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ON THE POWER OF BELIEF IN TREATING ADDICTION

Candice L. Shelby

University of Colorado Denver, USA.

Individuals are motivated by beliefs, irrespective of the truth of those beliefs. What seems to matter rather than the truth of one's beliefs is the conviction with which beliefs are held. The problem is that helpful beliefs cannot be summoned at will, nor can unhelpful beliefs be so banished, since they are largely the effect of unconscious brain activity. This does not mean, however, that addicts have no way to achieve power over their actions, for knowing the manner of operation of the unconscious provides some tools for directing it toward favorable action. In working on behavioral problems through manipulating the unconscious, though, it is imperative that care be taken with respect to the autonomy of the addict. Instilling false beliefs, however useful, should not be the basis of treatment programs.

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Belief, Fact and Motivation

One thing is clear: for all of us, addicts or not, beliefs, together with desires, are the fountains of our actions. In fact, one way that philosophers sometimes define belief is in terms of that upon which one is willing to act. We may *say* that we believe all kinds of things, but if we aren't willing to act ("Of course I trust you!"), that is a clear sign that we don't actually believe. This suggests that one way in which a person might become motivated to abstain from a drug or other addictive activity is to become firmly convinced that if she does indulge, she will certainly, end up in jail, in a mental institution, or dead…and if the last of those, perhaps in hell. As it turns out, however, the last entry on our punishments list isn't really very effective. As John Locke noted over 230 years ago[i]such eventualities are so far in the future that they very little affect our current actions, despite the degree to which people claim to believe (and despite the momentous nature of the allegedly believed-in eventuality!). Contemporary psychologists and behavioral economists are very familiar with this human tendency—the further away a projected bad consequence of current behavior seems, the less threat it poses. If consequences seem very near, by contrast, they are more likely to be believed, and thereby acted upon.

Notice, though, that the question is how near or far, how likely or unlikely an eventuality *seems* to an individual, rather than its actual proximity or likelihood. Thus people in their teens and twenties are much less motivated to abstention by the well-documented detrimental health effects of smoking, say, than those who have been smoking for decades. The effects warned again seem so far into the future that they are not perceived as immediate threats, and have little effect on behavior. But even with adults, perceived likelihood diverges widely from true likelihood, so in general they will tend to believe that they will not be struck by lightning, but might well win the lottery, although the probabilities actually favor the lightning strike. So, regardless of the objective truth or falsehood of a belief, it becomes part of reality as represented

in the believer's mind, and operates as powerfully as any other motivator or constraint on action. As every parent knows, the reality or unreality of Santa is irrelevant to the positive attitudes and exemplary behavior observed in young children in the days leading up to Christmas.

Placebo Power

The power of belief on the body as well has long been recognized. Religious people have often cited their faith, for instance, as the source of their ability to withstand the onslaughts of fate, and many addicts cite the same power as the source of their ability to maintain sobriety. More concretely, faith healers of various types have long been sought and recommended by satisfied customers for relief from pain and suffering. Scientific research backs up anecdotal claims of successful treatment of many different kinds of infirmities through the power of belief, understood as one kind of placebo effect (there are many different placebo effects, operating via various biological mechanisms[ii]). For example, ER doctors know that patients regularly exhibit response to pain medications earlier than any biochemical effects can possibly occur. In fact, physicians learn to encourage this response, by telling the patients as the medication is administered that they are getting a strong pain reliever. The pain relief that begins before the analgesic can take effect is as real as any other pain relief, and is caused by a physical, analgesic-delivering mechanism. The particular kind of placebo effect just mentioned depends upon expectation. If someone's brain expects relief from administration of an analgesic, then the brain's own reward system will kick in and release powerful chemicals of its own. In fact, in general when a reward is expected, dopamine is released in the brain's reward system, whether the expected reward is sex, food, winning a level in a video game, or relief from pain.

