

## Body Composition Evaluation in Gender Dysphoria from the Sports Medicine Point of View

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### Abstract

The objective of this study is to describe the management and follow-up that should be carried out from the point of view of body composition, in patients with gender dysphoria, since this disease is marked by the incongruity that the patient presents between the gender that is expressed vs the sex that was assigned at birth. Therefore, it was considered to propose an approach to assess body composition based on the weight of fat mass and muscle mass to define management through exercise and control of healthy habits.

**Keywords:** Body Composition; Gender Dysphoria; Sports Medicine

### Introduction

Gender dysphoria is a manifestation of the personal discordance between the sex assigned at birth and the livingly expressed one. This disagreement generates a feeling of rejection of the primary and secondary sexual characteristics of their biology and anatomy, so it is sought by all means to achieve adequate control of this rejection and for this, they have come to use all kinds of hormonal treatments and surgical procedures to accept and be accepted socially [1].

Sex is given by the biological condition of a person.

Gender identity is a subjective feeling of knowing which sex you belong to.

The gender role is the objective and public manifestation of gender identity, in addition to the degree of adherence to the gender with which they identify [2]. Transsexuality is a term taken since 1940 to refer to individuals who wish to live as members of the opposite sex; however, today it is known as gender dysphoria or gender identity disorder (GID) [3].

The most recent studies estimate a prevalence of 1: 12,225 inhabitants [4] and dividing them by gender 1: 11,900 biological males and 1: 30,400 biological females [5] and other studies present an incidence of 3 per 100,000 inhabitants over 15 years of age [6].

The gender reassignment process must be multi and interdisciplinary, consisting of psychology, psychiatry, endocrinology, plastic surgery, urology, gynaecology, and nowadays sports medicine [7]. The latter is included in few institutions, but with great importance from

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the aesthetic point of view since physical activity and exercise will help us to improve lean mass and reduce fat mass according to the prototype of the person that the mentioned patient in wants.

At the San José hospital it is an important pillar in the diagnosis and management of patients with gender dysphoria; thus, the sports medicine service carried out an evaluative system of body composition since this type of patient at not identifying itself with their assigned sex, a change in habits should be made as well as management from the functional point of view, without neglecting their metabolic and hormonal physiology that has been carried from birth and which is affected by the management established to achieve an acceptance and an appropriate sexual identity.

Due to the above and taking into account the difference in the body composition of the female and male sex [8], it was considered the management of this type of patients taking into account the hormonal treatment established, this was done as follows [8] body composition through 3 types of measurements that have greater validity for this purpose which are: adipometry, bioelectric impedance and/or dual-energy X-ray absorptiometry.

Without starting hormonal management or initial hormonal management of fewer than 3 months, it is considered to take the values corresponding to the sex that the patient presents by natural assignment.

If hormonal management has already started and takes more than 3 months and less than 1 year, it is considered to take 40% of the sex that the patient presents by natural assignment and 60% of the sex that the patient wants by identity. If hormonal management takes more than 1 year, but less than 5 years, it is considered to take 30% of the sex that the patient presents by natural assignment and 70% of the sex that the patient wants by identity.

If hormonal management takes more than 5 years, but less than 10 years, it is considered to take 20% of the sex that the patient presents by natural assignment and 80% of the sex that the patient wants by identity. If hormonal management takes more than 10 years, it is considered to take 100% of the sex that the patient wants by identity.

Taking into account what has been described and since it is a low prevalence pathology, this report aims to describe the case of a patient with GIT and comment on the experience during sports medicine management presented in our hospital with follow-up as proposed.

**Case Presentation**

The sports medicine service is attended by a 41-years-old patient, with a height of 1.71mts, with a diagnosis of male to female gender dysphoria (MTF), with female sexual identity from an early age, a diagnosis established by a multidisciplinary group in 2016, with hormonal management established by the endocrinology service 3 months ago using conjugated oestrogens 0.625 mg/day, spironolactone 200 mg/day and referred to our service for adjuvant cosmetic management, given that the patient currently has a progressive increase in weight and desires a marked aesthetic improvement.

