

When the Brain Can't Hear

Presented by : Dr. Dana Day, AUD





So what is a concussion?

A concussion is also known as a mild traumatic brain injury (mTBI), typically defined as a head injury that temporarily affects brain functioning.

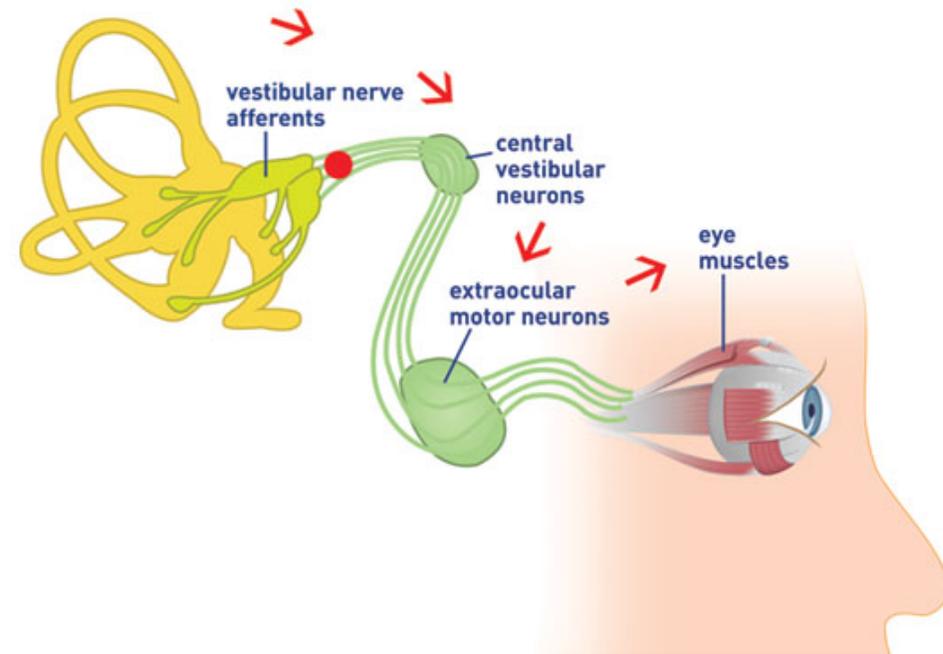


Traumatic Brain Injury (TBI)

- Occurs from a blow to the head or striking your head against something
- A patient does not have to have a skull fracture, bleeding or even a LOC to sustain a brain injury
- Doctors Label Severity by 1) Length of LOC and 2) Amount of memory lost



Even *minor head injuries* can cause a *wide range of cognitive deficits* (impaired attention, **slowed information processing**, impaired memory), **expressive** (word retrieval) and **receptive** (interpreting figurative language) **language deficits**, **metacognitive deficits** (self-monitoring, planning, organizing, and problem-solving), **psychological deficits** (personality changes including increased irritability, anxiety, depression, and social inappropriateness), and **sensory deficits** (auditory and visual).



mTBI

- LOC (Loss of consciousness) for 15 minutes or less
 - Have any memory loss about the trauma event or feel dazed, disoriented, or confused (concussions) symptoms go away in an hour and gone in 3 months
- Studies show NO correlation between severity of injury (within mTBI) & persistence of symptoms

THE TRUTH ABOUT CONCUSSION

A concussion is a mild traumatic brain injury (mTBI). Most concussions occur without losing consciousness.

