.88)	-0.85	-1.28 (-2.57, 0.01)	-0.40
Self Monitor								
linear	36.10%	WL	11.66 (10.78, 12.53)		11.66 (10.72, 12.59)		0.00 (-0.88, 0.88)	0.00
		NF	11.17 (10.35, 11.99)		9.82 (8.91, 10.73)		-1.34 (-2.19, -0.50)	-0.61
		Diff.	0.00 (-0.05, 0.05)	0.00	-1.84 (-3.14, -0.53)	-0.73	-1.34 (-2.57, -0.12)	-0.61
Initiate								
linear	28.20%	WL	15.38 (14.23, 16.53)		15.27 (14.03, 16.51)		-0.11 (-1.24, 1.02)	-0.04
		NF	14.71 (13.63, 15.78)		12.89 (11.69, 14.09)		-1.81 (-2.91, -0.71)	-0.63
		Diff.	-0.01 (-0.08, 0.06)	0.00	-2.38 (-4.11, -0.65)	-0.73	-1.71 (-3.28, -0.14)	-0.60
Working Memory								
linear	42.30%	WL	16.61 (15.24, 17.98)		16.16 (14.72, 17.6)		-0.45 (-1.73, 0.84)	-0.13
		NF	15.87 (14.58, 17.15)		13.53 (12.13, 14.92)		-2.34 (-3.59, -1.08)	-0.70
		Diff.	-0.03 (-0.11, 0.05)	-0.01	-2.64 (-4.64, -0.63)	-0.80	-1.89 (-3.68, -0.10)	-0.57

组织计划

行为调节指数

整体综合执行功能

Plan Organize								
linear	58.70%	WL	19.67 (18.18, 21.15)		19.58 (18.12, 21.04)		-0.08 (-1.4, 1.24)	-0.02
		NF	18.48 (17.08, 19.88)		15.96 (14.55, 17.38)		-2.51 (-3.8, -1.23)	-0.69
		Diff.	-0.01 (-0.09, 0.08)	0.00	-3.62 (-5.65, -1.58)	-0.94	-2.43 (-4.28, -0.58)	-0.67
Task Monitor								
linear	42.50%	WL	10.21 (9.3, 11.12)		10.54 (9.59, 11.49)		0.34 (-0.51, 1.18)	0.15
		NF	10.39 (9.54, 11.24)		9.20 (8.28, 10.12)		-1.18 (-2.00, -0.37)	-0.52
		Diff.	0.02 (-0.03, 0.07)	0.01	-1.34 (-2.66, -0.02)	-0.57	-1.52 (-2.71, -0.33)	-0.67
Organization of Materials								
linear	19.30%	WL	14.9 (13.66, 16.15)		15.02 (13.49, 16.54)		0.11 (-0.86, 1.08)	0.04
		NF	15.23 (14.06, 16.39)		13.21 (11.75, 14.66)		-2.02 (-2.96, -1.08)	-0.63
		Diff.	0.01 (-0.05, 0.07)	0.00	-1.81 (-3.91, 0.3)	-0.46	-2.13 (-3.48, -0.78)	-0.67
Behavioral Regulation Index								
linear	49.60%	WL	48.62 (45.37, 51.87)		48.4 (45.17, 51.62)		-0.22 (-2.58, 2.13)	-0.03
		NF	45.94 (42.88, 48.99)		40.65 (37.55, 43.75)		-5.28 (-7.6, -2.96)	-0.66
		Diff.	-0.01 (-0.16, 0.13)	0.00	-7.75 (-12.22, -3.27)	-0.94	-5.06 (-8.38, -1.73)	-0.63
Metacognition Index								
linear	53.90%	WL	76.74 (71.14, 82.34)		76.54 (70.57, 82.5)		-0.21 (-4.79, 4.37)	-0.02
		NF	74.69 (69.43, 79.95)		64.58 (58.82, 70.33)		-10.11 (-14.63, -5.6)	-0.75
		Diff.	-0.01 (-0.3, 0.27)	0.00	-11.96 (-20.24, -3.67)	-0.8	-9.9 (-16.33, -3.48)	-0.73
Global Executive Composite								
quadratic	75.30%	WL	134.25 (124.92, 143.58)		133.11 (123.53, 142.69)		-1.15	-0.05
		NF	129.20 (120.43, 137.96)		112.5 (103.26, 121.74)		-16.62	-0.72
		Diff.	-5.06 (-17.86, 7.75)	-0.22	-20.61 (-33.93, -7.29)	-0.83	-15.47	-0.67

