

3. THEORETICAL FRAMEWORK

Semicircular lipoatrophy (SL) is an atrophy of the adipose tissue located in the subcutaneous tissue, which has been described in different locations such as the thighs, forearms and abdomen, and rarely ankles (Figure 3.1, 3.2 and 3.3).

It is characterized by circular depressions in hand, more frequently located in the anterolateral thigh semicircle, unilateral or bilateral. Not affect tissue and overlying skin and muscles infrajacentes as, in most cases does not cause symptoms, although some cases has heavy legs and fatigue. Its clinical course is benign, and produces no effects refer cases over a period of months to years, ceasing exposure to risk factors.



Sources: Dimson et al (2006)



Sources: Sardana et al (2007)



Sources: Sardana et al (2007)

Figure 3.1 Semicircular lipoatrophy ankles

Figure 3.2 Semicircular lipoatrophy gluten

Figure 3.3 Semicircular lipoatrophy

3.1 Background

Semicircular lipoatrophy was initially described by two German doctors, Gschwandtner and Munzberg in Innsbruck in 1974. They relate the first three semicircular lipoatrophy patients with conditions in the buildings where they worked. Later, in 1981, two dermatologists at St. Batholomew's Hospital in England published a study with similar observations in the British Journal of Dermatology. It is from 1995, when it began to publish more cases of this disease in different European countries including France, Italy, England and the Netherlands. An outbreak was detected 1300 cases employees of a bank in Belgium, KBC Bank & Insurance Group, this is the most extensive in the number of cases when detected until today worldwide.

In April 2007 the first cases of LS was detected in 1137 in different branches of companies in Catalonia (Gas Natural, La Caixa and Agbar among others), from which the proceedings are initiated study, monitoring and control the administration work and care, with the aim of investigating the exposure factors that could influence the development of the lesion and propose preventive and corrective measures in the workplace (Ubeda et al., 2011; Rodriguez et al., 2008).

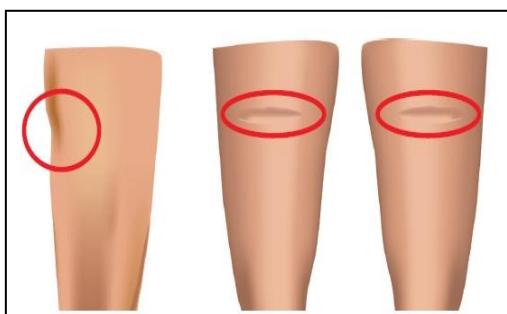
The appearance of the LS occurs mostly in working conditions. It was caused by work on new office buildings with closed ventilation system and artificial climate in which the affected workers take a job with large tables with plenty of electrical equipment and wiring. It can also cause the use of compression clothing. (Diaz et al., 2010, Ortega et al., 2009, Rodriguez and Madrid, 2008; Reinoso et al., 2010).

3.2 Signs and symptoms

The lesion measuring 5 to 20 cm long, 2 wide and 1 to 5 mm deep (picture 3). You semicircular shape and is located in the anterior and lateral thigh, forearm, abdomen, buttocks and ankles. These bands are usually visible to the naked eye, but sometimes they are not, but are palpable.

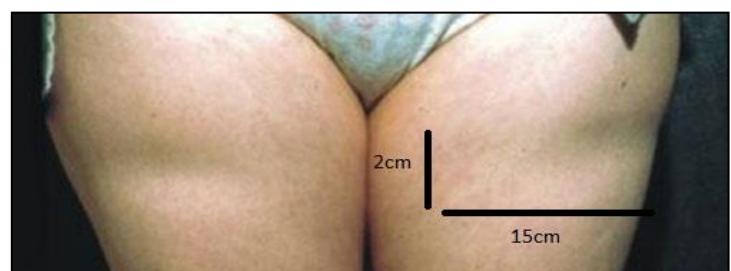
The skin and muscle tissue around the lesion show no sign of inflammation or itching, or a change in color or condition. Other complementary studies such as electrophysiological or radiological are usually normal and histopathological features are nonspecific, showing only a partial or total loss of fat tissue, which is replaced by collagen fibers.

In some cases accompanied by symptoms of fatigue and heavy legs. It is located at 72 cm from the ground, coinciding with the height of the table (Figure 3.4 and 3.5). (Reinoso et al., 2010, Ortega et al., 2009; Macia and Juanola, 2009; Zafra et al. 2008).



Sources: Caldúch y Panades (2013)

Figure 3.4 Location injury



Sources: www.websindical.com

Figure 3.5 Measures of injury. 2cm wide and 15cm long

3.3 Causes

In buildings where there are cases of LS have a number of common factors in relation to the general facilities of the building, furniture and equipment work.