EFFECTS OF TRAUMA

Trauma can cause vestibular dysfunction

- DIZZINESS
- VERTIGO
- BLURRED VISION
- IMBALANCE
- FATIGUE
- FALLS

SYMPTOMS

THINKING

Difficulty concentrating, memory

EMOTIONAL

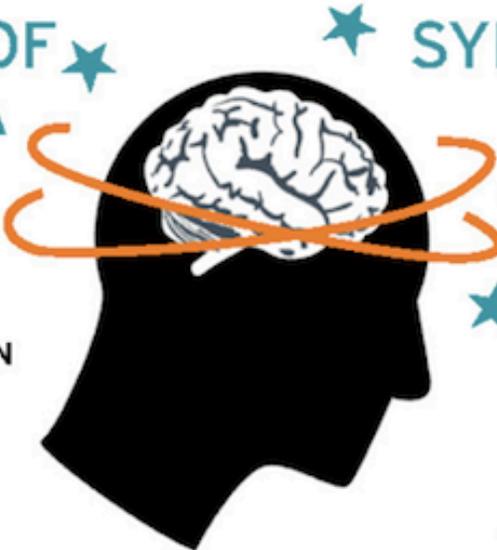
Irritability, sadness

PHYSICAL

Headache, dizziness

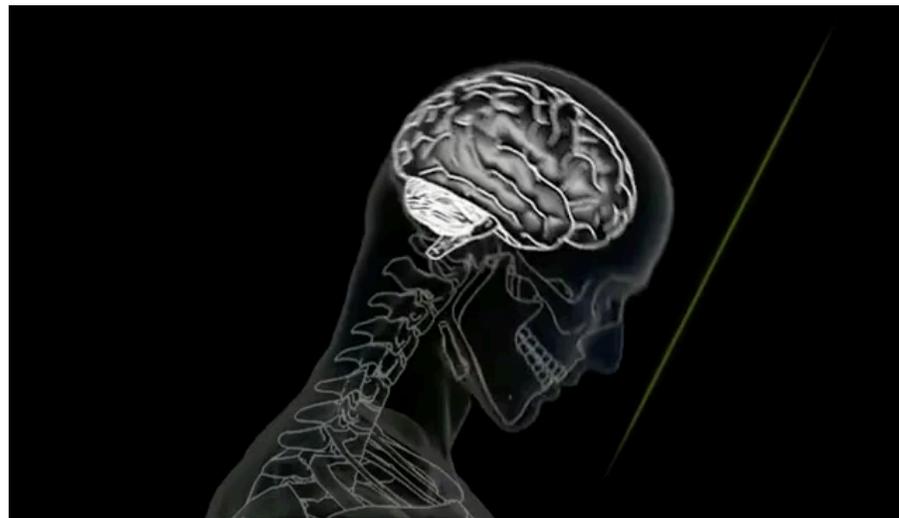
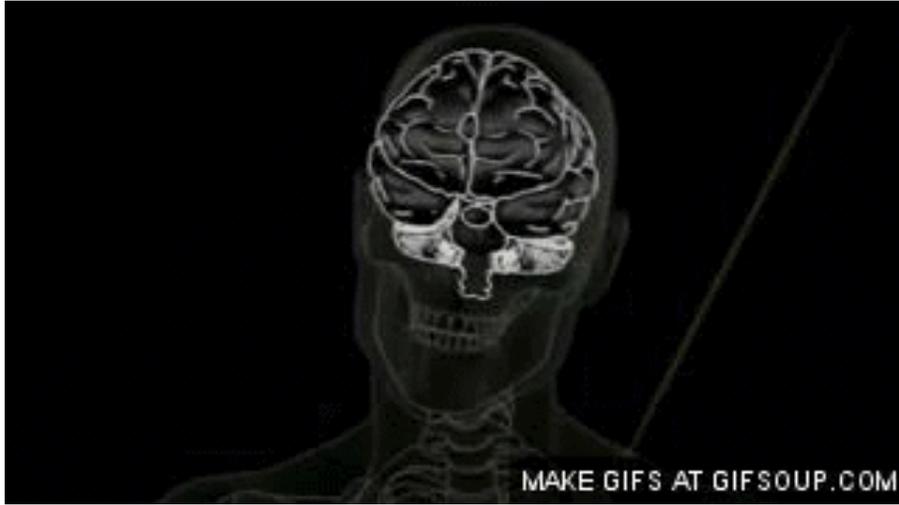
SLEEP

More/less than usual



COMMON

FALLS: 41%	ASSAULT: 11%
STRUCK BY/AGAINST: 15%	OTHER: 19%



Axonal Shearing

- When the brain's axons (main channels of communication) are stretched to the point of breaking, causing damaged brain cells to die