Given the above and taking into account the aforementioned, it was considered to make an adjustment of the body composition taking into account the time of hormonal management, resulting in the following.

**Male impedancemetry**

Date	Weight	BMI	%Fat	%Muscle	Visceral weight
September 2019	94	32.1	31.5	34	18
November 2019	92.1	31.5	31.2	34.5	16
March 2020	86.7	29.6	29.3	35.1	12
October 2020	82.9	28.4	24.1	35.3	11
April 2021	83.7	28.6	23.9	35	7
July 2021	86.1	29.4	25.9	33.9	7

**Female impedancemetry**

Fecha	Weight	BMI	%Fat	%Muscle	Visceral Weight
September 2019	94	32.1	41	26	9
November 2019	92.1	31.5	39.9	26.5	9
March 2020	86.7	29.6	38.5	26.6	8
October 2020	82.9	28.4	36.8	27.7	8
April 2021	83.7	28.6	35.4	27.2	7
July 2021	86.1	29.4	38.1	26.7	6

**Adjusted impedancemetry**

Fecha	Weight	BMI	%Fat	%Muscle	Visceral Weight
September 2019	94	32.1	37.2	29.2	13
November 2019	92.1	31.5	36.4	29.7	12
March 2020	86.7	29.6	34.8	30	9
October 2020	82.9	28.4	33	30.6	9
April 2021	83.7	28.6	33.7	29.5	7
July 2021	86.1	29.4	34.44	28.9	7

Based on this adjusted impedance, it is decided to carry out the specific sports medicine treatment to give recommendations for physical activity and exercise based on the main medical purpose and the final patient’s goal concerning their physical appearance [9].

**Results**

The intervention with changes in diet and exercise prescribed by qualified professionals in this patient allowed a considerable change in his body composition, which was evaluated with the Tanita Hbf-514C. Follow-up was carried out for 22 months in which the loss of 8 kg was evidenced, corresponding to 8.5% of the initial weight, with a significant decrease in visceral fat and in the percentage of body fat, both by BMI and by composition. the intervention made it possible to withdraw the obesity diagnosis. Among the findings that attract the most attention, it is the significant decrease in visceral fat that significantly improves the cardiovascular risk profile.

**Discussion**

Patients with gender dysphoria due to pharmacological management using either testosterone or any of its derivatives for female to male cases or estrogens in male to female cases allow variation in body composition [9]. In general terms, in the first case, it increases lean mass, decreases muscle fat, in the second, the opposite happens.

We do not find in the literature any proposal similar to the one we propose to take into account the pharmacological factor and the time of the mentioned to perform the analysis of body composition, we consider this information highly pertinent to make the adequate prescription of exercise. As evidenced in the case, this allowed significant weight control at the expense of predominantly fat tissue, maintaining muscle tissue despite the use of hormonal management and being over 40 years of age.

It is worth remembering that the decrease in muscle mass increases after the age of 30.

Our proposal for the analysis of body composition in patients with gender dysphoria allows us to interpret the body composition according to the evolution of the process of each patient, thus adjusting the prescribed exercise loads for adequate cardio-metabolic control during the process, considering hormonal treatment.

### Conclusion

Performing an individualized analysis with variables such as hormonal exposure and its time allows prescribing exercise in patients with gender dysphoria, modifying body composition towards healthier parameters, with a better cardio metabolic profile, drastically impacting visceral fat and obtaining a weight loss predominantly at the expense of fatty tissue.

We recommend applying this analysis to patients to direct physical exercise therapies in the process of each of the patients.

### Ethical Considerations

The data collected during the investigation were handled with total discretion and confidentiality as contemplated by the regulations on medical ethics in Colombia, under Law 23 of 1981, also following resolution number 8430 of 1993 of the Ministry of Health of Colombia. The study is considered a risk-free investigation since the measurement of body composition is performed routinely in patients evaluated in the sports medicine service of the San José hospital.

The authors declare that no experiments were performed on humans or animals for this research.

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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### Conflict of Interest Statement

The authors of this article declare that they have no conflict of interest.

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