In relation to the general facilities of the building, one factor is common ventilation and air conditioning system. All buildings have an air conditioning system, some also have natural ventilation through windows, although the entry of outside air naturally is negligible. Probably to maintain the temperature inside. Consequently, it is considered that the influence of the outside air is minimal. In most buildings, the system does not allow the modification of the percentage of relative humidity in the air.

The centers with the highest incidence of cases relate to new buildings or refurbished furniture changes, however cases have been reported in buildings which had not made any changes. Some of them have technical floors, ie, floors below which runs the entire electrical installation. Also, the kind of finished carpets covered the floors predominantly electrostatic and other types of finishing ceramic, metal or plastic, all levels are considered dissipative surface resistivity of electrostatic charges.

Regarding the furniture, all jobs have tables height between 72 and 73 cm. The surface material is diverse, although there has been a high number of cases in workers with tables phenolic resin, conductive material (surface resistivity of about 10Ω) than other materials such as medium density fiber conglomerates.

Most desks have the cash rate structure and a metal support also for the collection of electrical wiring for all teams that use. The thickness of the edge of the surface is variable and can range from a minimum of 3 to 5 mm up to 20 mm. The shape of the contour shapes ranging from rounded to angled.

All work chairs have a metal frame inside and exterior coatings for plastics and synthetic fabrics and all with insulating behavior. In relation to work equipment used in all schools have a computer standard that your CPU is on the table or under a metal support it. In some cases it is equipped laptop computer, PDA, calculators and mobile phones. The printers are in some cases in the workplace and in other cases centralized in one area

That is, it is considered that parameters such as the percentage of relative humidity, intensity of electric field and magnetic field and electrostatic voltages, could be decisive in the development of the LS.

- Terms thermo-higromètriques: percentage of relative humidity.

Available data confirm that all workplaces have been for some indefinite period of relative humidity levels of around 30%.

According to the provisions of Annex 3, paragraph 3 b) of RD 486/1997 of 14 April on the minimum health and safety in the workplace, the relative humidity must fall between 30% and 70%, except in places where there are risks static electricity in which the lower limit is 50%.

Similarly, the regulation of heating systems in buildings RITE (RD 1027/2007, July 20) established criteria relative humidity comfortable to work with sedentary metabolic activity: for the winter period between 40 and 50%, and for the summer period between 45 and 60%.

- Electromagnetic fields: the electric field intensity and magnetic field.

Under the working studied the frequency of 50 Hz grid with all the equipment working in operation, obtained values ranging between minimum and maximum listed in Table 1.

INTENSITAT CAMP ELÈCTRIC. E (V/m)	INTENSITAT CAMP MAGNÈTIC. H (μ T)
249-78,1	0,77-0,03

Table 3.1. Intensity of electric and magnetic fields

The results obtained highlight intensity levels of electric field and magnetic field at high tables where the structure of which is metal and have no grounding. However, all levels obtained are considered very common in these work environments and values are very low in relation to the provisions of 2004/40/CE23 Directive of the European Parliament and of the Council of 29 April 2004 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).

These values are set according to the frequency at 50 Hz that are listed in Table 2.

INTENSITAT CAMP ELÈCTRIC. E (V/m)	INTENSITAT CAMP MAGNÈTIC. H (μ T)
10.000	500

Table 3.2. Intensity of electric and magnetic fields

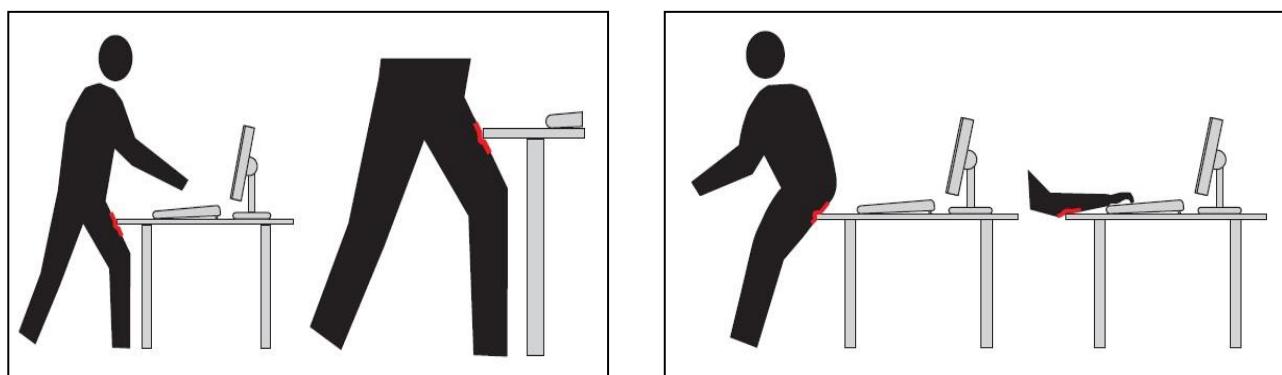
- Electrostatic charges:

The obtained consisted of studying human behavior in terms of the accumulation of electrostatic charge, meaning that normal operations generating frictional load: getting out of the chair and walk.

