



2016
60TH ANNUAL CONVENTION
AND SCIENTIFIC PROGRAM

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Marriott Quorum by the Galleria Hotel • Dallas-Addison, Texas

Botulinum Toxin: Treatment of Depression

Michelle Magid, MD

Clinical Associate Professor, University of Texas, Dell Medical School
University of Texas, Medical Branch
Texas A&M Health Science Center
7-12-2016



The University of Texas at Austin
Dell Medical School



GRADUATE MEDICAL EDUCATION

DISCLOSURE OF RELEVANT RELATIONSHIPS

- **Brain and Behavior Research Grant- Young Investigator award**
- **As a result of research:**
 - **Consultant for Allergan pharmaceuticals**
 - **Speaker for Ipsen Innovation**
- **Married to the field: Jason S. Reichenberg, MD,FAAD**
 - **Associate Professor, University of Texas, Dell Medical School**
 - **Chief of Dermatology, Seton Family of Hospitals**



The University of Texas at Austin
Dell Medical School



GRADUATE MEDICAL EDUCATION

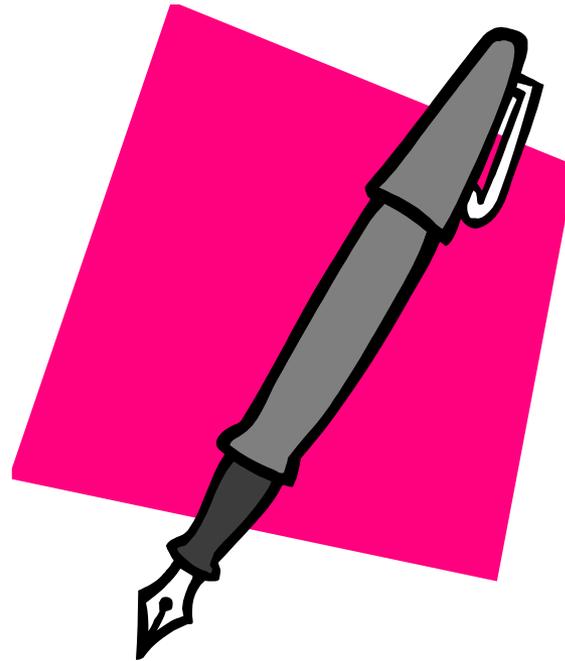


Learning Objectives

- **Describe the somatic feedback loop hypothesized in the use of botulinum toxin for the treatment of depression.**
- **Identify the current status of the use of botulinum toxin for the treatment of depression**
- **Discuss future directions for this treatment intervention.**



Pre-test



True or False: Botulinum toxin is FDA approved to treat migraines but not to treat depression.

A. True

B. False

The theory as to why botulinum toxin helps symptoms of depression is:

- A. The facial feedback hypothesis – the idea that facial expression can influence emotional perception
- B. Reduction of activity in the amygdala
- C. Improved firing of mirror neurons during social interactions
- D. All of the above may be potential mechanisms of action

In a meta-analysis of the “Botulinum toxin to treat depression” trials, the response rate was approximately:

- A. 25% similar to placebo
- B. 50% similar to antidepressants
- C. 75% similar to ECT
- D. 100% similar to death and taxes

The Beginning

2006: Mayo Clinic Journal Review

Treatment of Depression with Botulinum Toxin A: A Case Series

ERIC FINZI, MD, PhD,*† AND ERIKA WASSERMAN, PhD‡

BACKGROUND Major depression is a common and serious disease that may be resistant to routine pharmacologic and psychotherapeutic treatment approaches.

OBJECTIVE To evaluate the efficacy of botulinum toxin A treatment of glabellar frown lines in treating patients with major depression, using a small open pilot trial.

METHODS Patients who met DSM-IV criteria for ongoing major depression in spite of pharmacologic or psychotherapeutic treatment were evaluated with the Beck Depression Inventory II (BDI-II) before receiving botulinum toxin A to their glabellar frown lines. Two months later, all patients were re-evaluated clinically and with the BDI-II.

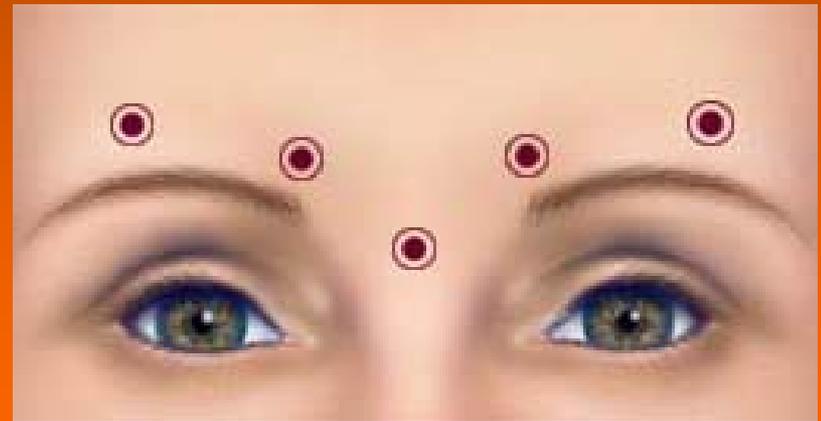
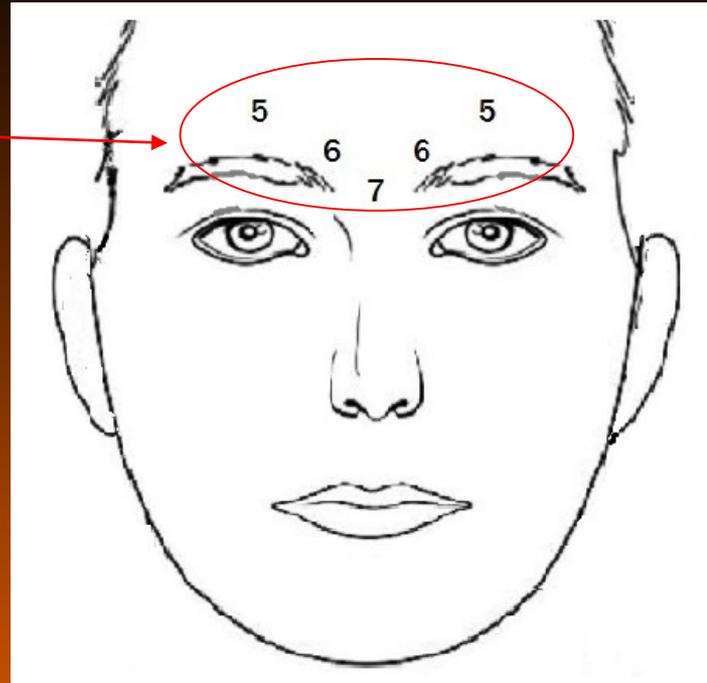
RESULTS Ten depressed patients were treated with botulinum toxin A, and 9 of 10 patients were no longer depressed 2 months after treatment. The tenth patient had an improvement in mood.

CONCLUSION To our knowledge, these are the first reported cases of depression treated with botulinum toxin A.

Dr. Finzi has applied for a patent using botulinum toxin A to treat depression.

Glabella Region- made up of the frown muscles:

- Procerus
- Corrugator Supercilii



•<http://www.uic.edu/com/eye/Botox/BotoxProcess.shtml>

•Magid, Reichenberg (2014), The treatment of major depressive disorder using Botulinum Toxin A: A 24 week randomized, double-blind, placebo-controlled study.. Journal of Clin Psych. Accepted Feb 2014

Botulinum Procedure

- 29 units of Botulinum Toxin A into the glabellar region, causing removal of frown lines



Before



2 months After
Botulinum Toxin

Figure 2. Elimination of depressed facial expression with botulinum toxin A.

Finzi continued

- 10 females age 36-63
- 9 Unipolar Depression, 1 Bipolar Depression
- Length of time of depression 2 to 17 years
- No change in medication x 3 months
- Psychologist evaluation meeting DSM-IV criteria for depression
- No previous Botulinum treatment
- Patients were evaluated by BDI (>20) before and two months after receiving Botulinum injections

RESULTS: 9 out of the 10 patients were no longer depressed. The 10th patient had improvement of mood.

TABLE 1. Summary of Patient Characteristics and Response of Depression to Treatment with Botulinum Toxin A

<i>Patient No.</i>	<i>Age (Years)/ Sex</i>	<i>Previous Treatments</i>	<i>Current Treatment</i>	<i>Duration of Depression (Years)</i>	<i>Pretreatment BDI-II score</i>	<i>Post-treatment BDI-II score</i>
1	62/f	B, P, Psy	B	11	27	5
2	62/f	F, P, R, Psy	P, R, Psy	7	30	7
3	37/f	B, P	—	5	30	2
4	36/f	B, F, V, Psy	F	2	41	6
5	47/f	B, D, G	B, D, G	17	46	33
6	63/f	E	—	2	22	8
7	38/f	—	—	1	27	0
8	63/f	B, Psy	B	10	21	4
9	38/f	—	—	2	31	2
10	38/f	—	—	1	32	14

B, Bupropion, D, divalproex sodium, E, escitalopram oxalate, F, fluoxetine, G, gabapentin, P, paroxetine, Psy, psychotherapy, R, remeron, V, venlafaxine.

Patient 1: “My life did a 360 turn around after Botulinum treatment.” She applied for a new job and “rekindled a 47 year-old romance.”

Patient 4: “When the Botulinum wore off, I became depressed again.” A second round, once again, led to resolution of my depressive symptoms.

Patient 5: Remained depressed but felt better. The only bipolar patient in the study.

Questions:

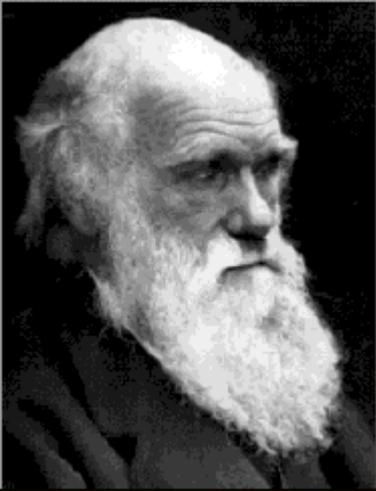
- Could this possibly be true???
- If so, why is this working?



Facial Feedback Hypothesis



Facial movement can influence emotional experience

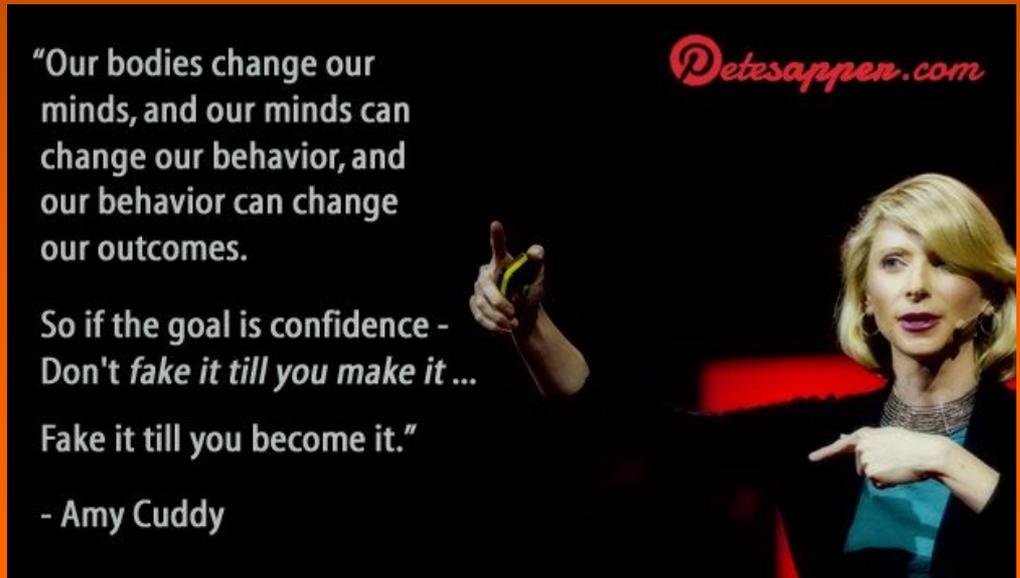
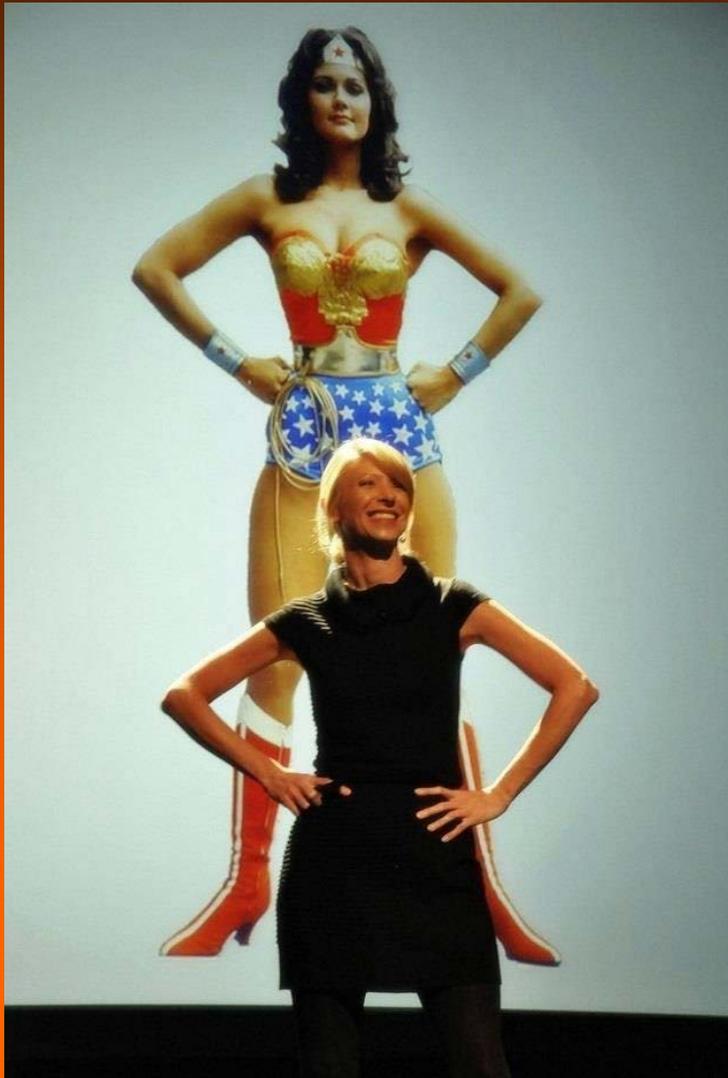


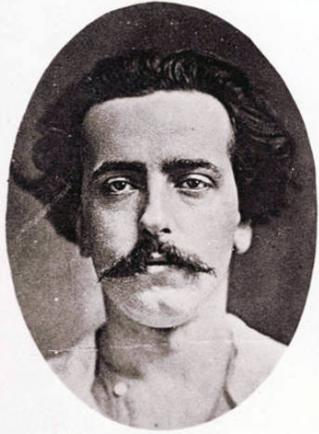
Charles Darwin 1872

“The free expression, by outward signs, of an emotion intensifies it....he who gives way to violent gestures will increase his rage: he who does not control the signs of fear will experience fear in a greater degree...”

