

# Sports after kidney transplantation

## — case report

### ABSTRACT

I present a case of a kidney transplant recipient who, two years after the transplantation, has successfully taken part in the Half-Ironman triathlon competition and won the “Crown of Polish Marathons” (participation in a series of 5 marathons held in Dębno, Poznań, Warsaw, Kraków, and

Wrocław within 24 months). At present, nine years after the procedure, the patient remains in good health, actively doing sports and maintaining creatinine levels below 1 mg/dL.

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### INTRODUCTION

Return to professional sporting activity following a kidney transplant is possible in professional athletes who underwent preemptive kidney transplantation or individuals receiving dialysis therapy over a very short period (several months at the maximum). These individuals may return to full training as early as 8 weeks after the procedure, provided that no medical (transplantological) contraindications apply. Individuals who had to give up their previous physical activity due to renal failure may return to sports after at least one year of preparation. The rules for returning to quasi-professional sporting activities are similar to those applied when preparing transplant recipients for maternity:

1. good planning and preparation;
2. good function of the kidney graft — preferably with good glomerular filtration and no proteinuria;
3. no episodes of acute rejection;
4. no arterial hypertension or well-controlled arterial blood pressure (normal ABP at minimum pharmacotherapy);
5. minimum effective immunosuppression — if steroids are used, therapeutic use exemption (TEU) should be applied for.

Systemic corticosteroids (oral or injectable) are included in the lists of substances prohibited for professional athletes and are

subject to doping control. If required, e.g. in athletes with transplanted organs, the requirement should be confirmed by an appropriate therapeutic use exemption (TUE) issued by a relevant medical committee. TUEs apply only to top national and international athletes; they are not required in regular patients.

### CASE REPORT

Z. B. is a male subject aged 58 years, 9 years after kidney transplantation. He took up sporting activity after the age of forty under encouragement from his son. The two had taken up mountain biking followed by jogging. Both men derived much satisfaction from their sporting activities; unfortunately, however, the subject had started performing worse than expected, with signs of regression becoming apparent. After overexertion and potential training mistakes were eliminated as the potential causes, the subject decided to undergo a medical examination. As the result, he was diagnosed with CKD stage 4 glomerular nephritis (diagnosis without biopsy). Conservative treatment and preparations for renal replacement therapy were implemented. These lasted for approximately 3 years; during that time, the patient participated in no sporting activities and received no dialysis treatment; he was subsequently included in the transplant waiting list. After several months of continued

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conservative treatment, the patient underwent successful transplantation of a kidney at the Independent Public Clinical Hospital no. 2. of the Pomeranian Medical University in Szczecin in October 2012. Since that time, he has remained under observation at our Department. Immunosuppression therapy included tacrolimus 2 × 2 mg, sodium mycophenolate 2 × 360 mg, prednisone 5 mg. Throughout the post-transplantation (9 years), the patient was presenting with very good graft function including normal creatinine levels (0.91–1.12 mg/dL), eGFR of 74–94 mL/min/1.73 m<sup>2</sup>, no proteinuria, and well-controlled arterial pressure (receiving amlodipine 10 mg, metoprolol 50 mg). Feeling happy and healthy, the patient decided to return to his former passion of sports.

His return was a safe and successful one, as evidenced by several of his achievements presented below to complement the medical outcomes:

1. On 28 November 2014, 2 years after the transplantation, the subject was added to the list of the winners of the Crown of Polish Marathons — an award presented to individuals who have completed a series of five of the most important Polish marathons (Dębno, Poznań, Warsaw, Kraków, Wrocław) completed in any order within 24 months. While being in the 50+ age category and a kidney transplant recipient, the subject managed to complete some of these marathons in less than 4 hours [1].
2. In 2015 (3 years after kidney transplantation), the patient completed a “Half-Ironman” triathlon tournament (1800 meters swimming, 90 km biking, and 21 km running) in Malbork with a total time of 6 hours, 4 minutes and, 8 seconds [2].
3. He also won several medals in 1500-meter and 5000-meter runs as well as 50-meter breaststroke swimming at the European Transplant and Dialysis Sports Games [3].
4. The patient has completed an many of street and off-road runs over distances from 5 to several dozen kilometers [4].

The patient claims that his passion remains safe by “listening” to his body while

maintaining proper hydration and nutrition. His achievements are worth praising and are truly inspiring! The most impressive of Z. B.’s accomplishments is his “Half Ironman” score. This can be particularly appreciated by Readers who have themselves participated in Olympic triathlon tournaments (1.5 km swimming, 40 km cycling, and 10 km running). The triathlon consists of three different competitions requiring 5 to 6 different workouts per week. For an already-fit and capable person, preparing to participate in a “Half Ironman” tournament involves a multiweek (12–16 weeks) process involving the tournament distances (1.8 km swimming, 90 km cycling, and 20 km running) being covered as many times as twice a week. This is an effort of about 8000–12000 MET-minutes/week, which is 10 times higher than the pro-health recommendation in the general population and the upper limit of “healthy effort” [5, 6]. Even more importantly than in the case of the tournament itself, preparations should involve:

1. proper hydration
2. proper nutrition
3. regeneration

While participation in 1–2 marathons per year is acceptable, the “Crown of Polish Marathons”, with its short intervals between individual starts within the year, can be exhaustive for completely healthy individuals, let alone kidney transplant recipients (“It should be banned!”). The exception for what? consists in having a relaxed attitude and running the marathon just to complete within the time limit of 6 hours). Distances to be recommended for repeated starts range from 5 km to a half marathon (provided that the weather is not too hot — no running in the temperature over 30°C! The maximum competition distance at the Transplant and Dialysis Sports Games (5000m) is too short (“It should be changed!”) [3]. “Money’s up for grabs” in long-distance runs, and participation of transplant recipients in all kinds of street races can be a great way to promote transplantation [4]. Let’s promote it this way!

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