The parameter used to quantify the intensity of electrostatic discharge is the electrostatic voltage. For the determination of this parameter involves various factors, among which are: relative humidity, the costumes, the material of the soles of the shoes, the floor coverings and / or chairs, gait and capacitance individual, ie the ability of the human body to accumulate charge.

In short, the cause of LS is caused by accumulation of electrostatic loads on objects such as work teams that generate downloads friction between the thighs explain the activation of macrophages and production of cytokines that destroy fat cells.

On the other hand, the electromagnetic fields generated by the wiring and equipment installed in the work environment can be absorbed by the metal structures of the tables, unloading when a body come in contact with this metal structures. (Figure 3.6). Finally, measurements of the electric field altered the wiring tables and air conditioning systems with low relative humidity contribute to the presence of high levels of electrostatic energy (Rodriguez and Madrid, 2008; Ubeda et al. 2011; Macia and Juanola, 2009 , Ortega et al. 2009 by Cuevas et al. 2008 by Perez et al. 2010; Apellániz, 2007).



Sources: Caldúch y Panades (2013)

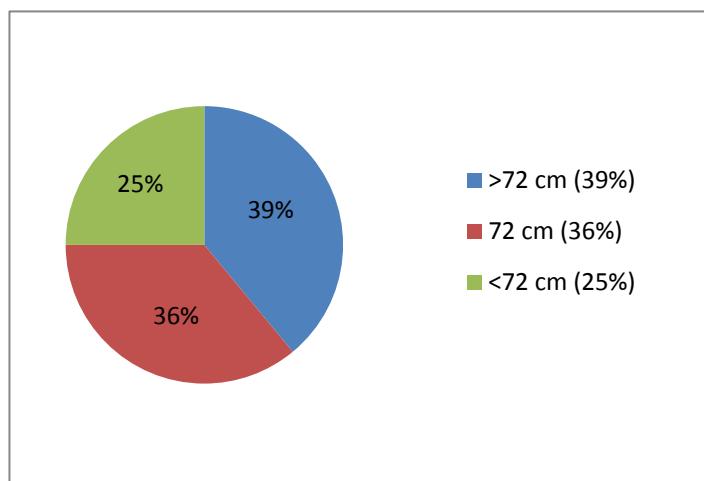
Figure 3.6 Furniture electrostatically charged in contact with a body

3.4 Studies on patients

Many authors have studied several cases in several offices in Spain and its prevalence is set to 25-75% of office workers, being more common in women, a 93-97% of the cases studied, in the third or fourth decade of life. Although not exclusive to women.

Cuevas et al. (2008) made a study of workers who came from highly modern technology of buildings under the same conditions, most of the working hours were performed on tables and desks with electronic devices. All these patients were there to make a complete medical history, and also ultrasound and injured area with an analytical hematology, biochemistry, enzymes, acute phase reactants and markers of autoimmune diseases.

They studied 45 cases, 75% were eventually diagnosed LS and a large majority of cases occurred in women (93%). As for the location, all cases stood in the thigh in a uni-or bilateral, but two exceptions suffered LS in an arm and a dissection leg, and an other in the dissection of the gluteal region (who often was sitted on the end of the table). The characteristics of the lesion are defined to be in the ground to a height ranging between 62 and 84 cm. The height of 72 cm is considered standard tables and other office furniture desk. (Figure 3.7).

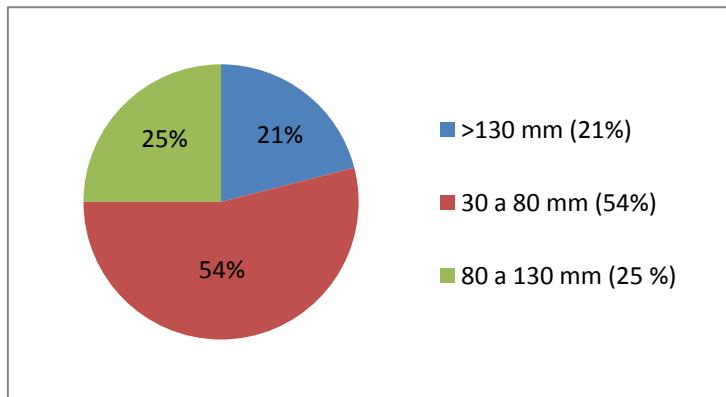


Sources: Cuevas et al. (2008)

Figure 3.7 Perpendicular distance land-injury

The width showed a range of 10 to 45 mm. But 90% were between 10 and 20 mm.

