

небезпек для здоров'я. Останні дані свідчать про те, що вплив ендокринних дизрапторів не лише завдає шкоди поколінню, яке піддається впливу, але також впливає на майбутнє покоління, і цей процес називається трансгенераційним успадкуванням. Результати епідеміологічних досліджень, експериментальних моделей тварин *in vivo* та *in vitro* та клінічних спостережень на людях показують, що ендокринні дизраптори можуть становити серйозну загрозу для здоров'я людства.

### EFFECT OF COENZYME Q<sub>10</sub> ON TESTOSTERONE

Briber Mustafa, Chabbouba Badr

Scientific supervisor: Seniuk I.V.

National University of Pharmacy, Kharkiv, Ukraine

[citochrom@gmail.com](mailto:citochrom@gmail.com)

**Introduction.** Enhancing testosterone production in males is a continuous research direction for many scientists in the field, due to its role as a principal sex hormone and as a crucial modulator of well-being and general health in humans. Since 1978, there have been more than 30 studies that have connected coenzyme Q<sub>10</sub> and testosterone. Such a link is attributable to the vigorous biological role of coenzyme Q<sub>10</sub> as a crucial member in the energy production route in humans and animals, which is thought to have a positive influence on testosterone production, and hence on infertility, particularly male infertility.

**Aim.** To study the processes connecting coenzyme Q<sub>10</sub> and testosterone.

**Materials and methods.** To accomplish this purpose, the Scopus, PubMed, and Web of Science databases were searched using the keywords "coenzyme Q<sub>10</sub>" versus "testosterone" for English language papers.

**Research results.** As a result, all studies conducted on human males generally presented an insignificant effect of coenzyme Q<sub>10</sub> on testosterone. In addition, as opposed to the reproductive toxicity studies, the studies conducted on animals did not show any positive effect of coenzyme Q<sub>10</sub> supplementation on testosterone. However, it is evident that coenzyme Q<sub>10</sub> is able to counteract reproductive toxicity induced-testosterone depletion.

**Conclusions.** In conclusion, thus far the studies conducted on human males generally reveal an insignificant effect of coenzyme Q<sub>10</sub> supplementation on testosterone levels. Similarly, the studies conducted on animals, rather than the reproductive toxicity studies, did not show positive effectiveness of coenzyme Q<sub>10</sub> on testosterone. However, coenzyme Q<sub>10</sub> supplementation was found to counteract testosterone reduction induced by chemical reproductive toxicants, mainly by counteracting the destructive effect of the generated pro-oxidants. In addition, according to the peer-reviewed literature in this specific context of research, studies performed on human males have revealed no beneficial effects of coenzyme Q<sub>10</sub> supplementation on infertile men. Thus, dietary supplements containing much lower doses may not have any influence on the studied subjects.

This summary provides a specific intention for health care providers, particularly physicians, toward using coenzyme Q<sub>10</sub> as a synergistic supplement with drug or chemical-induced reproductive toxicity. However, enhancing testosterone may require alternative therapeutic strategies, rather than coenzyme Q<sub>10</sub> supplementation. Nevertheless, collectively these findings and suggestions require further confirmation.