

Integrated Ayurvedic Management of Vata Vrudhi in a Patient with Facioscapulohumeral Muscular Dystrophy (FSHD) :- A Case Report

Dr. Jyoti Kharabe¹; Dr. Seema Bahatkar²

¹PG Scholar, Department of Panchakarma R. A. Podar Medical College (AYU) Worli Mumbai 400018

²HOD and Professor Department of Panchakarma, R. A. Podar Medical College (AYU) Worli Mumbai 400018

Publication Date: 2026/10/08

Abstract:

➤ Background:

Facioscapulohumeral muscular dystrophy (FSHD) is an inherited neuromuscular disorder characterized by progressive weakness of the facial, scapular and humeral muscles, with variable involvement of the trunk and lower limbs.^{1,2} The disease is clinically heterogeneous and may result in progressive limitations in upper-limb function, mobility and activities of daily living.^{1,3} Pain is also a common and clinically important symptom in FSHD.⁴ Conventional management is primarily supportive and includes physiotherapy, exercise prescription, pain management and monitoring for associated complications.^{1,5} Ayurveda does not describe FSHD as a distinct disease entity; however, its clinical manifestations may be interpreted within the framework of Vata Vyadhi, Dhatu Kshaya and involvement of Mamsa, Asthi and Majja Dhatu. The present case was managed using an integrated Ayurvedic approach comprising Panchakarma and Rasayana-oriented therapy.

➤ Case Presentation:

A 32-year-old male presented with progressive difficulty in raising both upper limbs for 10 years, bilateral upper-arm muscle wasting with shoulder drooping, bilateral elbow pain, low back pain, difficulty in walking for 2–3 years and bilateral knee pain. Electromyography/nerve conduction study performed on 01 January 2016 reported findings suggestive of FSHD. MRI of the lumbar spine dated 07 May 2025 revealed L5–S1 disc desiccation with diffuse disc bulge and posterocentral protrusion and bilateral neural foraminal narrowing. On Ayurvedic assessment, the presentation was considered predominantly Vata-related with features of Dhatu Kshaya and neuromuscular dysfunction.

➤ Intervention:

The patient received Sarvanga Pinda Swedana for 14 days, Anna Lepana for 10 days, Yoga Basti consisting of Erandamooladi Niruha Basti and Sahachara Taila Anuvasana Basti for 8 days, followed by Panchatikta Ksheera Basti for 7 days and Marsha Nasya for 5 days. Internal medicines included Panchatikta Ghrita Guggulu, Bala/Ashwagandha-based formulations, Rasnasaptaka Kwatha, Swadishta Virechana Vati and Ksheerapaka containing Ashwagandha, Bala, Gokshura and Shunthi.

➤ Results:

Following treatment, improvement was observed in gait, appetite, pain and selected functional parameters. The Visual Analogue Scale pain score decreased from 7 to 4. Straight Leg Raising Test improved from 80° bilaterally to 90° bilaterally, and lumbar extension improved from 20° to 30°. Muscle power remained unchanged at 4/5 in both upper limbs and 5/5 in both lower limbs. Thus, the observed benefit was predominantly symptomatic and functional rather than an objectively demonstrated increase in muscle strength.

➤ Conclusion:

The integrated Ayurvedic intervention was associated with improvement in pain, gait and selected functional parameters in this patient with FSHD. In view of the progressive nature of FSHD, maintenance of documented muscle strength during the treatment period together with symptomatic improvement may be clinically relevant. However, a single case cannot establish efficacy or disease-modifying effects. Controlled studies with longer follow-up and validated FSHD-specific outcome measures are required.