Charles Darwin, 1872

Amy Cuddy TED Talk





1



3



6



4



2



5



7

What chapter of the book is this from?

- A. Chapter 7: Grief and Despair
- B. Chapter 8: Love and Joy
- C. Chapter 10: Hatred and Anger
- D. Chapter 11: Contempt and Disgust
- E. Chapter 12: Surprise and Fear



William James 1890

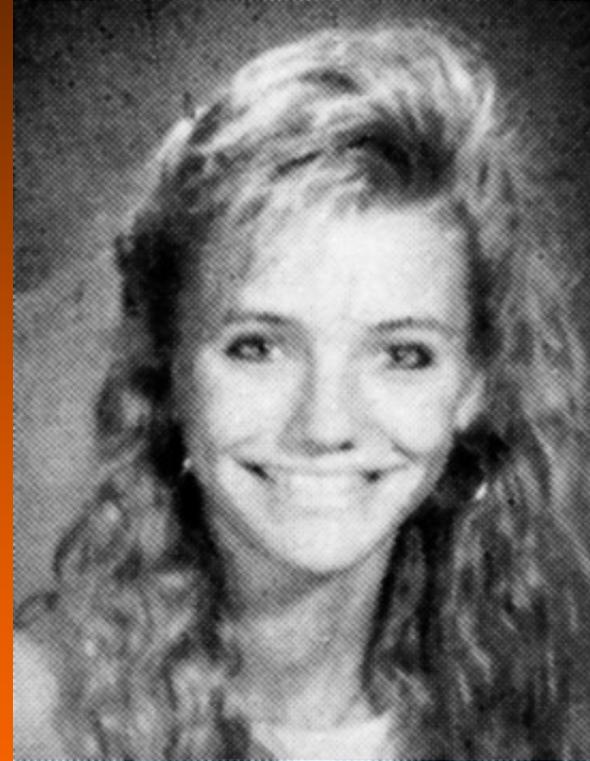
“Refuse to express an emotion and it dies.”

Contrary to popular belief, bodily changes activated by a stimulus “*is* the emotion.”

If no bodily changes are felt, there is only an intellectual thought, devoid of emotion, whether good or bad.

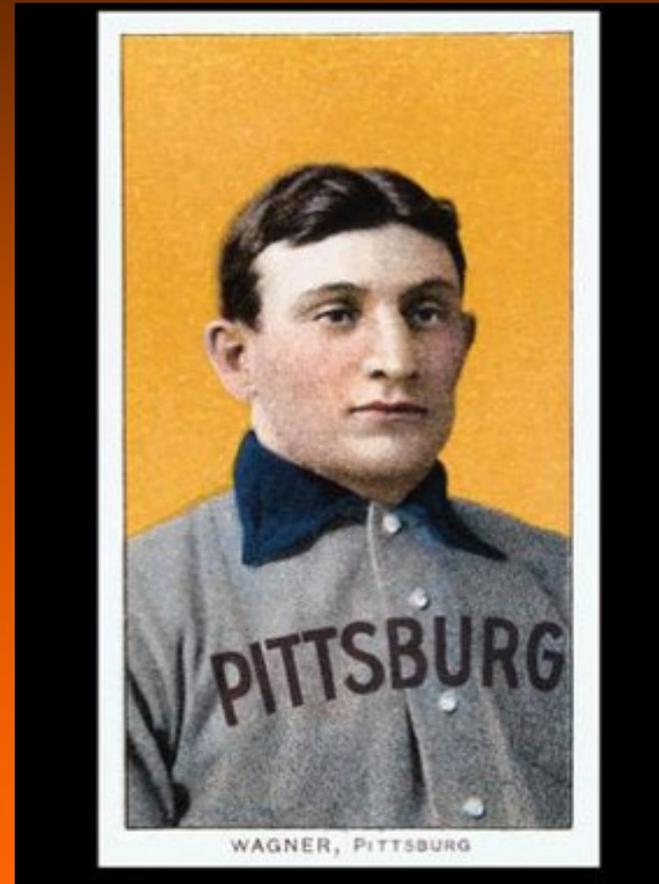
The Power of Smiling

- By measuring the smiles of students in their yearbook photos, researchers were able to predict how fulfilling and long-lasting their marriages would be, how well they would score on standardized tests of well-being, and how inspiring they would be to others



The Power of Smiling

- A study looking at Pre-1950s baseball cards showed that the span of a player's smile could predict the span of a player's life.
 - No smile: Average life span= 72.9 years
 - Beaming smile: Average life span= 80 years



- Ron Gutman NPR Ted Radio Hour "Success" 11-1-2013.
- Ron Gutman TED Talks "The hidden power of smiling" 5-11-2011

The Power of Smiling

- One smile can generate the same level of brain stimulation as eating 2,000 bars of chocolate.
 - (In comparison, one orgasm= 2 cheeseburgers)



Modern Day



How to Lift Your Mood? Try Smiling

By [John Cloud](#) Friday, Jan. 16, 2009



"Just smile, you'll feel better!" Will you? Really?

By [Dave Munger](#) April 6, 2009

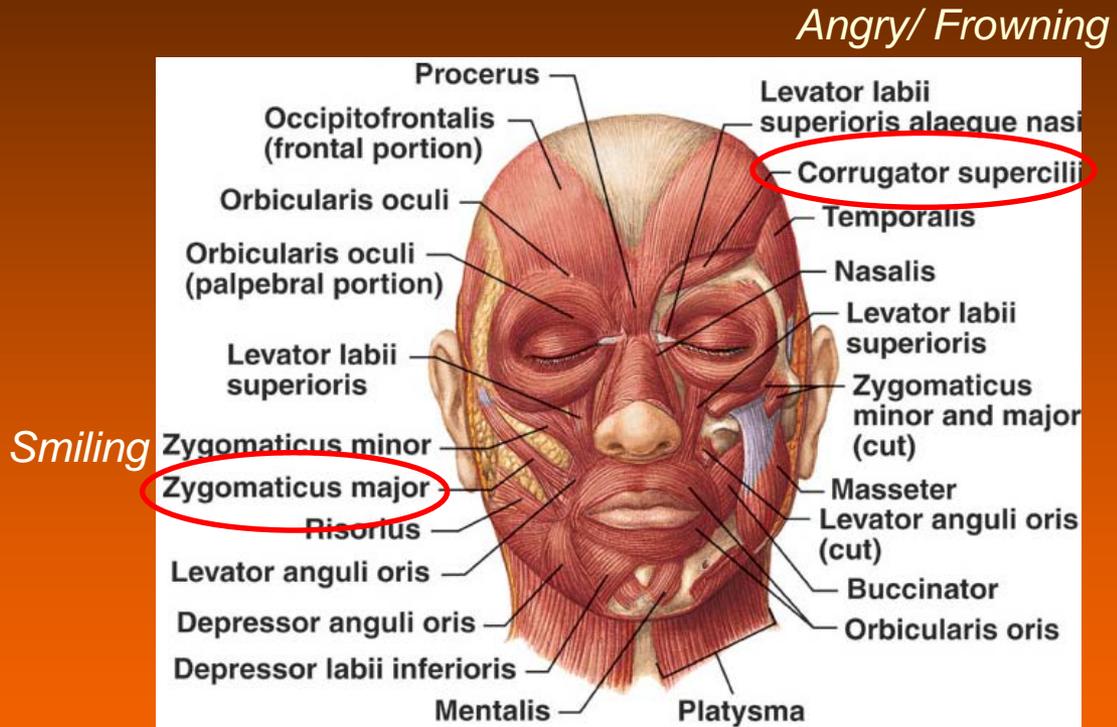
- “Fake it ‘til you make it”
 - Gayle Foreman
- “Relaxing your face when you are angry will help you control your emotions”
 - Marsha Linehan (DBT expert)

Why do facial expressions influence emotion perceptions?

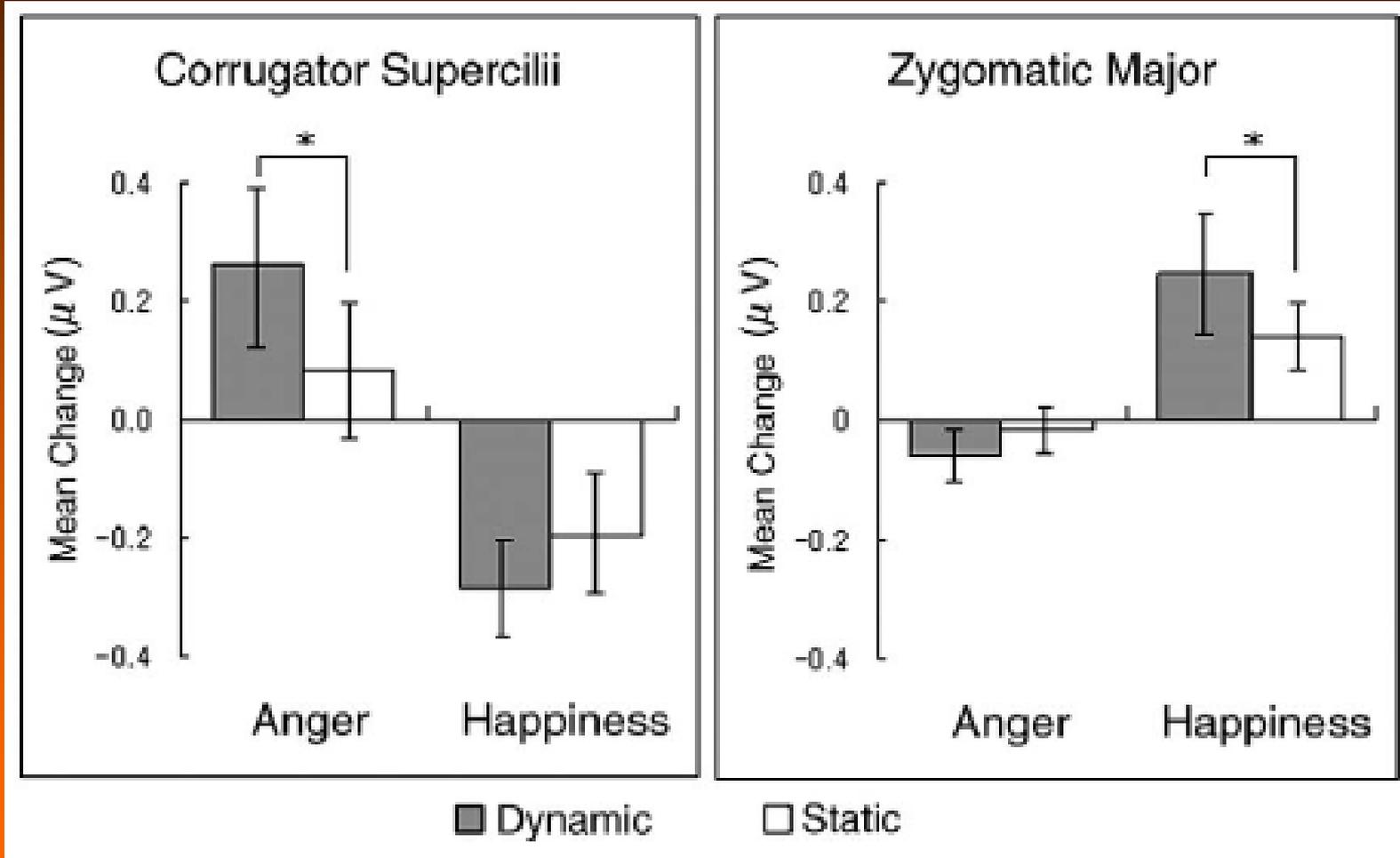
- Theory # 1: It's all about environment
 - If you smile, others will perceive you as more approachable and will be more likely to interact with you
 - If you look angry, others will avoid you and you will internalize that you are unlikeable
- Positive facial expression will positively affect social interactions and therefore self esteem and mood. Negative facial expression will do the opposite.

EMG activity in response to facial expressions

- 29 volunteers (20.9±0.9 years)
- EMGs were hooked up to the corrugator supercilii (angry/frowning) and zygomatic major muscles (smiling)
- Video clips and still photos of angry people and happy were shown.



RESULTS: Angry images activated the corrugator supercillii muscles. Happy images activated the zygomatic major muscles.

