

# Beyond Testosterone Cypionate: Evidence Behind the Use of Nandrolone in Male Health and Wellness

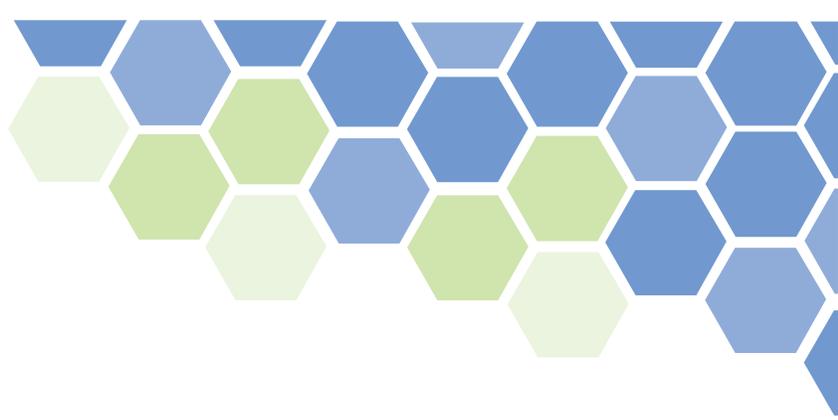
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## Abstract

Characterized by low serum testosterone levels and diverse symptoms, male hypogonadism is a common condition. Current medical treatment focuses on testosterone supplementation using multiple modalities such as injections, gels and pellets. Interestingly, while testosterone is considered an anabolic androgenic steroid, it has not been saddled with the social stigma that other, similar medications have. The goal of this review is to highlight an anabolic steroid, 19-nortestosterone (i.e., nandrolone, deca-durabolin) and illustrate prospective therapeutic applications for male health. Containing a chemical structure similar to testosterone, nandrolone has a higher myotrophic: androgenic ratio resulting in improved effects on muscle mass. Animal models have suggested application in the improvement of joint healing following rotator cuff repair. Minimal literature exists regarding the use of nandrolone and, as such, further human studies are required.

## Materials and Methods

A PubMed/MEDLINE literature search was conducted for the periods of 1960–2015 in January, 2015. There were an insignificant number of published quality data available for meta-analysis, so a systematic review was performed. Key search terms included combinations of “Nandrolone”, “testosterone”, “hypogonadism”, “deca-durabolin”, “19-nortestosterone”, “pharmacology”, “alopecia”, “joint(s)”, “rotator cuff”, and “erectile dysfunction”. In excess of 1,000 manuscript abstracts were screened by the authors using title search and abstract summaries. Applicable studies were read in-depth and included in this current review. Additionally, an internet search strategy examining blogs and discussion sites, as previously described was used. These techniques have been previously validated through other reports that employed similar methods of Internet data mining to report consistent findings.



## Conclusion

Characterized by low serum testosterone and a multitude of debilitating symptoms, male hypogonadism is a common condition. Primarily treated with exogenous testosterone replacement, novel adjuncts to improve responses and decrease side effects are being studied. Nandrolone is an anabolic steroid compound with a high myotrophic:anabolic ratio. In this manuscript, we have explored the potential uses for nandrolone in male health. Specifically, we have reviewed the pharmacology of nandrolone and detailed a potential role for nandrolone in joint healing and muscle growth. Finally, a consideration was given to the potential adverse effects of nandrolone on ED. Further research in human subjects is required.

## Discussion

Nandrolone is a synthetic anabolic steroid that possesses unique qualities and is potentially beneficial in the treatment of male health alone, or as an adjunct to TST for hypogonadal men. Nandrolone has a relatively long half-life in the plasma and a strong binding affinity for androgen receptors. The lack of conversion to DHT could mean decreased hair loss in men undergoing TST suggesting a novel use for this medication in a subpopulation of hypogonadal men. Furthermore, in men with voiding dysfunction due to benign prostatic hypertrophy, the reduction of nandrolone by 5AR to generate a weaker androgen (compared to DHT) that does not stimulate the growth of androgenic tissues such as the prostate could serve as another indicator for its use. Nandrolone preferentially stimulates growth of skeletal muscle and lean body mass that may provide benefit in reducing components of metabolic syndrome. Moreover, preliminary work on nandrolone has suggested a potential role in the treatment of joint healing, particularly in rotator cuff injuries.

Limitations to the use of nandrolone include the potential for ED via suppression of the HPG axis. The lack of conversion to DHT and the concurrent increase in serum estrogens may mediate this effect. Administration of low doses of testosterone, along with nandrolone, would alleviate these effects. Further research is needed to evaluate nandrolone's potential role in the management of male health.

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