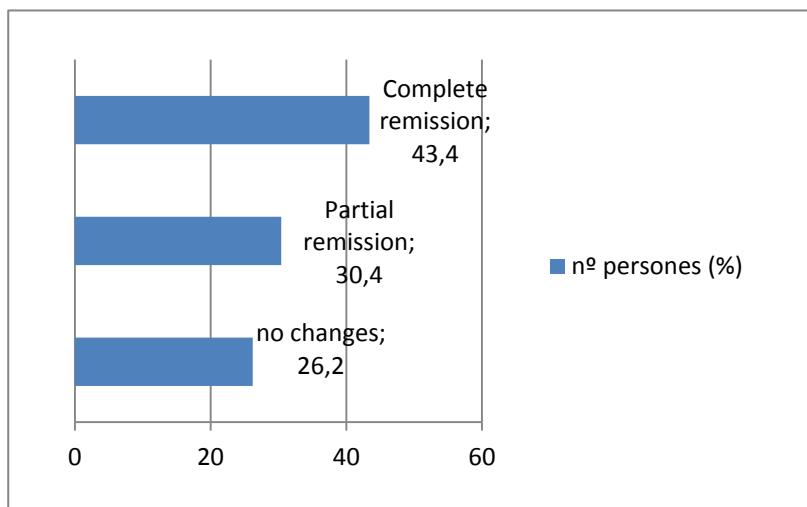
As for the length, the range was between 30 and 180 mm. (Figure 3.8).



Source: Cuevas et al. (2008)

Figure 3.8 Length of the lesion

A review at 3 months, almost 75% of cases have a recovery trend, showing an 43.3% in complete remission, 30.4% in partial remission and 26.6% showed no changes. (Figure 3.9).



Source: Cuevas et al. (2008)

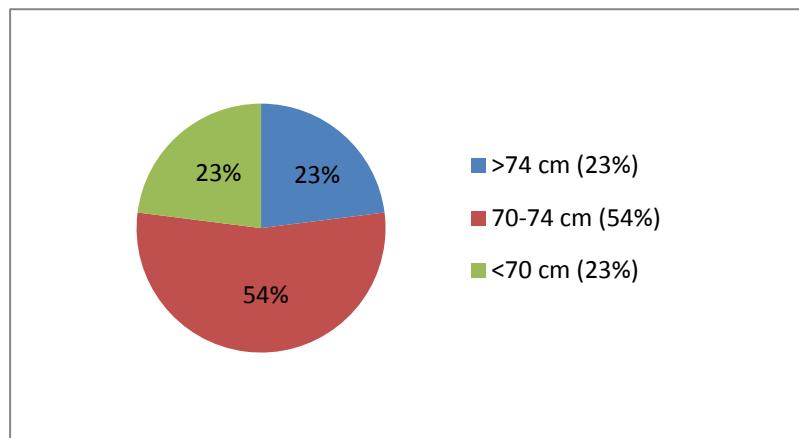
Figure 3.9 Evolution after 3 months

Ortega et al. (2009), a year later carry out a survey to employees under the same conditions, obtaining identical results.

Of the 93 cases studied, 62 (66.67%), there were finally diagnosed semicircular lipoatrophy.

An overwhelming majority of cases occurred in women (96.7%) with no significant differences by age ranges. For the location, all cases were located in the thigh with uni- or bilateral form, another one in an arm in a further dissection of the thigh, one in two

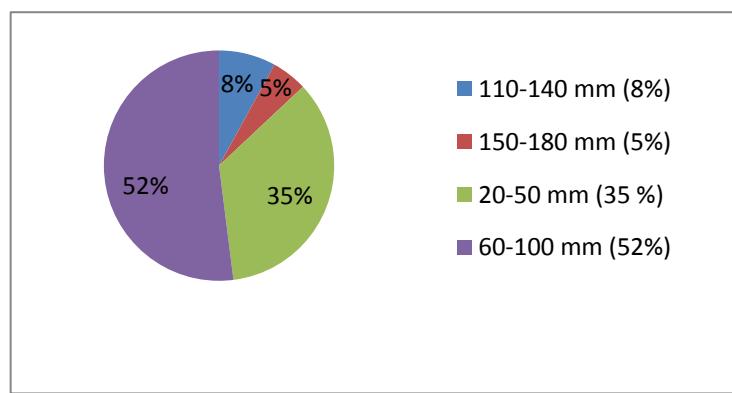
arms and the other in the gluteal region (attributed to the fact that the patient is often was sitted in the extreme of the table). The characteristics of the lesion are defined to meet the ground at an altitude ranging between 51 and 84 cm with an average of 69 cm (Figure 10.3).



Sources: Ortega et al. (2009)

Figure 3.10 Perpendicular distance land-injury

As for the length of the lesion (Figure 3.11):



Sources: Ortega et al. (2009)

Figure 3.11 Length of the lesion

In the review at 3 months, the results were the same as the study of Cuevas et al 2008. A 75% of cases have a recovery trend, showing a 43.4% complete remission and 30.4% partial remission. And a 26.2% were no changes.

