

Botanical Healing for Arthritis



By Dr. Jacob Teitelbaum

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Contributor: Dr. Jacob Teitelbaum

An Explosion of Joint Pain

To say that there is an explosion of joint health issues is an understatement. With an aging population, fronted by the “baby boomers,” we are likely to see an even greater demand for anti-inflammatory and painkilling interventions in the near future.

The problem is that most over-the-counter (OTC) and prescription drugs are highly dangerous when used long term, which is the very nature of the conditions many people face. Whether they are dealing with rheumatoid arthritis (RA), osteoarthritis (OA), past injuries, or work-related wear and tear, reducing pain and protecting the joints are an ongoing issue.

And this is urgent business. Deaths from painkillers have tripled in the past decade.¹ The reliance on synthetic COX-2 inhibitors has led to a dangerous cycle of dependence on medicines that only offer temporary relief at a high price to health. That is why it is critical for practitioners and all of those involved in the natural health field to promote a viable, effective, and safe alternative.

Effective Botanicals for Arthritis

Fortunately, there are clinically-studied botanical ingredients in advanced formulations that not only relieve pain, but help heal and build the strength of the joints. They are sourced from traditional Indian herbs with generations of use: high-absorption curcumin from turmeric (*Curcuma longa*) and high-AKBA boswellia from *Boswellia serrata*.

For any professional involved with natural health or herbal medicines, it is no surprise that botanicals have been used throughout human history. Ayurveda, the Indian system of holistic medicine, uses mainly plant-based drugs or formulations to treat various ailments, from minor, everyday problems to serious conditions such as cancer. In fact, plant-based and natural products made up a majority (61%) of the small molecule drugs introduced worldwide between 1981 and 2002. Yet, strangely, modern medicine hasn't encouraged the use of natural products. This is odd, because so many of these natural herbs have benefits that equal or exceed that of the synthesized drugs upon which many were based in the first place.

¹ Painkiller Overdose Deaths Triple in Decade,” by Stephanie Nano. Huffington Post, November 1, 2011. Available at: http://www.huffingtonpost.com/2011/11/01/painkiller-overdose-deaths_n_1070300.html. Accessed: August 8, 2013

The natural ingredients that have shown the most promise are BCM-95® curcumin and BosPure® boswellia. Each begin as traditional compounds and use advanced processes to make them more effective.

Side Effects vs. Side Benefits

Did you know that there are over 30,000 (and likely closer to 100,000) preventable US deaths a year from arthritis medications like ibuprofen (called NSAIDs)? This was a shock to me as well, with 16,500 deaths from bleeding ulcers^{1a} and a 40-300% increased risk of heart attacks and stroke death.^{2,3}

Instead of side effects, the herbals have side benefits, being associated with a lower risk of Alzheimer's and cancer.

Curcumin: A Long History of Healing

One of the reasons that curcumin works so well on such a wide range of diseases is because it is such a powerful anti-inflammatory. We know that almost all chronic diseases – from diabetes to heart disease to arthritis to Alzheimer's disease – have something in common: unchecked, destructive inflammation. Unlike synthetic drugs, which typically work against only a single inflammation pathway, natural curcumin reduces inflammation through its effects on *multiple* inflammation targets.^{4,5}

Curcumin has been found to:

- Suppress the activation of the NF-kB, which regulates the expression of pro-inflammatory gene products
- Downregulate COX-2, the enzyme linked to most inflammation
- Inhibit 5-LOX, another pro-inflammatory enzyme
- Downregulate the expression of cell surface adhesion molecules linked to inflammation
- Inhibit the activity of TNF, one of the most pro-inflammatory cytokines (cell-signaling protein molecules)

² Singh G, Recent considerations in nonsteroidal anti-inflammatory drug gastropathy. *Am J Med.* 1998 Jul 27;105(1B):31S-38S.

³ Trelle S, et al. Cardiovascular safety of non-steroidal anti-inflammatory drugs: network meta-analysis. *BMJ.* 2011 Jan 11;342:c7086. doi: 10.1136/bmj.c7086.

⁴ Goel A, Jhurani S, Aggarwal BB. Multi-targeted therapy by curcumin: how spicy is it? *Mol Nutr Food Res.* 2008;52(9):1010-30.

⁵ Aggarwal BB, Sundaram C, Malani N, Ichikawa H. Curcumin: the Indian solid gold. *Adv Exp Med Biol.* 2007;595:1-75.