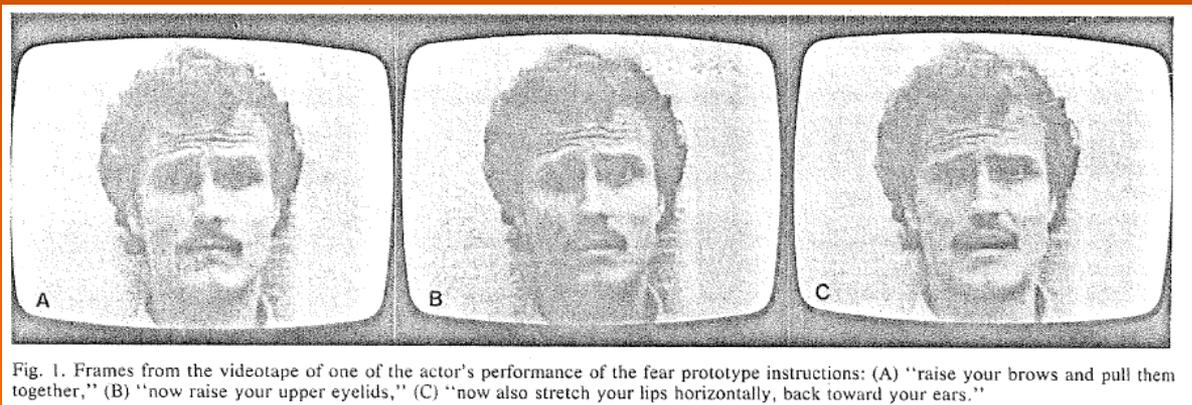


Mirror Neurons

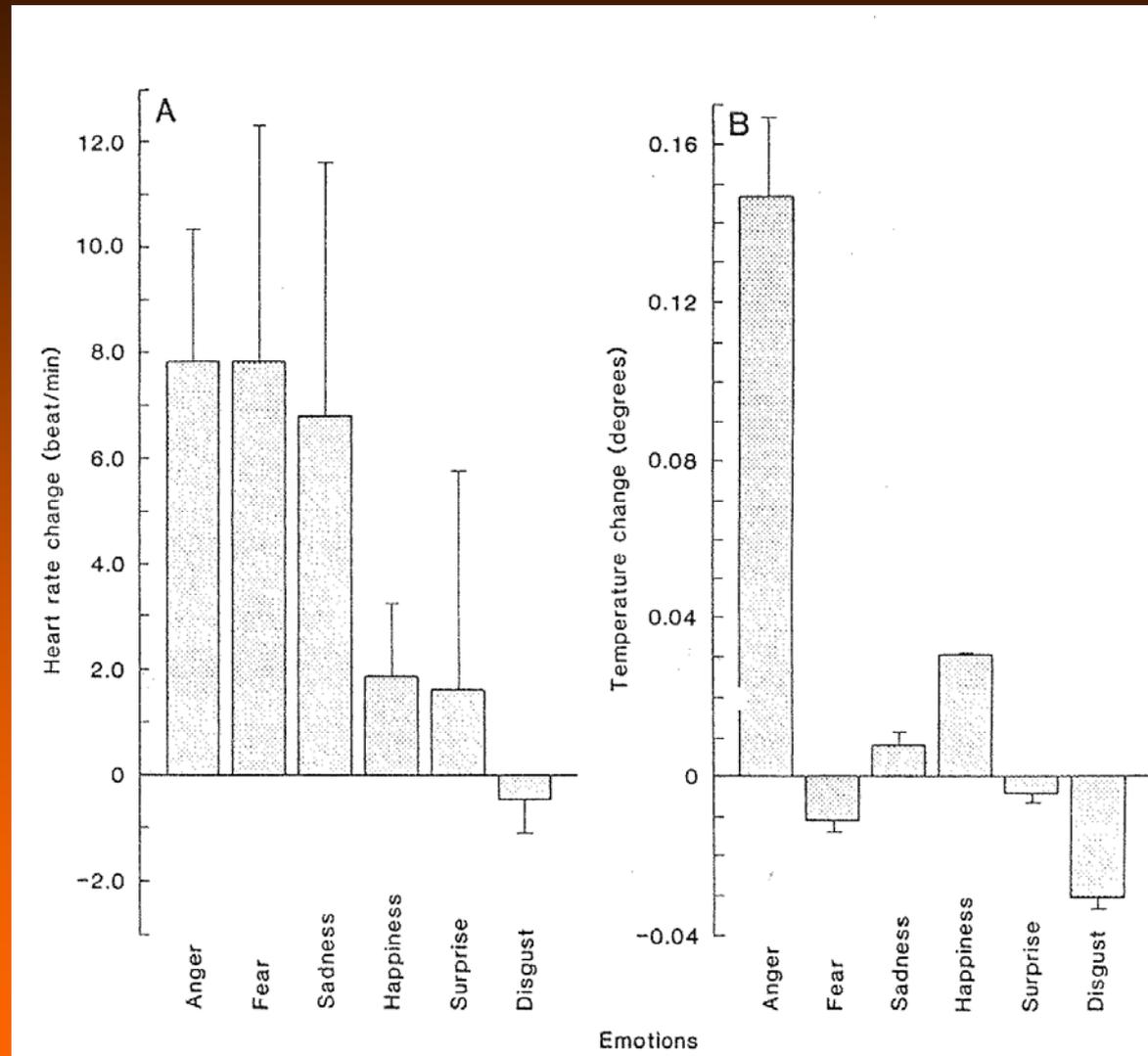
*WARNING!!!
EMOTIONS
ARE
CONTAGIOUS!!!*

Does Facial Expression affect the Autonomic Nervous System?

- 12 Professional actors and 4 face scientists were shown videotapes of six emotions (surprise, disgust, sadness, anger, fear, and happiness).
- They were asked to emulate the facial expressions (i.e. just the facial movement...no emotion attached)
- Autonomic Nervous system activity was monitored

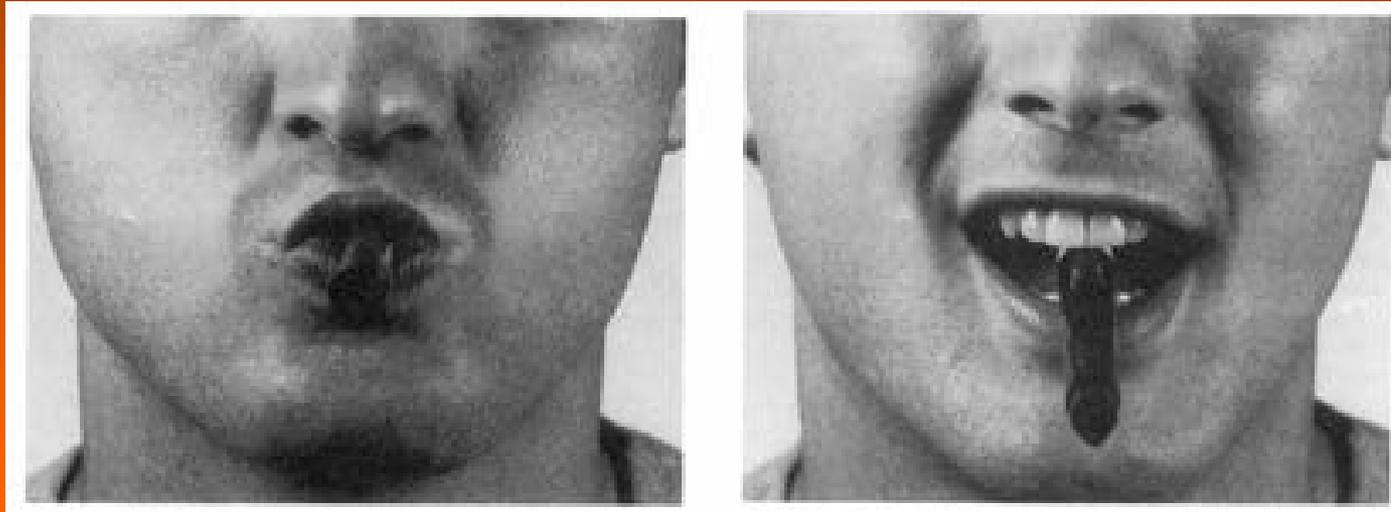


Autonomic changes from facial expressions of established emotional response WITHOUT emotion attached to it



Let's take a quick break

- 92 undergraduates, University of Illinois
- Perform writing tasks using:
 1. teeth
 2. lips
 3. non-dominant hand





**“Running my own business has given me an ulcer,
two heart attacks and four nervous breakdowns.
I manufacture relaxation tapes.”**

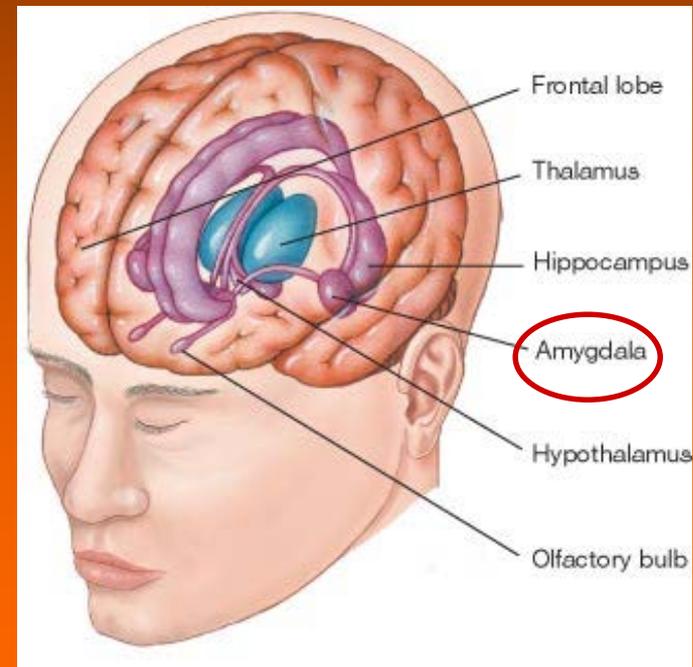
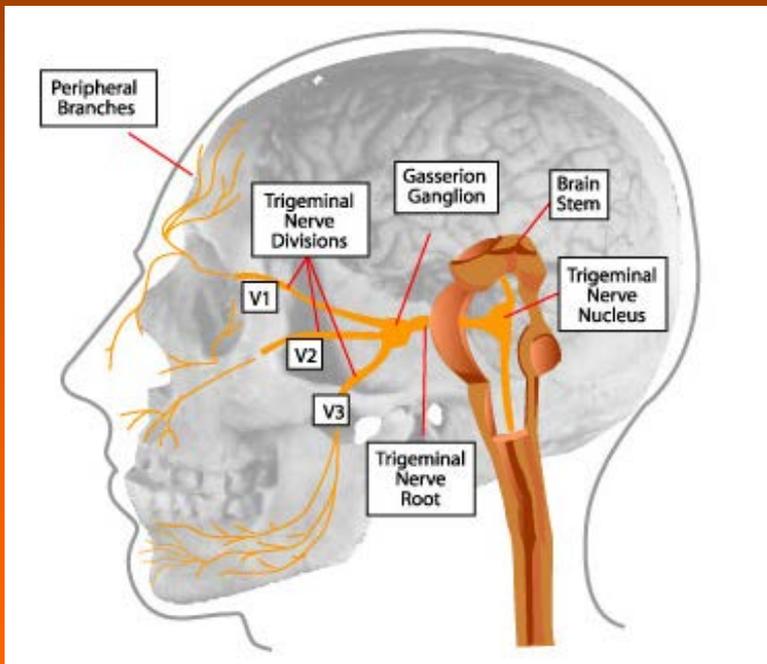
Ratings of Funniness and Difficulty: Study 1

Cartoon	Position of pen		
	Lip	Hand	Teeth
First	3.90	5.13	5.09
Second	4.00	4.10	4.19
Third	4.47	4.67	5.78
Fourth	4.90	5.17	5.50
Mean funniness	4.32	4.77	5.14
Mean difficulty	4.47	2.72	4.91

Note. All ratings were made on a scale from 0 to 9, where a lower value stands for lower funniness and difficulty, a higher value for higher funniness and difficulty.

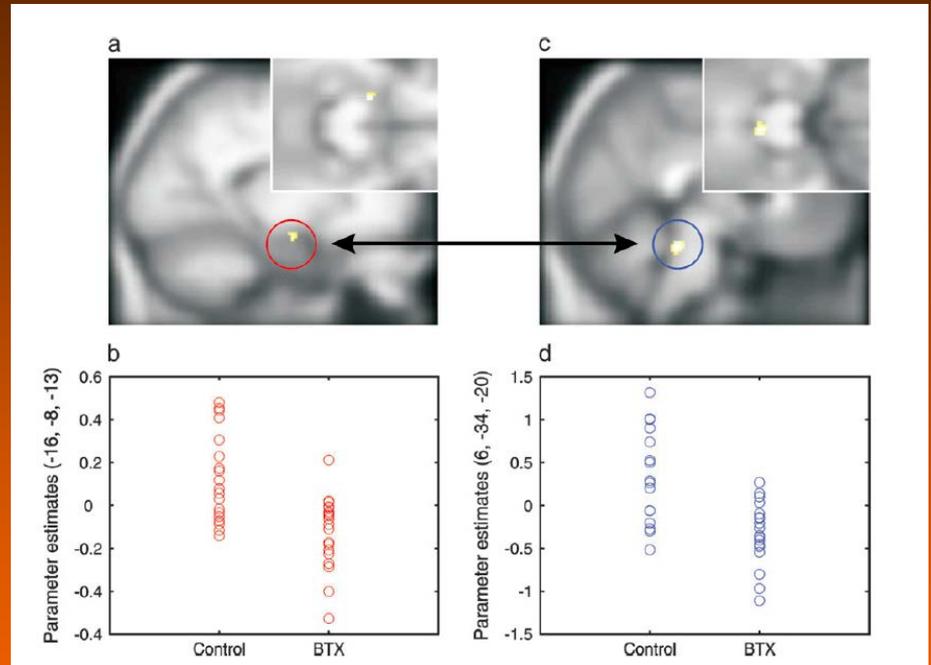
Theory # 2: It's all about biology

- Reduce negative afferent sensory information to the brain \longrightarrow reduce bad emotion



Theory # 2: It's all about biology

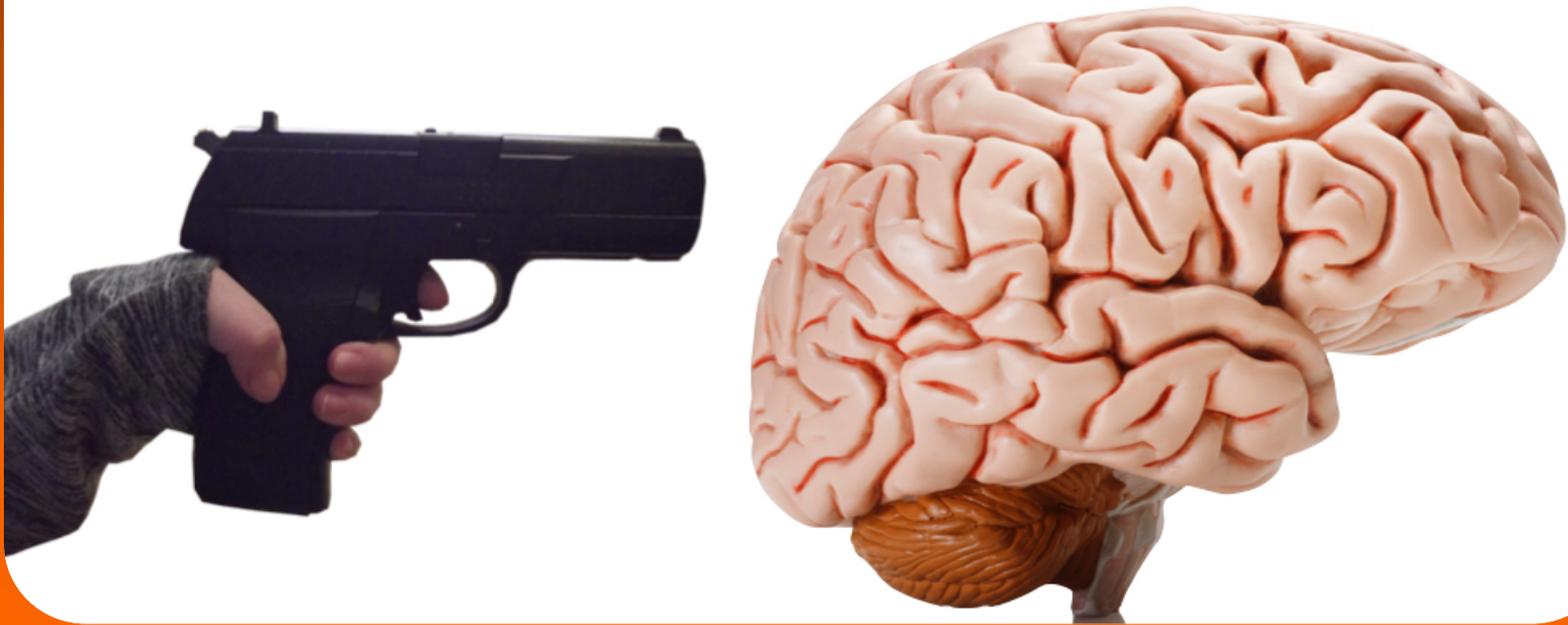
- Patients treated with Botulinum Toxin in the forehead frown muscles had **decreased activity in the left amygdala** when mimicking angry facial expressions.
- Depressed patients showed exaggerated left amygdala activity when shown pictures of fearful faces. After antidepressant treatment, left amygdala hyperactivity normalized.