To bring this to bear on addiction, expectation and belief can work either in favor of or in antagonism to the addict's attempts at recovery. For instance, when an addict anticipates a dose of his favored substance of addiction, dopamine is released in the reward center in the brain prior to his ever indulging. This effect is often recognized by friends and family of the addict, by the near-giddiness exhibited when the addict anticipates an opportunity for use in the near future. This phenomenon may also explain the sudden shift in preferences noted in addicts by some behavioral economists[iii], who have observed that addicts who otherwise might be doing fine in their attempts to stay sober will suddenly experience a shift in preference (from the good of sobriety to the good of use) when the opportunity for use is close at hand. To put this another way, as has been observed in 12-step meetings worldwide, every drunk can stay sober until he passes the door to a bar. Given the way that the reward system works, addicts, who have long experience with the rewards of use (we can for the moment forget the costs, as they are not, unfortunately, connected to the feelings of the reward system) *already* have their brains changed by a "mind-altering chemical" *as soon as they seriously contemplate* return to use of their favored substance. And of course, unfortunately, the brain, when so altered (that is, jazzed up on a self-delivered dose of dopamine) has much greater motivation for use than for sobriety. In fact, the addict's brain in this situation would seem to be in some ways much more similar to the brain that has already had a dose than it is to the focused-on-sobriety and perhaps not-so-happy sober brain. And, as all addicts in recovery know, the altered brain that takes the second drink has none of the control that the sober brain does, however tenuous the sober brain's control may be. Once the dopamine presence in the nucleus accumbens has been elevated, then, the brain is already altered to a certain extent. "Intellectual foreplay[iv]" with the notion of return to use, then, is seriously dangerous to the addict in recovery. Indulging in it will inevitably lead to a chemically altered brain state, which in turn can result in a fundamental shift in the values that shape one's

world (temporary, like every other state, although addicts are reluctant to recognize it)—and one that provides the rationale for use. The effect of dopamine in the reward centers in the brain upon anticipation of use could explain, too, why overcoming a craving or urge to use is often not met with the perhaps expected feeling of triumph, but is rather followed by a depressed, or let-down feeling, as the dopamine in the expectant brain is down-regulated to normal levels. While in reality the addict who has overcome a an urge is in a winning position, that does not mean that in the inner reaches of his brain he believes that; the feeling may well be disappointment.

The analysis provided so far tells us something important about belief and recovery: what an addict thinks about is important. While we cannot control the effects of thoughts on our brains, we can study ourselves and learn what thoughts tend to paint use in a positive light, or as possible, or even as inevitable. Learning to develop control of attention, we can see then, is of central importance to avoiding susceptibility to changes brought about by one's own brain chemicals. Although we cannot will the effects that our thoughts have on our brains, we can develop some degree of control over the thoughts that we think. As we will discuss below, practicing activities that increase working memory, and hence attention, can be particularly helpful to addicts who wish to take advantage of what science can tell us about how our brains work in strengthening their control over their addictive tendencies.

Unconscious Beliefs

As we have seen, the beliefs that we are speaking of as affecting our motivation, and even our pain levels, need not be true, of course, and more importantly, they need not even be conscious. Indeed, in some placebo effects, whether a patient believes anything at all about his treatment is irrelevant, because the mechanism of action is a function of the physical body's learning something, not of the patient's conscious belief in or about anything. For instance, if patients are given morphine for several days in a row, and then on a subsequent day are administered a placebo, even without their knowledge, nearly all patients will respond with maintenance of pain control, through the body's own opoids.[v] This brings up the important point that placebo effects (and, we should add, *nocebo* effects, or the bringing about pain or negative responses through inert agents) cannot be willed, nor can they be predicted, as they depend upon the brain's own activity (which is not transparent to us), cashed out in part in terms of interconnections among previously encoded memories and imaginative fantasies, synaptic strengthening, and the operations of the innate reward system. What this means is that one cannot self-induce a placebo effect, any more than one can self-tickle. The placebo effects (like the nocebo effects) must, as philosopher David Hume said about beliefs in general, "be activated by nature."[vi]

The issue of our beliefs' not necessarily being conscious has serious implications for addicts. For one thing, nearly every addict has memories, conscious or forgotten, of the substance of their addiction bringing about undeniable pleasure, peace, satisfaction, or some mix of pleasurable sensations. Without such an effect, it is hardly likely that anyone would continually return to the use of something that ultimately brings with it serious negative consequences (and if there are no such negative consequences that one is willing to endure in order to experience the pleasures of addiction, there is some question of why the language of 'addiction' would be used). Some enterprising addicts have even gone to the effort of writing down their feelings while using, in order to try to get an objective understanding of why they would continue to be so compelled by something that they know in their sober moments to be so damaging.[vii] What we find in these writings is sobering (the pun is only partially intended). There is in the words of these addicts the expression of genuine, heartfelt pleasure, relief, or

satisfaction linked with the substance of their choice. Those associations have been linked in the writers' brains, for better or for worse, and they will drive behavior, if left unattended. This is true regardless of triggers of which an addict might be consciously aware, although sights, sounds, and smells associated with these perhaps totally unconscious memories are certainly important, as they will, if not countered, certainly activate the anticipation cycle that defines addiction (and separates it, say, from dependence, which may be long gone when such thoughts arise).

