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## Background

Although, there are several studies that use the external masculinisation score (EMS) for numerical description of the external genitalia in infants with DSD, data on change in EMS in the routine clinical setting are lacking.

## Objectives

To determine the longitudinal change in EMS and its determinants in a cohort of boys with XY DSD in one specialist centre.

## Methods

Observational study of boys with XY DSD who were evaluated by the DSD Diagnostic Board in Glasgow from 2010 to 2019. Calculations of EMS (Figure 1) at initial (EMS1) and most recent (EMS2) assessments were performed based on information obtained from medical records. Surgical interventions (SI) including orchidopexies, hypospadias repairs, and orchidectomy and therapeutic interventions (TI) including testosterone therapy were also recorded.

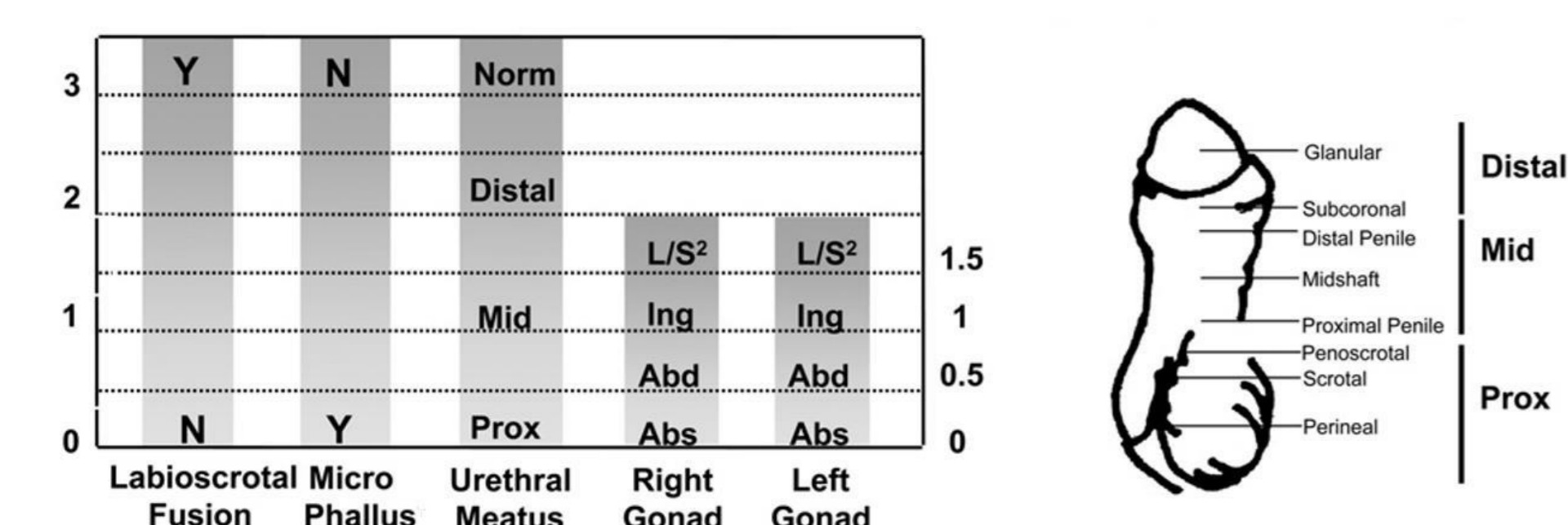


Figure 1. External Masculinisation Score, a points based scoring system for numerical assessment genital ambiguity in boys [1].

