

Abstract:

DNA methylation, histone modifications and regulation by non-coding RNAs are considered to play vital role in embryonal development and gametogenesis. Epigenetic mechanisms are not only inwardly programmed, but are massively affected by numerous exogenous aspects. Environmental pollution and unhealthy parental lifestyle are two major factors related to impaired fertility status, aberrant embryonal development of progeny. Some altered epigenetic marks can be transmitted to offspring generations, however in some cases these aberrations may be reversed by adequate lifestyle interventions. Since epigenetic regulations and genes responsible for spermatogenesis are conserved among vertebrates, studies based on animal models are highly relevant for understanding mechanisms causing impaired fertility and overall health in humans.

Key words: Epigenetics, sperm, endocrine disruptors, hypoxia, lifestyle, transgenerational effect.

