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## ASHWAGANDHA IS EFFECTIVE

Ashwagandha is an adaptogenic herb that is most commonly used in Ayurveda, a traditional Indian medical system. Ashwagandha has been a very popular natural medicine in the past few years. It is one of the natural supplements that has such a unique name that once you hear it, it is hard to forget. Ashwagandha seems to be in every pharmacy and sold by multiple companies including popular ones like Goli, Nature Made, Vitafusion, and Olly. According to Josh Long<sup>1</sup>, in 2020 there was a 50.4% increase in Ashwagandha sales for a total sale of \$198 million. There are ads on TV and the internet marketing the use of ashwagandha for anti-anxiety, stress, memory, and muscle strength that have helped contribute to the purchase of ashwagandha.

As part of our elective medicinal herb course that prepares pharmacists to be ready to guide patients on their herbal choices, we were required to provide an analysis on one Terry talk nutrition video.

Terry Lemerond<sup>2</sup> in August 2017 from the Terry Talk on Ashwagandha: Stress, Anxiety, Memory, Weight Loss, Muscle Strength and Endurance, explained that ashwagandha is used for anti-anxiety, stress, memory, and muscle strength. The video did a good job of explaining these results found in trials

showing efficacy. It stated that ashwagandha is an adaptogen, and adaptogens can be both calming and energizing to the body without excessive stimulation thereby avoiding unwanted side effects. As a single trial mentioned in that video could not be considered sufficient evidence, I investigated it further. Quick search of the literature indicated presence of over 5,000 articles on ashwagandha.

One of the most common uses of ashwagandha that the public has heard of is for anxiety. There are many ashwagandha supplements people can find over the counter marketed as a natural anti-anxiety medicine. Many people wonder if there are any actual anti-anxiety effects. The Terry Talk explains that one of the main uses of ashwagandha is anti-anxiety. An article, by Xu and Cock<sup>3</sup> in November 2022 states that ashwagandha has been used for centuries in Ayurvedic medicine to decrease anxiety and stress. Ayurveda is a holistic traditional medicine from India and has been practiced for over 3000 years. Xu and Cock specifically explained that “beneficial effects are due to the GABA mimicking properties,” (20) when informing why several studies have seen positive outcomes in treating anxiety with ashwagandha. Anxiety medicines that are manufactured like benzodiazepines are designed to target GABA and modulate the effect of GABA. Ashwagandha is completing a similar mechanism to anti-anxiety medicines which helps to prove ashwagandha is also an effective anti-anxiety choice.

Akhgarjand et al<sup>4</sup> in March 2022 released a systemic review and meta-analysis on ashwagandha being used in anxiety and stress. Their review consisted of 8 trials with 540 participants. Their results showed that ashwagandha significantly reduced anxiety levels when compared to placebo. A sensitivity analysis was done and proved that the results were not significant due to one trial. The data compared two doses, 300mg and 600mg. The



data showed that both doses were effective, and 300mg and 600mg dose were equally effective. The only setback in this trial was that the participants were only adults, and no children were included. Ashwagandha proved efficacy in adult patients using it for stress at dosage levels of 300mg to 600mg once daily.

Additionally, the Akhgarjand et al in-March 2022 article also provided evidence of ashwagandha being used to decrease stress levels. This article had 10 interventions and 286 participants. The patients were compared against placebo and not against any other stress medications or relief methods. The dosage amount was 600mg per day and this dosage provided evidence of stress relief. A sensitivity analysis was also performed and indicated that the results were not due to one trial, which proves efficacy multiples trials. This study included adults and did not exclude patients based off their comorbidities. Overall, the data did show that ashwagandha was effective in decreasing stress as explained in the Terry Talk.

Gopukumar et al<sup>5</sup> in November 2021 shows the impact of ashwagandha and a decrease of stress levels. These authors had randomized, double-blind, placebo study with 130 participants. This study used Prolanza, a sustained release ashwagandha which was different than in the previous paragraph. Even with the change in formulation, the results of the trial showed that the people taking ashwagandha had less stress after 90 days based on their Cambridge Neuropsychological Test Automated Battery, Perceived Stress Scale-10, Serum Cortisol Level, Oxford Happiness Questionnaire, Pittsburgh Sleep Quality Index, and serum brain-derived neurotropic factor. The study also provided information on how no one was harmed with this study and no harm was conducted from using ashwagandha in any of the participants.

The biggest take away from this study was that different formulations of ashwagandha, like extended and immediate release, do not change the effectiveness of ashwagandha decreasing stress in the human body. The other take away point is that ashwagandha is not a harmful substance in adults.