Note: WL = waitlist condition, NF = Neurofeedback condition, Pre = pre-treatment assessment, 1M Post = 1-month post-treatment assessment; *M* = mean, *95%CI* = 95% Confidence Interval, *d* = effect size indicator with .2, .5, and .8 indicating small, medium, and large effect sizes (*d* for change scores calculated as described by Fiengold et al., 2009; d for pre-treatment and 1M

Neural correlates of self-domains: Araujo et al.2015

- 归因

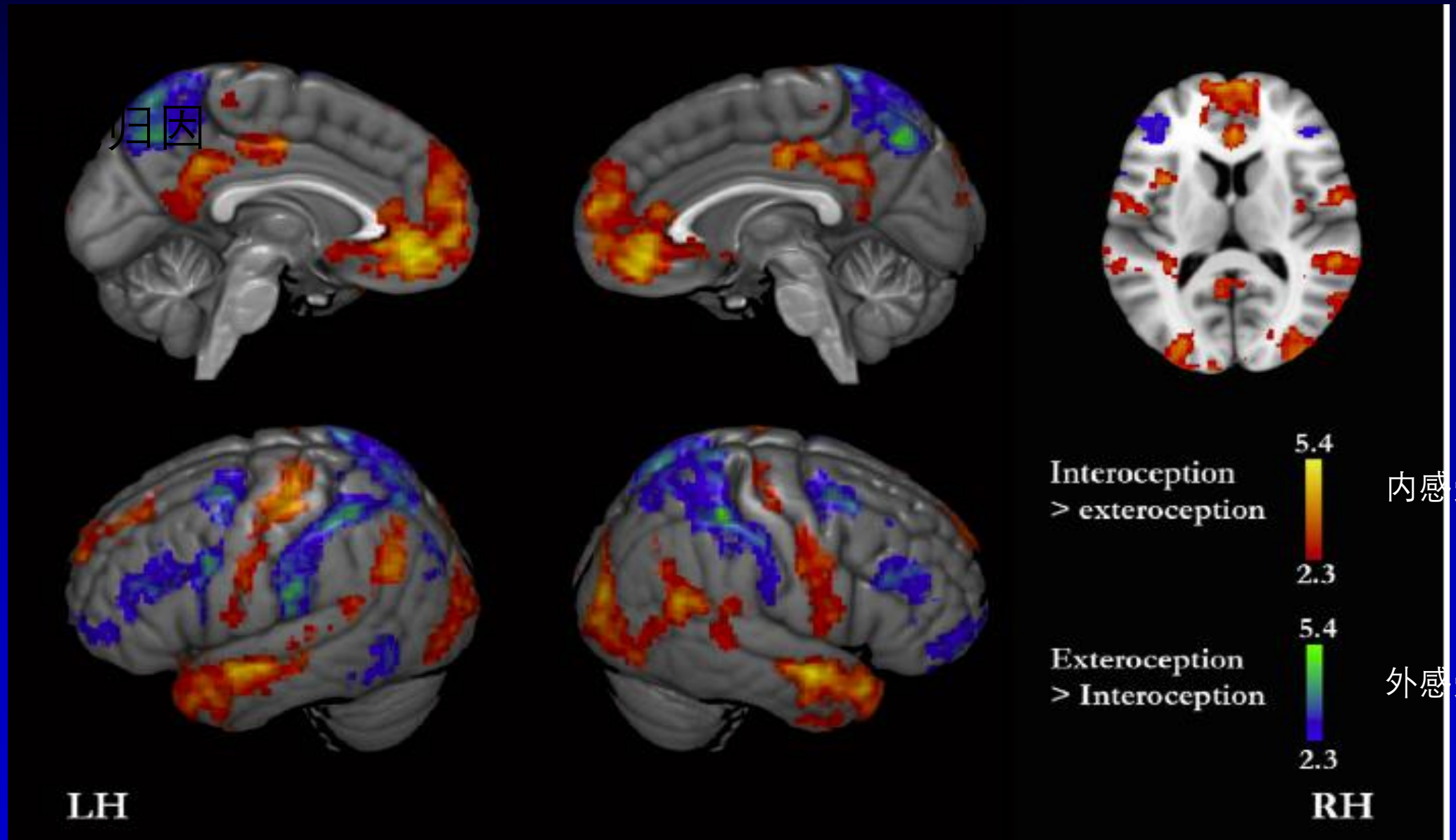
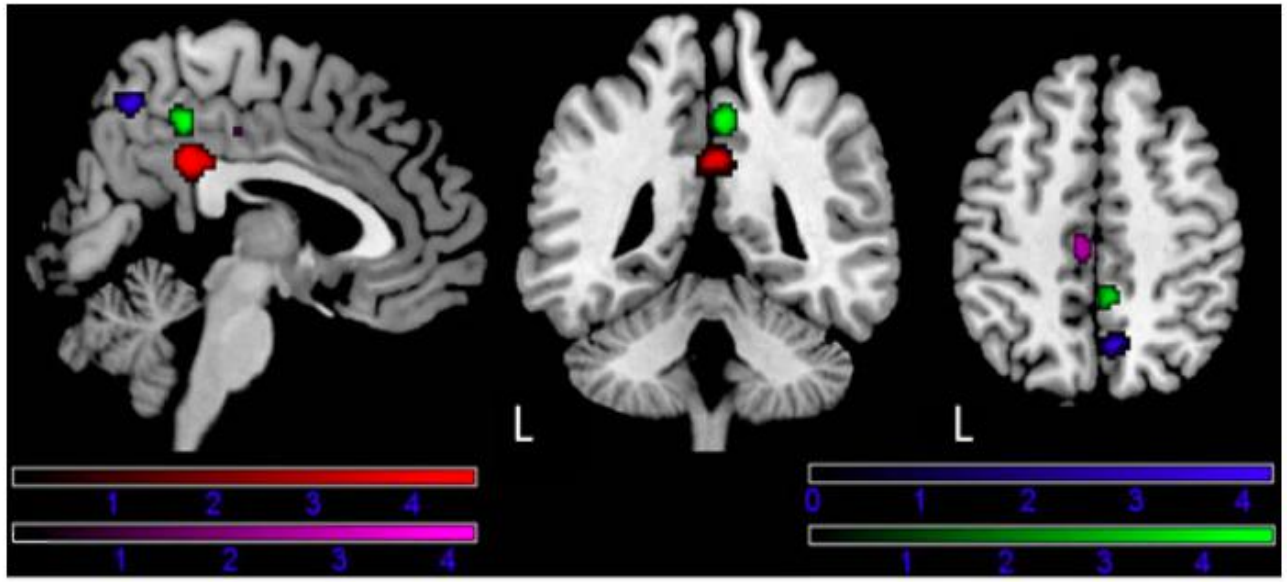


