

Supplementary data

Supplementary Table S1 - Controlled ovarian stimulation (COS) protocols used for women undergoing in vitro fertilization in the study.

<i>COH protocols</i>	<i>Number of patients</i>
<i>Short protocol with antagonist</i>	n=172
<i>Short protocol with agonist</i>	n=3
<i>Long protocol</i>	n=41
<i>Mild stimulation</i>	n=9

Note: In all of protocols, hCG was injected when follicles reached 18 mm. 36 h after hCG injection, oocytes were retrieved transvaginally under ultrasound guidance

Supplementary Table S2 - Sequence of primers used for RT-PCR study.

Primer name	Primer sequence (5'- 3')
mtMinArc f	GACATCTGGTTCCTACTTCAGGG
mtMinArc r	AGAGCTCCCGTGAGTGGTTA
β2m f	GGATTGGTATCTGAGGCTAGTAGG
β2m r	GAAATGAGGCTGGCAGAATAGG

Supplementary Table S3 - Semen parameters of cycles in the young and the advanced age groups

<i>Semen quality parameters</i>	<i>Young group</i>	<i>Advanced maternal age group</i>	<i>p-value</i>	<i>*</i>
<i>Age (years)</i>	33.99 ± 5.04	38.86 ± 4.67	<0.0001	***
<i>Volume (mL)</i>	2.93 ± 1.68	2.82 ± 1.78	0.479	NS
<i>Concentration (million/mL)</i>	22.42 ± 27.41	33.09 ± 33.53	0.0155	*
<i>Progressive motility (%)</i>	30.14 ± 20.29	27.82 ± 17.58	0.549	NS
<i>After 30 minutes of swim up</i>				
<i>Concentration (million/mL)</i>	11.52 ± 22.97	15.05 ± 19.03	0.0313	*
<i>Motility (%)</i>	90.44 ± 28.34	93.53 ± 23.20	0.3866	NS

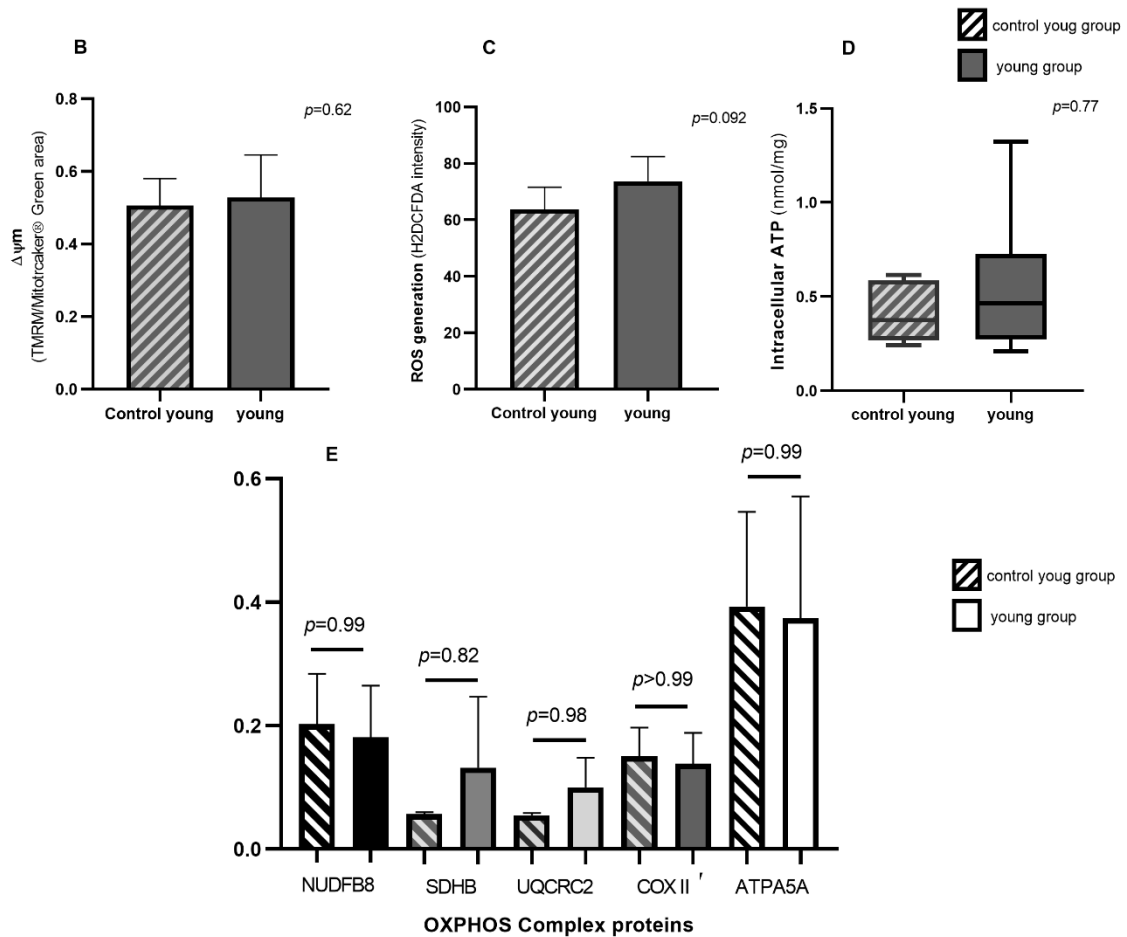
Note: Data are presented as the mean ± standard deviation (SD) or number/%. Mann Whitney test was applied and $p < 0.05$ was considered statistically significant.

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Table 1 - Clinical characteristics of patients in control group and young group

Characteristics	Control group	Young group	p-value	*
Number of patients	40	140		
Age (y)	27.80 ± 4.61	29.74 ± 4.12	0.0096	**
BMI (Kg/m ²)	22.31 ± 3.70	23.73 ± 4.24	0.068	NS
Basal serum AMH (ng/ml)	9.93 ± 2.71	4.29 ± 3.22	0.530	NS
Opu egg number	16.37 ± 10.14	14.29 ± 8.70	0.278	NS
MII oocyte number	10.19 ± 6.75	8.84 ± 5.70	0.356	NS

Note: Control group are young women without known infertility (that undergone fertility preservation or oocyte donation). Data are presented as the mean ± standard deviation (SD) or number/%. P<0.05 was considered statistically significant. AMH (anti-mullerian hormone) BMI (body mass index); CP (clinical pregnancy); D3 (Day 3); MII (metaphase II); OPU (ovum pick-up).



Supplemental Figure S1 – Reproductive potential is similar in control young group and young group. Clinical outcomes are similar between groups although control group is younger comparatively with young group (27.80 ± 4.61 versus 29.74 ± 4.12; p=0.0096), BMI (p=0.068), AMH levels (p=0.530), number of recovered (p=0.278) and MII oocytes (p=0.356) are similar. Mitochondrial function in control group and young group is equal, no differences were observed in Δψm between groups (p=0.62), neither in cytosolic ROS production (p=0.092) and intracellular ATP generation (p=0.77). The level of OXPHOS subunits protein is equal in both groups [NDUFB8 (p=0.99), SDHB (p=0.82), UQCRC2 (p=0.98) and COX2 (p>0.99) and ATP5A (p=0.99) subunits]. Mann-Whitney test was used for ROS and ATP production and one-way ANOVA for OXPHOS proteins, statistical significance considered when * p < 0.05, ** p < 0.01, and *** p < 0.001.