

GUIDELINE

S2k guideline lipedema

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German Society of Phlebology and Lymphology (DGPL)

German Dermatological Society (DDG)

German Society for Internal Medicine (DEGIM)

German Society for Angiology (DGA)

German Society for Vascular Surgery and
Vascular Medicine – Society for operative,
endovascular, and preventive vascular medicine
(DGG)

German Society for General and Visceral Surgery
(DGAV)

German Society of Plastic, Reconstructive, and
Aesthetic Surgeons (DGPRÄC)

Summary

This S2k guideline was developed on the initiative and under the German Society of Phlebology and Lymphology (DGPL) leadership. The guideline aims to optimize the diagnosis and treatment of lipedema. It is intended to bring together the different approaches of the respective professional groups in a consensus-based manner and thus offer a basic concept for the best possible treatment of patients with lipedema. Sixty recommendations were formulated and agreed on in diagnostics, conservative and surgical treatment options, psychosocial factors and self-management. The guideline is intended to reflect the current scientific knowledge and be widely used for diagnosis and treatment recommendations for patients with lipedema.

In particular, the guideline comments on diagnostic criteria, differential diagnoses, and coinciding clinical pictures, their influence on diagnosis and treatment, sensible treatment measures, and self-management options. The lipedema guideline summarizes the current national and international evidence and the German expert consensus and derives recommendations for the best treatment for patients with lipedema. The recommendations in the guideline are intended as an orientation aid in the sense of action and decision-making corridors from which deviations are possible in justified cases.

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KEYWORDS

compression therapy, disproportionate distribution of adipose tissue, Lipedema, pain

PREAMBLE

This article is a short version of the S2k guideline lipedema. It includes all recommendations. The shortened passages concern the sometimes very elaborate background texts, presenting, in particular, the currently available literature. The long version is available online at the AWMF under registry number 037-012.

INTRODUCTION

Lipedema is a chronic, painful disease that may significantly impair the patients' quality of life. Often, normal life is only possible under difficult conditions, and the treatment is associated with high costs for health insurers and affected patients. Apart from the economic burden, the social-medical relevance of lipedema is also important. Especially the factors pain and weight increase have a negative impact on the quality of life and, moreover, have cumulative effects on other aspects, such as sleep, mobility, mental health, and participation in general social life.

Several professional groups are involved in the treatment of patients with lipedema. All of these need to comprehend the complexity of the disease manifestation and must include psychosocial distress in patient management. Accordingly, representatives of the various professional groups were members of the steering group of the guideline. In addition, a patient representative with voting right in the consensus process participated in guideline development.

ETIOPATHOGENESIS, PATHOPHYSIOLOGY, SYMPTOM OF PAIN

Definition

Recommendation 1.1

	Level of recommendation	Agreement
Lipedema shall be described as painful, disproportionate symmetric distribution of adipose tissue of the extremities occurring almost exclusively in women.	↑↑	Strong consensus (100%)

Lipedema is always painful. A non-painful disproportionate symmetric distribution of adipose tissue is known as lipohypertrophy and is not subject of this guideline. Lipedema is a disproportionate symmetric distribution of adipose tissue affecting only the extremities, that is, on the legs from hip to lower legs and on the arms from shoulder region to forearms. Head, neck, trunk, feet, or hands are not affected.

Lipedema is neither caused by obesity nor is it causing obesity. While coincident obesity may be present, it will also affect the trunk and may be the cause for obesity-associated lymphedema. Moreover, orthostasis-related congestions may occur.

Recommendation 1.2

	Level of recommendation	Agreement
Due to divergent findings, numerous aspects and parameters of lipedema should be studied more comprehensively to improve the scientific evidence.	↑	Consensus (94.1%)

CLINICAL APPEARANCE, DIAGNOSIS, AND DIFFERENTIAL DIAGNOSIS

Definition of the clinical picture

Recommendation 2.1

	Level of recommendation	Agreement
Pressure pain, tenderness, spontaneous pain, and sensation of heaviness shall be considered as symptoms in relation to lipedema.	↑↑	Strong consensus (100%)

Recommendation 2.2

	Level of recommendation	Agreement
A disproportionate increase of adipose tissue on the extremities without corresponding symptoms shall not be diagnosed as lipedema.	↑↑	Strong consensus (100%)

Prerequisite for the diagnosis of lipedema is a disproportionate increase of adipose tissue on the extremities compared to the trunk with concomitant symptoms in the area of this adipose tissue.