- Hennenlotter A, Dresel C, Castrop F. The link between facial feedback and neural activity within central circuitries of emotion- new insights from botulinum-toxin induced denervation of frown muscles. *Cerebral Cortex* (2009); 19: 537-542
- Shin, Lisa M., and Israel Liberzon. The neurocircuitry of fear, stress, and anxiety disorders. *Neuropsychopharmacology* 35, no. 1 (2009): 169-191.
- Sheline, Yvette I., Deanna M. Barch, Julie M. Donnelly, John M. Ollinger, Abraham Z. Snyder, and Mark A. Mintun. Increased amygdala response to masked emotional faces in depressed subjects resolves with antidepressant treatment: an fMRI study. *Biological psychiatry* 50, no. 9 (2001): 651-658.
- <http://www.frca.co.uk/article.aspx?articleid=100533>

Let's talk about the Amygdala

Amygdala hijack



Can one change one's mood by simply changing one's facial expression?



Evaluation of Self-Esteem and Depression Symptoms in Depressed and Nondepressed Subjects Treated with OnabotulinumtoxinA for Glabellar Lines

DORIS HEXSEL, MD,^{*†} CRISTIANO BRUM, MD, MSc,^{*} CAROLINA SIEGA, BSc,^{*} JULIANA SCHILLING-SOUZA, BPharm,^{*} TACIANA DAL'FORNO, MD, PhD,^{*†} MARC HECKMANN, MD,[‡] AND TICIANA C. RODRIGUES, MD, PhD^{*§}

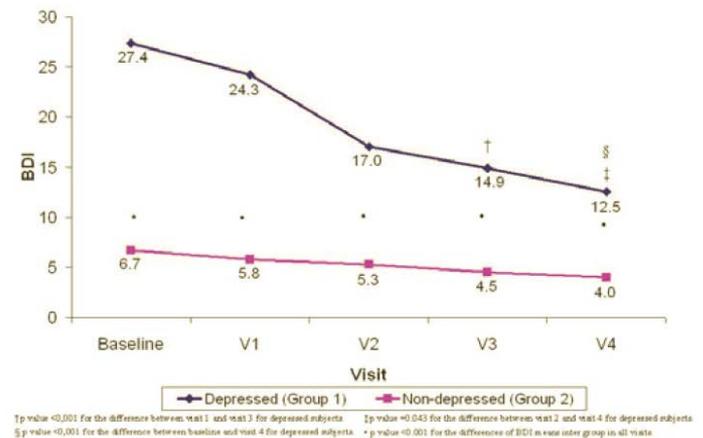
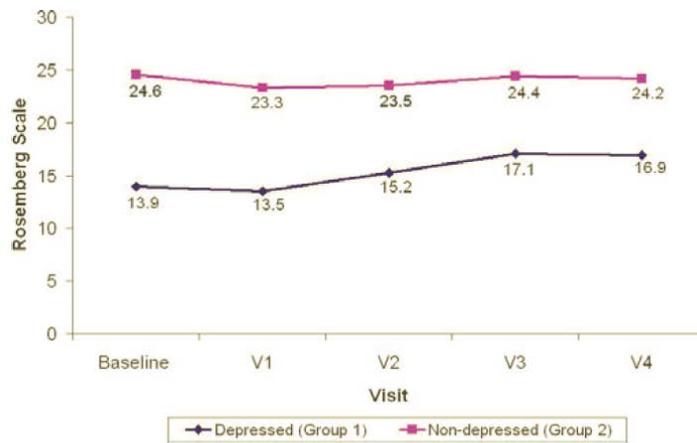


Figure 1. Mean of Rosenberg Self-Esteem Scale scores of subjects with and without depression over time.

Figure 2. Mean of Beck Depression Inventory scores of subjects with and without depression over time.

- Case Series. 12 week study.
- 50 females age 25-60, 25 depressed and 25 non-depressed, all receiving BTA.
- Depressed patients treated with BTA experienced a -54.4 % reduction in BDI scores in (p<.001). Self-esteem scores also significantly improved.
- Non-depressed patients' self-esteem and depression scores did not significantly change.



Facing depression with botulinum toxin: A randomized controlled trial

M. Axel Wollmer^{a,*}, Claas de Boer^b, Nadeem Kalak^a, Johannes Beck^a, Thomas Götz^a, Tina Schmidt^b, Muris Hodzic^c, Ursula Bayer^a, Thilo Kollmann^a, Katja Kollwe^d, Daniela Sönmez^b, Katja Duntsch^b, Martin D. Haug^e, Manfred Schedlowski^f, Martin Hatzinger^g, Dirk Dressler^d, Serge Brand^a, Edith Holsboer-Trachsler^a, Tillmann H.C. Kruger^b

- 30 Patients age 25-65. Double-blind Placebo controlled.
- 15 Received Botulinum and 15 Received Placebo in Glabellar region.
- Depression diagnosis based on SCID and Ham D-17 >14.
- Moderate to severe frown lines
- Women received 29 units; Men received 39 units.
- Exclusion: Psychosis, significant Axis II, migraines, previous Botulinum treatment
- 0-2 medications. Were not allowed to change them during the first six weeks of the trial
- **Primary outcome: Ham D 17 response (50% reduction in score) and remission (≤ 7 score) at 6 weeks**

Week 0

2

4

6

8

12

16

Group 1



15 Placebo



Group 2



15 Botulinum

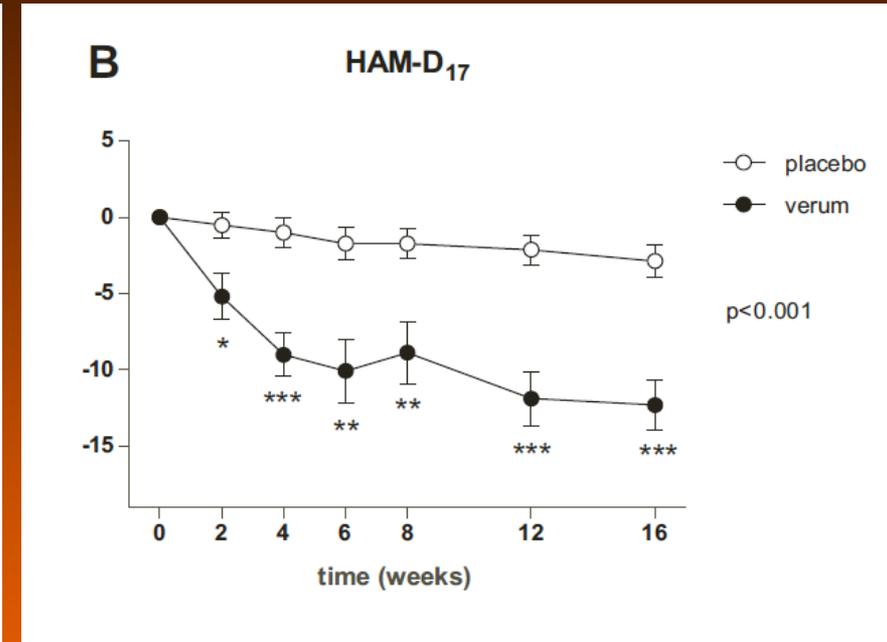
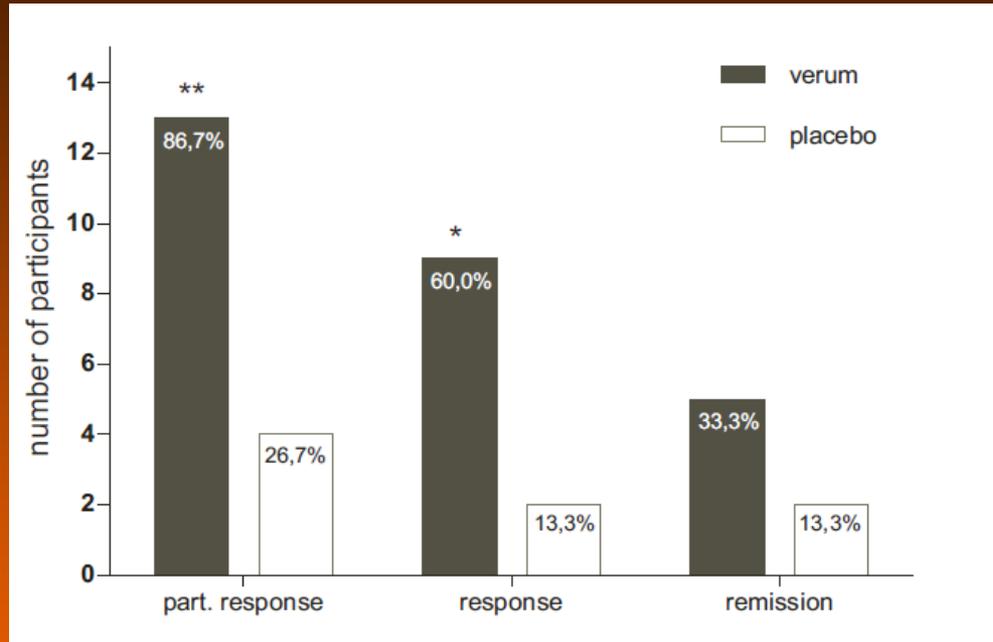


Blinding



Staff member demonstrating blinding technique.
Consent given to use her image.

Results



Ham D-17 Response: 60% vs. 13.3%
(>50% reduction in Ham-D)

Ham D-17 Remission: 33.3% vs. 13.3%
(Ham D \leq 7)

Ham D-17 change: -47.1% vs. -9.2%

- Botulinum: 10 point drop (47.1%)
- Placebo: 1.73 point drop (9.2%)



Treatment of depression with onabotulinumtoxinA: A randomized, double-blind, placebo controlled trial

Eric Finzi^{a,*}, Norman E. Rosenthal^{b,c}

^a Chevy Chase Cosmetic Center, Chevy Chase, MD 20815, USA

^b Capital Clinical Research Associates, Rockville, MD 20852, USA

^c Georgetown Medical School, Washington, DC 20057, USA

- 74 patients age 18-65. Double-blind Placebo controlled.
- 33 Received Botulinum and 41 Received Placebo in Glabellar region.
 - Botulinum and Placebo groups did not differ in demographic or clinical baseline variables
- Depression diagnosis based on MINI and MADRS ≥ 26 and CGI-S ≥ 4 .
- ~~Moderate to severe frown lines~~
- Women received 29 units; Men received 40 units.
- Exclusion: Another Axis I diagnosis, substance abuse, previous botulinum 12 months prior
- Could not fail ≥ 3 antidepressant trials. No med changes 1 month prior to trial.
- **Primary outcome: MADRS response (50% reduction in score).**
- Secondary outcome: remission as measured by MADRS score ≤ 10 , changes in BDI-II and CGI scores.

