

# Is Exercise Effective in Attenuating Side Effects of Androgen Deprivation Therapy among Prostate Cancer Patients?

Dear Editor,

Ndjavera *et al.*<sup>[1]</sup> conducted a randomized controlled trial in which 24 patients who were recently diagnosed with prostate cancer (PCa) and were commencing androgen deprivation therapy (ADT) completed 60 min of supervised aerobic and resistance training twice per week for 3 months, followed by 3 months of unsupervised training, and according to the results of the trial, there were improvements in health-related quality of life among PCa patients after participating in the training, and exercise was found to mitigate ADT-induced cardiovascular toxicity. Based on the outcome of a recent review study conducted by Cormie and Zopf,<sup>[2]</sup> a supervised integrated moderate-to-vigorous intensity aerobic, resistance, and impact exercise was effective in improving neuromuscular performance, bone health, cognitive performance, physical health, mental health, and cardiopulmonary fitness among PCa patients undergoing ADT. They also found that supervised exercise training overseen by an expert led to weight loss, decrease in cancer-related fatigue, improvements in sexual function, and health-related quality of life among PCa patients undergoing ADT.<sup>[2]</sup>

According to Deb *et al.*,<sup>[3]</sup> from uro-oncologists point of view, a planned exercise regimen could help improve bone mineral density, skeletal muscle mass, and mood and libido in men with PCa undergoing ADT, hence demonstrating the importance of adding an exercise intervention program as part of PCa treatment plan. Prescribing at least 12 weeks of progressive resistance training for PCa patients undergoing ADT based on individuals' fitness level and clinical status could be effective in improving glucose metabolism in PCa patients because of improved glucose transporter 4 activity and increased insulin response through skeletal muscle induced by progressive resistance training.<sup>[4]</sup> However, the progressive resistance training also improved the antioxidant capacity in PCa patients undergoing ADT.<sup>[4]</sup> A planned and implemented exercise intervention for PCa patients starting ADT maintained and improved skeletal muscle mass, strength, and function, notwithstanding the hormonal imbalance in PCa patients.<sup>[5]</sup> Dynamic concentric muscle strength training, comprising chest press, leg press, and seated row exercises of one-repetition maximum commenced after the beginning of ADT and planned and supervised by exercise professionals, improved the physical well-being of PCa patients.<sup>[5]</sup> According

to a recent review study conducted by reputable economists and exercise scientists in Australia, implementing exercise as part of PCa treatment plan has well-being and financial advantages in terms of enhancing health-related quality of life and mitigating side effects of ADT, hence increasing the chances of survival and reducing the cost of hospitalization and treatment for men with PCa.<sup>[6]</sup>

In conclusion, exercise seems to be effective in mitigating side effects of ADT among PCa patients; therefore, exercise and rehabilitation interventions should be planned and individualized among PCa patients at the commencement of ADT to prevent the adverse effects of ADT on physical and mental well-being and to improve the skeletal muscle strength, cardiopulmonary fitness, and health-related quality of life.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

**Chidiebere Emmanuel Okechukwu**

Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy

**Address for correspondence:** Dr. Chidiebere Emmanuel Okechukwu, Department of Public Health and Infectious Diseases, Sapienza University of Rome, Piazzale Aldo Moro 5, 00185 Rome, Italy.  
E-mail: chidiebere.okechukwu@uniroma1.it

## REFERENCES

1. Ndjavera W, Orange ST, O'Doherty AF, Leicht AS, Rochester M, Mills R, *et al.* Exercise-induced attenuation of treatment side-effects in patients with newly diagnosed prostate cancer beginning androgen-deprivation therapy: A randomised controlled trial. *BJU Int* 2020;125:28-37.
2. Cormie P, Zopf EM. Exercise medicine for the management of androgen deprivation therapy-related side effects in prostate cancer. *Urol Oncol* 2020;38:62-70.
3. Deb AA, Okechukwu CE, Emara S, Sami AA. Physical activity and prostate cancer: A systematic review. *Urol Nephrol Open Access J* 2019;7:117-29.
4. Lam T, Birzniece V, McLean M, Gurney H, Hayden A, Cheema BS. The adverse effects of androgen deprivation therapy in prostate cancer and the benefits and potential anti-oncogenic mechanisms of progressive resistance training. *Sports Med Open* 2020;6:13.
5. Newton RU, Galvão DA, Spry N, Joseph D, Chambers SK, Gardiner RA, *et al.* Timing of exercise for muscle strength and physical function in men initiating ADT for prostate cancer. *Prostate Cancer Prostatic Dis* 2020;23:457-64.

6. Edmunds K, Tuffaha H, Scuffham P, Galvão DA, Newton RU. The role of exercise in the management of adverse effects of androgen deprivation therapy for prostate cancer: a rapid review [published online ahead of print, 2020 Jul 22]. Support Care Cancer. doi:10.1007/s00520-020-05637-0.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
<b>Quick Response Code:</b> 	<b>Website:</b> www.matrixscimed.org
	<b>DOI:</b> 10.4103/MTSM.MTSM_47_20

**How to cite this article:** Okechukwu CE. Is exercise effective in attenuating side effects of androgen deprivation therapy among prostate cancer patients? Matrix Sci Med 2021;5:78-9.

**Received:** 21-08-2020,                      **Revised:** 09-09-2020,  
**Accepted:** 21-09-2020,                      **Published:** 14-11-2021

© 2021 Matrix Science Medica | Published by Wolters Kluwer - Medknow