Because of this anti-inflammatory activity, as well as its ability to kill tumor cells, increase activity of protective antioxidants such as glutathione, and modulate tumor growth cell factors, curcumin is effective against *hundreds* of diseases.³

Curcumin is also a potent antioxidant, able to neutralize unstable, reactive free radicals. The chain reaction of free radical formation, the free radical cascade, causes cellular damage that leads to inflammation and chronic disease. Curcumin, like other antioxidants, is able to stop free radical cascades without becoming unstable itself. Its ability to neutralize free radicals is extraordinarily strong.

The increased clinical interest shown in this botanical compound is the beginning of many more discoveries that will very likely change the face of medicine. However, in the case of curcumin, absorption has been a major and frustrating barrier to more widespread use in practice.

Unfortunately, the absorption of standard curcumin is poor. Because of this, many previous clinical trials have used increasingly larger dosages (up to 10-12 grams daily) in order to get even a small amount into the bloodstream. While no toxicity is associated with curcumin, even at these very high dosage levels, cost, comfort and compliance can be a difficult issue to resolve for many people.^{6,7} But BCM-95® high absorption curcumin is different than the standardized extracts used in the past, which is why it is a preferred form for clinical research.

In fact, this specially prepared extract of curcumin – used in the clinical studies discussed in this article -- has an antioxidant value of over 1,000,000 per 100 g – many times higher than that of blueberries (6,552), strawberries (3,577) or dark chocolate (powder) (40,200). [Figure 1] The dual properties of curcumin as both anti-inflammatory and strong antioxidant may also explain its lack of side effects in this same clinical research.

⁶ Benny B, Antony B. Bioavailability of Biocurcumax (BCM-95). *Spice India*. September, 2006:11-15.

⁷ Goel A, Kunnumakkara AB, Aggarwal BB. Curcumin as "Curecumin": from kitchen to clinic. *Biochem Pharmacol*. 2008 Feb 15;75(4):787-809.

