



Research Paper

# The Role of Polyherbal Formulations in Managing Duchenne Muscular Dystrophy

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## Abstract:

Duchenne Muscular Dystrophy (DMD) is a severe form of muscular dystrophy primarily affecting males, due to X-linked recessive mutations in the dystrophin gene. Characterized by early onset muscle weakness that progresses rapidly after the age of three, DMD leads to significant muscle loss and replacement of muscle tissue with fat and connective tissue, notably in the lower limbs and calf muscles. This pathological process results in pseudohypertrophy and severe physical debilitation. In light of the limitations of current pharmacological interventions, there is growing interest in the therapeutic potentials of medicinal plants, particularly through the use of polyherbal formulations. These formulations, which combine multiple herbs in specific ratios, leverage synergistic effects of diverse phytochemicals to enhance therapeutic efficacy and safety. The World Health Organization recognizes medicinal plants as valuable resources for developing therapies, including those for complex disorders like DMD. Polyherbal approaches are particularly appealing due to their reduced side effects, potential for high dose safety, and comprehensive therapeutic actions. This review discusses the relevance and potential of polyherbal formulations in the management of DMD, emphasizing the need for further research and integration into mainstream treatment protocols to provide a holistic, accessible, and cost-effective therapeutic option.

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## Signs and Symptoms of DMD:

DMD symptom typically appear between ages 2-5. Symptoms of DMD may include muscle weakness, particularly in the hips and upper thighs. Children may have difficulty

- Loss of muscle coordination - Children may appear unsteady, clumsy, fall frequently, or "waddle" when walking.

## Modern DMD Treatment:

- The Neuromuscular and Neurometabolic Centre team will recommend a treatment plan tailored to your child's specific needs. Treatment aims to control symptoms and keep muscles working for as long as possible and provide your child with the best quality of life. Although there is no cure for DMD, your child can benefit from physiotherapy and staying active. Using muscles helps maintain maximum strength. Inactivity, such as bed rest, can cause muscles to break down more quickly.

- Corticosteroids - Steroid medications can help slow the progression of the disease. Keep in mind that all medications may cause side effects.

Ayurvedic Management of DMD: Ayurvedic management of Duchenne Muscular Dystrophy (DMD) takes a holistic approach that focuses on restoring the balance of the body's energies (doshas) and optimizing metabolic processes. The key components of this approach are:

- Deepana and Pachana: These herbal formulations aim to improve 'Agni' (digestive fire), which is required for the proper transformation of one dhatu (tissue) to another in the body. This helps to strengthen the body's tissues and correct metabolic imbalances.

- Rukshana and Brahmana: These treatments are used to clear blockages in body channels (srotas) and stabilize body parts ('Sthirika' or 'Sthirika' or 'Sthirika'). Udvartana, a type of dry powder massage, is especially beneficial for eliminating toxins and strengthening the muscles. Panchakarma: This detoxification therapy is central to Ayurvedic treatment of DMD. It consists of five procedures: Vamana (emesis therapy), Virechana (purgation therapy), Niruha (decoction enema), Anuvansan (oil enema), and Nasya (medication administered through the nose). These procedures help to cleanse the body, balance the doshas, and improve tissue quality.

Vamana: Using mild emetics such as Madanaphala, which is particularly beneficial for conditions characterized by excess kapha (phlegm).

Virechana: Mild purgation therapies are used to restore balance between the three doshas (vata, pitta, and kapha), allowing for regular detoxification.

- Dhanyamla Parishekha: A therapeutic washing or pouring of medicated liquids used in the early stages of treatment to aid in detoxification and metabolic function.

## **OBJECTIVE:**

The study aimed to formulate and evaluate a polyherbal dispersible tablet for treating muscular dystrophy. Scientific studies have revealed that these plants have varying potencies. Positive herb-herb interactions can produce synergism, which can be pharmacokinetic or pharmacodynamic, resulting in a greater effect than individual plant use. Polyherbal formulations are popular for their effectiveness in treating a wide range of diseases. The World Health Organization (WHO) reports that herbal medicine is used by 60% of the global population and nearly 80% of those in developing countries for primary healthcare.