Keywords: *Facioscapulohumeral Muscular Dystrophy; FSHD; Asthimajjagata Vata; Mamsa Dhatu Kshaya; Panchakarma; Basti; Panchatikta Ksheera Basti; Rasayana. Anassantap, Rajyakshma.*

How to Cite: Dr. Jyoti Kharabe; Dr. Seema Bahatkar (2026) Integrated Ayurvedic Management of Vata Vrudhi in a Patient with Facioscapulohumeral Muscular Dystrophy (FSHD) :- A Case Report. *International Journal of Innovative Science and Research Technology*, 11(10), 102-109. <https://doi.org/10.38124/ijisrt/26oct022>

I. INTRODUCTION

Facioscapulohumeral muscular dystrophy is one of the most common inherited muscular dystrophies and is characterized by progressive weakness involving the facial muscles, scapular stabilizers and humeral musculature, with variable involvement of truncal and lower-limb muscles.^{1,2} The clinical phenotype is heterogeneous, and the age at onset, distribution and rate of progression vary considerably between individuals.¹

FSHD is predominantly caused by aberrant expression of the DUX4 gene resulting from epigenetic dysregulation of the D4Z4 repeat array on chromosome 4q35. FSHD type 1 is associated with contraction of the D4Z4 repeat array on a permissive chromosome 4 haplotype, whereas FSHD type 2 is associated with D4Z4 hypomethylation and pathogenic variants in genes involved in chromatin regulation, most commonly SMCHD1.^{2,6} Current diagnostic recommendations emphasize molecular confirmation because electrophysiological findings alone are not specific for FSHD.^{6,7} The Ayurvedic interpretation in this case is therefore presented as a clinical correlation rather than a direct disease equivalence.

Clinically, patients may develop difficulty raising the arms, scapular winging or shoulder drooping, weakness of the upper limbs, gait abnormalities and progressive functional limitations.^{1,3} In a large patient-reported symptom study, problems involving the shoulders and arms, activity limitation, mobility and walking, fatigue and pain were among the most frequently reported burdens in FSHD.⁸ Chronic pain is also prevalent in muscular dystrophies, with the lumbar spine, shoulders and legs frequently affected in FSHD.⁴

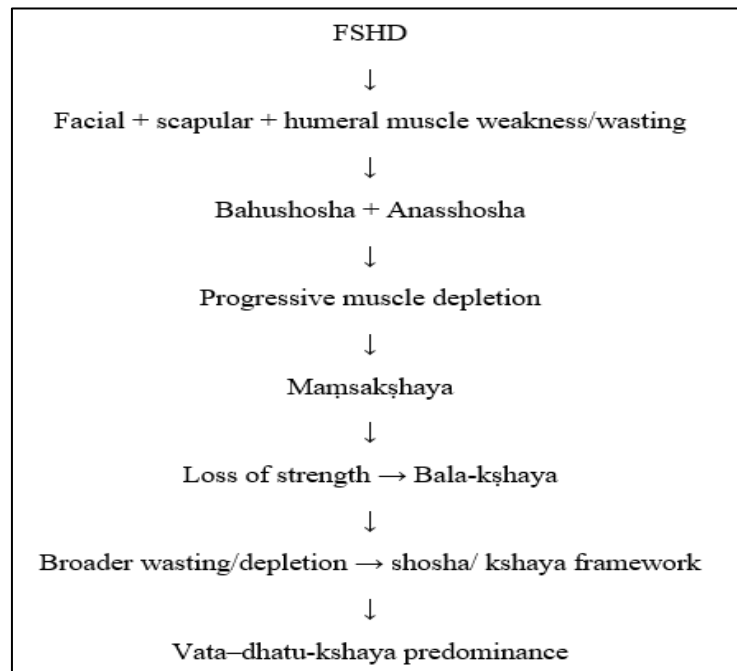
There is no direct classical Ayurvedic disease entity corresponding exactly to FSHD. Therefore, an Ayurvedic interpretation should be based on the patient's clinical phenotype and the principles of Dosha, Dhatu and Srotas rather than claiming a literal disease equivalence. The present patient's progressive muscular wasting, weakness, pain and impairment of movement were interpreted predominantly through the concepts of Vata Vyadhi, Mamsa Dhatu Kshaya

and deeper Dhatu involvement such that mamsa kshaya lakshana developed in asthimajjagata vata.