Rodriguez and Madrid (2009), show another study of 148 employees in 27 companies of Catalunya. The 148 cases included in the study were subjected to the same clinical protocol, including anamnesis clinical and labourable by using the questionnaire developed by the Public Health Agency of Barcelona and the Department of Work and Health of the Generalitat of Catalunya. The results highlight that the majority of cases are women, being very low number of affected men ($n = 9$). The predominant age group in both sexes is 31 to 40 years. About the Body Mass Index (BMI), the majority of women (74%) had normal weight status (BMI between 18.5 and 24.9) while men dominated the state of overweight and obesity (BMI over 25, 67%. As for jobs predominante the office workers ($n = 144$, 97%). (Table 3)

	n	%
TOTAL	148	100
Men	9	6.1
Women	139	93.9
AGE		
18-30	33	22.3
31-40	68	45.9
41-50	32	21.6
51-60	14	9.5
>60	1	0.7
BODY MASS INDEX		
18.5-19.9	21	14.2
20.00-24.9	85	57.4
25.0-29.9	38	25.7
>30	4	2.7
WORKPLACE		
Office	144	97.3
Others	4	2.7

Table 3.3 Personal and Occupational Characteristics

In addition, they obtained results of environmental measurements experts in six companies, whose 23 were workers affected.

The observation in these companies showed that it was newly constructed buildings or newly remodeled when its furniture. (Table 4).

CRITERIA	Number of cases % (total 23 surveyed)	Number of companies % (6 total surveyed)
A: Low relative humidity	19 (83%)	3 (50%)
B: Electrostatic loads	16 (70%)	3 (50%)
C: Increased electromagnetic loads	0	0
A+B	15 (65%)	2 (33%)
Only A	4 (17%)	1 (17%)
Only B	1 (4%)	1 (17%)
NO	3 (13%)	2 (33%)

Table 3.4. Environmental Criteria company

Finally, a recent study of Perez et al. (2010) shows, 4 Catalan companies, specifically of Barcelona. The activity of these are administrative and housekeeping (5.5%) is also included in this study. (Table 5).

	Company 1	Company 2	Company 3	Company 4
BUILDING TYPE				
Close/Open	close	open	close	open
Year	2006	2005	2006	1998
VENTILATION SYSTEM				
General/Partial	General	General	General	General
% Outside air	15	20	28	-

AIR	integrated into the ventilation system	integrated into the ventilation system	integrated into the ventilation system	integrated into the ventilation system
HUMIDIFICATION	no	no	no	no
TYPE TABLE				
Structure	metal	metal	metal	metal
Electrified	yes	yes	yes	no
Material surface	phenolic resin	phenolic resin	phenolic resin	phenolic resin
Height	72 cm	70.5 - 71.7 cm	71 – 73 cm	71.5 – 73 cm
Extrem	0.5 cm	0.4 cm	2 cm	0.3 cm
CHAIR				
material	synthetic fabric	Woven synthetic plastic	synthetic fabric	synthetic fabric
ELECTRONIC INSTRUMENTS	yes	yes	yes	yes
FLOOR				
materials	1.antistatic carpet 2. technical ground 3. concrete	1.mats 2. technical ground 3. concrete	1. synthetic ground 2. technical ground 3. concrete	1. fitted carpet 2. concrete

Table 3.5. Business Features

After the study made these companies, showed that the number of people affected was between 25-60%, being more common in women ranged between 83-96% of the cases studied. The age of the patients affected was around the age of 40.

3.5 Conclusions of the study

From the studies and according to the experience of monitoring cases in different workplaces, have observed a number of common factors in most cases appeared:

- Workplaces that have a general ventilation system with air without humidification.
- Relative humidity levels below 50% (often around 30%).
- Employees who experience discomfort usually by electrostatic discharges.
- Staff working that are in contact with work surfaces (tables, desks...) and other pieces of furniture (drawers, shelves...), including administrative personnel, technical and cleaning staff.
- Work surfaces with a metallic structure not connected to the protective earthing of the electrical circuit, with the presence of office equipment (computer, phone, printer...), with plenty of wiring.