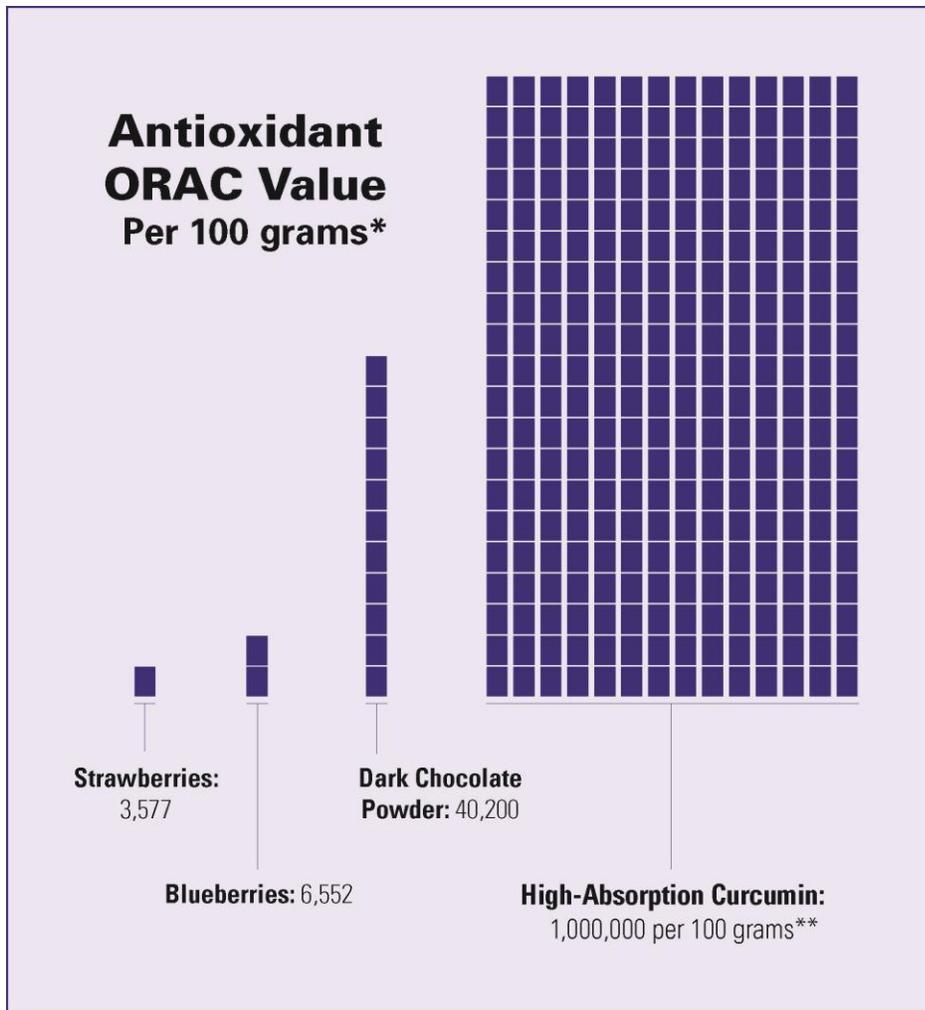


Figure 1 *Oxygen Radical Absorbance Capacity **Based on an independent lab analysis of the curcumin

In this case, the ingredient begins as a standardized curcumin extract, but in a unique process, it is blended with turmeric essential oils to enhance absorption naturally. Comparison testing shows that this botanical has up to 10 times better absorption than common standardized extracts. It also has up to 12 hours of blood retention time at significant levels –much higher than standard curcumin extracts.⁸ [Figure 2] These qualities make it incredibly useful for dealing with the pain, inflammation, and joint damage of rheumatoid arthritis and osteoarthritis.

⁸ Antony B, Merina B, Iyer VS, Judy N, Lennertz K, Joyal S. A pilot cross-over study to evaluate human oral bioavailability of BCM-95®, a novel bioenhanced preparation of curcumin. *Ind J Pharm Sci.* 2008:445-449.

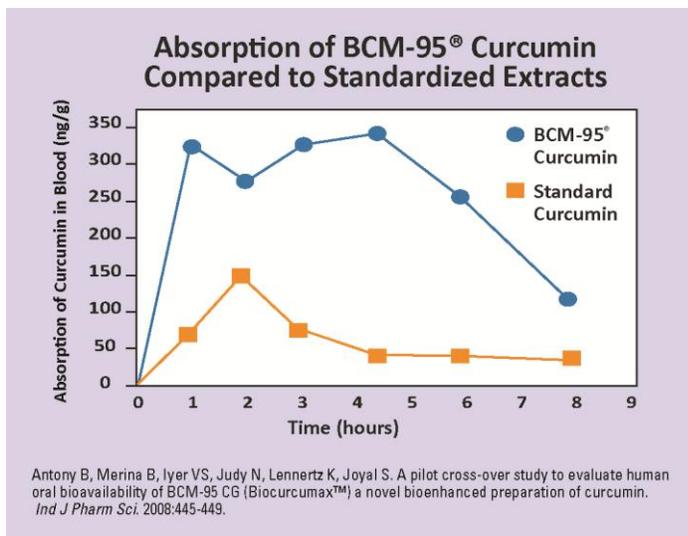


Figure 2: The absorption of BCM-95® is much greater than standardized extracts due to natural enhancements that increase blood retention time as well.

Antony B, Merina B, Iyer VS, Judy N, Lennertz K, Joyal S. A pilot cross-over study to evaluate human oral bioavailability of BCM-95®, a novel bioenhanced preparation of curcumin. *Ind J Pharm Sci.* 2008:445-449.

BCM-95 Curcumin: Stopping Rheumatoid Arthritis

About 1.5 million Americans deal with rheumatoid arthritis (RA), which generally affects women more than men and people can start showing symptoms as early as their 20s and 30s.

In patients with RA, immune cells attack and destroy the synovial joint lining. This chronic, painful and debilitating condition is characterized by inflammation throughout the body, warm and swollen joints, and even joint destruction. Less well-known by many patients and sufferers is that rheumatoid arthritis can attack anywhere in the body.

Treatment typically starts with over-the-counter or prescription anti-inflammatory drugs, and may later include other medications that try to modulate the immune system. Unfortunately, these approaches can create problems due to side effects that include stomach damage, susceptibility to infections, and cardiovascular risk.

However, risky treatment of RA may soon be unnecessary for many people. A clinical study showed that BCM-95 curcumin was judged superior to the prescription rheumatoid arthritis drug, diclofenac sodium (one brand name is Voltaren®).⁹ This 8-week study followed 45 subjects, randomized to three groups. All study participants had been diagnosed with rheumatoid arthritis, functional class I or II.