From an Ayurvedic perspective, Facioscapulohumeral muscular dystrophy (FSHD) does not correspond to a single disease entity described in the classical Samhitas. Nevertheless, several of its predominant clinical manifestations, particularly progressive muscular wasting, loss of muscle strength and functional impairment, can be interpreted through the classical concepts of shosha, Mamsakshaya, Bahushosha and Anasshosha. The concept of shosha and its advanced manifestation Rajyakshma is particularly relevant to the understanding of progressive tissue depletion. In Rajyakshma Chikitsa, Charaka acharya describes kshaya (depletion of body tissues) as one of the important etiological factors and explains a clinical picture characterized by debility and progressive loss of tissue strength.¹ The premonitory manifestations include daurbalya (weakness) and balamamsa-parikshaya (depletion of strength and muscle), indicating the importance of muscular and functional deterioration in the Ayurvedic understanding of wasting disorders.¹⁵ Charaka further describes anasa-santapa among the manifestations of Rajyakshma, demonstrating recognition of involvement of the shoulder region in this wasting syndrome.¹⁵

The concept of Mamsakshaya provides a more direct conceptual correlation with the muscular wasting observed in FSHD. Classical descriptions of Mamsakshaya include muscular wasting, dryness, debility and related tissue-depletion features.¹⁶ Sushruta similarly describes wasting of several anatomical regions in Mamsakshaya, together with weakness and other manifestations of tissue depletion.¹⁶ Furthermore, Bahushosha is enumerated among the Vata-related disorders in the classical literature, providing a specific conceptual reference for wasting involving the upper limb.¹⁷ The description of Anasshosha in Sushruta, wherein Vata affecting the shoulder region produces shosha of the structures supporting the shoulder, is the characteristic scapulohumeral involvement of FSHD.¹⁸ Thus, rather than equating FSHD with any single Ayurvedic disease, the clinically can be understood through an integrated framework of Vata-dosha, Mamsa-dhatu kshaya, Bahushosha and Anasshosha, with the broader concept of Shosha providing a classical basis for progressive tissue and strength depletion.

➤ Therefore, Your Ayurvedic Correlation Can be Structured as:



The classical Ayurvedic concept of Vata includes regulation of movement and neuromuscular functions, while Dhatu Kshaya may contribute to aggravation of Vata and consequent weakness and wasting. The management of Vata disorders emphasizes measures such as Snehana, Swedana and Basti. Basti is described by Charaka as a principal therapeutic modality in Vata-predominant disorders.⁹

Rasayana is described in Ayurveda as a therapeutic approach intended to support longevity, strength, vitality and

optimal tissue function.¹⁰ The present treatment therefore incorporated Rasayana-oriented medicines along with Panchakarma procedures.

The objective of this case report was to describe the clinical application of an integrated Ayurvedic management protocol in a patient with FSHD and to document changes in pain, gait, range of movement and muscle-power grading.

Case Presentation

A 32-year-old male presented with:

Difficulty in walking, Scapular winging, Flattened Face,

Unable to lift heavy weight

Difficulty in raising both upper limbs

Bilateral upper arm muscle wasting with shoulder drooping

Since 10years

Low back pain

Pain in both elbow joints

Pain in both knee joints

Clinical Examination

Since 2-3 years

➤ *Muscle Power (MRC Scale)*

Table 1 Muscle Power (MRC Scale)

Limb	Upper Limb	Lower Limb
Right	4/5	5/5
Left	4/5	5/5

Gait: Irregular

➤ *Deep Tendon Reflexes:*

Table 2 Deep Tendon Reflexes:

Reflexes	Bicep	Tricep	Ankle	Knee
Rt	+2	+2	+2	+2
Lf	+2	+2	+2	+2

Straight Leg Raising Test:

Right: 80°

Left: 80°

B/L-30

Ashtavidha Parikshan

Nadi -76/min

Mala-Samyaka

Mutra-Samyaka

Jihva-Nirama

Shabda -Spashta

Sparsha - Anuushnasheeta

Druka- Prakruta

Aakruti- Krusha

Investigations

EMG/NCV date EMG/NCV Date {01-01-2016}

Electrophysiological findings were suggestive of Facioscapulohumeral Muscular Dystrophy (FSHD).

