

Effect of one year cross-sex hormonal treatment on bone mineral density of lumbar spine and hip in transgender patients

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Background

Sex steroids have major effects on the bone mineral density (BMD). Cross-sex hormonal treatment in transgenders (CSHT) can therefore affect the BMD.

Aim

To investigate the effects of cross sex hormone therapy on BMD of the spine and hip during the first year of hormonal treatment in adult transgenders.

Methods

Population: 47 female-to-males (FtMs) and 43 adult male-to-females (MtFs) who completed one year of CSHT, as part of treatment in the framework of the European Network for the Investigation of Gender Incongruence (ENIGI).

Medication: FtMs were using either testosterone undecanoate intramuscular (i.m.) (1000 mg/12 weeks), testosterone gel (50 mg/day) or testosterone esters i.m. (250 mg/2 weeks). MtFs were using estradiol valerate (2-4 mg/day) or an estradiol patch (200 ug/week) and most MtFs received cyproteronacetate (50 mg/day) simultaneously.

Measurements: BMD values of lumbar spine and total hip were measured by DEXA (Hologic QDR 4500, Hologic).

Results

Table 1. Female-to-male patients, n = 47

	Spine	Hip
Median age (years) start (SEM)	23.85 (1.259)	23.85 (1.259)
Mean BMD (g/cm ²) start (range)	1.024 (0.732 - 1.349)	0.951 (0.743 - 1.180)
Mean BMD (g/cm ²) 1 year CSHT (range)	1.034 (0.796 - 1.357)	0.960 (0.725 - 1.173)
Increase (%) (95% CI)	1.2 % (- 0.3 to 2.6)	1.0 % (0.0 to 2.0)

Table 2. Male-to-female patients, n = 43

	Spine	Hip
Median age (years) start (SEM)	28.11 (1.722)	28.11 (1.722)
Mean BMD (g/cm ²) start (range)	0.992 (0.702 - 1.296)	0.953 (0.681 - 1.304)
Mean BMD (g/cm ²) 1 year CSHT (range)	1.023 (0.783 - 1.322)	0.963 (0.723 - 1.322)
Increase (%) (95% CI)	3.2 % (1.9 to 4.5)	1.1 % (0.1 to 2.0)

Conclusion

- An increase of BMD of the spine and, to lesser extent, of the hip was seen in male-to-females in contrast to female-to-males after one year of CSHT. The increase of the BMD in male-to-females may be due to a decrease of bone turnover as is observed with estrogen treatment.
- Taken into account the short study period, the change in BMD suggests that BMD is an important variable in the follow-up of transgenders.

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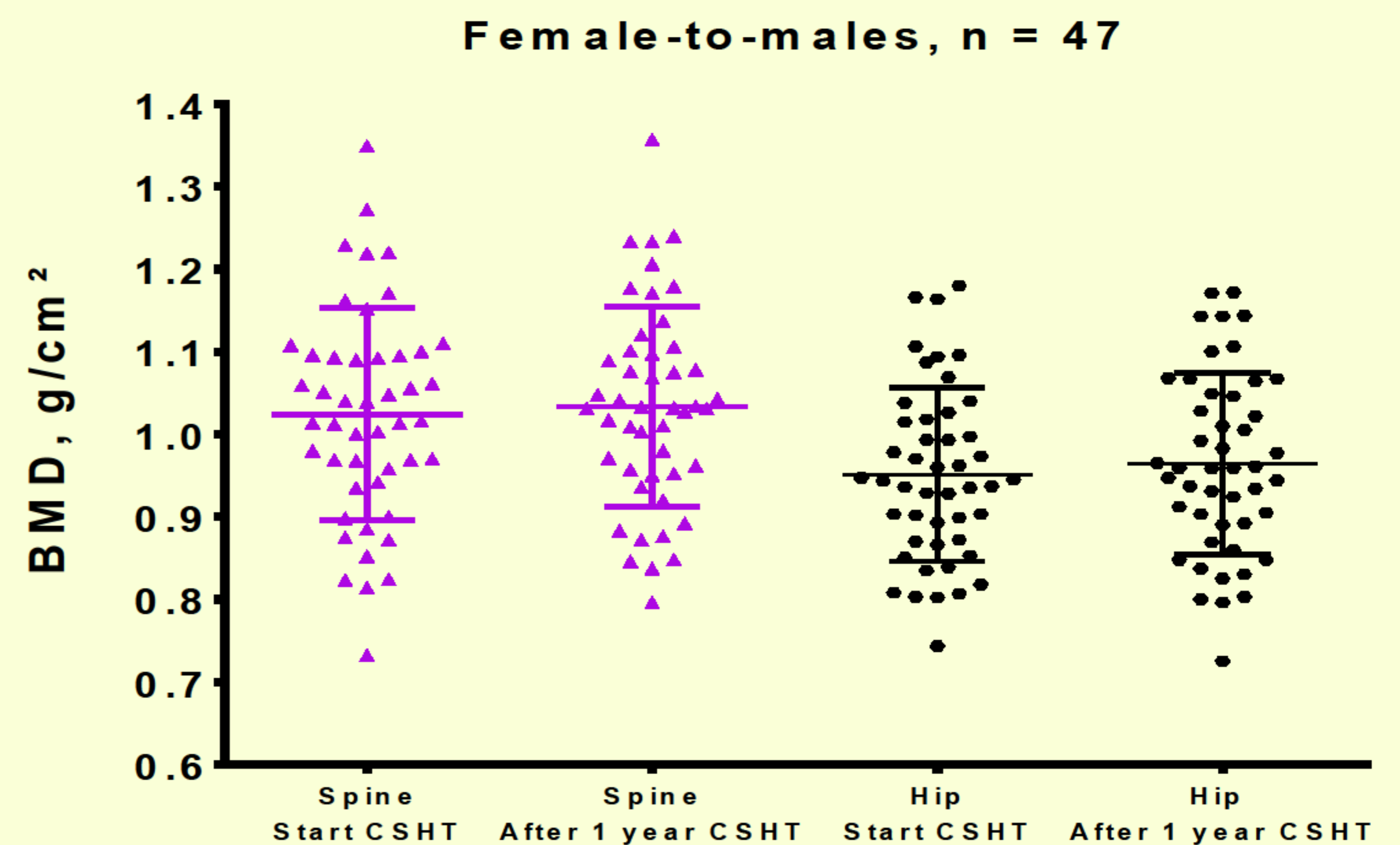