Fig. 4 Schematic depiction of the precuneus and the posterior cingulate cortex in different contrasts addressing three psychological domains (emotion, self-attribution, and biased self-attribution), $p = .001$ uncorrected

图4不同对照的楔前叶和后扣带回皮质的范式描绘，涉及三个心理方面（情绪，自我归因和偏差性自我归因），p=0.001，未矫正



EMOTION 情绪

- Positive Situations > Negative Situations, right posterior cingulate cortex
- Negative Situations > Positive Situations, left posterior cingulate cortex

SELF-ATTRIBUTION 自我归因

- Internal Attribution, posterior portion of the precuneus

BIASED SELF-ATTRIBUTION 偏差性自我归因

- Internal Attribution Positive > Internal Attribution Negative anterior portion of the precuneus

Impact of Neurofeedback on Executive Function and Trauma Related Symptoms among Children with Histories of Complex Trauma

神经反馈对复杂性创伤史儿童执行功能和创伤相关症状的影响

The Trauma Center at JRI

Brookline, MA

Method方法

- Sample: 样本
  - 数量N=40
  - 年龄Ages 7 to 13 (M=9.72, SD=1.49)
  - 72.7% Male男性
- 4 evaluation time points - baseline, mid-treatment (after session 12), post-treatment and at one month follow up. 4个评估时间点 - 基线，中期治疗（第12次会谈后），治疗后和随访一个月。
- NFB protocol NFB协议
  - EEG Spectrum脑电谱
  - T4-P4 placementT4-P4放置
  - Inhibition of Theta and High Beta抑制Theta和高 Beta
  - Reward SMR奖励SMR
  - Started with 3 minutes of training , training length increased every other session.开始3分钟的培训，培训时间每隔一段时间增加一次。
  - Participants were assessed at the beginning of every session for any side effects or observed improvement.在每个疗程开始时对参与者进行评估，以确定是否有任何副作用或观察到的改善。
- Analyses: Multivariate analyses to compare change over time across the two groups – report on effect size due to small sample.分析：用于比较两组间随时间变化的多变量分析 - 由于样本量小而报告效应值。