Week 0

2

4

6

Group 1



33 Placebo



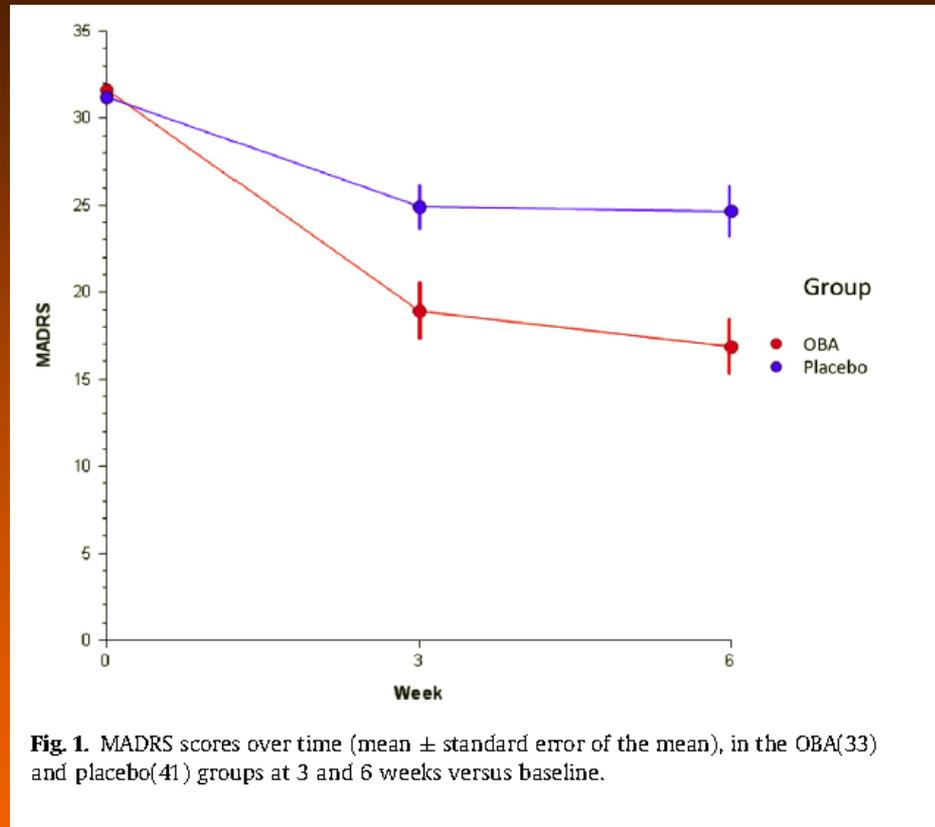
Group 2



41 Botulinum



Results



Response: 52% vs. 15%

(50% reduction in MADRS scores)

Remission: 27% vs. 7%

(≤10 in MADRS scores)

MADRS change: -47% vs. -21%

– Botulinum: 31.6-16.9 =14.7 point drop (47%)

– Placebo: 31.2-24.6 =6.6 point drop (21%)

■ ORIGINAL RESEARCH

**Treatment of Major Depressive Disorder
Using Botulinum Toxin A: A 24-Week Randomized,
Double-Blind, Placebo-Controlled Study**

*Michelle Magid, MD; Jason S. Reichenberg, MD; Poppy E. Poth, BS; Henry T. Robertson, PhD;
Amanda K. LaViolette, MD, MPH; Tillmann H. C. Kruger, MD; and M. Axel Wollmer, MD*

- 30 Patients age 18-65
- 11 received botulinum and 19 received Placebo in Glabellar region.
- **At week 12, the groups were switched!**
- Depression diagnosis based on MINI and Ham D-21 >14
- Moderate to severe frown lines
- Women received 29 units; Men received 39 units.
- Exclusion: Psychosis, significant axis II, previous botulinum treatment, substance abuse
- 0-3 psychotropic medications. No med changes 2 months prior to trial
- **Primary outcome: Ham D 21 response (>50% reduction) at 6 weeks**
- Secondary outcomes: Ham D 21 remission (score ≤ 7), BDI response (>50% reduction) BDI remission (score ≤ 9), PHQ-9 scores at 6 weeks

Week 0

3

6

12

15

18

24

Group 1

19 Placebo



19 Botulinum



Group 2

11 Botulinum

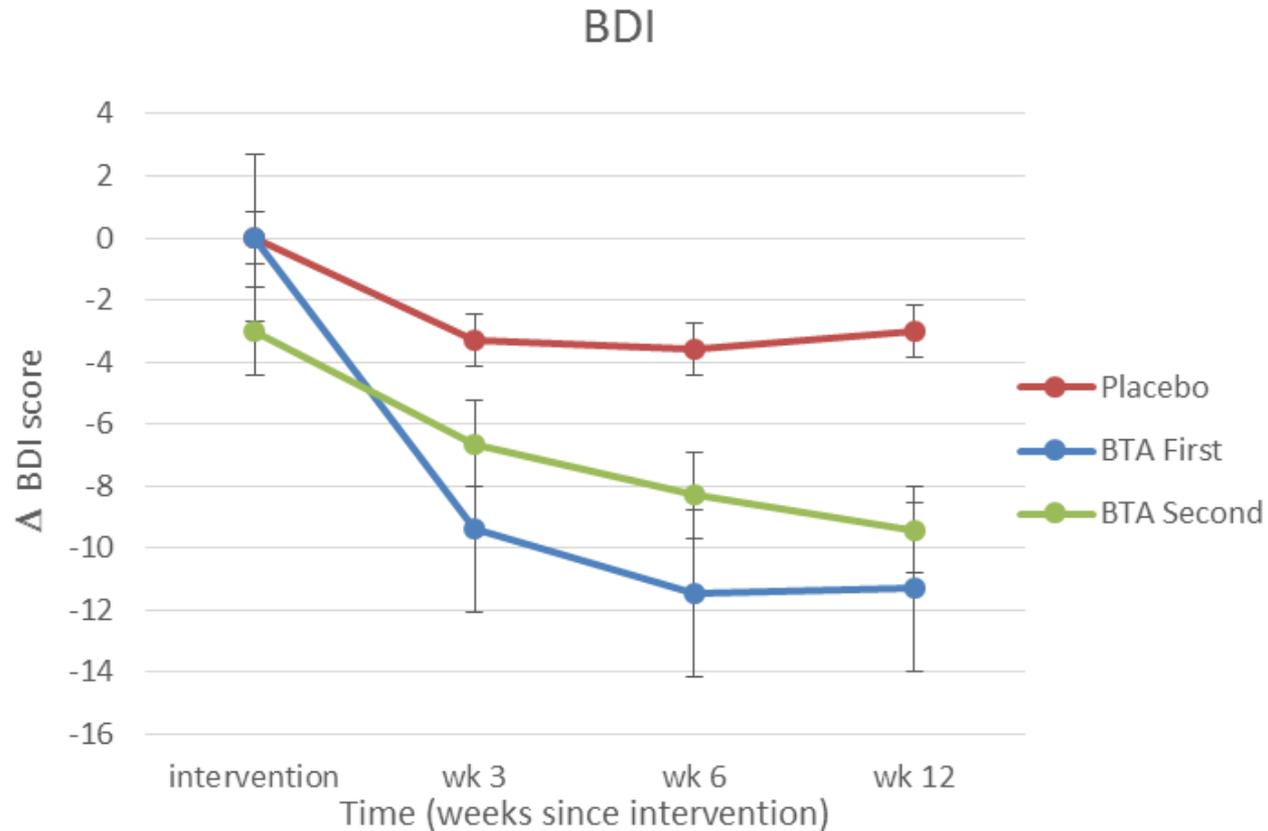


11 Placebo



Magid/ Reichenberg

Results



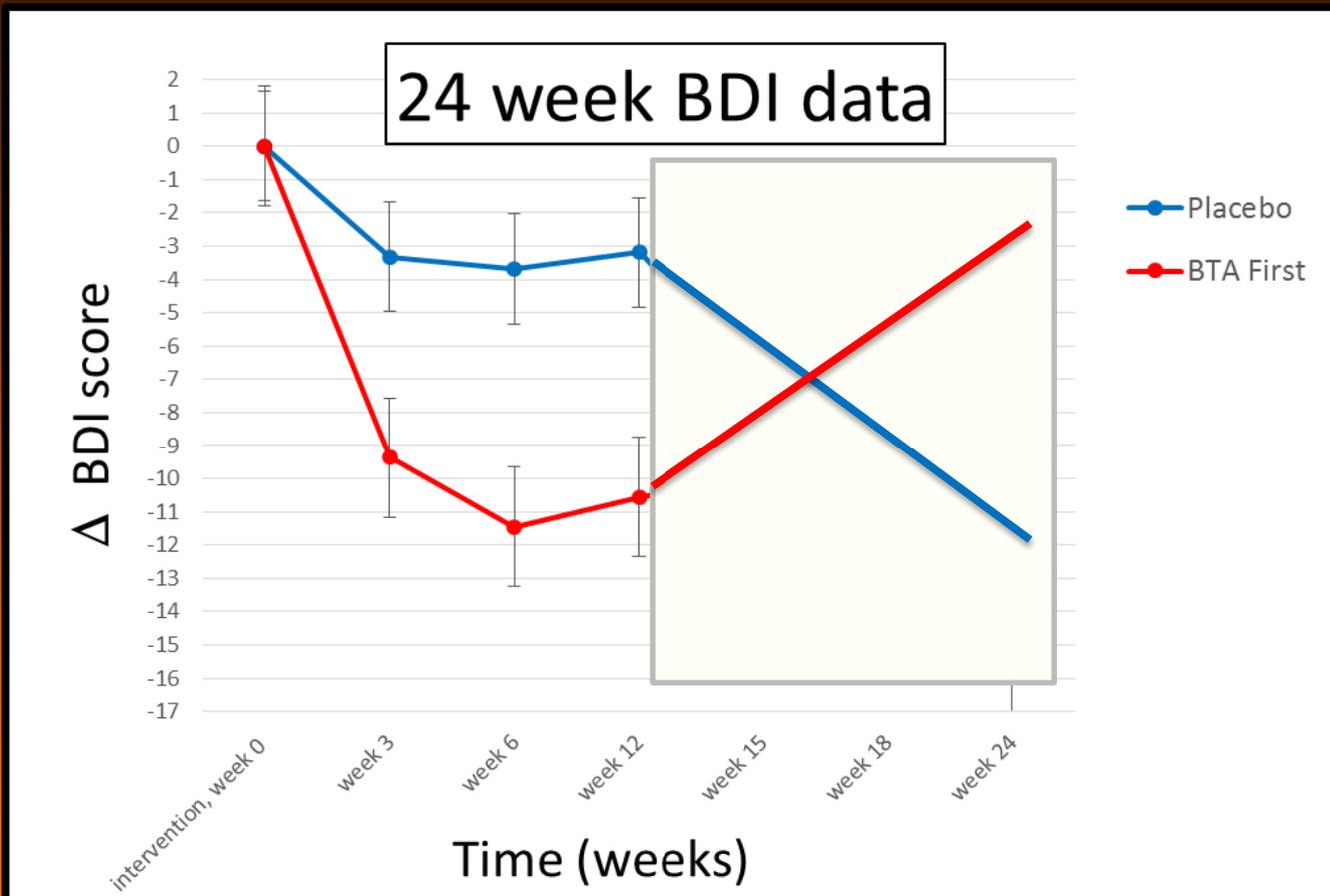
BDI -42% vs. -35% vs. -15% ($p < .0001$)

- Botulinum 1st: $27.5 - 16 = 11.5$ point drop (42%)
- Botulinum 2nd: $23.7 - 15.4 = 8.3$ point drop (35%)
- Placebo: $23.7 - 20.1 = 3.6$ point drop (15%)

Response: 45% vs. 33% vs. 5% (>50% reduction in BDI) ($p < .01$)

Remission: 27% vs. 33% vs. 5% ($BDI \leq 7$)

Results



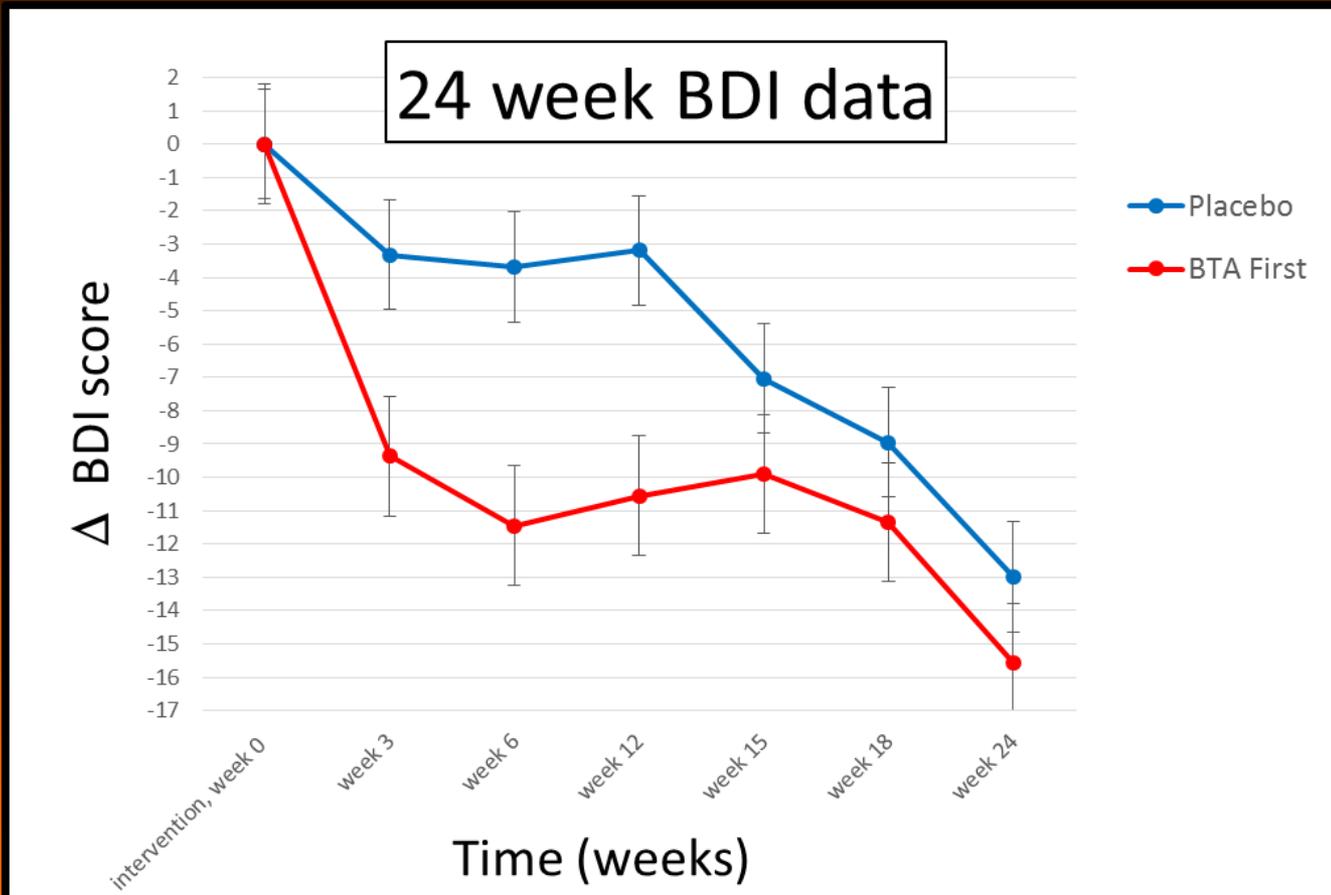
BDI -42% vs. -35% vs. -15% ($p < .0001$) (0-63 scale)

- Botulinum 1st: $27.5 - 16 = 11.5$ point drop (42%)
- Botulinum 2nd: $23.7 - 15.4 = 8.3$ point drop (35%)
- Placebo: $23.7 - 20.1 = 3.6$ point drop (15%)

Response: 45% vs. 33% vs. 5% (>50% reduction in BDI) ($p < .01$)

Remission: 27% vs. 33% vs. 5% ($BDI \leq 7$)