MRI Lumbar Spine date Date { 07-05-2025}

Flavum hypertrophy at L2–L3, L3–L4 and L4–L5

Disc desiccation at L5–S1

Diffuse disc bulge with posterocentral protrusion at L5–S1

Bilateral neural foraminal narrowing

Laboratory investigation

All are in with in normal limit

8/7/26 CPK factor -322.5

Diagnosis

Provisional Diagnosis- Vatvyadhi

Final Diagnosis- Vata Vrudhi

Differential Diagnosis – Rajaykshama, Asthimajjagata vata, mans kshaya, Avabahuk

Therapeutic Intervention

➤ *Internal Medications*

Table 3 Internal Medications

Sr no	Medication for 1 st 7days for Deepan Pachan	Time of Administration
1	Amapachak Vati 500mg	Before food in BD
	PanchtiktaGhritaGuggul500mg	After food in BD
	BalaArishta 15ml(+15ml lukewarm water)	
	Avipatkar Chruna 5mg Hs (with lukewarm water)	After Food HS
2	Medication for next 7 days	
	Ksheerpaka with Ashwagandha ,bala,gokshur,Shunthi churna each 1gm total 5gm (preparation- take 20ml of water add 1 tsp of mis churnas and boil it the add 20 ml of milk and evaporate all the water ,then strain it)	Rasayane means In the morning at breakfast time and in the evening between 5-6pm
	Panchtikta Ghrita Guggul 500mg	After food in Bd

	Rasnasaptak Kwath 15ml (+15ml of lukewarm water)	
	Swadishta Virechan Vati 500mg	At Bed time with lukewarm water
3	Discharge medicine	
	Ksheerpaka with Ashwagandha ,bala,gokshur,Shunthi churna (preparation- take 20ml of water add 1 tsp of mis churnas and boil it the add 20 ml of milk and evaporate all the water ,then strain it)	Rasayane means In the morning at breakfast time and in the evening between5-6pm
	Panchtikta Ghrita Guggul 500mg Ashwagandha Arishta 15ml	After food in Bd
	Swadishta Virechan Vati 500mg	At Bed time with lukewarm water

• *Panchkarma Procedures*

Table 4 Panchkarma Procedures

Sr no	Procedure	Duration
1	Sarvanga Pinda Swedan	14 days
2	Annalepana	10 days
3	Basti with Erandmooladi niruh Contents – Erandmula,Palasha,Laghu Panchmula,Rasna,Ashwagandha,Atibala,Guduchi, Punarnava,Aragvadha,Devadaru,Madanphala Preparation – The above mentioned ingredients are pounded so as to get their course powder. This powder is boiled with water,2 adhaka i.e 5.12 liters approximately.When one eighth part i.e 1prastha =640ml approximately remains,it is filtered. To the filtrate, 1 Karsha =12 grams approximately each of the paste of the below mentioned herbs is added & mixed thoroughly. Sahachar taila anuvasan Contents:-Sahachar,Dashmool,Tila Taila Preparation – Sachar taila of Nagarjuna	8days
4	Panchtikta Ksheera basti Contents – Patola, Nimb, Guduchi, Vasa ,Kantakari Preparation –Fifty grams of Panchatikta coarse powder (Yavakuta) was taken and soaked overnight in 300 mL of water. On the following day, the soaked material was boiled to prepare the decoction, which was reduced to 100 mL. Subsequently, 100 mL of milk was added to the decoction and the mixture was further boiled until the final volume was reduced to 100 mL, thereby preparing the Panchatikta Ksheerapaka. To the prepared Panchatikta Ksheerapaka, 20 mL of lukewarm Panchatikta Ghrita was added and mixed thoroughly to obtain a homogeneous mixture.	7days
5	Marsha Nasya Procedure-The patient was positioned comfortably in the supine position with the head slightly extended. After gentle facial massage and mild fomentation, lukewarm Go-Ghrita was instilled slowly into each nostril 8-8 drops using a sterile dropper. The patient was advised to inhale gently and remain in the supine position for a few minutes. Any secretions reaching the oral cavity were advised to be expelled. Then lukewarm water gudusha.	5days