In the literature, the term “lipohypertrophy” is still used for the symptom-free circumferential growth of the legs.^{1,2}

CLINICAL APPEARANCE AND DISEASE COURSE

Morphology

The disproportion occurs always symmetrically on legs and/or arms.^{3,4} There is no scientific evidence for the development of lipedema in other regions of the body, neither before nor after liposuction. The increase in fat may affect upper and/or lower leg (so-called pillar-shaped leg) or upper arm and/or forearm homogeneously, or only upper or lower leg. Typical features are the change of diameter to the adjacent healthy region and the painful increase in adipose tissue above and/or below the knees, in the triceps region of the upper arm, and on the forearms. The morphological picture does not allow for conclusions on the subjective symptoms.

Recommendations 2.3–2.5

	Level of recommendation	Agreement
The degree of morphological manifestation shall be descriptive in nature and shall not be understood as classification of disease severity.	↑↑	Strong consensus (100%)
The staging of the morphology commonly used in literature shall not be used as measure for disease severity. Currently, no staging for the symptoms is available.	↑↑	Strong consensus (100%)
Given the lack of validity, the criterium of “nodular” adipose tissue, frequently used in the past, shall not be used for the diagnosis.	↑↑	Strong consensus (100%)

Symptoms

The physical symptoms in the subcutaneous adipose tissue of affected extremities are described as sensation of touch, pressure, tension, and heaviness as well as spontaneous pain, and are perceived very differently by the affected patients.

Pronounced medial adipose tissue increase may result in complications, such as axial malalignment (genu valgum)

and skin changes (intertriginous macerations, skin irritation due to skin-on-skin rubbing).

Common accompanying manifestations, which may also increase pain, are weight gain and obesity, lack of self-acceptance and body acceptance, as well as psychological distress.

Weight gain and obesity

Classified based on *body mass index* (BMI), overweight and obesity are the most common coincident findings.^{5–10} They may cause an increase in adipose tissue volume. There is insufficient evidence for an increased risk of developing obesity.

The BMI is not conclusive for the classification of overweight in lipedema patients, given that the accentuated increase of adipose tissue in the extremities will often produce false high values. A more accurate assessment of the disproportionate fat distribution is achieved by combination with the *waist-to-height ratio* (WHR).¹¹

Recommendation 2.6

	Level of recommendation	Agreement
At first documentation and during follow-up, at least the biometric data for body weight, height, as well as waist and hip circumference shall be obtained.	↑↑	Consensus (94.1%)

Recommendations 2.7 and 2.8

	Level of recommendation	Agreement
Depending on the affected extremities, additional measurements on extremities and indices should be added for therapy planning and follow-up.	↑	Strong consensus (100%)
The lipohypertrophy quotient according to Herpertz may be used to describe the disproportion.	↔	Strong consensus (100%)

Recommendation 2.9

	Level of recommendation	Agreement
At first consultation, psychological factors that may play a role in the experience of the disease picture should be assessed.	↑	Consensus (94.1%)

Patients with lipedema may experience more severe psychological than physiological stress.¹² While the majority of publications assume that the diagnosis of lipedema is causative,^{13–15} in one publication most patients presented with psychological stress before the onset of symptoms.⁹

Disease course

Recommendations 2.10 and 2.11

	Level of recommendation	Agreement
Lipedema shall not be perceived as generally progressive disease, given that progression is depending on various factors.	↑↑	Consensus (94.1%)
The causes of lipedema progression should be examined individualized depending on the respective patient.	↑	Strong consensus (100%)

While lipedema may remain stable in the long term in case of weight stability, progressive weight gain correlates with volume progression of the legs.^{16,17} Pain symptoms do not correlate with the degree of disproportion or the increase in subcutaneous adipose tissue. Apart from a gain in weight, hormonal influences may also result in progression of lipedema both with respect to volume increase and pain symptoms.

Recommendations 2.12–2.16

	Level of recommendation	Agreement
The diagnosis of lipedema shall be made clinically.	↑↑	Strong consensus (100%)
Instrument-based examination methods may be used for differential diagnosis.	↔	Strong consensus (100%)
To exclude edema, for example of phlebological origin, ultrasound-based diagnosis may be used.	↔	Strong consensus (100%)
Conclusions concerning the etiology of subcutaneous edema shall not be drawn from B-image sonography of the edema.	↑↑	Strong consensus (100%)
While laboratory parameters may be used to exclude differential diagnoses, they are not suitable for the verification of lipedema.	↔	Strong consensus (100%)

Both instrument-based examination methods (duplex sonography, ultrasound, other imaging methods) and laboratory test are useful for differential diagnosis, but cannot prove the diagnosis of lipedema.^{18–34}

Epidemiology

There are no studies on epidemiology satisfying the current diagnostic criteria.