In addition to humans, there was an interesting find by Kaur, Seshadri, Golla, Sampara<sup>6</sup> in March 2022 where ashwagandha was used in dogs to reduce stress. A randomized control trial was done with 24 dogs over 4 weeks with a dosage of 16mg/kg compared to placebo. The results showed that ashwagandha was effective in releasing stress in dogs. Stress levels were measured through urine cortisol to creatine ratio (UCCr), Canine Behavioral Assessment and Research Questionnaire (CBARQ), Canine Brief Pain Inventory scale (CBPI), and Body condition score (BCS). This research alone is not enough to officially establish the use of ashwagandha in stress of dogs but is a starting path to provide evidence to do more trials in animals and ashwagandha as there were no harmful actions and evidence of efficacy. There are a lot of dogs who experience stress and ashwagandha could improve the health of dogs like it is for humans in reducing stress and anxiety. There was no information related to the use of animals in ashwagandha in the Terry Talk either as the Terry Talk focused only on adult humans. Animal use of ashwagandha should continue to be researched to show the benefits of using it in animals like there are benefits in humans.

Ashwagandha has also been shown to help with memory. The Terry Talk also provided evidence of memory help from ashwagandha. Currently, there are no prescription drugs available that offer memory benefits with a low side effect profile. Ashwagandha is a good alternative because of the efficacy in helping with memory and the mild side effects (upset



stomach, nausea, and drowsiness). An article by Choudhary, Bhattacharyya, and Bose<sup>7</sup> from 2017 explained the results from a trial on ashwagandha being used to improve immediate and general memory. Participants in this study were either taking 300mg twice daily ashwagandha or a placebo pill for 8 weeks. The study used the Wechsler Memory Scale II to determine memory improvement in both groups. The participants in the ashwagandha group scored higher on the memory test signifying that ashwagandha provided memory improvements. It is important to note that this study was over 8 weeks, and that memory was not improved in a few days. Also, none of the participants were younger than 35, so results for ashwagandha in child memory are unknown at the moment. However, the results for adult memory were positive in helping improve memory.

Furthermore, there is more evidence from Xing et al<sup>8</sup> in September 2022 that proves ashwagandha has memory benefits. The study completed was a randomized, double-blind, placebo-controlled, crossover, and counterbalanced manner involving participants aged 18-49. In this study only 15 people ended up meeting eligibility criteria and had no conflicts with dates and times in the study. The participants had 400mg per day and then 4-7 days later had the placebo. The results from the study showed an improvement in short term memory for the participants. This study further supports ashwagandha being used to improve short term memory in adults. This study did not have a large sample size but that was partly due to it being done at a university where participants were needed at certain times. This study is still relevant because of the results and that the results done were comparable to other studies.

One last proven effect of ashwagandha is muscle strength improvement. Wankhede,

Langade, Joshi, Sinha, Bhattacharyya<sup>2</sup> where they had an investigation. Their investigation was a randomized, prospective, double-blind, placebo-controlled clinical study, 57 males aged 18-50 years old over 8 weeks. The non placebo group took 300mg twice daily of ashwagandha. The primary goal was muscle strength, and the secondary goal was muscle recovery. The results from the study concluded that ashwagandha use had resulted in greater muscle strength and less exercise-induced muscle damage. Both the Terry Talk and the investigation had an increase of testosterone levels noted in the results section. It should be noted, that the Terry talk video along with this investigation only focused on adult males. Both have the weakness of not including a greater variety of people in the results but do prove that ashwagandha is effective in muscle strength improvement in adult males.

Muscle strength improvement and ashwagandha is that it is the least studied effect in humans. There are animal trials where mice have been used as test subjects. The mice did show a positive correlation between muscle strength and ashwagandha. Most investigations start off using animal test subjects and then move on to human trials. The human trials measuring ashwagandha and muscle strength could just be on the start and the next focus area of ashwagandha treatment.

In conclusion, these extra articles help to argue that the information provided in the Ashwagandha Terry Talk on using ashwagandha for treating anxiety, stress, memory, and muscle strength is accurate and provides no false information. Ashwagandha is a multiuse herb that has been proven to treat multiple things. Multiple articles on different trials and investigations all came to the same conclusion of ashwagandha use in adults. The only area where ashwagandha needs more data would be in children as neither the Terry Talk



or academic articles have sufficient data that provides data on the efficacy and safety of ashwagandha use in children.

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