⁹ Chandran B, Goel A. A Randomized, Pilot Study to Assess the Efficacy and Safety of Curcumin in Patients with Active Rheumatoid Arthritis. *Phytother Res.* March 9, 2012 doi: 10.1002/ptr.4639.

Group one received diclofenac sodium, 50 mg, twice daily; group two received 500 mg BCM-95® curcumin twice daily; and group three received both diclofenac sodium and BCM-95® curcumin. In the BCM-95 curcumin groups, there were no drop outs due to adverse effects, but in the diclofenac sodium group, 14% withdrew due to adverse effects.

In the Disease Activity Score (DAS) 28 assessment, BCM-95 curcumin had the numerically highest impact for reducing disease symptoms, followed by the combination therapy of BCM-95 curcumin with diclofenac sodium. Interestingly, the diclofenac sodium-alone group scored in last place, though the scores did not reach statistical significance. Ultimately, BCM-95 curcumin was as effective as diclofenac sodium at reducing joint pain and swelling, but without the serious adverse effects. Taking the curcumin with the drug was no more effective than using the botanical alone, and taking the drug alone was less effective. The curcumin group also showed improvement over others in reducing C-reactive protein (CRP), a common measure of chronic inflammation, and anti-streptococcal antibodies (ASO) titers, which are associated with severity of rheumatoid arthritis activity.⁷

Curcumin and Boswellia: Herbal Treatment for Osteoarthritis

Osteoarthritis is another common threat to mobility, with 1 out of 5 people having doctor-diagnosed arthritis in the United States alone. Add in the fact that 2 out of 3 of those who are obese will likely develop knee osteoarthritis in their lifetime, and you can see a potential epidemic of dangerous over-prescription of highly risky anti-inflammatory drugs.¹⁰

Seeking a better alternative, a published study compared a combination of BCM-95® curcumin and BosPure® boswellia to the prescription drug celecoxib (Celebrex®) in the treatment of patients with arthritis.

BosPure® Boswellia: Specialized Botanical for Best Results

Like BCM-95 curcumin, BosPure Boswellia (also known as Frankincense) is a specialized extract. While the use of boswellia resin dates back thousands of years in Ayurvedic medicine, it

¹⁰ "Arthritis-Related Statistics." Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/arthritis/data_statistics/arthritis_related_stats.htm. Accessed: September 5, 2013.

is only in recent decades that the full potential of extracted boswellic acids has been studied in earnest. The interest in the extract is because boswellia is a potent influencer on the 5-Lipoxygenase (5-LOX) which manifests as leukotriene mediated illness, meaning it is especially potent for multiple diseases and conditions that are resulting from excessive leukotriene activity. OTC NSAIDs have virtually no impact on the 5-LOX pathway.

BosPure is superior to standard boswellia because of its unique standardizations and purifications, which make it more suitable for clinical research.

For example, boswellia contains many different boswellic acids. Some, specifically acetyl-11-keto- β -boswellic acid (AKBA), are extremely beneficial, and are major contributors to the extract's positive effects.[Figure 3 and Figure 4] However, other boswellic acids, namely beta-boswellic acids (BBA), are not beneficial. In fact, beta-boswellic acid actually *promotes*, rather than blocks, inflammatory gene targets. Researchers investigating BBA specifically have remarked that it could “precipitate coronary thrombosis in vulnerable patients” and “activate the generation of arachidonic acid as well as activate 5-lipoxygenase (5-LOX) and perpetuate the leukotrienes cascade of inflammation, rather than inhibit it, an effect opposite of what was intended.”¹¹

The BosPure form of boswellia has high levels of naturally-occurring AKBA, but is purified to remove most of the pro-inflammatory BBA. This greatly enhances the robustness and safety of the anti-inflammatory effect.

¹¹ Poeckel D, Tausch L, Altmann A, et al. Induction of central signaling pathways and select functional effects in human platelets by beta-boswellic acid. *Br J Pharmacol*. 2005 Oct;146(4):514-24.