According to the World Health Organization, trade in medicinal plants, herbal raw materials, and herbal drugs is increasing at a 15% annual rate. Herbal medicine is becoming increasingly popular due to the belief that natural products are safe and cost-effective.

## **Main Findings**

Herbal remedies for muscular dystrophy by planet Ayurveda: Planet Ayurveda provides effective herbal remedies such as Ashwagandha Capsule, Yograj Guggul, Atirasadi Churna and Balaswagandhadhi Thailam for Ayurvedic treatment of muscular dystrophy. These herbal remedies are prepared from using best quality herbs and strictly follow the principles of Ayurveda. All these herbal remedies of planet Ayurveda are 100 percent pure, natural and vegetarian. These are free from chemicals, additives and preservatives. These are safe to use as these are free from side effects.

1. **ASHWAGANDHA CAPSULES:** Ashwagandha capsule is prepared from the pure extract of herb is also known as Indian ginseng and winter cherry. Planet Ayurveda's ashwagandha capsule are an amazing herbal formulation for muscular dystrophy.

Benefit: Ashwagandha has great medicinal importance in Ayurveda and offer the overall health benefits. This herb has the property of being adaptogen. It helps in muscles strengthening and building of the body. It is also considered as rejuvenating herb in the nature and quite effective for weight gain and muscle building in children.

2. **YOGRAJ GUGGUL:** For muscular dystrophy planet ayurveda offer the yograj guggul which is very useful for various patients facing vata disorders in the body. It is an amazing blend of various herbs.

Ingredients: Commiphora mukul, Cyperus rotundus, Plumbago zeylanica, Emblica officinalis, Terminalia bellirica, Terminalia chebula, Piper longum, Carum copticum, Embelia ribes, Tribulus terrestris, Nigella sativa, Trachyspermum roxburghianum, Cuminum cyminum, Piper cubeba, Elettaria cardamomum, Pluchea lanceolata

Benefits: Herbs used in the formulation of this product are very helpful to pacify the aggravated vata dosha and help in nutrients absorption by tissue. This herbal formulation is very useful to manage the muscular dystrophy and relieves its symptoms.

3. **ATIRASADI CHURNA:** Atirasadi churna is an amazing formulation for muscular dystrophy and prepared by the combination of various herbs.

Ingredients: Safed musli, Kalimusli, Semal musli, Gokshur, Shatavari, Ashwagandha, Akarkara, Vidarikand, Varahikand, Safed behman, Jaiphal/Javitri, Taalmakhana, Kesari.

Benefits: Atirasadi churna is the combination of various herbs which are very useful to manage the muscular dystrophy

and various patients are benefitted with this product.

4. **BALASWAGANDHADITHAILAM:**PlanetAyurvedaoffersthebalaswagandhadithailam to manage the problem of muscular dystrophy. This is an herbal oil for the external use and massageofthisoilhelpstostrengththemusclesandprovidereleiefinmuscle'spain

#### **CONCLUSIONANDFUTUREPERSPECTIVES**

In conclusion, polyherbal formulations and Ayurvedic approaches offer promising avenues for managing Duchenne Muscular Dystrophy (DMD). Products like Ashwagandha capsules, Yograj Guggul, Atirasadi Churna, and Balaswagandhadi Thailam show potential in addressing symptoms and potentially influencing the course of the disease. However, rigorous scientific validation through clinical trials, mechanistic studies, regulatory frameworks, integration into mainstream medicine, and education are necessary for their effective utilization in DMD management.

Future is in the phase of increasing demand and fast-growing market of herbal medicines and other herbal healthcare products, in both developing and developed countries of the world.

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We will deploy best simulation models of herbal drugs to study their pharmacokinetic and pharmacogenomics studies in silico, in vitro and in vivo modelsto validate their effectiveness in the form of reliable statistical data.

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