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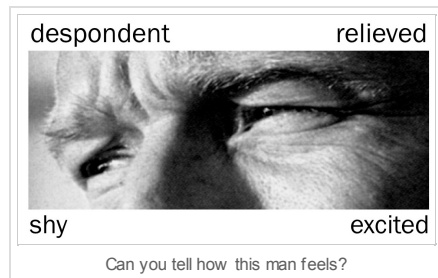
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## Can Botox impair your ability to empathize with others?

General Psychology

by [Bob Spunt](#) | May 24, 2011



Consider the photograph on the left. Can you tell how this man is feeling? According to a recent study by Drs. David Neal and Tanya Chartrand, if you've recently undergone Botox treatment, you may be impaired in your ability to do so.

The study is in press at the journal *Social Psychological and Personality Science*. For the study, 16 recent Botox patients took the the Reading the Mind in the Eyes Test (RMET; Baron-Cohen, Wheelwright & Hill, 2001), which involves looking at 36 photographs like the one featured above. For each photograph, the objective is to pick which of four words best describes what the person in the photograph is feeling

(in case you're curious, the correct answer to the above item is "despondent"). Compared to a control group that had not undergone Botox, the Botox group did significantly worse. To be fair, they didn't totally bomb: while the control group scored 77% on average, the Botox group came in just under 70%. So, not a dramatic impairment, but an impairment nonetheless.

Why does Botox have the potential to impair a person's ability to accurately identify the emotions that others are feeling?



The answer is a bit complicated, but let's start by considering what Botox does to the face (other than making it look all smooth and purty). One of the common uses of Botox (*botulinum toxin*) is to treat facial wrinkles caused by frowning. I won't go into the dirty details, but Botox works by effectively paralyzing the muscles used for frowning. Check out the accompanying image (lifted from a cosmetics website – sorry, I forgot which one!), which displays a woman before and after Botox treatment. As you can see, her frown lines are prominent in the "Before" photograph but are non-existent in the "After" photograph.

(Apparently, Botox also changes your mood from angry/confused to happy/calm.) So, in addition to treating wrinkles, Botox also seems to be impairing a person's ability to naturally express emotions on their own face.

What do my emotional facial expressions have to do with my ability to understand the emotional facial expressions of others around me? Two more points are required to answer this question. The first is that when our face wears an expression (e.g., a big fat smile), areas of our brain receive feedback from facial muscles, and this feedback either produces and/or is part of our experience of the corresponding emotion (see Hennenlotter et al., 2009 for more on this). If you don't know what I mean, go ahead and produce a big fat smile. Do it, seriously. What does it feel like to smile? Does it taste like *happy*?

The second point is that when we see another face wearing an expression, we spontaneously mimic the expression that we see. This is a well-documented phenomenon in psychology, although how and why this happens is still a matter of some controversy. Some folks think that we have special cells (called "mirror neurons") in our brain that allow us to match what we see (e.g., your friend wearing a big fat smile) to what we can do (e.g., you wearing a big fat smile) (see Iacoboni, 2009 for more discussion of this).

So now we have the ingredients for understanding how Botox messes with empathy (or, more precisely put, messes with performance on the Reading the Mind in the Eyes Test). Mimicking the expressions of other people's faces helps us recognize what they're feeling. This is because when we mimic a face, we get additional information about what it *feels* like to be wearing that expression. However, Botox paralyzes muscles in the face,



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which impairs the ability to mimic other people's faces, which then impairs our ability to understand what it feels like to be wearing other people's expressions.

Does this mean Botox messes with empathy? That depends on what you think empathy is. I'll leave you to decide...

#### References

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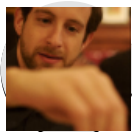
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**Yalda T. Uhls**

May 24, 2011 at 8:12 am (UTC -8)

This is a great and interesting article with important information!!



**khumphreys**

May 24, 2011 at 8:59 am (UTC -8)

Very cool – I wonder if parents with botox are less able to facilitate the emotional development of young children?



**emily**

October 3, 2011 at 1:08 am (UTC -8)

I don't know if all botox treatments affect the ability of empathize...or just if it's used to treat wrinkles or migraines or something.

Two months ago I had a [botox treatment in Toronto](#) for underarm sweating and until now I felt no difference.....I don't think my ability to empathize is affected and my kids and husband share my opinion.



**Bob Spunt**

October 3, 2011 at 12:24 pm (UTC -8)

Thanks for sharing your personal experience. Your experience of no change in empathy makes sense, for various reasons. First, empathy is a very complex behavior which cannot be reduced to any single process, such as recognizing emotions from facial expressions. Secondly, the effects reported in the study were quite small, so any effects that Botox may have on emotion recognition may not even be noticeable to the individuals receiving the treatment. Finally, I think that it's still quite debatable what role facial mimicry – which is all that Botox impairs – has in empathy. Similar to what I said above, is it does play a role, it is likely only one of many factors which play a role.



Antropia Luna (@AntropiaLuna)

September 9, 2011 at 2:28 pm (UTC -8)

Perceptive article; wonder why people use it when there are so many other alternatives.

<http://www.joannavargas.com/blog/>

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