➤ *Observation*

Details of Assessment parameter Parameter Before and After Treatment

Table 5 Details of Assessment parameter Parameter Before and After Treatment

Sr no	Criteria	Before treatment	After Treatment
1	Gait	Irregular	Improved
	Kshudha	weak	improved
2	VAS(PAIN)	07	04
	LFM	90 degrees	90 degrees
	LEM	20 degrees	30 degrees
	SLRT	Positive Rt-70degree	Negative Rt-90degree

			Lf-70degree B/l -30 degree	Lf-90degree B/l -60 degree
3		Muscle Power Ul Ll	4/5 5/5	4/5 5/5
4		Mid arm measurement	Rt Upper Arm Above10cm-29cm MidArm-24cm Below10cm- 23cm Lf Upper arm- Above10cm-28cm MidArm-24cm Below10cm- 22cm	Rt Upper Arm Above10cm-30cm MidArm-24cm Below10cm- 24cm Lf Upper arm- Above10cm-30cm MidArm-24cm Below10cm- 24cm
5		Reflexes	Normal	Normal

II. DISCUSSIONS

FSHD is a progressive inherited muscular dystrophy with marked clinical heterogeneity. Weakness of the facial, scapular and humeral musculature is characteristic, while truncal and lower-limb involvement may occur as the disease progresses.^{1,2} The patient's long-standing difficulty in raising both arms, upper-arm wasting and shoulder drooping were consistent with the characteristic distribution of FSHD.

Pain and functional limitation are important components of the FSHD disease burden. In a large patient-reported study, 87.7% of participants reported pain and 93.6% reported limitations in mobility and walking.⁸ A systematic review and meta-analysis similarly estimated a high prevalence of chronic pain among individuals with FSHD.⁴ The patient's elbow, lumbar and knee pain, together with difficulty in walking, were therefore clinically relevant manifestations.

From an Ayurvedic perspective, the case was interpreted predominantly as a Vata-dominant disorder associated with Dhatu Kshaya. Vata is responsible for movement and neurological functions, and chronic depletion of Dhatu is described as a factor capable of aggravating Vata. The visible muscular wasting and weakness in this patient were therefore considered indicative of Mamsa Dhatu Kshaya, while the chronicity and neuromuscular manifestations supported the therapeutic consideration of deeper Dhatu involvement.

The present case was labelled Asthimajjagata Vata with Mamsa Dhatu Kshaya for therapeutic correlation. However, this terminology should be interpreted as a conceptual Ayurvedic framework rather than as a direct nosological equivalent of FSHD.

➤ Rationale for Basti

Basti is traditionally regarded as a major therapeutic intervention for Vata disorders. Vagbhata describes Basti as the leading intervention among therapeutic measures for Vata-predominant disorders.⁹ Charaka also gives Basti a central position in the management of Vata disorders.¹¹

In the present case, Yoga Basti comprising Erandamooladi Niruha Basti and Sahachara Taila Anuvasana Basti was administered for 8 days. The treatment was selected with the intention of addressing Vata predominance, pain, stiffness and functional restriction.

Erandamooladi preparations have traditionally been used in Vata-associated musculoskeletal disorders, while Sahachara Taila is traditionally used in Vata disorders affecting the locomotor system. The combination was therefore selected according to the Ayurvedic assessment of the patient's presentation.

Panchatikta Ksheera Basti was subsequently administered for 7 days. The use of Tikta and Ksheera-based therapy was intended to provide a combination of Vata-pacifying and nourishing therapeutic effects in the context of the Ayurvedic assessment of deeper Dhatu involvement.

➤ Role of Swedana and Local Therapy

Sarvanga Pinda Swedana was administered for 14 days. Swedana is traditionally used as a supportive measure in Vata-associated stiffness, pain and restricted movement. The objective in the present case was symptomatic relief and facilitation of movement.

Anna Lepana was administered for 10 days as a local supportive procedure. The procedure was incorporated as part of the Brimhana-oriented therapeutic approach.