## Results

Median follow-up period was 3.3 years (0.2, 15.7)

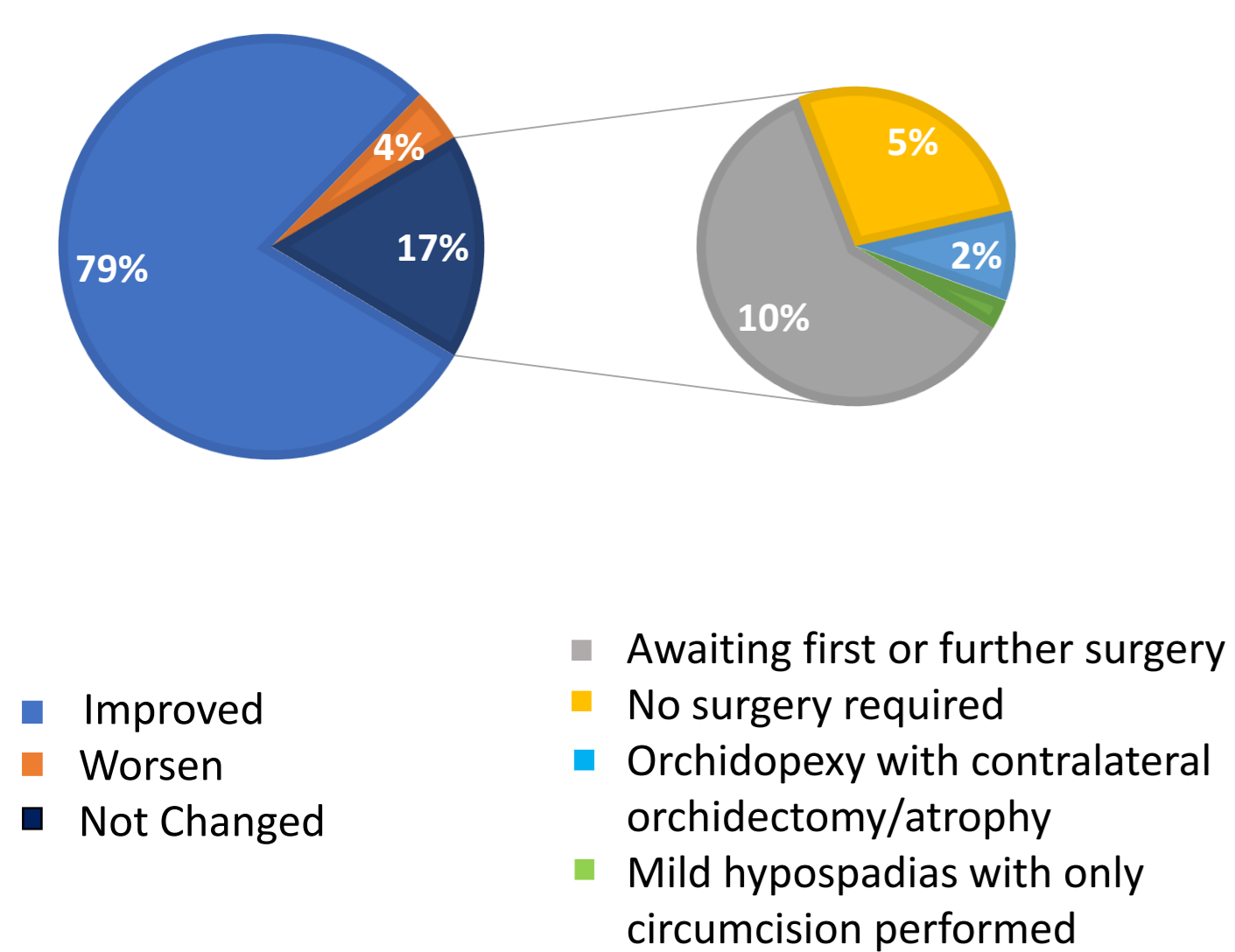


Figure 2. Change in EMS over time by type of genital anomaly (A) and EMS at initial assessment (B).

N=193	Yes/No
<b>Surgical Intervention</b>	
Hypospadias repair	91/7
Orchidopexy, uni- or bilateral	95/13
Gonadectomy, uni- or bilateral	12/1
<b>Therapeutic intervention</b>	
Testosterone therapy	13/180

Table 1. Surgical and therapeutic interventions.