Measures测量

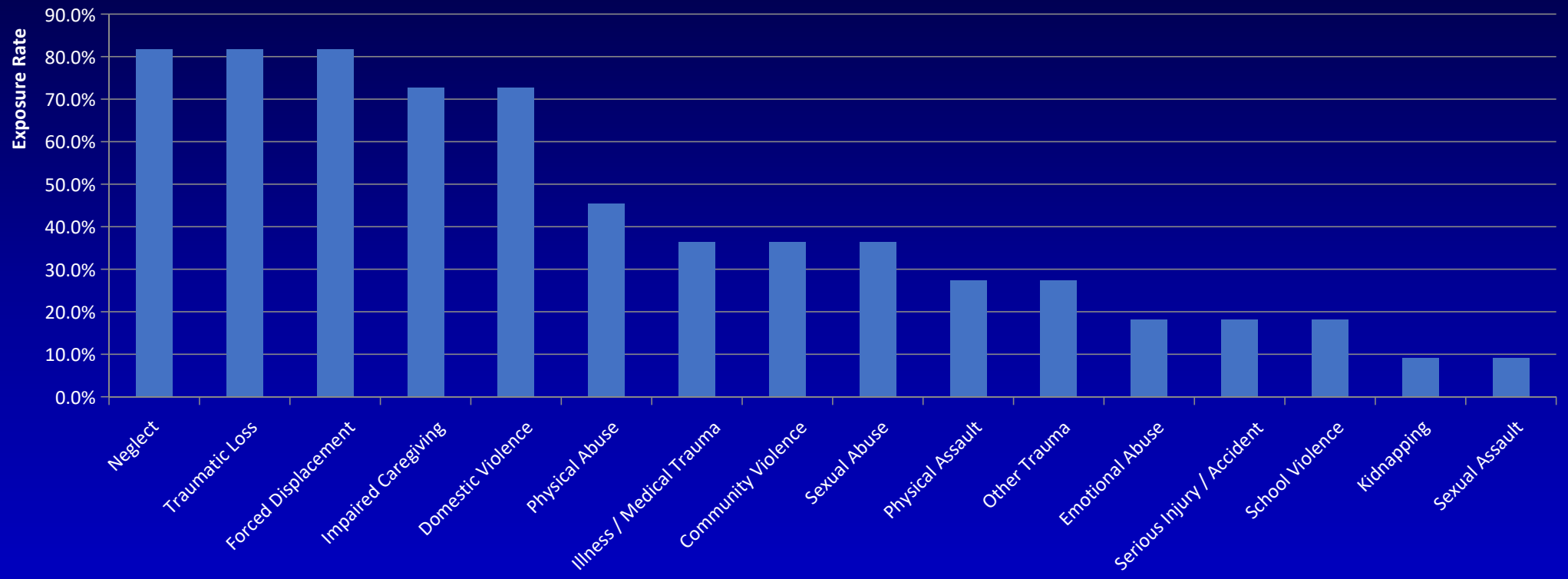
- Caregiver report measures:看护人报告措施：
  - Child Behavior Checklist (CBCL; Achenbach).儿童行为检查表（CBCL; Achenbach）
    - Internalizing symptoms – anxiety, depression, withdrawal and somatic complaints.内化症状 - 焦虑，抑郁，戒断和躯体不适。
    - Externalizing symptoms – rule breaking, aggression, and difficulties with attention.外化症状 - 规则破坏，攻击性和注意力的困难。
  - Behavior Rating Inventory of Executive Function (BRIEF; Goa)执行功能的行为评级清单（Brief; Goa）
  - Trauma Symptom Checklist for Young Children (TSCYC; Brier)幼儿创伤症状清单（TSCYC; Brier）
- Caregiver and child report:看护人和儿童报告：
  - Trauma History Profile (THP) – codes 20 different trauma exposure types including interpersonal (physical, sexual and psychological maltreatment, neglect, impaired caregiving, etc.) and acute (natural disaster, kidnapping, accident, etc.) forms of trauma.

创伤史资料（THP） - 编码20种不同的创伤暴露类型，包括人际关系（身体虐待，性虐待和心理虐待，忽视，养育受损等）和急性（自然灾害，绑架，事故等）形式的创伤。

	Total (n=37)	Waitlist (n=17)	Neurofeedback (n=20)
Age, mean (SD) 年龄，均数	9.62 (1.87)	9.60 (2.10)	9.65 (1.70)
Gender 性别			
Female	15	9	7
Male	22	9	13
Ethnicity 民族			
Hispanic/Latino	6	2	4
Not Hispanic/Latino	31	15	16
Race 种族			
Black/African-American	7	3	4
White/Caucasian	21	11	10
Multi-Ethnic	6	2	4
Asian	3	1	2
Living Situation 生存情况			
Adopted	28	12	16
Kinship Care	3	2	1
Biological Parents	6	3	3