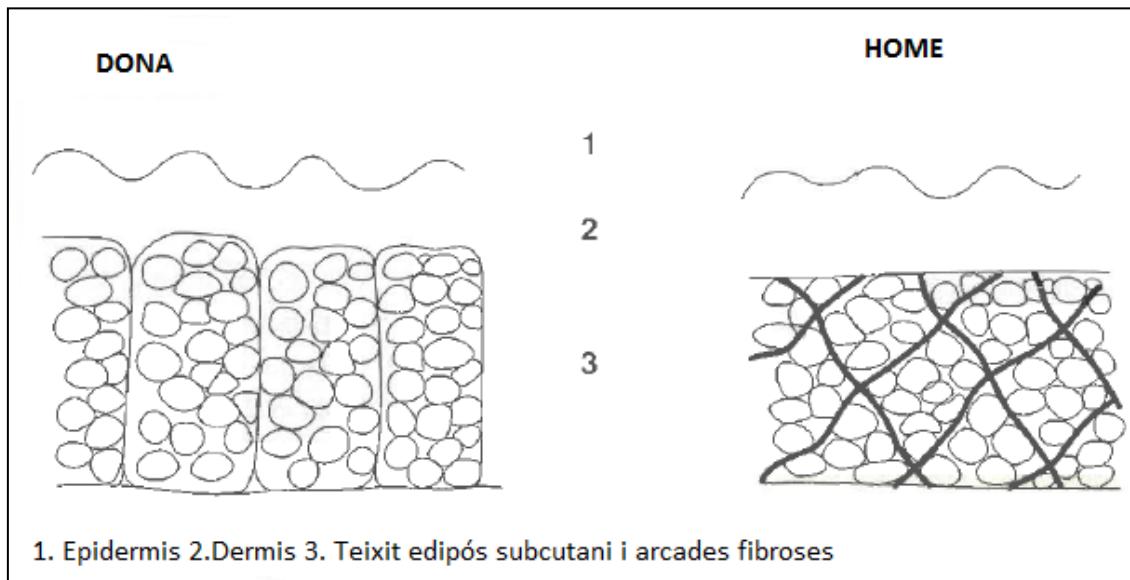
Although, the specific cause of Semicircular lipoatrophy is not yet known, the factors described three related hypotheses (contact with furniture, static electricity and electromagnetic fields) that play an important role and, depending on the characteristics of the site work, each of these factors can affect a greater or lesser extent. (Figure 12.3).



Sources:
<http://nosoloingenieria.com/>

Figure 3.12 Common factors in cases of lipoatrophy

Finally, the increased incidence in women may be due to the increased amount of fat in women, and structural differences of adipose tissue in both sexes (Figure 3.13), which would make the female tissue more lax, were more prone to collapse. They can also influence differences types of works. (Macia and Juanola, 2009, Rodriguez and Madrid, 2009; Caldúch and Panades, 2013).



Sources: Macià y Juanlola (2009)

Figure 3.13 Adipose tissue

3.6 Preventive Measures

Preventive measures that have to be taken are:

- Edges of the tables must be wide, so the contact surface must be large we have to avoid the thin edges. But we can not set a minimum thickness from which we can consider a reducing risk, because, it's the combination of thickness and shape, which reduces or increases the risk.
- Inform workers and established working procedures to avoid continuous pressure exercised on parts of the body on the edges of furniture and, in particular, the work table.
- Review the design of work places and the distribution of equipment and work tools to avoid movements that involve contact with the edges of the table. In this review, we must remember not only the regular duties of the job, also the derivatives work, like making the maintenance, or especially the cleaning.
- Ensure high levels of relative humidity of the air in the order of 50%, and ensure that these are maintained all the year and in every season.
- Avoid materials that originate and accumulate static electricity.

- Avoid using liquid on antistatic surfaces with which the worker can stay in touch. These products are usually classified as irritants.
- Avoid the influence of the electrical installations on a metal structure of work tables, improving the electrical insulation of the wiring respect to the metal structure of the table and connecting with the grounding of electrical protection. (Apellándiz, 2007; Macià i Juanola, 2009; Ortega et al. 2009; Diaz et al. 2010; Reinoso et al. 2010; Hermans et al. 1999).

3.7 Affected buildings in Spain

In 2007 begins to see developed the first cases of semicircular lipoatrophy buildings in Spain, mainly the Basque Country, Catalonia and Valencia.

3.7.1 Building of Gas Natural (2007)

The first case of LS Spain, diagnosed in Catalonia, was the building of gas natural (Figure 3.12) located in the area of the Villa Olímpica. It is a building of 20 floors with a close with a glass curtain wall that unifies the whole.

The 2nd of March 2007, were published the first articles on this case, with headlines such as; “*La investigación relaciona la enfermedad con el exceso de electricidad estática*” at *la Vanguardia*, “Una enfermedad que viaja por los cables de la oficina” at *El País*, etc.

The headquarters of Gas Natural were diagnosed 150 cases. Later the company and la Generalitat de Catalunya figure rose to 154 while the UGT said 165 people were affected, if were included external staff hired housekeeping.

Dr. Joan Olive, a specialist in occupational medicine, said that the damage was not severe, and said that was enough stop being exposed to electrostatic fields

After they had detected these outbreaks of semicircular lipoatrophy, the company was forced to close to implement the necessary improvements preventive. They install humidifiers and also extended the grounding for the amount of wiring that goes under the tables.

The 6th of March 2007, according to an article at *La Vanguardia*, the workers returned to the office. They were still suffering and worsening the disease. Natural Gas argued that maturation was between three and four months. The UGT confirmed that the company was performing well and all the preventive improvements would be completed in six months.