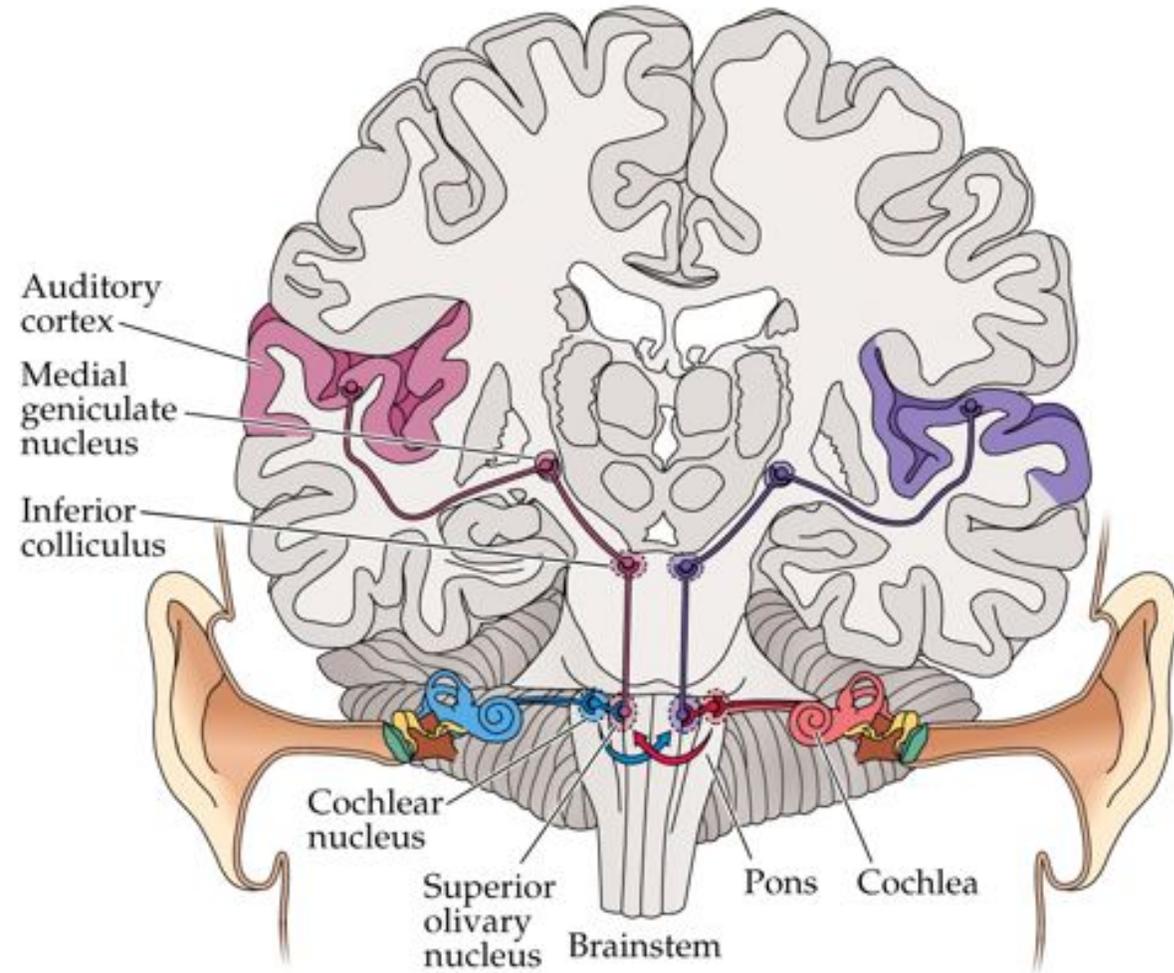
Edema

- Edema – swelling in the skull
- Edema squeezes brain cells, interrupting blood flow and oxygen to the brain



Traumatic Brain Injury (TBI)