Compression therapy

Recommendation 4.1

	Level of recommendation	Agreement
In diagnosed lipedema, compression therapy shall be used for pain reduction on the affected extremities.	↑↑	Strong consensus (100%)

Recommendation 4.2

	Level of recommendation	Agreement
Compression therapy in lipedema may be performed initially with medical compression stockings (MCS), compression bandages (CB), and medical adaptive compression systems (MAC). For long-term treatment, MCS should be preferred in routine cases.	↔ ↑	Strong consensus (100%)

Given that lipedema is neither an edema nor a disease manifestation with venous or lymphatic dysfunction, the subjective symptoms, above all the pain, are paramount.

Recommendation 4.3

	Level of recommendation	Agreement
Compression therapy in lipedema shall be directed towards the reduction of pain and other subjective symptoms. In combination with edemas of other etiologies, there will be also a favorable effect on the formation and reduction of these edemas.	↑↑	Strong consensus (100%)

Recommendation 4.4

	Level of recommendation	Agreement
The patients shall be informed that the compression is not suitable for the reduction of adipose tissue.	↑↑	Strong consensus (100%)

Recommendations 4.5 and 4.6

	Level of recommendation	Agreement
During selection and prescription of compression materials, the individually most suitable material shall be considered in addition to the required pressure, given that the effect of compression treatment is depending on both pressure and material characteristics.	↑↑	Strong consensus (100%)
The selection of the compression material or a multi-component treatment shall be performed in close consultation of patient, physician, therapist, and provider to improve adherence and efficacy.	↑↑	Strong consensus (100%)

Recommendations 4.7–4.11

	Level of recommendation	Agreement
Generally, lipedema may be treated with circular-knitted or flat-knitted MCS. In case of large changes in the circumference of an extremity or conically formed extremities, as well as marked tissue folds, flat-knitted quality shall be prescribed, because round-knitted material is not suitable for these anatomical conditions.	↔ ↑↑	Strong consensus (100%)
Due to the type of knitting, flat-knitted MCS have usually a higher <i>stiffness</i> , but also a higher bending stiffness. These properties should be used for the treatment of patients with lipedema, as well as coincident obesity. The higher bending stiffness is better in bridging deeper tissue folds without resulting in constrictions due to “sliding in”.	↑	Strong consensus (100%)
Stocking type and strength of the required pressure, that is, the CCL, shall be adjusted to localization, clinical findings, and severity of symptoms and changes. A fixed allocation of one CCL to the diagnosis lipedema shall not be made, given that the aim of compression therapy is the improvement of the subjective symptoms, especially pain.	↑↑ ↑↑	Strong consensus (100%)
At all times, the lowest CCL resulting in adequate alleviation of symptoms shall be preferred. This will support the adherence to compression therapy.	↑↑	Consensus (89.5%), Consensus without CI (86.7%)
To avoid side effects and risks of compression therapy, the rules of proper implementation shall be observed. This includes padding of pressure-sensitive areas and regular skin care.	↑↑	Strong consensus (100%)

For complex leg shapes with large changes in circumference and potentially associated obesity, multi-component care should be used. This may include leggings or compression sleeves without hand part, given that legs and hands are not affected. The prescription of compression therapy is a medical service. Given that selection of the suitable material, technical requirements for production and donning capability, and acceptance by the patients play a major role, close coordination between prescriber, provider, and patient is useful.

Intermittent compression (IPC)

Recommendation 5.1 analogous to guideline IPC³⁵

	Level of recommendation	Agreement
IPC should be used for treatment of lipedema to relieve pain and reduce associated edemas of other etiologies – also as home therapy.	↑	Consensus (94.4%), Consensus without CI (94.1%)

IPC has shown its efficacy in the reduction of edema, pain, and capillary fragility both in daily clinical practice and in the context of case series.^{36–38}

Drug therapy

Recommendations 6.1–6.3

	Level of recommendation	Agreement
Diuretics shall not be used for the treatment of lipedema. The use of diuretics in lipedema patients is possible with internal indication.	↑↑	Consensus (94.4%)
In the initial treatment phase or in case of particularly severe deterioration of the findings, medicinal pain therapy may be considered. Based on expert experience, however, this has usually no effect in lipedema.	↔	Consensus (88.8%)
Prescriptions of drugs associated with weight gain and/or edema formation should be avoided taking the risk-benefit relationship into account.	↑	Consensus (88.8%)