Table 1: Sample Demographics Information 表1：样本人口学资料

Lifetime Trauma Exposure终身创伤暴露

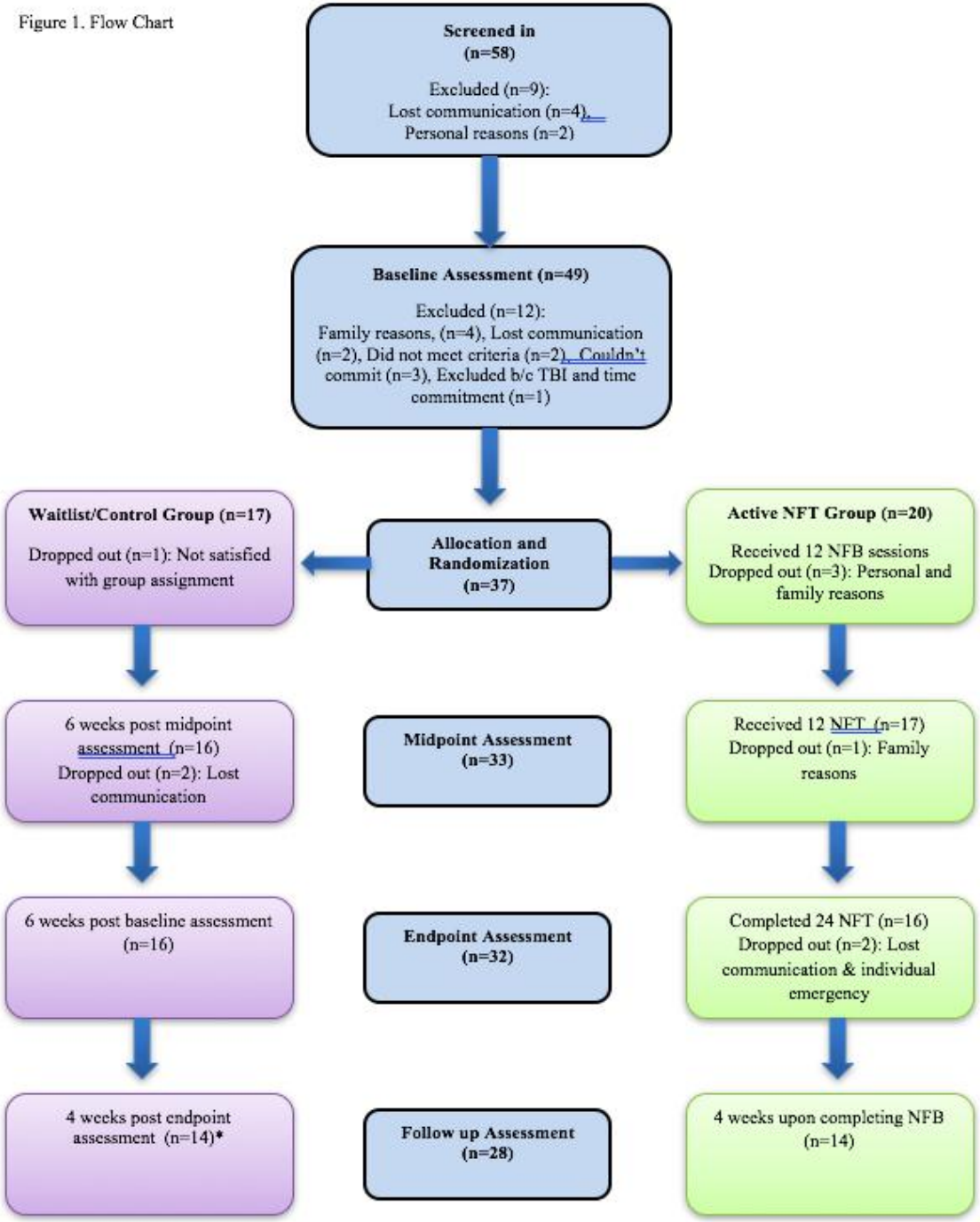


忽视 创伤性丧失 被迫置换 养育受损 家庭暴力 躯体虐待 疾病/医疗创伤 社区暴露 性虐待 躯体侮辱 其他创伤 情感虐待 严重受伤/意外 学校暴露 绑架 性侮辱

Minimum # of exposure types 最低暴露类型数量= 3; Maximum # of exposure types最高暴露类型数量 = 12
Mean # of exposure types暴露类型均数 = 6.74, SD标准差 = 3.35