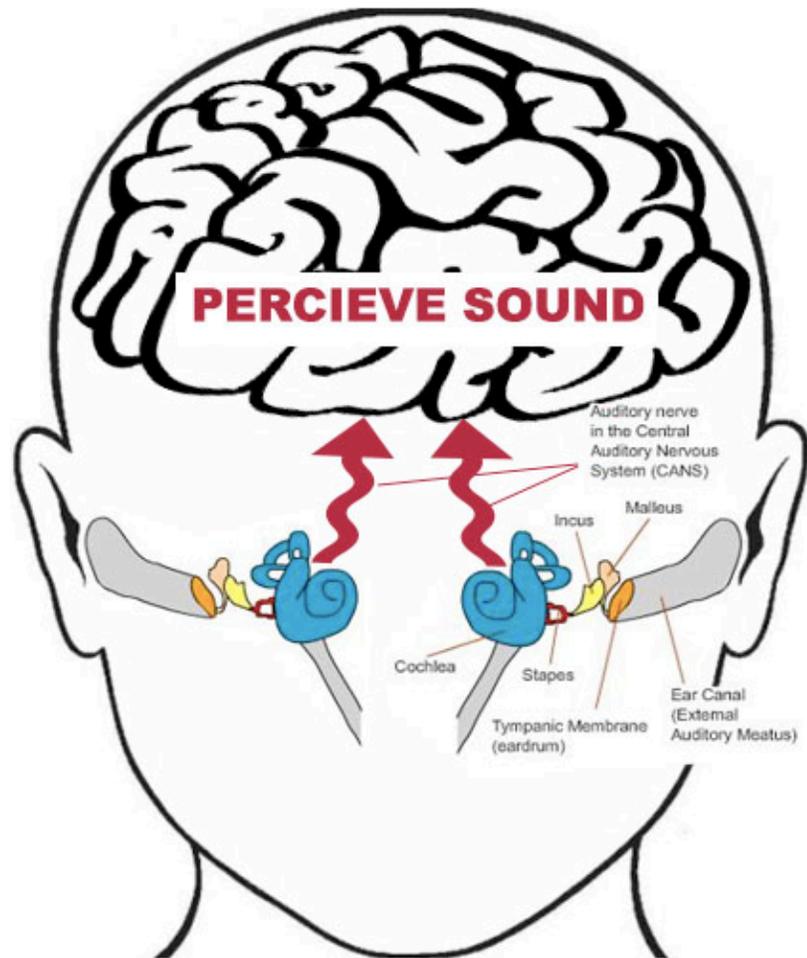
- Occurs from a blow to the head or striking your head against something
- Head injury involving TBI can result in significant central auditory deficits even in the absence of radiologic evidence and in the absence of any obvious deficits within the peripheral auditory system (Musiek et al., 2004)
- A patient does not have to have a skull fracture, bleeding or even a LOC to sustain a brain injury
- Doctors Label Severity by 1) Length of LOC and 2) Amount of memory lost



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Better Balance, Better Hearing, Better Life.



Head injury (HI), like other disorders that affect the central auditory nervous system (CANS) such as strokes, tumors, and degenerative and developmental disorders, compromises the higher auditory system. Despite a unique onset and evolution of problems, HI bears many similarities to other CANS disorders.



Miserable Minority...