Sources: www.urbanity.es

Figure 3.12 Building of Gas Natural

3.7.2. Building of La Caixa (2007)

Later was found a similar case to the building of La Caixa (Figure 3.13) is located on Avinguda Diagonal in Barcelona.

The 5th of April 2007 was published the first article of this building on the newspaper El País.

They found twenty cases of LS, 17 confirmed, to be exact. The disease was diagnosed last month in the building of Gas natural. The origin of this disease came from static electricity and low humidity in the office, but La Caixa examined if the level of moisture and his installations was adequate. So it dismiss that the origin was in the building. But the tables used were the same as the building of Gas Natural.

La Generalitat was informed of these two cases, and the minister of labor, Mar Serna said that she would send an inspection team and technicians of the department to the facilities of La Caixa to determine the causes. At the same time, was announced that if other cases were detected, Treball write up a protocol for health and safety measures to adopt it as a preventive measure and it would be sent to companies and delegates from prevention to prevent it happens again.

The 19th of abril 2007, was when the department de treball of la Generalitat inspected the black towers.

UGT requested that the bank consider the condition as an occupational hazard, because CC OO previously had reported that the company would not take any preventive measures.

Later, on the 27th of April, El País writes another article, reporting that workers who suffer LS in La Caixa were on the rise and had a hundred affected. Comsions obreres said that 13 people were in the buildings at the central bank in Barcelona, the other 67 were in Spain, 40 which were in the province of Barcelona, another 9 were in Valencia and 9 more in Madrid. The disease also came to VidaCaixa one of its insurances subsidiarie, with 12 cases in Barcelona and three in Madrid.



Sources: www.europapress.es

Figure 3.13 Building La Caixa

3.7.3 Torre Agbar (2007)



Sources: www.foro.turismo.org

Figure 3.14 Torre Agbar

Finally, they found more cases of this epidemic in Catalonia, particularly in la Torre Agbar (Figure 3.14) the headquarters of Aigues de Barcelona, and other companies such as the newspaper ADN, were diagnosed around more than thirty people who showed symptoms of the disease, after many of the seven hundred employees of the building submits to a voluntarily medical tests.

After all these last cases, two newspapers, 20 minutes and El País, on the 4th of July, published articles explaining that la Generalitat de Catalunya presented that day the protocol which have to action against semicircular lipoatrophy. With the aim, that the doctors, the technicians of the mutual and prevention services companies knew what to do in case of detecting this disease. The measurements that were made by la Generalitat, starts by scan the injury, then confirmed that is LS and look for more cases in the affected environment. When a case is confirmed, the company must notify the accident to l'autoritat laboral.

At the same time, were announced that la Generalitat recognized semicircular lipoatrophy as an accident without the right of be on a sick leave and neither a financial compensation, because the disease is minor and reversible when associated factors affects.

3.7.4 Several cases at the País Basc (2007)

Months later, announced other cases in Spain, with five employees of the Basque Government headquarters in San Sebastian. Telefonica in Madrid, also joined in the list of these companies with 20 employees affected.

In the same city, the trade union of UGT denounced the 19th of November 2007, at the Maternal and Child Hospital Gregorio Maranon, 13 cases of semicircular lipoatrophy, within a period of two months in the staff of the center, which generated more "alarm", anxiety, fear, worry and stress among workers. This center, opened in March 2003, its a "smart" building with a high-tech functional design for an hospital center, with glass-sealed, using ventilation with high levels of ozone, with existence of electromagnetic fields and high levels of static electricity associated to low levels of moisture . The UGT noted that it was important to consider the impact that the building could have problems for patients, children and mothers.

The catalán Governament, as I said before, presented on July 2007, the protocol to prevent further cases. Months later,el Pais Basc, in collaboration with the Dermatology Department of the Hospital de Cruces, adapted this protocol.

