



Herbal medicines in children with attention deficit hyperactivity disorder (ADHD): A systematic review



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ABSTRACT

Objective: The purpose of this review is to identify evidence in herbal therapy in the treatment of ADHD concerning effectiveness and drug tolerability.

Method: For this Medline/PubMed, Scopus and the Cochrane Central Register of Controlled Trials (Central) were searched from their inception to 15 July 2016. Only randomized controlled trials (RCT) with children (0–18 years) suffering from ADHD were included in this review.

Results: Nine RCTs with 464 patients comparing herbal pharmaceuticals to placebo or active control were included. Seven different herbs were tested in the treatment of ADHD symptoms. Low evidence could be found for *Melissa officinalis*, *Valeriana officinalis* and *Passiflora incarnata*. Limited evidence could be found for pine bark extract and Ginkgo biloba. The other herbal preparations showed no efficacy in the treatment of ADHD symptoms.

Conclusion: While there is still a lack of sufficient numbers of RCTs no concrete recommendations for use can be made so far.

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1. Introduction

The attention deficit hyperactivity disorder (ADHD) is one of the most common behavioral disorders in childhood with increasing incidence rates.¹ The prevalence of ADHD in children in Germany is about 4–5% while another 4–5% are suspected to be cases of ADHD.^{2,3} Worldwide, the estimated prevalence ranges between 6% and 8%⁴ with boys being more likely than girls to develop ADHD.^{5,6} According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) of the American Psychiatric Association (APA),⁷ ADHD is characterized by inattention, impulsivity and hyperactivity. In its criteria of diagnosis the DSM-V further identifies three subtypes of ADHD:

1. inattentive type
2. hyperactive-impulsive type
3. combined type

Besides psychotherapy, medication therapy plays an important role in the treatment of ADHD.^{8,9} Nevertheless, up to 30% of children treated with pharmaceuticals do not respond to medication or suffer from adverse effects such as nausea, insomnia or weight loss.^{10–14} Accordingly there is a growing considerable interest of parents with children suffering from ADHD in complementary and alternative medicine (CAM).^{15–17} In Europe about 52% of all children are using some kind of CAM, often without knowledge of the attending pediatrician.^{18–22} Besides non-pharmacological therapies like relaxation techniques or neurofeedback, herbal medicines are among those complementary therapies most frequently demanded by parents.^{23–25} Most parents consider herbal pharmaceuticals less harmful than conventional drug therapy.^{26,27} Therefore herbal medicines are particularly regarded as an alternative or complement to conventional pharmaceuticals in the treatment of ADHD symptoms by parents.²⁸ However, there is still a lack of sufficient research investigating efficacy and drug tolerance of herbal medicines in the field of ADHD.¹⁷ Therefore the

purpose of this review is to identify evidence for herbal therapy in the treatment of ADHD concerning effectiveness and safety.

2. Methods

The review was planned and conducted in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines²⁹ and the recommendations of the Cochrane Collaboration.³⁰

2.1. Eligibility criteria

2.1.1. Types of studies

Only randomized controlled trials (RCTs) were included in this review. Studies were eligible only if they were published as full papers, and only publications in English or German language were considered eligible.

2.1.2. Types of participants

Only studies conducted on children and adolescents (age 0–18 years) who are suffering from ADHD were eligible. No limitations were made regarding the diagnosis of ADHD.

2.1.3. Types of intervention

Studies that compared herbal therapy with no treatment, placebo or any pharmaceutical medication were eligible. Studies were excluded if the herbal preparation was applied in homeopathic potency or if the herb was solely used in traditional Chinese medicine. No other dosage restrictions were made.

2.1.4. Types of outcomes

Only studies that assessed ADHD symptoms (inattention, impulsivity or hyperactivity as defined by the Diagnostic and Statistical Manual of Mental Disorders or the International Statistical Classification of Diseases and Related Health Problems) as a primary or secondary outcome were considered eligible.

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