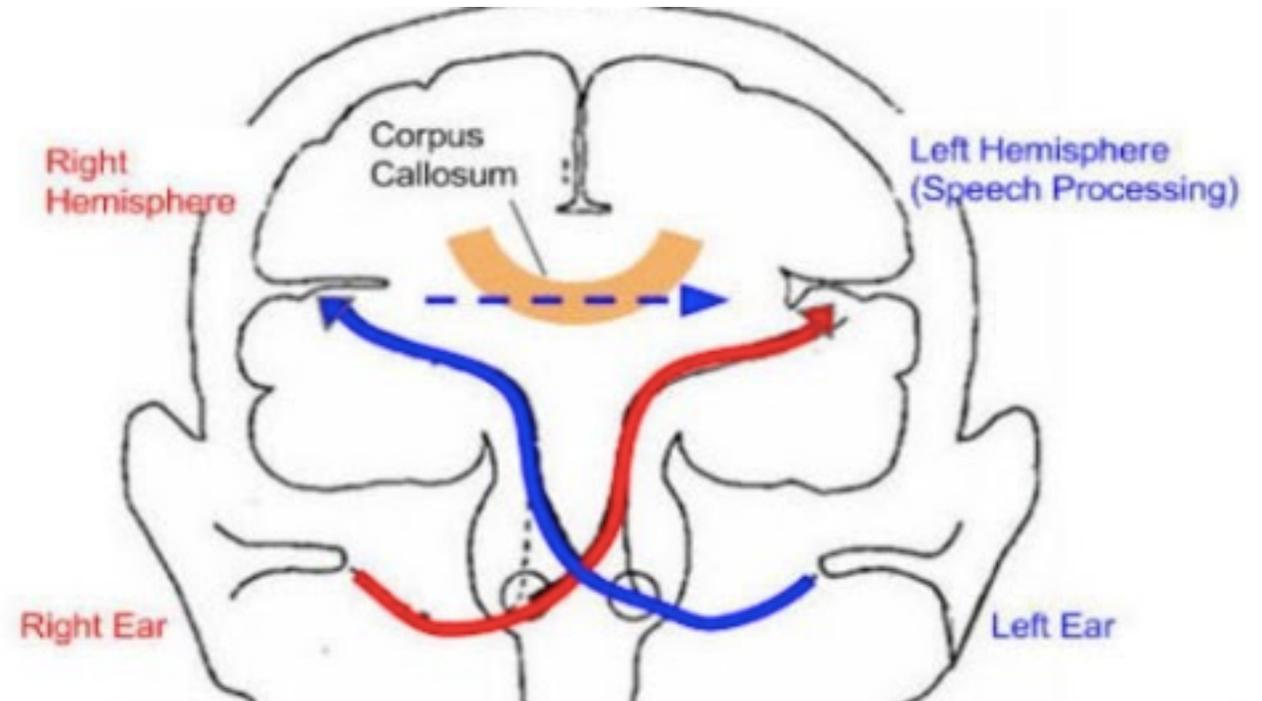
*MISERABLE MINORITY
20-25% MTBI BEYOND 3
MONTHS*



CAPD Test for mTBI

CANS involvement can be revealed through sensitive electrophysiological and behavioral tests of central auditory function. A central auditory test battery that includes sensitive and specific tests should be conducted.

Because HI may impact the auditory system from periphery to cortex, the optimal test battery should examine the brainstem, sub-cortex, cortex, and corpus callosum.