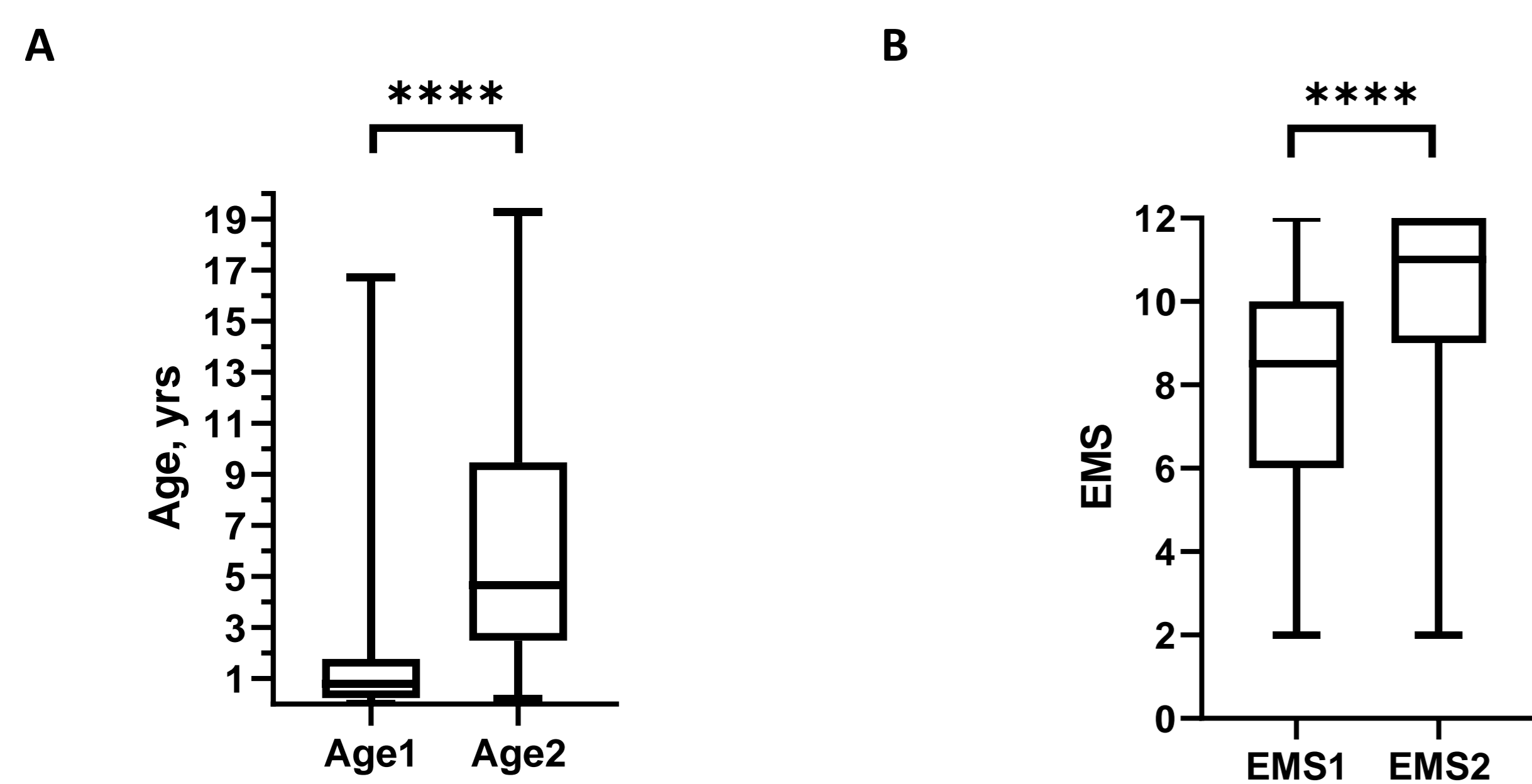


Figure 3. Age (A) and EMS (B) at first and last assessment (N=193).