Results



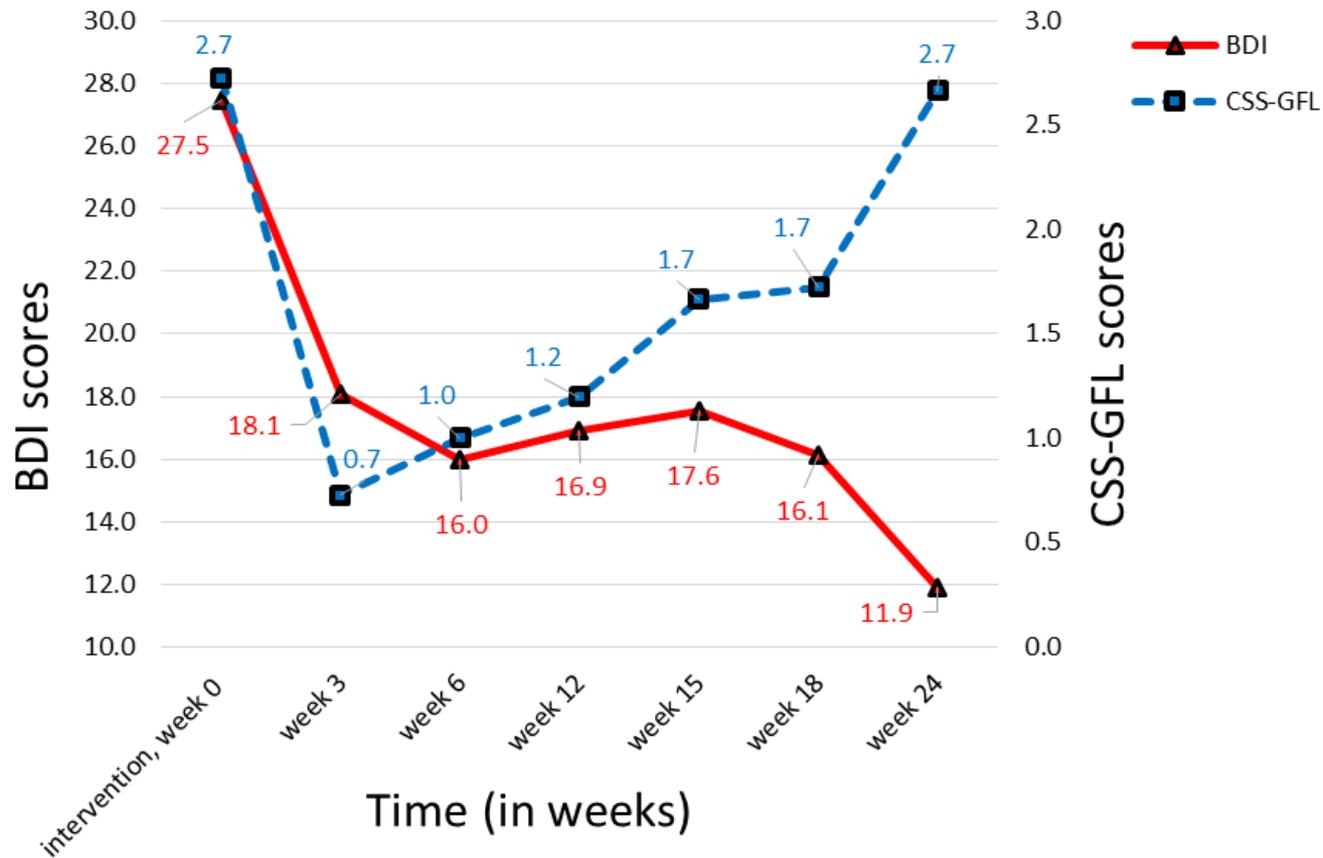
BDI -42% vs. -35% vs. -15% ($p < .0001$) (0-63 scale)

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Remission: 27% vs. 33% vs. 5% ($BDI \leq 7$)

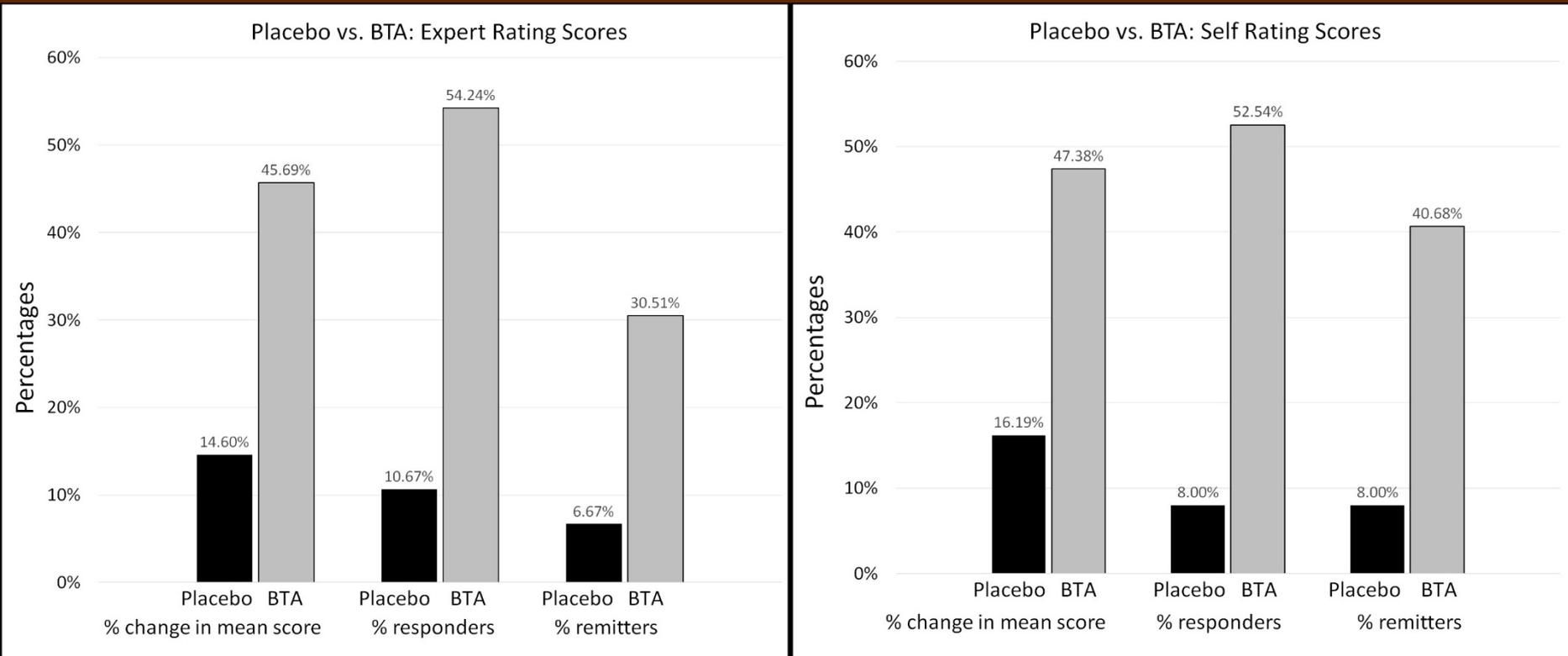
24 week data for mood scores vs. frown scores after Botulinum Toxin A injections into the glabellar muscles



At week 24, the mean frown score (CSS-GFL) in the BTA first group was back to baseline (baseline score= 2.7; wk 24 score= 2.7), indicating that the botulinum toxin had worn off. Nonetheless, patient's depression scores continued to go down throughout the 24 weeks, indicating that mood continued to improve despite the BTA effects wearing off.

STUDY	WOLLMER et al. 2012		FINZI et al. 2013		MAGID et al. 2014	
# of Patients	30		74		30	
Sex	Females and Males		Females and Males		Females and Males	
Age (Inclusion criteria), Mean	(25-65) 50.6 ± 8.9		(18-65) 48.6 ± 9.7		(18-65) 49.5 ± 7.0	
Units of BTA Given	29 Female, 39 Male		29 Female, 40 Male		29 Female, 39 Male	
Baseline CSS-GFL score ^a	2.3		1.7		2.6	
Measurement Scale	HAM D-17	BDI	MADRS	BDI-II	HAM D-17	BDI
Mean Baseline Score	20.1	25.3	31.4	29.3	20.8	25.1
Botulinum Response Rate	60%	40%	52%	61%	55%	45%
Placebo Response Rate	13%	0%	15%	12%	0%	5%
Botulinum Percent Change in Score	-47%	-40%	-47%	-55%	-50%	-42%
Placebo Percent Change in Score	-9%	3%	-21%	-28%	-6%	-15%
Botulinum Remission Rate	33%	33%	27%	48%	36%	27%
Placebo Remission Rate	13%	0%	7%	12%	0%	5%
Length of trial in weeks	16		6		24	
Moderate-severe frown lines needed for inclusion?	Yes		No		Yes	
Medications	0-2 No change x 1 month		Not failed ≥3 trials No change x 1 month		0-3 No change x 2 months	
Guessed intervention correctly?	90% Participants 60% Raters		≈50% Participants 73% Raters		N/A	
Adjunctive Monotherapy?	1 patient monotherapy 29 patients adjunctive		43 patients monotherapy 31 patients adjunctive		4 patient monotherapy 26 patients adjunctive	

Meta-analysis Results



Placebo N=75 Botulinum N=59

Is botulinum better as a monotherapy or an augmentation strategy?

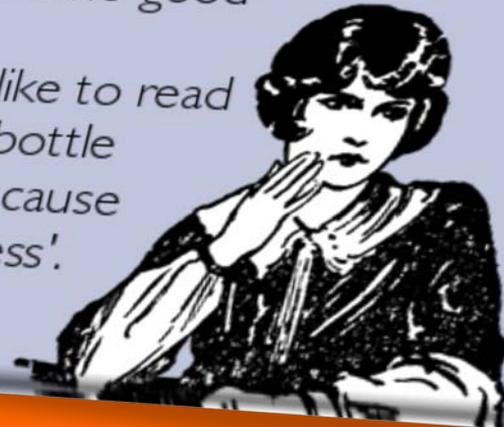
Number and % of patients taking antidepressants who were responders, according to Patient Rating Scales	Number (%) of patient responders	
	BTA (n=59)	Placebo (n=75)
Taking Antidepressants	19/38 (50%)	3/48 (6%)
Not taking antidepressants	12/21 (57%)	3/27 (11%)

The was no statistically significant difference in the response rates for patients using the botulinum as a monotherapy (patients on no psychotropic medication n=48) vs. an adjunct agent (patients on 1-3 psychotropic medications n=86), indicating that BTA was similarly effective as both a monotherapy and adjunctive therapy.

Is botulinum toxin safe?

- No severe adverse reactions were reported in the meta-analysis.
- 13.6% (n=8) of the botulinum group
- 9.3% (n=7) of the placebo group
- Mild adverse reactions including temporary headaches and local irritation immediately after injection) (P-value=0.44).

*Why are there no good side effects?
Just once I'd like to read a medication bottle that says 'may cause extreme sexiness'.*



Does it work better in women than in men?

- There was no statistical difference in efficacy between men ($n = 14$) and women ($n=120$)
- Larger studies with a higher number of male participants are warranted.



How do you know this is not all about *looking* better leading to *feeling* better?

25 Participants

12- Botulinum in glabella

13- Restylane, Glycolic Peels, Botulinum in other areas, laser treatments

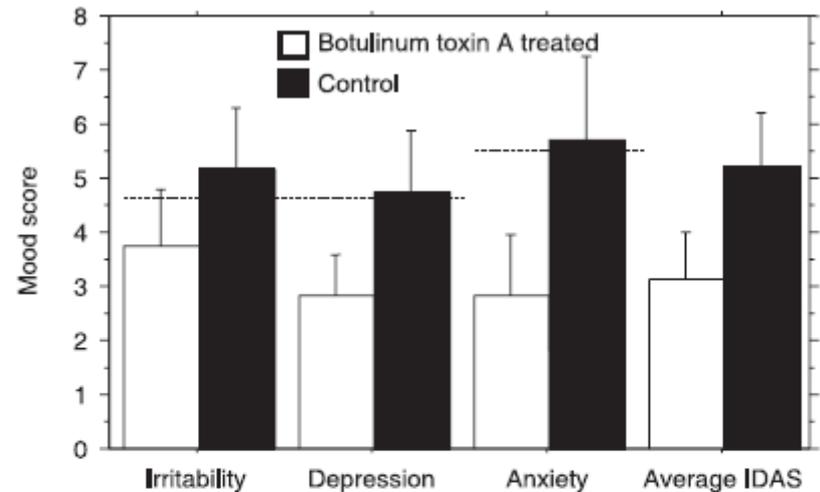


Figure 1 Individual and average scores from the three measures produced by the IDAS questionnaire split according to whether participants had received BTX-A treatment or not. Error bars represent 95% confidence intervals. The dotted lines represent the boundary between normal scores (below the dotted line) and borderline morbid scores (above the dotted line) for the IDAS questionnaire.