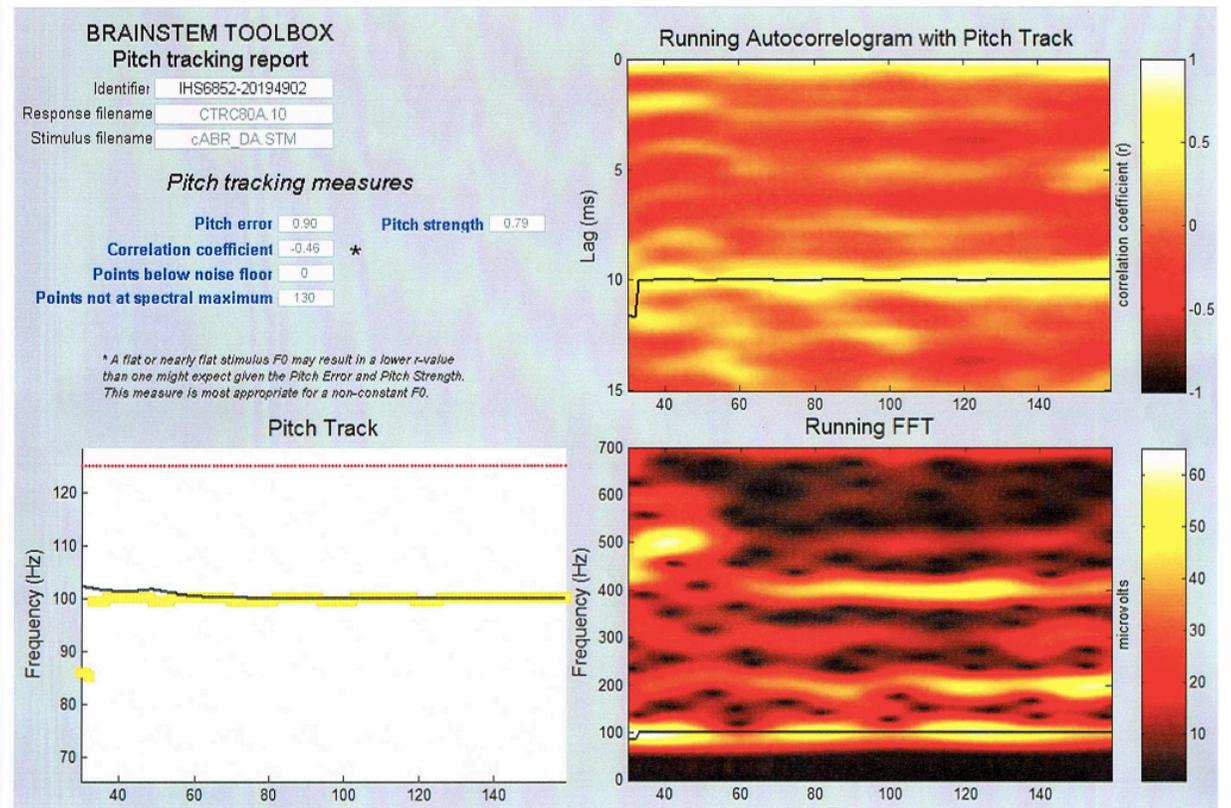
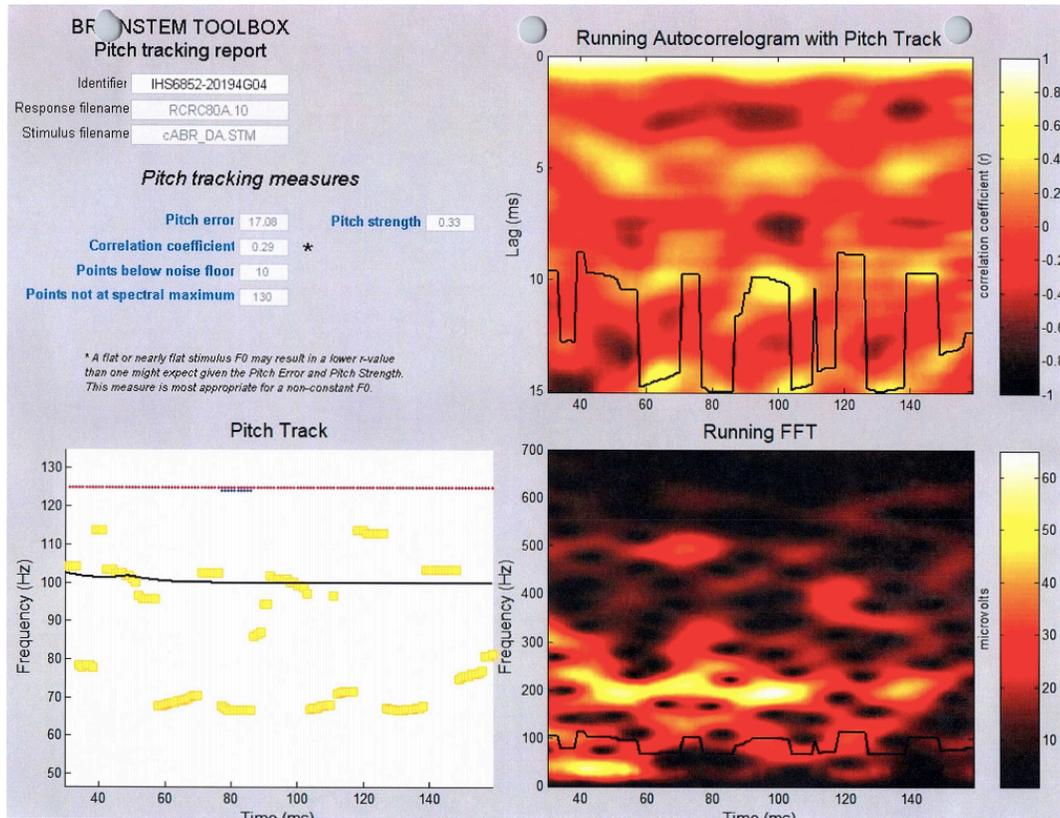
23	ash	tray	tin	can	R	o
25	key X	chain	suit	case	R	e
27	com XX	starch	soap	flakes	R	a
29	day XX	break	lamp	light	R	l
31	bird	cage	crow's	nest	R	o
33	book	shelf	drug	store	R	o
35	hand X	ball	milk	shake	R	e
37	for	give	milk	man	R	o