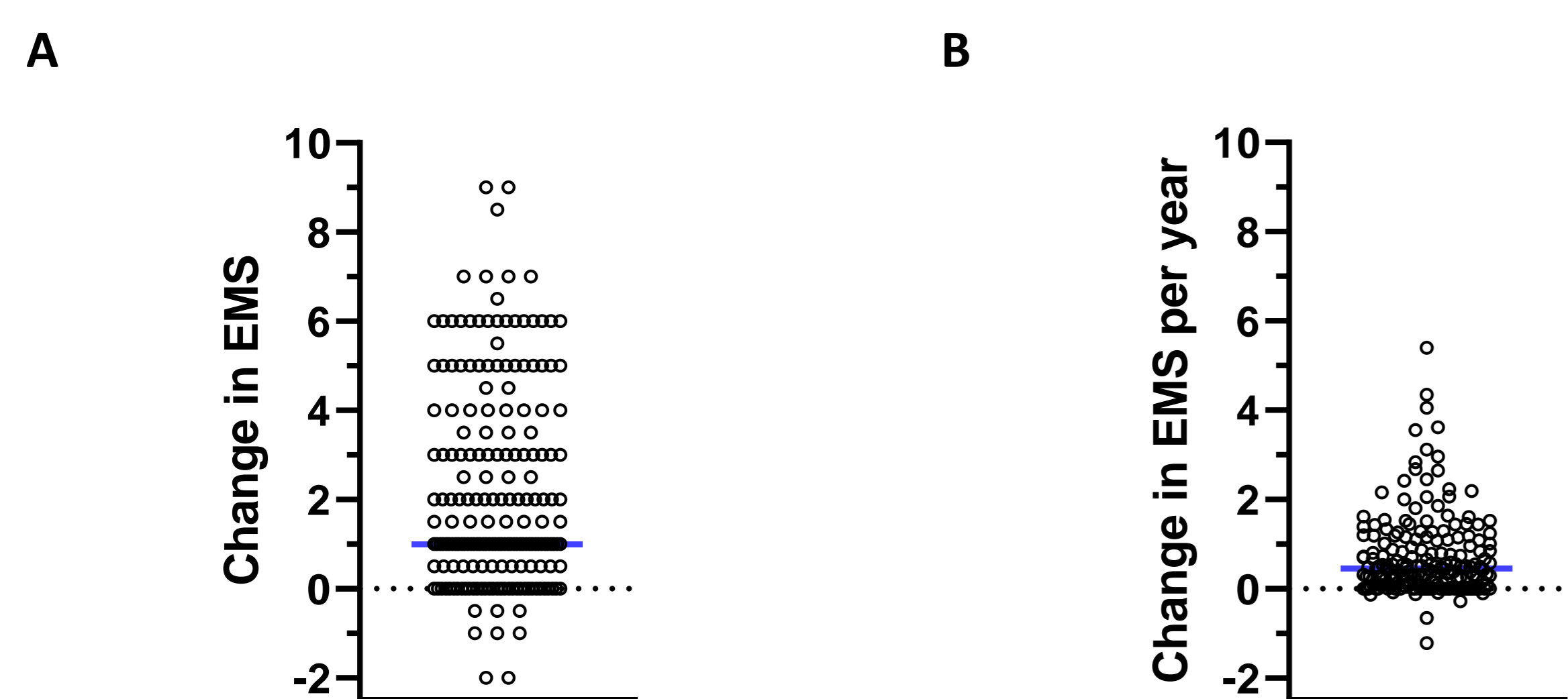


Figure 4. Total (A) and annual (B) change in EMS.