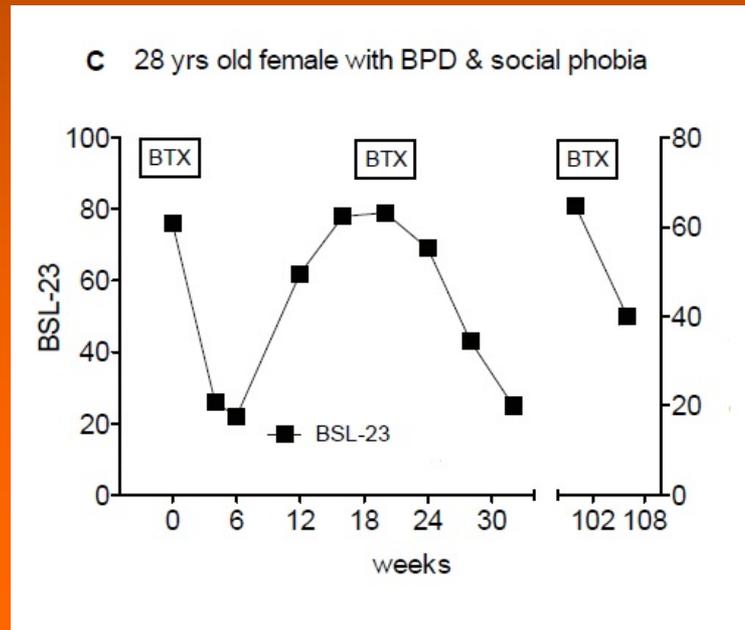
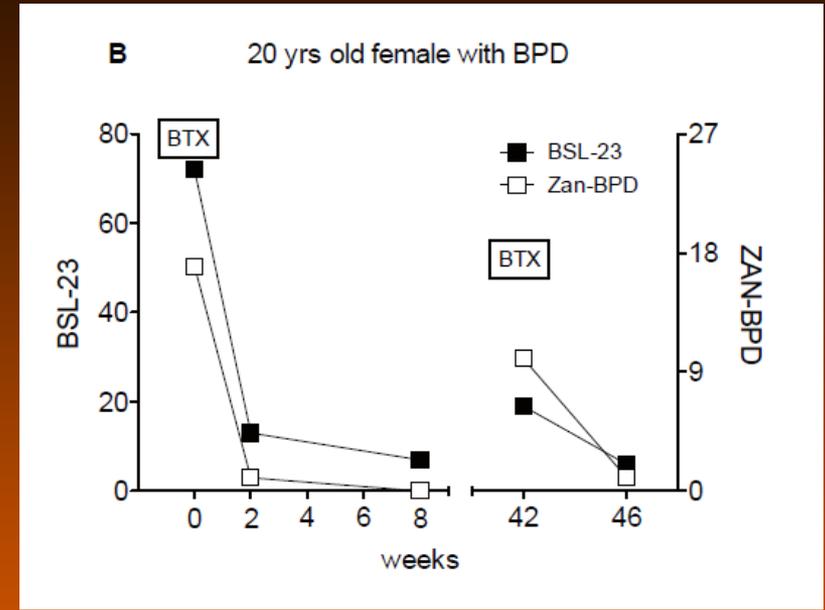
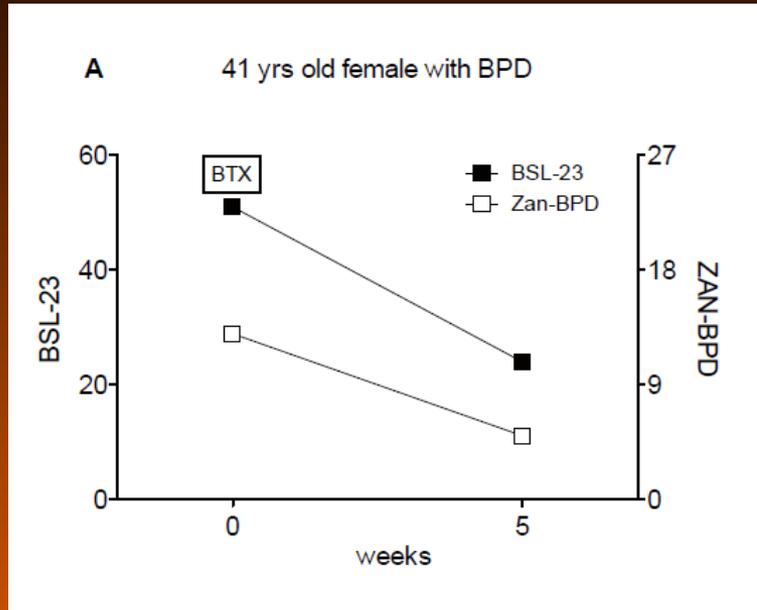
Break-up Botulinum????



Future Directions

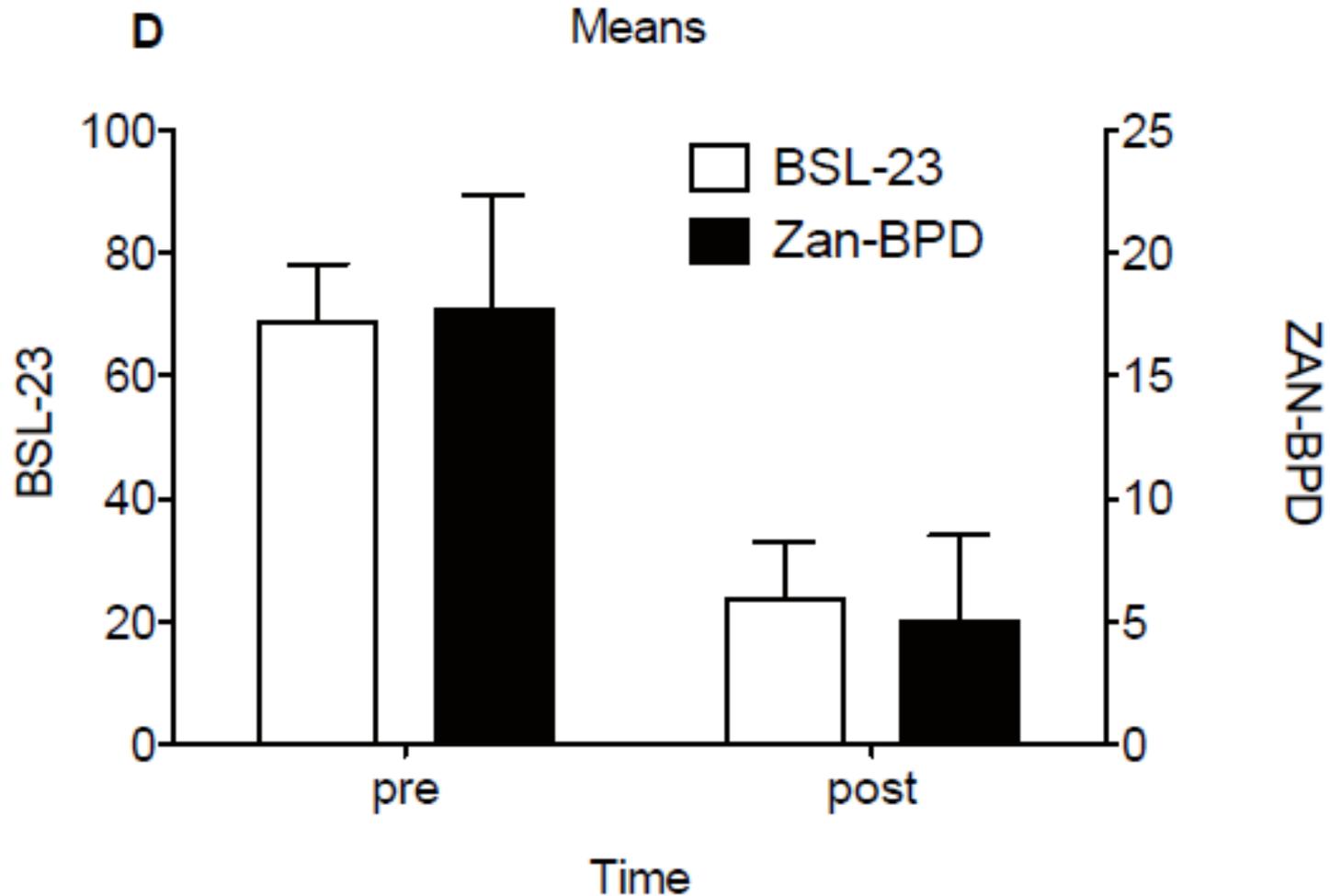
- Larger Depression Trials
- Social Anxiety Disorder?
- Post-Traumatic Stress Disorder?
- Seasonal Affective Disorder?
- Borderline Personality Disorder?

Borderline Personality



Zanarini Scale 0-36
Borderline Symptom List scale 0-92

Borderline Personality

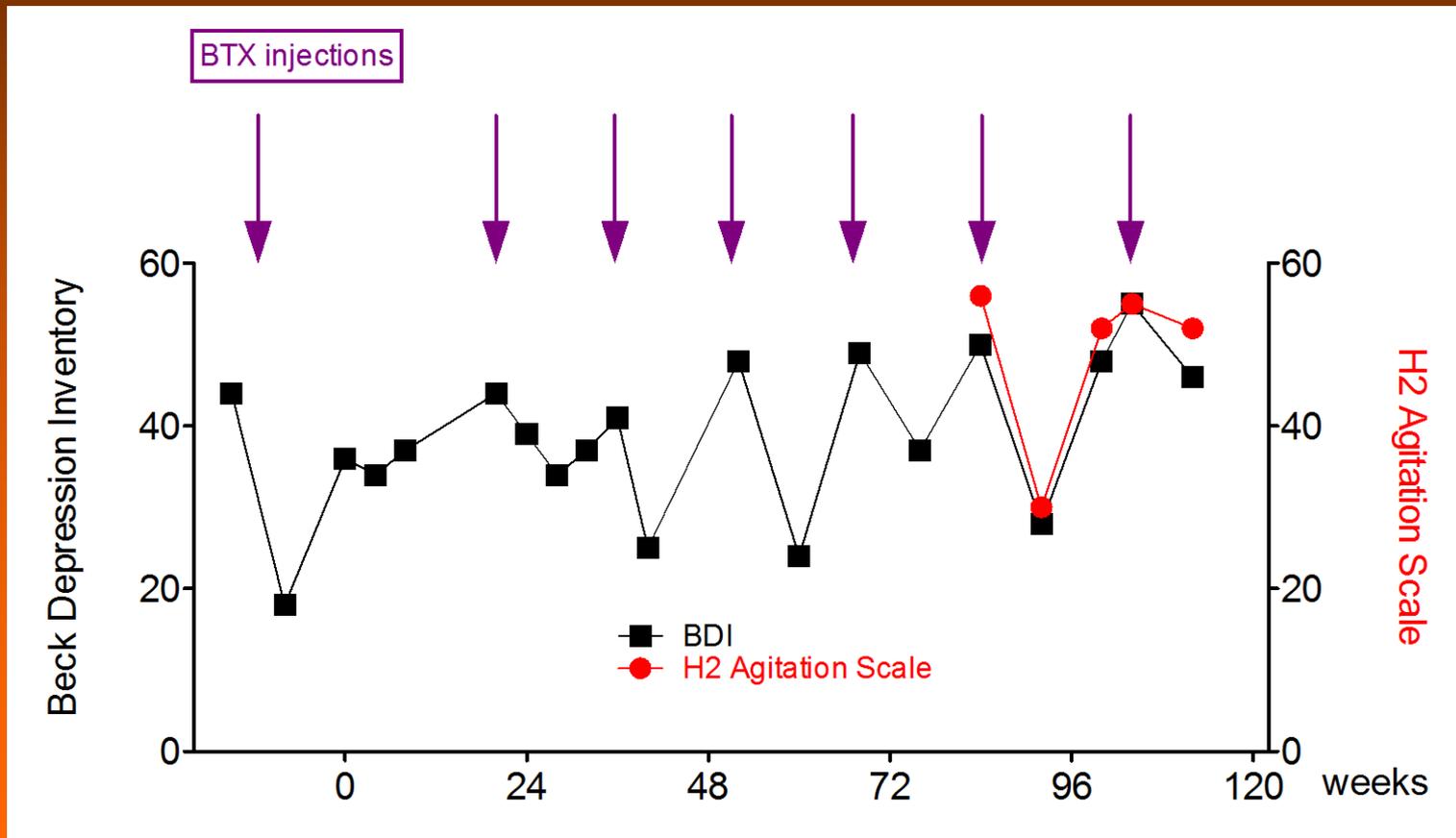


Zanarini Scale 0-36

Borderline Symptom List scale 0-92

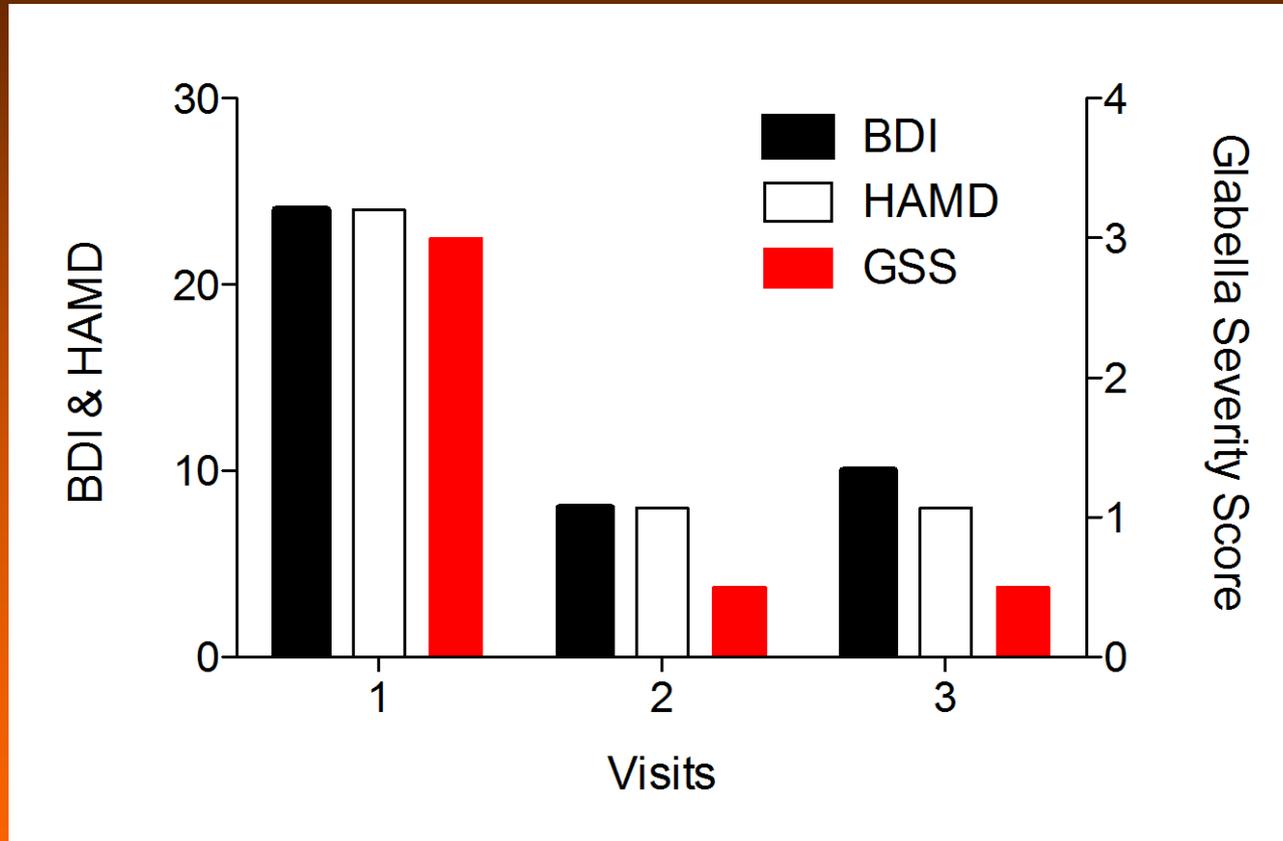
“BTA calms my emotions”