Marsha Nasya was administered for 5 days as part of the integrated Panchakarma protocol.

➤ Role of Rasayana-Oriented Therapy

Rasayana is an important therapeutic concept in Ayurveda and is traditionally associated with maintenance of strength, vitality and optimal tissue function.¹⁰ In the present case, a Ksheerapaka containing Ashwagandha, Bala, Gokshura and Shunthi was administered as part of the Rasayana-oriented treatment plan.

Ashwagandha has also been investigated in modern clinical studies, although these studies have generally involved healthy individuals or exercise-training populations

rather than patients with FSHD. Randomized trials in healthy adults have reported improvements in some measures of muscle strength and physical performance with standardized Ashwagandha preparations.^{12–14} These findings should not be extrapolated directly to FSHD, but they provide a rationale for further investigation of Rasayana-oriented interventions in neuromuscular conditions.

➤ Interpretation of the Outcome

The most prominent clinical improvements in this case were reduction in pain, improvement in gait, improvement in appetite and improvement in selected range-of-motion parameters.

The VAS pain score decreased from 7 to 4. This is relevant because pain is a common and functionally important symptom in FSHD.^{4,8}

SLRT improved from 80° to 90° bilaterally, and lumbar extension improved from 20° to 30°. These changes may reflect improvement in pain, musculoskeletal mobility or the patient's functional tolerance rather than improvement in the underlying muscular dystrophy itself.

Importantly, MRC muscle-power grading remained unchanged at 4/5 in the upper limbs and 5/5 in the lower limbs. This finding should be interpreted cautiously. FSHD is a slowly progressive disorder, and longitudinal studies have demonstrated measurable decline in muscle strength over time. Therefore, unchanged MRC grading over a short observation period cannot establish disease stabilization, particularly without longer follow-up and sensitive quantitative strength measurements.

Current FSHD management emphasizes physiotherapy, individualized exercise, maintenance of mobility, pain management and monitoring for respiratory, ocular and auditory complications.^{1,5} The Ayurvedic treatment described in this case should therefore be considered complementary to, rather than a replacement for, appropriate neurological and rehabilitative care.

The observed clinical response cannot be attributed to any single intervention because multiple Panchakarma procedures and internal medicines were administered simultaneously. Furthermore, the patient had coexisting L5–S1 disc pathology that could have contributed to low back and lower-limb symptoms. These factors limit causal interpretation.

➤ Ayurvedic Samprapti Ghataka

- Component| Assessment
- Dosh| Vata predominance
- Dushya| Mamsa; consideration of Asthi and Majja
- Agni| Initial assessment suggestive of impaired appetite
- Ama| Jihva Nirama at assessment
- Srotas| Mamsavaha, Asthivaha and Majjavaha Srotas considered
- Srotodushti| Sanga functional obstruction considered

- Udbhava Sthana| Pakvashaya considered in relation to Vata
- Adhithana| Musculoskeletal/neuromuscular system
- Vyaktasthana| Upper limbs, lower limbs and axial musculature
- Rogamarga| Madhyama

III. CONCLUSION

Integrated Ayurvedic management comprising Basti, Swedana, Anna Lepana, Nasya and Rasayana-oriented internal medication was associated with improvement in pain, gait, appetite and selected functional parameters in this patient with FSHD.

The unchanged MRC muscle-power grading indicates that recovery of muscle strength was not demonstrated during the treatment period. Nevertheless, improvement in pain and functional parameters may be clinically relevant in a chronic progressive neuromuscular disorder.

The present case supports the feasibility of documenting an Ayurvedic therapeutic approach to FSHD within an integrative framework. However, it does not establish efficacy or a disease-modifying effect. Future research should employ larger samples, molecularly confirmed FSHD, validated FSHD-specific outcome measures, quantitative muscle-strength testing, longer follow-up and appropriate control groups.