No importance is attached to drug therapy.³⁹ In current reviews it is not mentioned at all,⁴⁰ and no systematically collected data on drug therapy are available.⁴¹

PHYSIOTHERAPY

Treatment options for the cardinal symptom pain

Recommendations 7.1–7.3

	Level of recommendation	Agreement
If compression is inappropriate in individual cases or does not result in pain relief, the cardinal symptom pain may be treated by additional lymph drainage in combination with further therapeutic techniques. In this context, the objective of manual lymph drainage is not volume reduction, but the modulation of group C nerve fibers.	↔	Strong consensus (100%)
Given that movement in compression or a training program presents an important element in pain relief, it shall be included in the overall therapeutic concept.	↑↑	Strong consensus (100%)
The vibration plate may be used with the aim to increase the pressure pain threshold.	↔	Strong consensus (100%)

For manual lymph drainage (MLD), only studies in combination with various other therapy forms are available. A sympatholytic effect^{42–45} and an increase of pain tolerance and pain threshold have been demonstrated.^{43,45,46,47} The pressure in abdomen or pelvis during MLD increases the vagal tone and may have anti-inflammatory effects.⁴⁸

A comparison between complex physical decongestion therapy (CPD) with training program, IPC with training program, and training program alone in a three-arm randomized controlled trial demonstrated for the combination of CPD and training program significant improvements with respect to pain relief, volume reduction, and *physical functioning* of SF-36 in lipedema patients in advanced stages.⁴⁹

Recommendations 7.4 and 7.5

	Level of recommendation	Agreement
Complex physical decongestion therapy should be used in lipedema with additional edemas of other etiologies.	↑	Strong consensus (100%)
The additional implementation of water sports (for example, <i>aquacycling</i>) may have a positive effect.	↔	Strong consensus (100%)
Manual lymph drainage in combination with additional therapeutic methods should be considered to improve the quality of life (QoL).	↑	Consensus (94.4%)

PSYCHOSOCIAL THERAPY

Lipedema and psychosocial burden

Recommendations 8.1 and 8.2

	Level of recommendation	Agreement
According to the biopsychosocial concept, psychosocial factors shall be included in the diagnostic workup of lipedema-associated pain in addition to medical factors.	↑↑	Strong consensus (100%)
Psychological disorders may affect symptoms and quality of life of lipedema patients and should be considered in diagnosis and therapy of lipedema. These include, for example, eating disorders, depression, and post-traumatic symptoms after violence and abuse. In this context, an interdisciplinary therapeutic approach should be adopted.	↑	Strong consensus (100%)

Women with lipedema may suffer from numerous forms of psychological distress; moreover, the vast majority of patients presents with psychological disorders like depression.^{8,9,12,14,15,17,50,51} Results of studies based on validated questionnaires on women with lipedema from various countries demonstrate significantly higher psychological, emotional, and social impairments in women with lipedema compared to women in the normal population.^{8,14,52} The majority of these publications assume a causal role of lipedema for the development of psychological distress. Only in one study, psychological

distress was already found before the onset of lipedema symptoms in 80% of the participants.⁹

Obesity and psychosocial burden

Obesity is an independent risk factor for the occurrence of psychological disorders like depression, anxiety, or somatoform disorders.^{53–55} Coincident obesity often results in impairment of mobility and thus also in an enhanced risk of depression.⁵⁶ There is a well-described correlation between psychological distress and the perception of pain.^{56–60} A chronic physical symptom resulting in significant functional impairment in important areas of life (work, family, leisure time) can be diagnosed as somatic symptom disorder and may be treated in an interdisciplinary manner.

Recommendation 8.3

	Level of recommendation	Agreement
Serious psychological diseases (for example, severe eating disorder or severe depression) shall be treated prior to surgical interventions.	↑↑	Consensus (94.4%)

Self-management

Recommendations 9.1 and 9.2.

	Level of recommendation	Agreement
Effective self-management is an important component of health literacy. It shall be promoted, and the patient shall be encouraged to take an active role. Problem-solving strategies and specific therapeutic aims shall be developed together to promote the increase of self-efficacy.	↑↑	Consensus (88.8%)
Self-management should be supported with appropriate measures by caregivers while the responsibility remains with the patient. Successes should be positively reinforced by caregivers. Confrontational behavior shall be avoided.	↑ ↑↑	Consensus (88.8%)

Given that patient education on the basis of evidence-based information and self-management must go hand in hand, the communication of scientifically substantiated information about the disease is also essential in lipedema. By communicating problem-solving strategies for dealing

with the disease and increasing self-efficacy, clinically relevant long-term improvements may be achieved.⁶¹ Apart from the caregiver, the woman affected by lipedema herself might then be the person with the greatest influence on treatment success.