24	nite XX	light	yard	stick	R	o
26	play	ground	bat	boy	R	o
28	birth	day	first	place	R	o
30	door XX	knob	cow	bell	R	o
32	week	end	work	day	R	o
34	wood XX	work	beach	craft	R	o
36	fish X	net	sky	line	R	o
38	sheep XX	skin	bull	dog	R	o

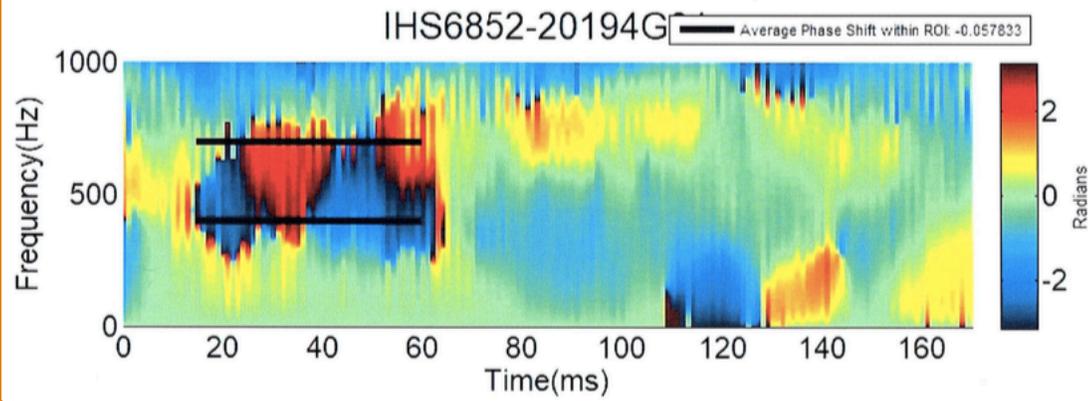
Left

3	Cake	Buy
4	Round	Stom
5	Say	Tan
6	Yes	Fast
7	Pen	Most
8	Bet	One
9	Green	Booth
10	Store	Glass
11	Soap	Teeth
12	Bring	Share
13	Rug	Book
14	Want	Soft
15	Tow	Kite
16	Why	Quack
17	Comb	For
18	That	Love
19	Bug	Wet
20	Quiz	Juice
21	Camp	Light
22	Hand	Goose
23	Lip	Dad
24	Fall	Room
25	Old	Chef