证道心理

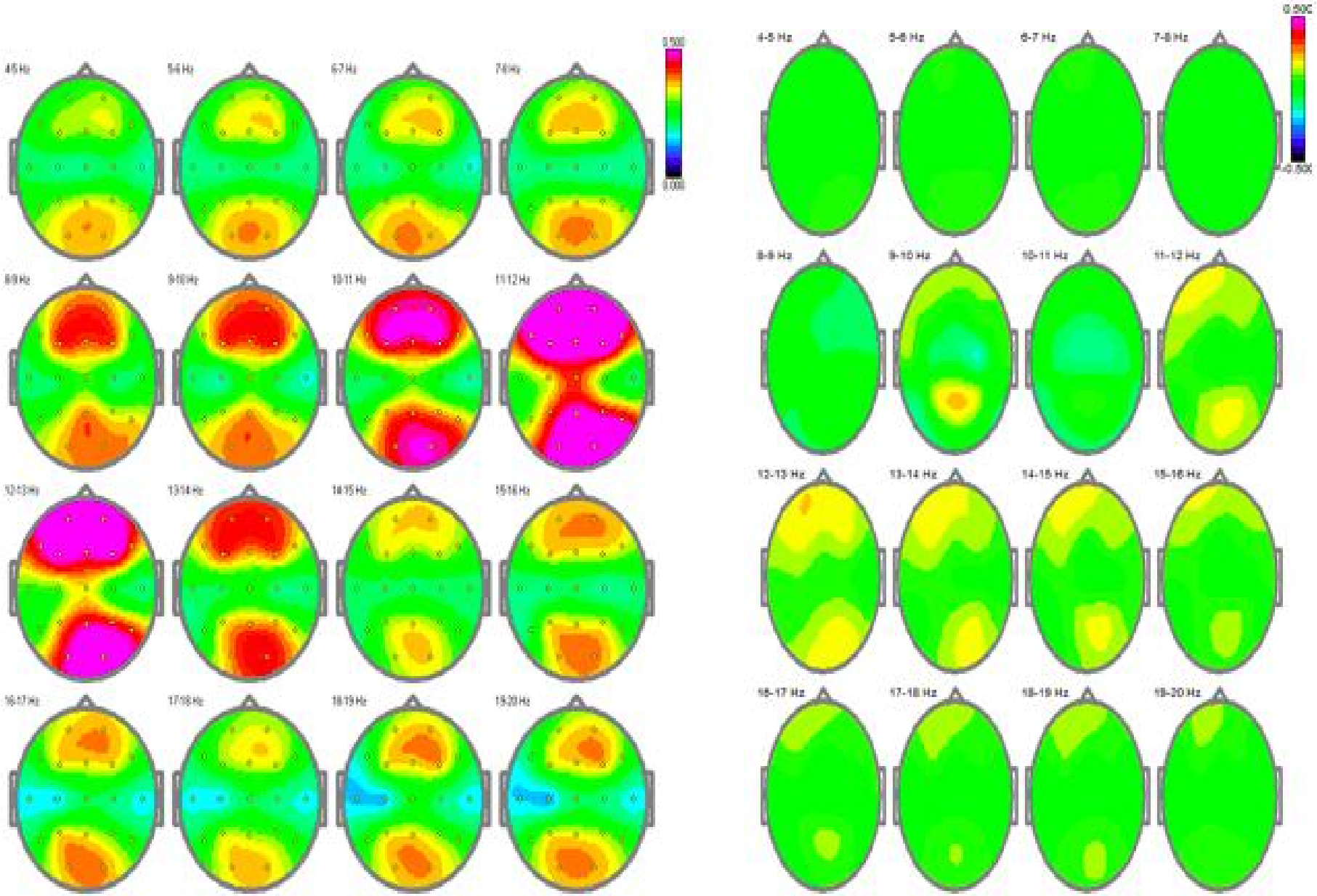
Figure 1. Flow Chart

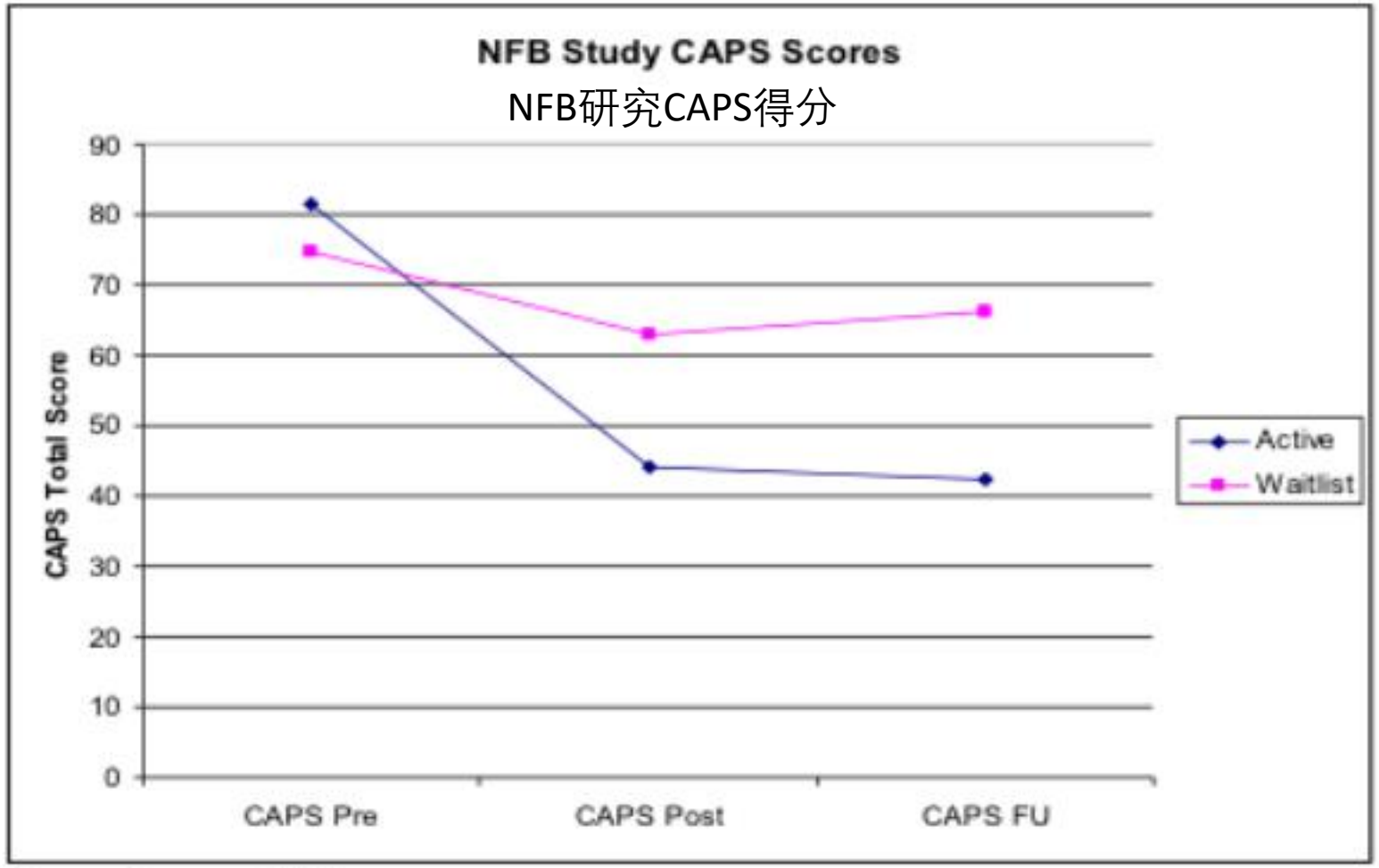


*Follow up assessment for waitinglist/control group was the starting point for the NFB treatment; Note that one participate underwent a NFB baseline assessment

