

The anthropometric study of the female population has revealed the existence of three generalised body types, which should serve as a more accurate basis for sizing

- **86.1% of the women in Spain are within the conventional ranges of Body Mass Index (BMI) – underweight, normal weight or overweight – which do not require medical consultation or treatment**
- **12.4% of the female population, especially women aged over 50 years, suffer from obesity to some degree. The remaining 1.4%, especially the youngest, are moderately or severely underweight**
- **41% of the women who participated in the measurement have confessed to always having problems with clothes sizes (10%) or to sometimes having problems (40%), 43% of whom found clothes too small for their bodies and 22% finding them too big**
- **The study is the result of an agreement signed between the Spanish Ministry of Health and Consumer Affairs and associations and companies from the clothes manufacture, distribution fashion design and knitwear industries, which could use this information to better adapt their sizes to the current profiles of women in Spain**
- **This work is the first of its kind in terms of its broad scope, sample cross section and simultaneity in data collection: four months to measure 10,145 women**

7February2008.Spain already has a starting point from which to develop a new sizing system for the textile and clothes industry, namely, the data obtained from the Anthropometric Study of the Female Population in Spain. The study was **conducted last year by the National Institute for Consumer Affairs** and the results have been made available today by the Minister of Health and Consumer Affairs, Bernat Soria.

Today's clothes sizes, which are based on pre-1975 models, are no longer adapted to the current physical profile of women inSpain. This hypothesis was what led the Ministry of Health and Consumer Affairs to initiate, a year ago, the Anthropometric Study. On the basis of the results of the study, the hypothesis has now been proven to be true. 41% of women who participated in the measurement confessed to always having problems with clothes sizes (10%) or sometimes having problems (30%). Of them, 43% claimed that they were faced with items which were too small for their bodies, and 22%, too big. The difficulty for 8% of the respondents was that their size was very common, which made it more difficult to find.

COLLABORATION FROM THE INDUSTRY

The carrying out of the Anthropometric Study forms part of the agreement signed in 2007 between the Ministry of Health and Consumer Affairs and the associations and companies of the clothes manufacture,

distribution, fashion design and knitwear industries in Spain. The objective was **to define the shape and dimensions of the Spanish woman's body**, and, on the basis of standard EN 13402-3-2004, to develop a homogenous sizing system, adapted to users, which can be used by all designers, manufacturers and distributors.

This standard for the size designation of clothes, elaborated by the European Union, is designed as a guide for the textile industry. The text, which is not binding, promotes the implementation of a **sizing system based on the consideration of three parameters**: perimeter of bust, waist and hips, in relation to height.

In addition, in carrying out the study, a healthy image of beauty has also been promoted with the adaptation of runway models and shop window mannequins to the true sizes of the population.

For the purposes of the study, a **sample of 10,415 women was defined. This sample was divided into ten age groups**, with each of them being representative of the Spanish population for the relevant interval:

- Four segments between 12 and 19 years, the ages at which the female body undergoes the most changes
- Another two between 20 and 25
- And the remaining four, by 10-year intervals, until 70 years

These women, who were called up randomly according to sample design, **lived in 59 Spanish locations** where measurements were carried out.

The measurements, taken over a period of almost five months, were performed in six measurement booths of the Institute of Biomechanics, Valencia, which calculated automatically 130 measurements in 30 seconds. This innovative technique **allowed the body shape to be obtained in three dimensions**, which facilitated, in the second phase, successful attainment of virtually any metric measurement on the sample studied.

BODY TYPES WHICH HAD NEVER BEEN CLASSIFIED

The objective of the study has been achieved. The results, which concern all perimeter measurements of chest, waist and hips in relation to height, reveal the existence of **three generalised body types among the female population in Spain**. These types **had not been classified before now**, as anatomy had always established scientific categories according to the male gender.

For the first time, and as a result of the Government of Spain's commitment to issues of health and gender, it can be asserted that the Spanish woman's body fits one of three categories based on anatomical shape: hourglass, pear and barrel.

The results of the study show a **detailed photography of women's body shapes** in Spain, broken down by age group.