Countering the Unconscious

So, how can addicts deal with unconscious processes? Fortunately, there are ways, some of them encoded in formulaic ways in the language of 12-step programs. For instance, if the belief in a higher power is a live option, an addict who believes can have a powerful ally in managing the thoughts that lead to addictive behavior. They can "let go and let God." Rather than entertaining the provocative thoughts that might incite them to action, addicts can focus attention on the higher power, which necessarily shifts their thinking away from the thoughts of use (because attention really cannot be multi-focused), perhaps for long enough for the sensitivity to thoughts of use to pass. If one truly believes that one has help, one does—just as a weight lifter often manages to lift a heavy weight with the assistance of a spotter, even if the spotter merely lightly touches the weight. For those who cannot believe in such a power, they can perhaps be convinced of their own brain's power to overcome itself, by reading scientific literature (or even articles like this one!) regarding the brain's marvelous plasticity, the power to circumscribe the activities of the unconscious, the power of belief, or accounts of meditative monks' achievements, etc. Skeptics, too, can come to be "excited by nature" to believe things that can aid in their recovery. They just need something that is demonstrable, theoretically sensible, and replicable.

Further, one can incorporate the power of social influence. A quick Google search reveals an abundance of research on the value of the value of social contacts in helping one to achieve one's goals (or in hindering oneself—just surround yourself with overeaters if you want your eating habits to degenerate!). The acknowledged value of surrounding oneself with like-minded others is another bit of wisdom long included in recovery programs ("keep coming back!"), for doing so does help to keep one's positive emotional associations with thoughts of sobriety, and negative associations with returning to use, vivid and lively. And finally, there is, of course, the undeniable value of recognizing the truth. That one ought to both recognize the facts of what drug use does to one's body, and the responsibility that the individual has for the harm that has been caused by her addictive behavior (taking "a searching and fearless moral inventory") seems sagely advised. Everyone who has a problem with substances or activities of addiction has harmed others in satisfying their urges. Taking full stock of how much we have hurt ourselves and others we care about, of things that we have lost and times that we have embarrassed ourselves or others, in a clear, non-self-protecting, objective fashion, can strengthen the negative emotional associations that we have to indulging, in an honest and productive way.

Facing the unvarnished truth, then, of what we have done as a result of our addiction is essential to a long-term recovery, because bias both in our memory and in our estimation of ourselves are built in, as natural parts of our psychology. Because memory tends not only to fade, but to be conditioned by current emotional states, wishful thinking, and our natural bias to see ourselves in a better than true light, we often fail to remember truths that are inconvenient for us, or to remember them differently than as they actually happened, so that they fit into our

current emotional framework. For instance, alcohol education class leaders often cite the statistic that receiving a DUI, with all of its expense, embarrassment, and inconvenience, makes an impression that lasts about 18 months on the minds of those who are arrested for the offense. In that amount of time, even people who have received the most negative consequence of their lives can manage to forget how horrible that felt, sufficiently to return to drinking and driving. Frequent revisiting of one's crimes, disappointments, and embarrassments, then, can actually be of great help in staying sober, at least in early days and years. Bringing these events to mind ("telling one's story") is not for the purpose of judging oneself, remember; for crunching one's self-esteem to smithereens is hardly likely to provide motivation to continue with the hard work necessary to maintaining sobriety. Rather, the purpose is to recognize and to continue to feel the bad feelings that attend use, often enough to make the association stick.

Meditation has increasingly come to be recognized as an excellent tool for dealing with these feelings, for the point is to acknowledge them, and associate them with addictive behavior, while not being overpowered by them. Meditation has a scientifically acknowledged capacity for strengthening one's ability to recognize thoughts and the emotional responses that they evoke, without being drug into the feelings themselves[viii]. Another tool on the horizon is a special kind of biofeedback, just now being tested by David Eagleman and Stephen LaConte.[ix] The key here is to learn which thoughts stimulate cravings, and how to avoid them. Eagleman and LaConte put a cocaine addict into an fMRI machine and showed him pictures of cocaine, which naturally stimulated the circuits associated with craving in his brain. They represented the level of his craving activity as a bar, which he could manipulate by changing his thoughts. Seeing these unconscious processes in a conscious representation allowed this addict to diminish his craving level all on his own, something that he could never have done without having it realized in a visual, unavoidably conscious way. This tells us that making the unconscious, conscious, is one key way in which we can address our addictive motivations. Again, for those of us dealing with the issue of addiction here and now, without benefit of a neuroimaging lab, meditation can be a powerful tool. As we learn to notice without reacting, we can acknowledge urges, cravings, and emotions that lead to urges and cravings, in a safe way that can provide us with some measure of control.