For additional information on promotion strategies of self-management and self-management programs, we refer to the long version (<https://register.awmf.org/de/leitlinien/detail/037-012>).

Nutrition and weight management

Recommendations 10.1–10.5

	Level of recommendation	Agreement
Information about the adverse influence of obesity on lipedema and the relevance of a healthy diet and an active lifestyle shall be provided at an early stage.	↑↑	Strong consensus (100%)
The patients shall be informed that in case of coincident overweight or obesity the leg volume can also be reduced by weight reduction with a healthy diet.	↑↑	Strong consensus (100%)
Nutrition and weight management shall contribute to the preservation or recovery of mobility and functionality and to the prevention of disease progression. Depending on the individual situation of the patients, the aims shall , therefore, include the achievement or preservation of a healthy body composition, as well as the reduction of pain and symptoms.	↑↑	Strong consensus (100%)
The therapy of overweight and obesity shall be included in the overall concept of lipedema treatment, given that both may result in progressive limb volume and in deterioration of the disease picture.	↑↑	Strong consensus (100%)
The basis for weight reduction in coincident obesity shall always be a combination of nutrition, exercise and, if necessary, behavioral therapeutic measures and include both the phase of weight reduction and the long-term stabilization.	↑↑	Strong consensus (100%)

Initial manifestation or aggravation of symptoms mostly occur in a phase of hormonal changes⁶² often accompanied by weight gain. While weight gain will always result in increase of limb volume,^{16,17} the pain symptoms do not correlate with the degree of disproportion, but are affected, either positively or negatively, by various additional factors. These include hormonal changes, diet, mental factors, and physical activity. Coincident obesity may, however, result in reduction of mobility and other comorbidities (orthopedic complications, obesity-associated lymphedema, cardiovascular diseases) aggravating the overall picture and leading to a *vicious cycle*. During the reduction of overweight and obesity, the focus must be on the preservation or achievement of a healthy body composition,^{63,64} especially on the preservation of the body cell mass (BCM), to avoid the reduction of energy consumption negative for sustainable weight loss or to recognize and treat sarcopenic obesity.^{65–68} If eating disorders are suspected,^{9,69} they should be included in the diagnostic workup, and the nutritional therapy should then be performed together with psychological care.

General measures to reduce obesity and inflammation

Recommendations 10.6 and 10.7

	Level of recommendation	Agreement
The patients shall be advised about the avoidance of short-term diets and to change, instead, their eating habits permanently to an individually adjusted healthy diet.	↑↑	Strong consensus (100%)
The patients shall be advised that eating habits have favorable or unfavorable effects on blood glucose and insulin levels and thus on lipogenesis and inflammatory processes.	↑↑	Consensus (94.7%)

Given that high insulin levels promote lipogenesis and the retention of sodium and water and have proinflammatory effects,^{70–72} spikes of blood glucose and insulin shall be avoided and sufficient intervals between meals shall be observed.⁷³

Special diets in lipedema

Recommendations 10.8 and 10.9

	Level of recommendation	Agreement
A (hypocaloric, if needed) Mediterranean diet may be recommended based on its anti-inflammatory properties.	↔	Strong consensus (100%)
A (hypocaloric, if needed) ketogenic diet may be recommended, given that weight-reducing and anti-inflammatory, as well as symptom-reducing effects have been described.	↔	Consensus (94.7%)

Based on the hypothesis that pro- and anti-inflammatory factors may influence the symptoms in lipedema, various authors focus on the treatment of inflammation and recommend an anti-inflammatory and/or ketogenic diet.^{63,73–79}

In several case series and studies, ketogenic diet showed superiority over other forms of nutrition with respect to reduction of symptoms typical of lipedema.^{63,78–82}