Regarding height, **the tallest are girls between 18 and 19 years**, with an average height of 162.6 centimetres. The youngest rise steadily from 157.7 in girls aged between 12 and 13 years and 161.6 between 16 and 17. Between ages twenty and thirty, height is maintained. From age thirty onwards, Spanish women become increasingly shorter until reaching an average height of 154.7 centimetres for the group aged between 60 and 70 years.

The data relating to weight reflects that most Spanish women fall within the conventional measurements. According to the Body Mass Index (BMI) of the participants in the study and the classification of the World Health Organisation:

- 56.2% of women are within their normal weight
- 24.9% are overweight
- 5% are underweight

86.1% of the female population fall into these three groups, which **do not require medical consultation or treatment for either high or low BMI.**

As reflected by the results, **obesity rises with age.** In older women aged between 60 and 70 years, obesity affects 31,8% of the population to varying degrees. The youngest, however, present the widest range of underweightness, although always in small percentages.

Between 18 and 19 years, 2% of the women measured had a BMI which fell in the categories of moderately or severely underweight.

Girls, under the age of 17 years, were **mostly found to have a normal weight** (between 68.3% and 68.7%, according to their age), although over 10% were excessively overweight.

MORE ACCURATE SIZING SYSTEM

On the basis of all this data, together with the perimeter measurements of chest, waist and hips, the recommendation is for **a more accurate sizing system to be adopted in Spain**, in accordance with standard EN 13402-3-2004.

This format, instead of being limited to a simple size, as we know today, should contemplate several different parameters. Therefore, **clothes size will be defined on the basis of three-digit codes** which contemplate chest, waist and hips for each height.

According to the above parameters, women in Spain can be classified on the basis of the three body types cited above:

- Hourglass, the majority, which embraces 39% of the population
- Pear, with 25%
- Barrel, with 36%

By ages, it is noteworthy how **during puberty and youth (from 12 to 30 years) the barrel shape is predominant**, while during maturity (from 31 to 60) the hourglass shape is prominent, followed by the barrel and pear in a differing proportion according to the age. From age 60 onwards the pear shape is the most common.

SATISFIED WOMEN...

In addition to the physical information on the body measurements of women in Spain, the study has gathered other data, of a sociological nature. This includes that the **majority of the participants in the study confessed that they were satisfied with their body.**

By ages, the girls were most satisfied: 73% of those aged between 12 and 13 years and 66% of those aged between 14 and 15 were satisfied with their body. The next group up contained the least satisfied: only 59 to 60% of girls aged between 16 and 19 were satisfied. This percentage was slightly higher (between 62% and 64%) in the older age groups, where the rate of overweightness and obesity rises.

Based on body mass index, the women most satisfied with their body were those who are slightly underweight (85%) or even moderately (83%). **Seven out of every ten females with normal weight were happy with their figures.** It is a cause for concern that this level of satisfaction is repeatedly found in women who are severely underweight, who would need medical assistance to come to terms with their situation.

54% of overweight women were happy with their figures. **This percentage decreases as the number of kilos increases.** In the case of the female population with grade III obesity, only three out of every ten were happy, while half were dissatisfied with their situation.

...BUT THEY HAVE PROBLEMS FINDING SIZES

The rate of satisfaction of women with their body, the majority, and the fact that eight out of ten is in her Body Mass Index, considered conventional and **not a cause of concern from a health point of view**, directly clashes with the statistic that 40% of them have problems, always or sometimes, in finding clothes in their size.

These problems are more acute for the age range from 19 to 30 years. Of them, 13.4% always had problems finding clothes, while 33.3% sometimes experienced problems. The main reason, in all the ages studied, was because **the clothes were too small for them** (43.4% of the cases).

All the results obtained from the study, and the conclusions drawn from them, should **constitute a very useful database for the textile, clothes manufacture and knitwear industries**. On the basis of this information body types can be defined by age group or sizing tables which will serve, among other things, to develop physical and virtual models, for carrying out fittings; the creation of clothes customisation systems; or better fitting clothes, for example.