The point here, as I see it, is to recognize the kind of beings that humans are, given the best science available, and use it to our advantage in managing our lives. For different people, that will mean different things. Truly believing something false can make us change our behavior. The doctors in Russia who implant capsules under the skin of alcoholics (containing a substance similar to Disulfiram (Antabuse), which dissolves over several months, eventually having no effect at all) while telling the patients that if they drink at all they will die, have a better treatment success rate than do most other approaches tried in the country. They are said to be able to help even the most hopeless. But is this a reasonable approach? Perhaps. After all, it rescues many people and their families from disaster. Most, but not all of us, however, would say that such a practice is at the very least something short of ideal, other than perhaps in extreme cases and for the short term. Likewise with the unequivocal pronouncements that any alcoholic will end up dead, incarcerated, or institutionalized if she attempts recovery without a 12-step program. Believing such a thing may well work for some people, at least for some of the time. But once use is once again attempted, without any of those dour eventualities following, belief will be hard to maintain, as with the sobriety that relies on it.

The truth about addictive use of substances is already in itself terrifying: If the addict continues to use, she will with 100% certainty ruin her health (perhaps most frighteningly, through insuring that some form of mental dementia will eventually occur). This is not to

mention that she will almost certainly suffer increasing undesirable social and professional consequences, given the ample evidence that the longer an addiction is left unchecked, the less control the addict has over her impulses and emotions. These truths are powerful motivators, once recognized. The problem isn't the intrinsic motivational power of the truth, once believed; the difficulty is in believing the truth, given the equally or more powerfully motivating factor of the activity of the dopamine circuit, which drives belief in falsehood (in programmatic terms, "denial"), through instigating the urge to repeat the reward experience. Since the brain is equally motivated by falsehood as by truth, and since the pressure of the 'wanting' circuit on the unconscious can make one's whole world flip around[x], so that certain things formerly seen as critically important are totally ignored, while other considerations more amenable to addictive behavior take center stage, uncovering those unconscious motives and beliefs is essential to seeing things as they are, and to keeping the addict on the recovery path. Empowering the addict with the truth, and the more concrete and conscious the truth is made, the better, is surely the best way to assist him in his efforts toward what he unquestionably really wants—a happy and productive life, within his own control.

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[i] Locke, John. *An Essay Concerning Human Understanding*, ed. Peter Nidditch. New York: Oxford, 1975. Book II Chapter XXII

[iiii] Benedetti, Fabrizio, *Placebo Effects: Understanding the Mechanism in Health and Disease*. New York: Oxford, 2009.

[iii] Ainslie, George and John Monterosso, "The picoeconomic Approach to Addictions: Analyzing the conflict of Successive Motivational States" *Addictive Research and Theory*, April 2009; 17 (2); pp. 115-134.

[iv] The term is John Monterosso's.

[v] Benedetti, Interview with Virginia Campbell, *The Brain Science Podcast*, Episode 77, 9/19/2011

[vivi]Hume, David, *Inquiry Into Human Understanding.* New York: Collier & Son, 1910. In the series Harvard Classics Vol 37, Section V, Part II.

[vii] Many such memoirs are included among addiction self-help books, including, for example, Caronline Knapp's *Drinking: A Love Story*. New York: Dial Press Trade, 1997.

[viii] Holzel, Britta K., James Carmody, Karleyton C. Evans, Elizabeth A. Hoge, Jeffery A. Dusek, Lucas Morgan, Roger K. Pitman, and Sara W. Lazar, "Stress Reduction Correlates with Structural Changes in the Amygdala. Social, Cognitive and Affective Neuroscience (2010) 5, 11-17. Follow-up studies have supported the conclusions of this study.

[ix]Bosh, Torie, "Using Neuroscience to Help Addicts Kick the Habit," *Slate Magazine*, Nov. 11, 2011.

[xx] I argue this in "Meaning, Addiction, and Freedom", currently under review at *The Review of Philosophy and Psychology*.