**AKBA –
A Key Anti-Inflammatory
in Boswellia Extracts**

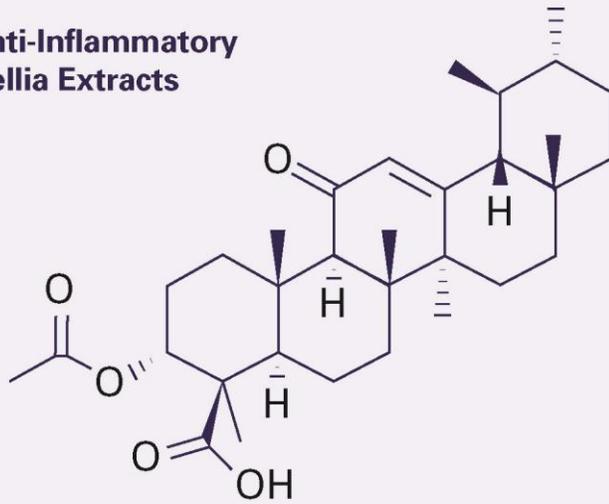


Figure 3 Acetyl-11-keto-β-boswellic acid, or AKBA – one of the key compounds in boswellia extract, and responsible for many of the clinically-noted benefits.

Ammon HP. Boswellic acids in chronic inflammatory diseases. *Planta Med.* 2006 Oct;72(12):1100-16.

AKBA Demonstrates Multifaceted Bioactivities

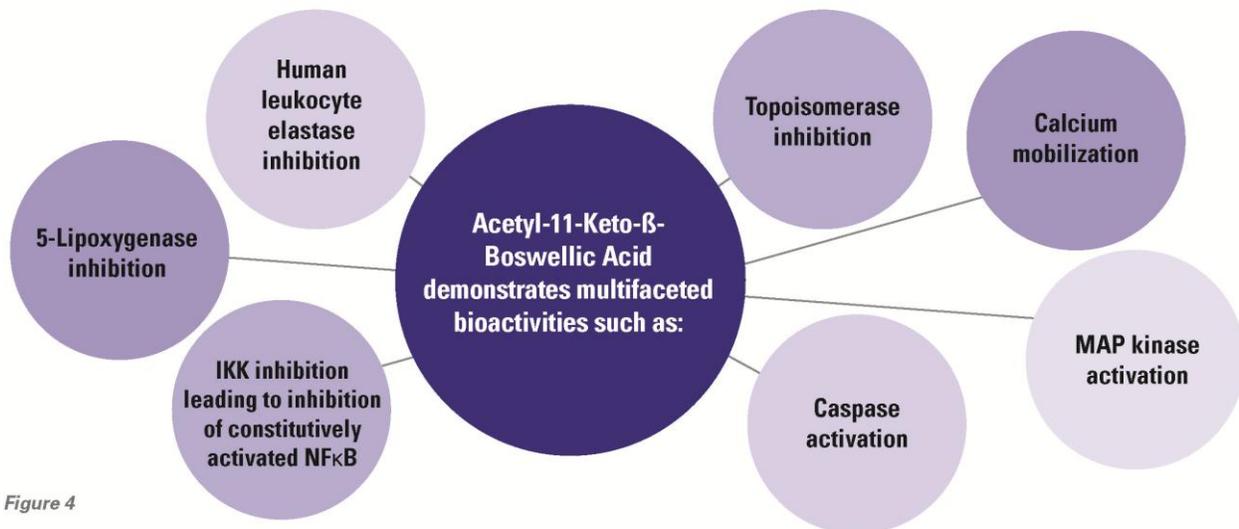


Figure 4

Clinical Study: Osteoarthritis

BosPure, a clinically-studied, specialized, bio-enhanced boswellia extract developed in India stands apart. It is screened to reduce beta-boswellic acids to less than 5%, and this greatly

enhances the extract’s potency, because it does not have to fight against itself in reducing inflammation and respiratory disease symptoms.

This specialized extract is standardized to provide at least 70% boswellic acids, emphasizing only those that increase its effectiveness, including at least 10% AKBA. This distinction is important, and practitioners need to be cautious; there are commercially available boswellia extracts that average only about 1 or 2% AKBA and don’t filter out beta-boswellic acid.¹² [Table 1]. Based on AKBA content alone, BosPure can be 10 times more potent than unstandardized boswellia.