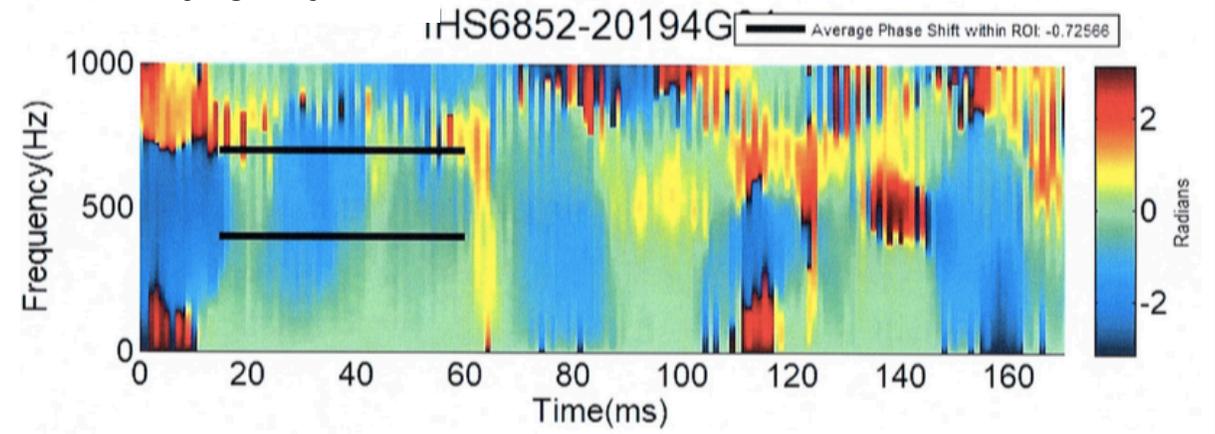
Right



Normal



Abnormal





When we first met you took me home,
And placed me in your heart,
I knew right then I loved you
Directly from the start.

Good times we had together
We shared all life could throw,
But years passed all too quickly,
My time has come to go.

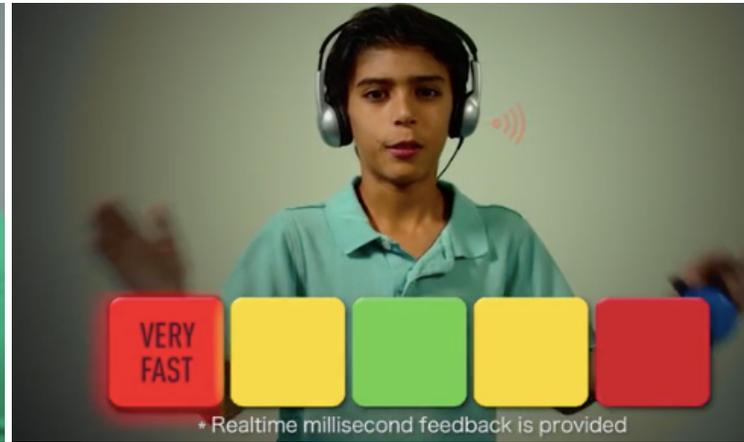
I know how much you missed me,
I know your heart is sore,
I see the tears that fall when
I'm not waiting at the door

You always did your best for me
Your love was plain to see
For even though it broke your heart
You set my spirit free.

So please be brave without me
One day we'll meet once more
For when your called to heaven
I'll be waiting at the door.



IM Therapy



Exercices	A Previous LFA Date: 01/25/2019				B Latest LFA Date: 07/31/2019				% Performance Change From A to B*		
	Rep.	Task Avg	Var Avg	SRO%	Rep.	Task Avg	Var Avg	SRO%	Task Avg	Var Avg	SRO%
1	47	55	52	26	54	15	19	67	73%	63%	158%
2	28	38	43	29	29	16	17	52	58%	60%	79%
3	28	27	35	36	26	18	17	50	33%	51%	39%
4	29	143	108	10	29	40	29	24	72%	73%	140%
5	28	68	75	11	29	32	25	24	53%	67%	118%
6	29	89	70	17	28	38	44	25	57%	37%	47%
7	29	104	103	14	29	38	32	17	63%	69%	21%
8	27	358	368	0	30	27	25	37	92%	93%	100%
9	29	111	184	10	29	36	30	24	68%	84%	140%
10	29	46	49	17	28	38	39	21	17%	20%	24%
11	27	71	91	11	29	32	36	34	55%	60%	209%
12	28	189	202	11	30	40	43	30	79%	79%	173%
13	30	107	156	20	29	35	51	28	67%	67%	40%
14	53	63	68	17	44	19	22	48	70%	68%	182%

Other therapies Successful Therapies...

- Early identification of (central) auditory processing disorder ([C]APD), a disorder of the CANS, in patients with HI is crucial to improving central auditory processing as well as overall auditory function so that patients can benefit from interventions designed to improve cognitive and social functioning in the home, workplace, and school.



oticon
PEOPLE FIRST



Other therapies Successful Therapies...

Thank you! Any Questions?



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