Median change in EMS was 1 (-2, 9) with a median change of 0.45/year (-1.2, 5.4)

## Results continued

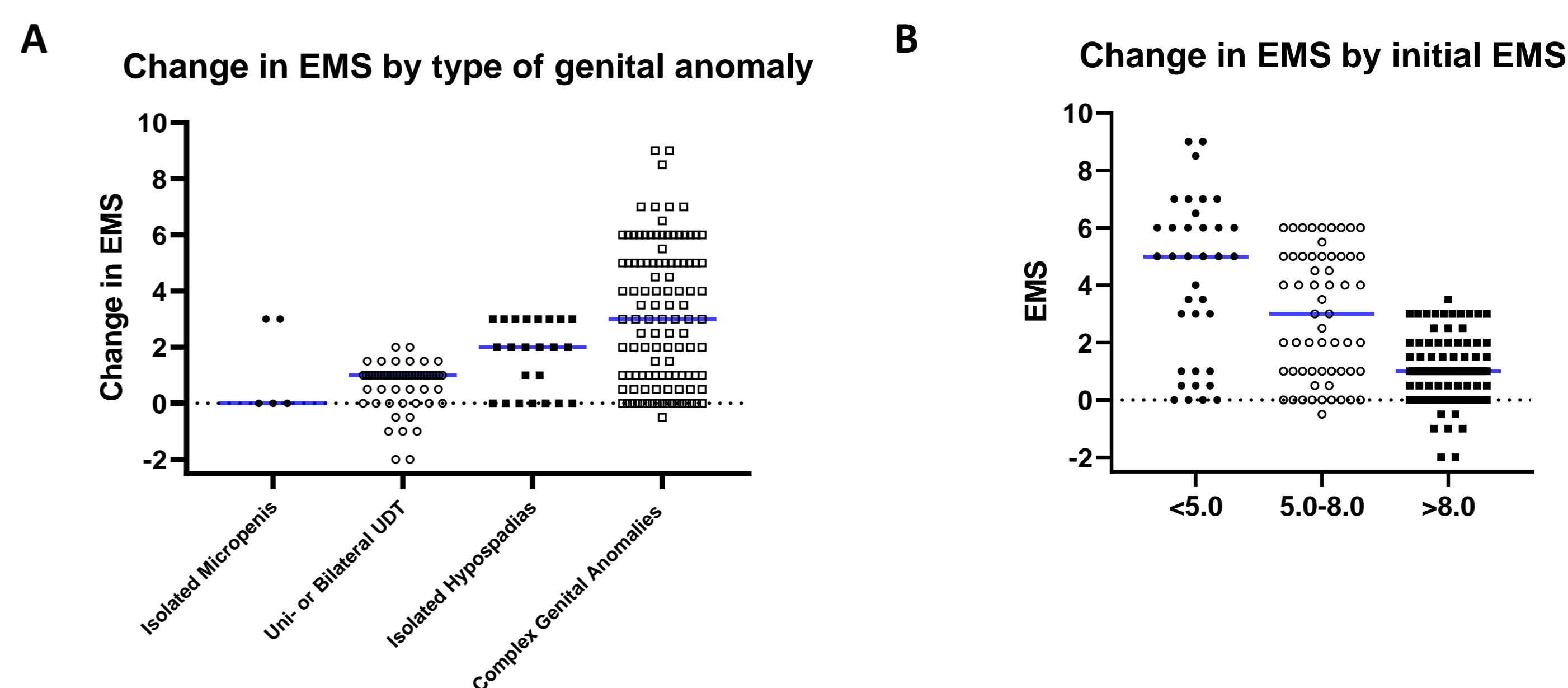


Figure 5. Change in EMS over time by type of genital anomaly (A) and by EMS at most recent assessment (B).