D.P., female, 54 yrs with therapy resistant chronic MDD and repeated BTX injections



“A relief after years”

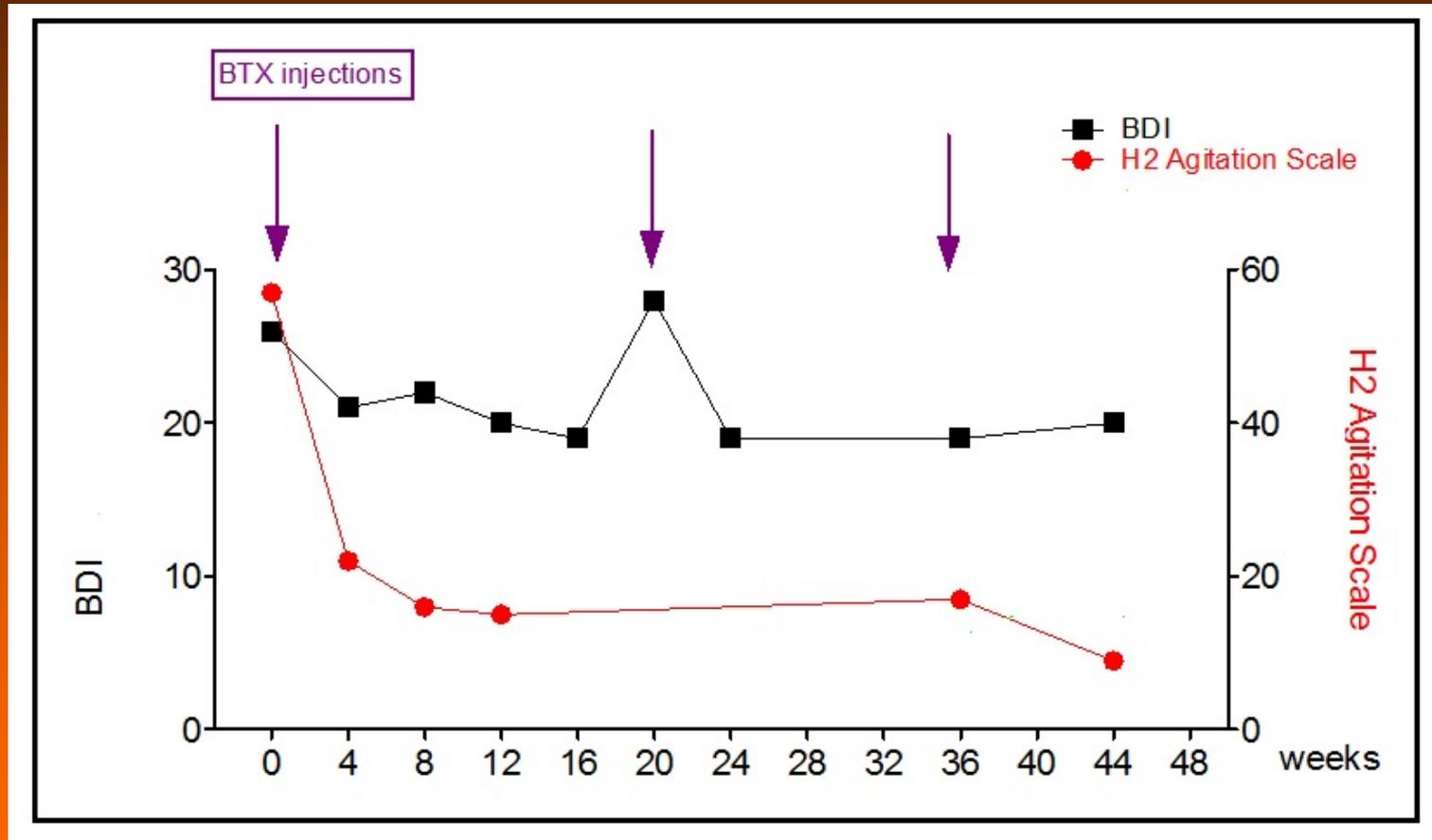
K.W., male, 40 yrs with therapy resistant MDD (ECT, vagal nerve stimulation, magnetic stimulation, MAOI) and stutter



- Additional Benefit: Reduced stuttering and better sexual drive & function

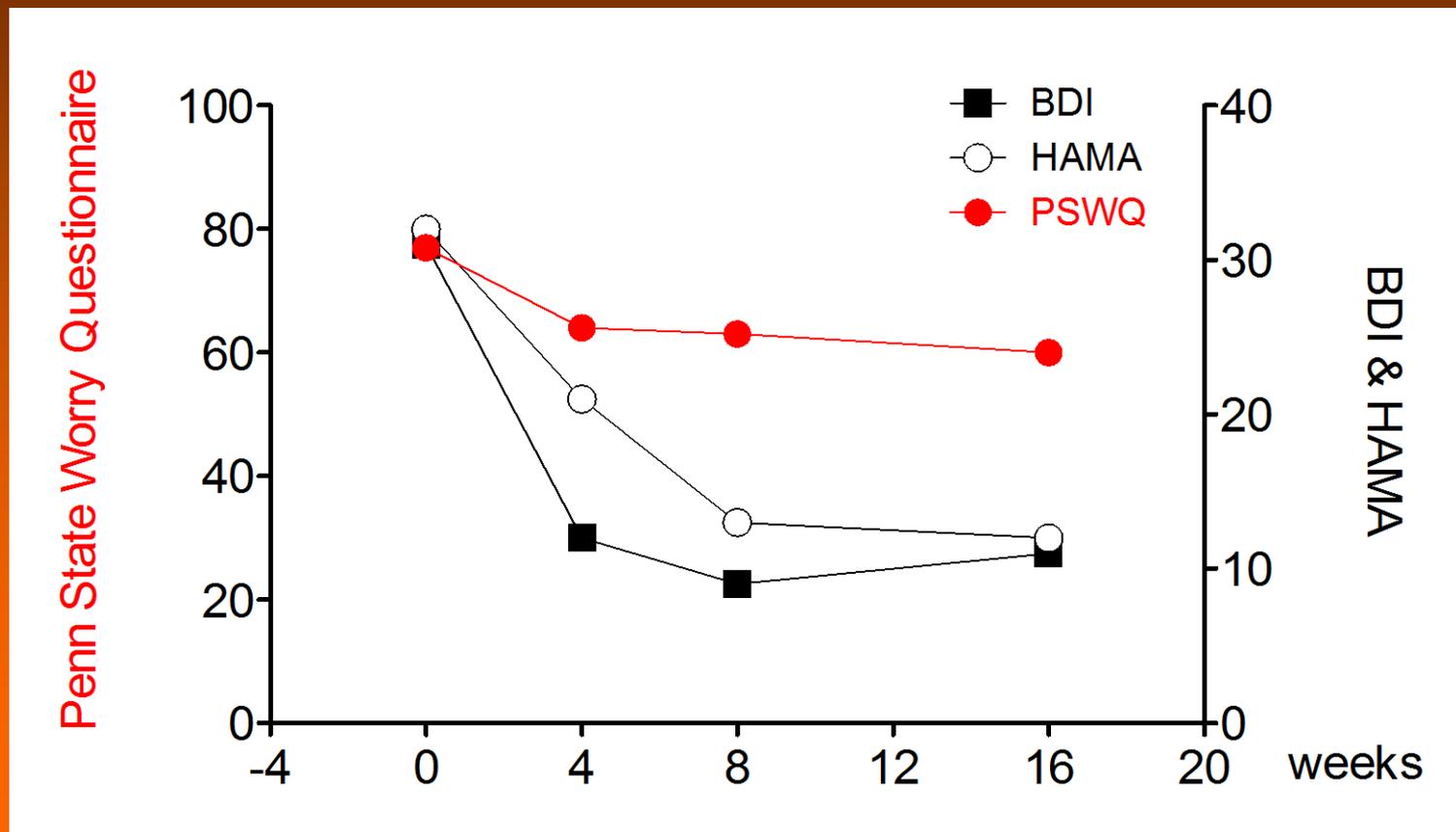
“I was able to finish my exam”

H.T., male, 29 yrs old student with chronic MDD and GSS of 0



Case IV “BTA reduces my anxiety”

T.H., male, 47 yrs with GAD and recurrent MDD



Don't Worry, Get Botox

MARCH 21, 2014



FEELING down? Smile. Cheer up. Put on a happy face. No doubt you've dismissed these bromides from friends and loved ones because everyone knows that you can't feel better just by aping a happy look.

Or perhaps you can. New research suggests that it is possible to treat depression by paralyzing key facial muscles with Botox, which prevents patients from frowning and having unhappy-looking faces.

In a study forthcoming in the Journal of

Medscape Medical News > Conference News

Botulinum Toxin Injections Improve Depression

Jim Kling
March 26, 2014

Comment



Print

EDITORS' RECOMMENDATIONS

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TOYOTA FLEET
A NO-BRAINER THAT'LL HAVE YOU LOOKING LIKE A GENIUS.

Botox as a Treatment for Depression? It's Not as Crazy as It Sounds.

BY LAURA ENTIS | March 24, 2014 | 7 Comments | Clip it



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"I chéid as it may have become, there's still real wisdom to be gleaned from the phrase "take it until you make it." Acting the part is often the first step to legitimately owning it. Wear the persona of a competent, confident manager and you may find you're on the way to becoming one.

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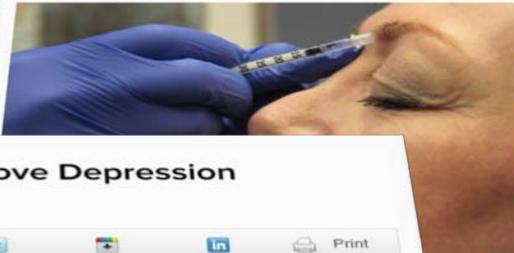
NEWS BUSINESS SPORTS ENTERTAINMENT LIFESTYLE

Diet & Fitness Sexual Health

Botox may beat back depression by paralyzing 'frown muscles' between the brows, study finds

BY SHARON KIRKEY, POSTMEDIA NEWS MARCH 27, 2014

STORY PHOTOS (1)



MORE ON THIS STORY

- Hot yoga and pregnancy a dangerous mix, doctors warn
- Chin surgery quickly becoming the new vanity procedure of choice
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STORY TOOLS

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DENVER — Botulinum to an antidepressive effect that continues beyond t according to the results

The fact that the antide wrinkles reappeared su related to cosmetic imp unexpected," said stud clinical associate prof Texas Southwestern

She presented the re Dermatology 72nd A

There have been an after botulinum treat these were a direct secondary effects t

PsychCentral

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Kyprolis
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Depression On My Mind with Christine Stapleton

About the Blog Categories Archives

Botox: The new antidepressant?

By CHRISTINE STAPLETON

Depression Overview

- Alcoholism
- anxiety and dreams
- Bipolar
- Codependency
- Coping with Depression
- Dreams and depression
- Dual-Diagnosis
- General
- In My Experience
- yooffs and bipolar
- yooffs and mental illness
- Living with Depression
- Medications

Halle-freakin'-lujaht!

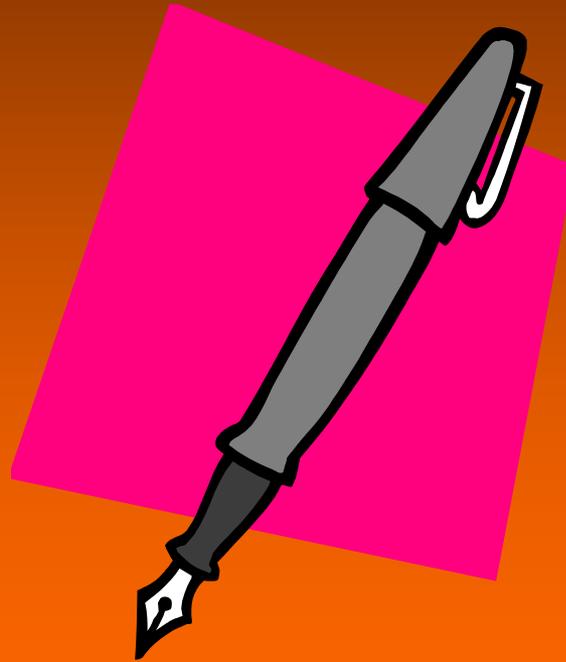
We have a couple more studies that suggest that paralyzing key fa muscles with Botox can reduce the symptoms of depression.

In a recent 24-week randomized double-blind placebo-controlled study, done by Michelle Magid, MD, clinical associate professor of psychiatry at the University of Texas, 30 participants with depressive symptoms were randomized and give injections of Botox or a placebo between the eyebrows (which happens to be exactly where I need it.)

The men were injected with 39 units of botulinum and the women were injected with 29 units. At week 12, the placebo group crossed over to treatment, and the treatment group crossed over to placebo. Participants were evaluated at weeks 0, 3, 6, 12, 15, 18, and 24. The



Post-test



True or False: Botulinum toxin is FDA approved to treat migraines but not to treat depression.

- A. True
- B. False

The theory as to why botulinum toxin helps symptoms of depression is:

- A. The facial feedback hypothesis – the idea that facial expression can influence emotional perception
- B. Reduction of activity in the amygdala
- C. Improved firing of mirror neurons during social interactions
-  D. All of the above may be potential mechanisms of action

In a meta-analysis of the “Botulinum toxin to treat depression” trials, the response rate was approximately:

- A. 25% similar to placebo
- ✓ B. 50% similar to antidepressants
- C. 75% similar to ECT
- D. 100% similar to death and taxes

Conclusion

- There is increasing evidence that patients suffering from negative emotional states (MDD and BPD) may benefit from injections of botulinum toxin A into the glabellar (forehead) frown lines.
- Larger studies are warranted. If future studies emulate current findings, botulinum toxin may be a novel treatment in the fight against depression and other psychiatric disorders.

Surprised?
Thank you!

Michelle Magid
michellemagidmd@gmail.com



For More Information...

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- *Practical Psychodermatology* by Anthony Bewley, Ruth E. Taylor, Jason S. Reichenberg and Michelle Magid (Book)