REFERENCES

- [1.] Preston MK, Wang LH. Facioscapulohumeral muscular dystrophy. In: Adam MP, Bick S, Mirzaa GM, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2026. Updated 2025 Jul 10.
- [2.] Tawil R, Kissel JT, Heatwole C, Pandya S, Gronseth G, Benatar M. Evidence-based guideline summary: evaluation, diagnosis, and management of facioscapulohumeral muscular dystrophy. *Neurology*. 2015;85(4):357-64.
- [3.] Wang LH, Tawil R. Facioscapulohumeral dystrophy. *Curr Neurol Neurosci Rep*. 2016;16(7):66. doi:10.1007/s11910-016-0667-0.
- [4.] O'Connor L, et al. The prevalence, characteristics and impact of chronic pain in people with muscular dystrophies: a systematic review and meta-analysis. *J Pain*. 2021. doi:10.1016/j.jpain.2021.04.001.
- [5.] Tawil R, et al. Evidence-based guideline summary: evaluation, diagnosis, and management of facioscapulohumeral muscular dystrophy. *Neurology*. 2015;85(4):357-64.
- [6.] Giardina E, Camaño P, Burton-Jones S, Ravenscroft G, Henning F, Magdinier F, et al. Best practice guidelines on genetic diagnostics of facioscapulohumeral muscular dystrophy: update of the 2012 guidelines. *Clin Genet*. 2024;106(1):13-26. doi:10.1111/cge.14533.

- [7.] Cascella R, et al. Facioscapulohumeral muscular dystrophy (FSHD) molecular diagnosis: from traditional technology to the NGS era. *Mol Biol Rep.* 2019. doi:10.1007/s11033-019-04708-2.
- [8.] Tawil R, et al. Patient-reported symptoms in facioscapulohumeral muscular dystrophy (PRISM-FSHD). *Neurology.* 2019. PMID:31409737.
- [9.] Vagbhata. Ashtanga Hridaya. Sutrashtana, Basti Vidhi Adhyaya, 19/1. Varanasi: Chaukhambha Surbharati Prakashan.
- [10.] Agnivesha. Charaka Samhita. Revised by Charaka and Drdhabala. Chikitsasthana, Rasayana Adhyaya 1. Varanasi: Chaukhambha Bharati Academy.
- [11.] Agnivesha. Charaka Samhita. Revised by Charaka and Drdhabala. Siddhisthana, Bastisiddhi Adhyaya. Varanasi: Chaukhambha Bharati Academy.
- [12.] Wankhede S, Langade D, Joshi K, Sinha SR, Bhattacharyya S. Examining the effect of Withania somnifera supplementation on muscle strength and recovery: a randomized controlled trial. *J Int Soc Sports Nutr.* 2015;12:43. doi:10.1186/s12970-015-0104-9.
- [13.] Ziegenfuss TN, Kedia AW, Sandrock JE, Raub BJ, Kerkick CM, Lopez HL. Effects of an aqueous extract of Withania somnifera on strength training adaptations and recovery: the STAR Trial. *Nutrients.* 2018;10(11):1807. doi:10.3390/nu10111807.
- [14.] Raut AA, Rege NN, Tadv FM, et al. Exploratory study to evaluate tolerability, safety, and activity of Ashwagandha (Withania somnifera) in healthy volunteers. *J Ayurveda Integr Med.* 2012;3(3):111-114. doi:10.4103/0975-9476.100168.
- [15.] Agnivesha. Charaka Samhita. Revised by Charaka and Drdhabala. Chikitsasthana 8, Rajyakshma Chikitsa, 33-38. Varanasi: Chaukhambha Bharati Academy.
- [16.] Sushruta. Sushruta Samhita. Sutrashtana 15, Doshadhatumalakshayavridhi Vijnaniya Adhyaya. Varanasi: Chaukhambha Sanskrit Sansthan.
- [17.] Charaka. Charaka Samhita. Sutrashtana 20, Maharoga Adhyaya (Vata Nanatmaja Vyadhi, including Bahushosha). Varanasi: Chaukhambha Bharati Academy.
- [18.] Sushruta. Sushruta Samhita. Nidanasthana 1, Doshadhatumala Kshaya Vridhi Vijnaniya Adhyaya (Amsa Shosha/Avabahuka). Varanasi: Chaukhambha Sanskrit Sansthan.