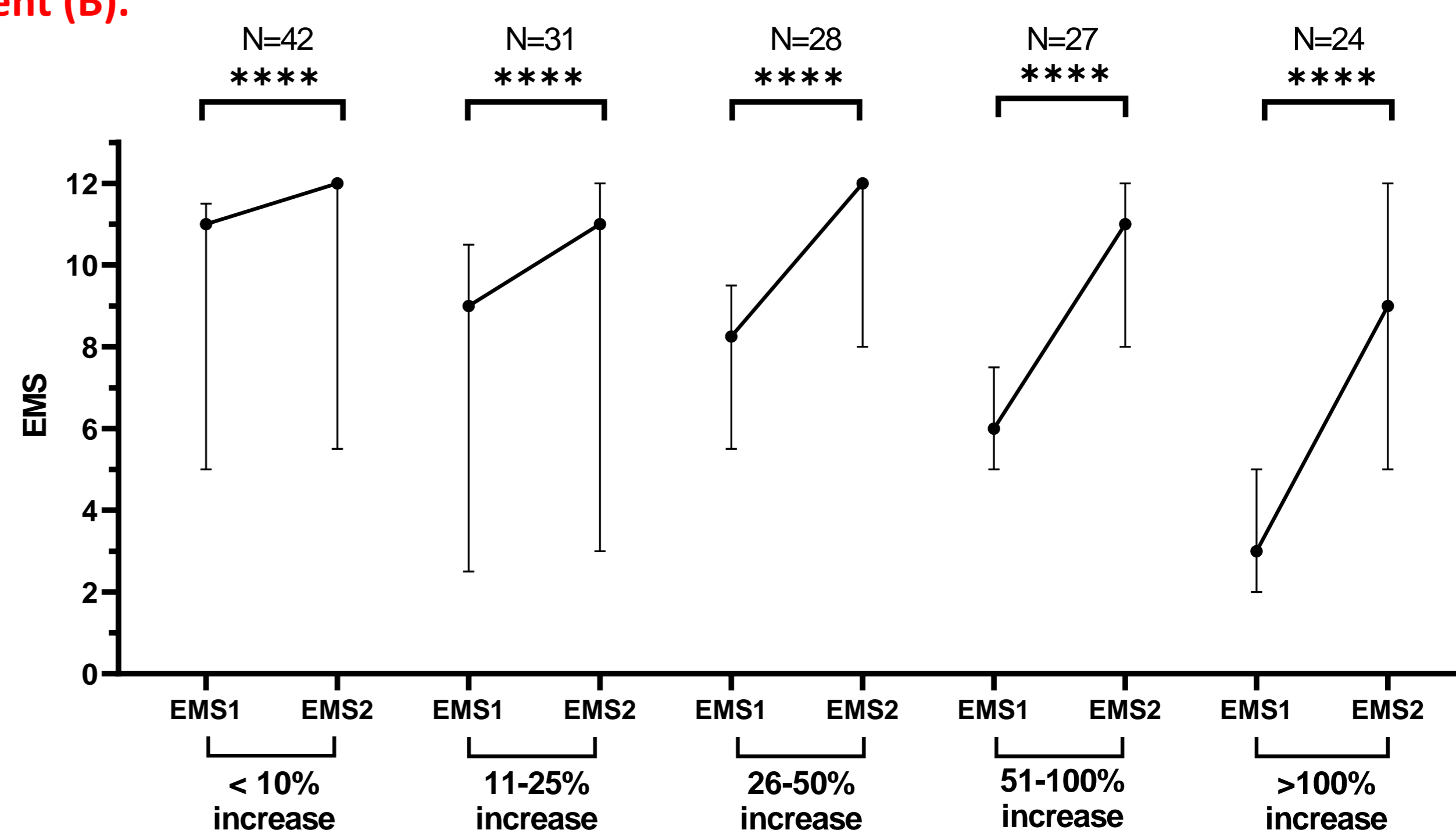


Figure 6. Change in EMS over time by percentage of increase.

Patients who were more severely undermasculinised at birth are more likely to increase EMS more than 100%