Significance of bariatric therapy for the treatment of patients with lipedema

Recommendation 11.1

	Level of recommendation	Agreement
The indication for bariatric interventions in patients with lipedema shall be determined according to the S3 guideline “obesity surgery and treatment of metabolic diseases”.	↑↑	Consensus (94.7%)
The <i>waist-to-height ratio</i> shall be considered when determining the indication, given that the BMI alone is not conclusive in case of pronounced disproportion. Bariatric surgery with the aim of weight reduction and reduction of leg volumes should be considered in patients with lipedema and a BMI ≥ 40 kg/m ² .	↑↑	
In patients with lipedema and a BMI ≥ 35 kg/m ² to < 40 kg/m ² , and at least one additional obesity-associated disease, bariatric surgery with the aim of weight reduction and reduction of leg volumes may be considered.	↑	
	↔	

There are almost no data available on bariatric surgery in lipedema. In case reports either unchanged leg volumes despite weight loss^{83–85} or significant reduction of leg volumes are reported.¹⁰ At the same time, persistence of pain despite good weight reduction was observed in a case series.⁸⁶

SURGICAL THERAPY

Indication for liposuction

Recommendations 12.1–12.3

	Level of recommendation	Agreement
Liposuction shall be used as surgical method of choice for the sustainable reduction of the affected subcutaneous adipose tissue of lipedema on legs and arms.	↑↑	Consensus (84.2%)
The following aspects for indication of surgical therapy by liposuction in lipedema on legs and/or arms shall be considered: <ul style="list-style-type: none"> • documented refractory pain – no improvement despite conservative therapy • complications like, for example, impairment of mobility, secondary dermatologic or orthopedic diseases • critical indication in case of <i>weight-to-height ratio</i> (WhtR) above 0.55 and BMI above 40 kg/m² • priority treatment of coincident obesity; preoperative decongestion in case of coincident edemas of other etiologies • strict indication in patients younger than 18 years 	↑↑	Strong consensus (100%)
The indication for liposuction shall not anymore be determined based on conventional staging, given that there is no correlation between the severity of symptoms and the differentiated stages.	↑↑	Strong consensus (100%)

In case of a BMI > 40 kg/m² and a WhtR above 0.55, critical indication is recommended.^{39,87–93} Liposuction is not a method for weight reduction.^{94,95} Patients with lipedema may suffer from mobility impairment entailing additional orthopedic complications.⁹⁶ Due to volume reduction, liposuction may result in correction of axial malalignment and thus mitigate mobility impairment.⁹⁷ In pronounced lipedema, sagging tissue sacks may sometimes remain after

successful liposuction. In such cases, subsequent plastic surgery in the form of dermolipectomy using lymph vessel-conserving methods, for example according to Avelar,^{98,99} may be recommended.

Technique and procedure

Recommendation 12.4

	Level of recommendation	Agreement
Liposuction shall be performed with a tissue- and lymph vessel-conserving method. The following aspects shall be observed: <ul style="list-style-type: none"> • use of vibration-assisted (PAL) or water jet-assisted (WAL) systems • surgery performed with TLA or general anesthesia • 1–4 sessions on both legs, 1–2 sessions on both arms • observation of an exposure time of at least 60 to 120 minutes after infiltration of TLA to facilitate gentle aspiration • limitation of the administered tumescent solution to 10 liters (when using the solution according to Klein with a maximum lidocaine dose of 45 mg/kg BW) • maximum aspiration volume of 10% of the body weight 	↑↑	Consensus (94.4%)

Follow-up treatment and results

Recommendations 12.5–12.7

	Level of recommendation	Agreement
Immediately after liposuction, complex physical decongestion therapy should be performed. Intensity and duration should be based on the post-operative findings. CPE should start with phase I.	↑	Strong consensus (100%)
After liposuction, conservative treatment of the patients shall be continued depending on the symptoms. Particular attention shall be given to mobility, weight stability, and stress regulation.	↑↑	Consensus (94.4%)
Lipedema cannot be cured by liposuction. Liposuction may permanently alleviate pain and improve the quality of life.	↔	

Liposuction results in pronounced improvements of spontaneous pain, pressure pain, and susceptibility to hematoma.^{39,87–93,100} The need for conservative therapy is reduced and sometimes even freedom from therapy is achieved.^{89–92,101} Even though the commonly used morphological staging does not capture the disease severity,^{11,102,103} surgical outcomes are better in earlier stages than in stage 3.¹⁰⁴

As a result of the reduction in symptoms, increase in mobility, less time spent for conservative therapy, and regained self-confidence, the quality of life is greatly improved.^{39,90,91,105–109}

Although complications after liposuction have been reported, these are rare. For a comprehensive presentation of the potential complications, we refer to the respective chapter in the long version of the guideline.

CONFLICT OF INTEREST STATEMENT

See long version. The long version is available online at the AWMF under registry number 037-012.

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