Comparison of AKBA Content

	Typical 65% boswellia extract	Typical 75-85% boswellia extract	*Specialized, bio-enhanced boswellia extract
AKBA	1-2% AKBA	2-3% AKBA	>10% AKBA
Major Component	Pro-inflammatory beta-boswellic acid (>25%-30% pro-inflammatory compounds)	Pro-inflammatory beta-boswellic acid (>25%-30% pro-inflammatory compounds)	Anti-inflammatory (<5% beta-boswellic acid)

Table 1

Because curcumin is such a natural inflammation fighter, it was an appropriate choice to pair with boswellia in this study. Two of the hallmarks of osteoarthritis are cartilage destruction and inflammation - two conditions that curcumin is able to prevent. In fact, one of the interesting properties of curcumin is its ability to protect chondrocytes, specialized cells found in joint cartilage, from being broken down by inflammatory compounds (IL-1beta, MMP3) in the body.¹³ The results of the study were overwhelmingly positive – the botanical combination worked better than the drug, with no serious side effects.¹⁴

Individuals in this 12 week study were randomized to two groups. One group received celecoxib, 100 mg, twice daily and the second group received a 500 mg blend of BCM-95 curcumin and BosPure boswellia extract twice daily.

¹² Ammon HP. Boswellic acids in chronic inflammatory diseases. *Planta Med.* 2006 Oct;72(12):1100-16.

¹³ Henrotin Y, Clutterbuck AL, Allaway D, et al. Biological actions of curcumin on articular chondrocytes. *Osteoarthritis Cartilage.* 2010;18(2):141-9.

¹⁴ Antony B, Kizhakedath R, Benny M, Kuruvilla BT. Clinical Evaluation of a herbal product (Rhulief™) in the management of knee osteoarthritis. Abstract 316. *Osteoarthritis Cartilage.* 2011;19(S1):S145-S146.

For pain relief, 64% of those taking the herbal ingredients versus 29% in the drug group improved to such a high degree that they were able to move from the diagnosis of “moderate to severe arthritis” to “mild to moderate arthritis.”

Participants experienced an increase in their ability to walk for a 1000 meter distance (over a half a mile), and improved range of motion in their knees. The researchers in this study also found that 93% of the participants receiving the herbal combination reported reduced or no pain, compared to only 86% of the prescription drug group.

Prescription drugs such as celecoxib are classified as non-steroidal anti-inflammatory drugs (NSAIDs), and are known to cause adverse effects such as stomach and intestinal bleeding ulcers, reduced kidney function, and increased blood pressure and risk of heart attack and stroke. Since these herbal ingredients worked just as effectively at reducing symptoms - *without* these potentially life-threatening adverse effects – they provide practitioners with a viable alternative to dangerous drugs.

Conclusion:

Real Healing and Hope for the Future

These advanced botanical ingredients, BCM-95 curcumin and BosPure boswellia, either on their own or in combination, provide one of the most effective means to address the combined challenges of pain relief, joint support, inflammation reduction, oxidative damage, and cellular health of rheumatoid and osteoarthritis. They don't simply mask the symptoms – they help rebuild healthy joints, and get to the root of the problem. That's something no synthetic drug can do effectively.

Because of this, it is likely that the day is not far off that natural interventions will be the first option of practitioners and health care professionals for a truly holistic approach to rebuilding joints and returning mobility to their patients.

Contributor: Dr. Jacob Teitelbaum

Jacob Teitelbaum, M.D. is a board certified internist and the lead author of four groundbreaking research studies on effective treatment for Chronic Fatigue Syndrome and Fibromyalgia using an integrated treatment approach called the SHINE Protocol (Sleep, Hormones, Infections, Immunity, Nutrition Exercise) which showed an average 90% increase in quality of life ($p < .0001$ vs. placebo). His research on ribose, a unique 5-carbon sugar, showed an average 60% increase in energy at 3 weeks. His work was editorialized in the *American Academy*

of Pain Management, where his integrative SHINE protocol was recognized as standard of practice for fibromyalgia and chronic myofascial pain . He is also lead author on a study looking at treating food sensitivities in autism using a desensitization technique called NAET in which 23 of 30 autistic children in the treatment group were able to return to regular school after 1 year vs. 0/30 in the control group. He is the director of the *Practitioners Alliance Network*.

Dr. Teitelbaum is also the author of the popular free iPhone application “Cures A-Z,” which was ranked in the top 10 of all health/wellness downloads on iTunes. Dr. Teitelbaum is the author of the perennial bestseller *From Fatigued to Fantastic!* (Avery Penguin), which has sold over half a million copies; *Pain Free 1-2-3* (McGraw-Hill); *Three Steps to Happiness--Healing Through Joy* (Deva Press); and the *Beat Sugar Addiction Now!* (Fairwinds Press). His newest books are *Real Cause, Real Cure—The 9 root causes of the most common health problems and how to solve them* (Rodale Press), and *The Fatigue and Fibromyalgia Solution* (Penguin/Avery).