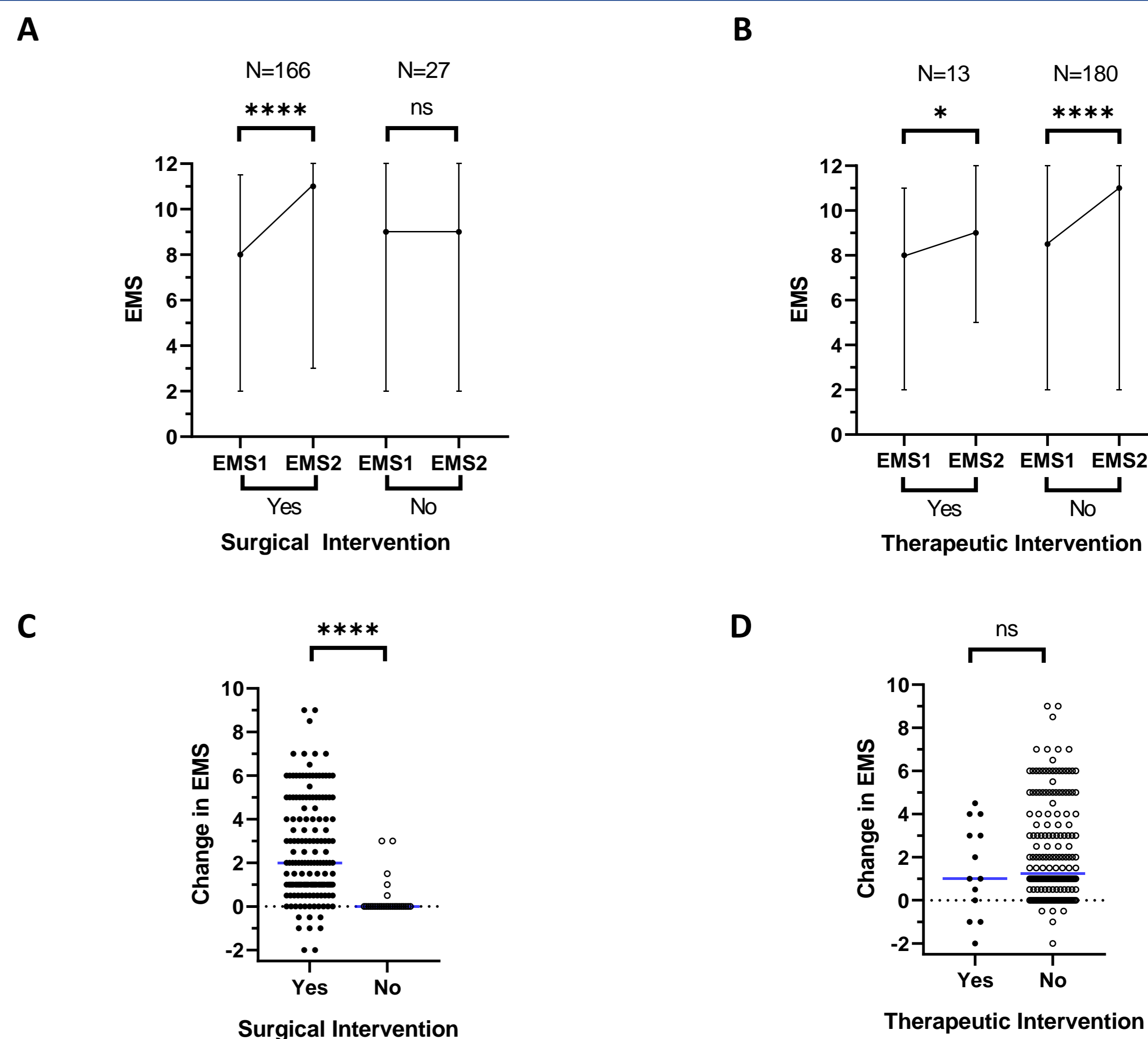


Figure 7. Changes in EMS between those had or had no Surgical (A, C) and Therapeutic Interventions (B, D).

There was no significant change in EMS between those who had Therapeutic Intervention and had no Surgical Intervention.

## Conclusions

The EMS in boys with XY DSD improves over childhood and adolescence. Those who had lower EMS at birth showed an increase that was more than twofold. The change in EMS in boys with DSD is less in those who do not have surgery and who are hypogonadal and require therapeutic intervention. These findings require confirmation in a larger cohort of cases.

## References

[1] Ahmed S, Khwaja O, Hughes I. The role of a clinical score in the assessment of ambiguous genitalia. BJU International. 200;85(1):120-124