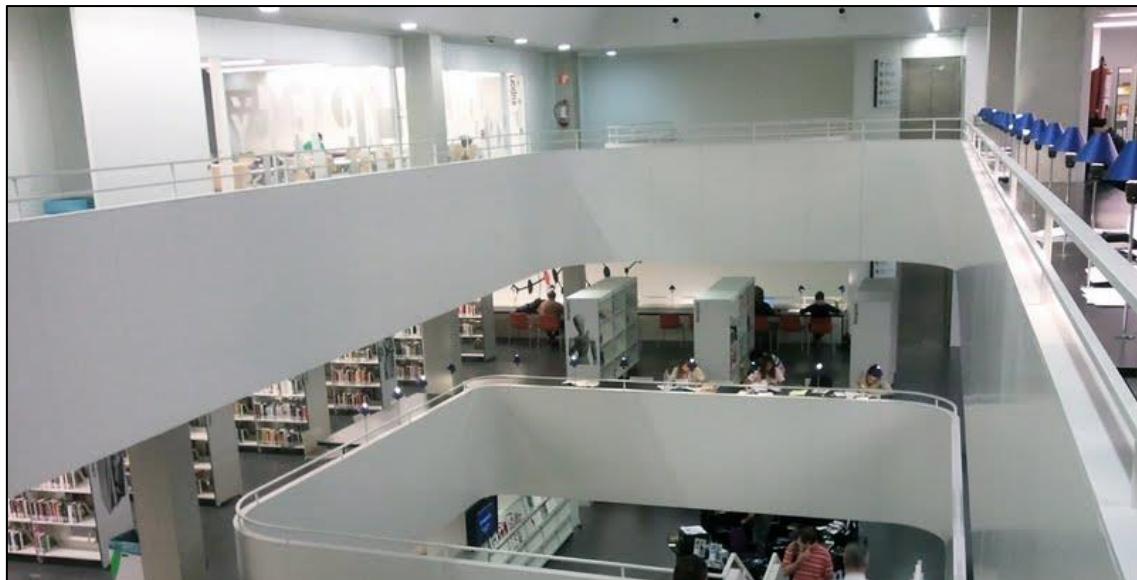
It consists of 21 pages, which included two questionnaires because the prevention services can provide the clinical characteristics and working conditions cases that appear. The protocol Basque, like the Catalan one that have 28 pages in total, including four appendices, aims to explain to the doctors and the mutual workers how to proceed with a possible case of lipoatrophy. First it instructs how to recognize the disease, so they can diagnose and treat it as a work accident. Finally, it provides the forms to how to monitor and study the conditions of employment. Basque Health authorities were using it with slight modifications, completed some aspects of diagnosis, because the Catalans doctors are who have more experience in this disease. They diagnosed 619 of the 650 cases in Spain. In the Basque Country there were nine possible cases, six in public sector and three in private.

The protocol recommends companies to ensure values of relative humidity of the air of 50%, in cases where there are problems of electrostatic charges in the offices. It also recommends avoiding the influence of the electrical installations on desktops, improving the insulation of the wiring and installing grounding.

The new protocol requires companies to look for new cases diagnosed after the first one, and if there is the appearance of a second case, it must specify the technical alert service to start evaluating prevention exposure, and Osalan. The Institute of Occupational Health must be directed to the company and fill out a medical questionnaire and another one of the conditions of all the jobs that can be affected.

The recommendations of the Catalan and Basque protocols joined after finding 190 cases. The 90% of studied cases had been in contact with surfaces, such as tables, where the largest burden of electrostatic energy. Most cases occur in closed buildings where there is not natural ventilation.

3.7.5 Building Agustí Centelles library (2011)



Sources: www.barcelona.cup.cat

Figure 3.15 Building Agustí Centelles library

Four years after the protocol establishment, La Vanguardia talks about new cases in a Public Library on the Left of l'Eixample, Augustine Centelles (Figure 3.15), in the cultural Teresa Pàmies center, in Urgell street. They started to inform users, present or phoned them, saying that the newly opened facility closed in May 2011 until March at least. It was necessary to fix a few things of this "sick" building, where they proliferate cases of semicircular lipoatrophy. And not just employees. There was another case between users, a man, who was preparing oppositions, and he spent many hours in the library.

The first cases occurred within a few months of opening in late 2011. Between February and March, there were reforms in the air conditioning system of the library, the furniture was replaced, a part of the pavement was changed... Labor inspection gave an OK for the result, but in recent months there have been four new cases. Councillor of Culture and President of the Consortium of Libraries, spoke of "responsible prudence" to justify the closing to make reforms. The main reform will completely change the pavement, which workers protested for months.

Yet was still appearing sick buildings, like the University of Barcelona located in the Raval, last February, admitted that since this into operation in 2007, three people have been diagnosed with this disease, and "all the measures that have been taken were recommended by other technical experts." However, the entity rejects that the center has done all that is in their hands, because it wasn't three affected persons, but rather were 17, two of them were recognized by CatSalut, because the medical service company of UB and Mutual Universal have not recognized the existence of symptoms, even said that it was simply a matter of age or cellulitis.

3.7.6 El Roure Nursery School (2012)



Sources:
www.laxarxa.com

Figure 3.16 Building El roure nursery school

Finally, the El Roure Nursery School (Figure 3.16) closed on 15th of April 2013 for a preventive measure for the diagnosis of two cases of lipoatrophy in childrens between 1 and 2 years and two teachers. The City Council will ensure that the analysis required to determine what happens to the building. However, the Eixample district councillor, Gerard Ardanuy, said that he do not appreciated the common causes associated with this disorder have called sick buildings.

But the fact is that the nursery is located in the same building where the library Augusti Centelles is, which has closed for four months ago because they had detected several cases of lipoatrophy. Councilman Ardanuy explain that the analytical work had

finished in the library and soon will begin the works on the problem to solvate them. It will change the floor and all materials that cause an overload of static electricity in the environment. Ardanuy announced that all staff that is working in the games room, also located in the library and still open, will also take a medical check.