	Change Pre-End			Change Post-Follow-up		
	M (95% CI)	*p*	*d*	*M (95% CI)*	*p*	*d*
CBCL Externalizing						
WL	-0.23 (-3.42, 2.95)	.880	0.02	.14 (-2.57, 2.85)	.920	0.02
NF	-7.05 (-10.10, -4.00)	<.001	-0.74	2.[illegible] (-.12, 5.11)	.060	0.26
Diff	-6.82 (-11.23, -2.41)	<.001	-0.72	2.[illegible] (-1.41, 6.12)	.220	0.25
CBCL Internalizing						
WL	-3.05 (-5.87, -0.22)	.035	-0.31	0.87 (-1.77, 3.52)	.510	0.09
NF	-7.99 (-10.71, -5.28)	<.001	-0.81	2.66 (0.10, 5.23)	.040	0.27
Diff	-4.95 (-8.86, -1.03)	.014	-0.5	1.79 (-1.90, 5.47)	.340	0.18
BRIEF-Global Executive						
WL	-0.95 (-8.95, 7.06)	.814	-0.05	7.45 (0.02, 14.89)	.049	0.38
NF	-15.97 (-23.85, -8.10)	<.001	-0.81	3.[illegible] (-2.94, 10.46)	.371	0.16
Diff	-15.02 (-26.25, -3.8[illegible])	.009	-0.76	-4.19 (-1[illegible]55, 6.16)	.423	-0.21
BRIEF-Behavioral Regulation						
WL	.0.26 (-3.27, 3.80)	0..882	0.03	0.52 (-2.95, 4.00)	.765	0.06
NF	-8.74 (-12.24, -5.24)	<.001	-0.93	1.88 (-1.[illegible]9, 5.25)	.270	0.2
Diff	-9.01 (-13.97, -4.04)	0.001	-0.96	1.36 (-3.[illegible], 6.20)	.579	0.14
BRIEF-Metacognition						
WL	-1.14 (-6.33, 4.05)	0.663	-0.08	6.94 (2.18, 11.70)	.005	0.51
NF	-7.20 (-12.28, -2.11)	0.006	-0.53	1.46 (-3.14, 6.07)	.529	0.11
Diff	-6.06 (-13.32, 1.21)	0.101	0.44	-5.48 (-12.10, 1.15)	.104	-0.40
CAM Total						
WL	-0.01 (-2.42, 2.39)	0.991	0.00	-0.43 (-2.79, 1.93)	.717	-0.05
NF	-3.89 (-6.26, -1.51)	0.002	-0.49	1.33 (-0.96, 3.63)	.251	0.17
Diff	-3.87 (-7.25, -0.49)	0.025	-0.49	1.76 (-1.53, 5.06)	.290	0.22
TSCYC Depression						
WL	0.44 (-1.42, 2.29)	0.639	0.1	-[illegible].23 (-1.90, 1.44)	.782	-0.05
NF	-2.57 (-4.39, -0.7[illegible])	0.006	-0.59	1.02 (-[illegible].59, 2.64)	.211	0.23
Diff	-3.01 (-5.61, -0.4[illegible])	0.024	-0.69	1.26 (-[illegible].06, 3.58)	.285	0.29
TSCYC PTS Total						
WL	-0.75 (-5.12, 3.61)	0.732	-0.06	0.26 (-3.81, 4.33)	.897	0.02
NF	-9.06 (-13.37, -4.76)	<.01	-0.75	3.80 (-0.14, 7.74)	.059	0.32
Diff	-8.31 (-14.44, -2.18)	0.009	-0.69	3.54 (-2.13, 9.20)	.218	0.29

Coherence maps pre and post intervention.





Group Means: CAPS

	CAPS Pre	CAPS Post	CAPS FU
Active (N = 16)	82	44	42
Waitlist (N = 16)	75	63	66

		N	Correlation	Sig.
Pair 1	iasc affect dysregulation total scale at baseline & iasc affect dysregulation total scale at T24	16	.596	.015
Pair 2	iasc identity impairement total scale at baseline & iasc identity impairement total scale at T24	16	.784	.000
Pair 3	iasc idealization-disillusionment scale at baseline & iasc idealization-disillusionment scale at T24	16	-.015	.956
Pair 4	iasc abandonment concerns scale at baseline & iasc abandonment concerns scale at T24	16	.505	.046
Pair 5	iasc susceptibility to influence scale at baseline & iasc susceptibility to influence scale at T24	16	.836	.000
Pair 6	iasc interpersonal conflicts scale at baseline & iasc interpersonal conflicts scale at T24	16	.638	.008
Pair 7	iasc tension reduction activities scale at baseline & iasc tension reduction activities scale at T24	16	.733	.001

1. 情感调节

2.同一性受损

3.理想化-幻灭

4.担心被抛弃

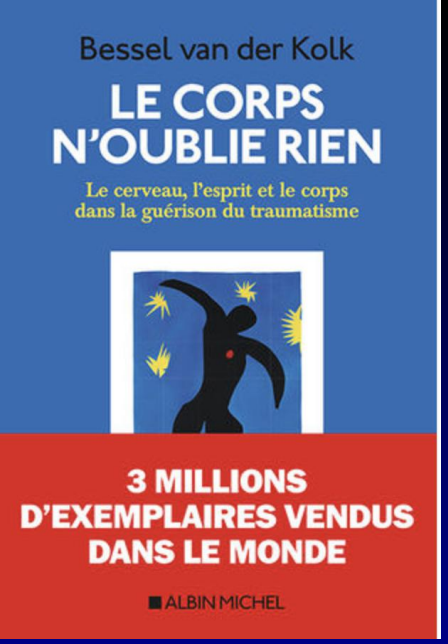
5.易受影响性

6.同一性受损

7.减压活动

Profound effect on executive functioning
对执行功能产生深远影响

1) Planning and decision making规划和决策
2) Error correction and trouble shooting纠错和故障排除
3) Mental flexibility精神灵活性
4) Figuring out novel & unfamiliar situations找出新奇和不熟悉的情况
5) Dealing with danger
   处理危险
6) Resisting temptation and being able to resist habitual impulses抵制诱惑，能够抵抗习惯冲动
7) Self-regulation自我调节



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