Fig 1: BMD (g/cm², including mean and SD) for both spine and total hip in FtMs at start and after 1 year treatment with CSHT.

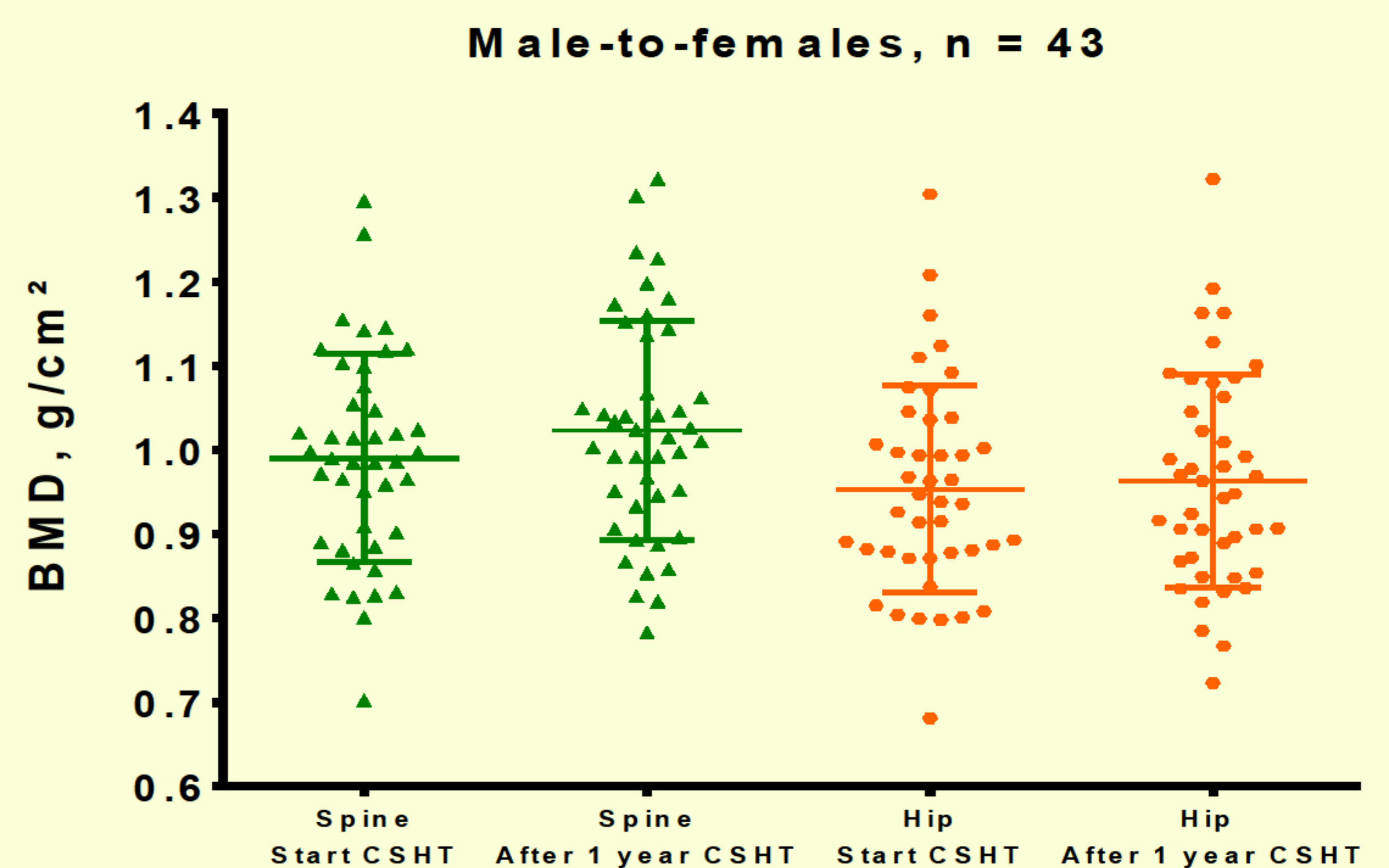


Fig 2: BMD (g/cm², including mean and SD) for both spine and total hip in MtFs at start and after 1 year treatment with CSHT.

