

# Flex Therapist CEUs

## Running Considerations with Amputation

### Characterizing the Mechanical Properties of Running-Specific Prostheses

**1. All of the following are true with regard to RSPs, except for:**

- A. They are attached to the sockets that encompass the residual limbs.
  - B. They are in-series with the residual limbs and mimic the mechanical energy storage and return of tendons during ground contact.
  - C. They generate mechanical power anew and return all of the stored elastic energy during running.
  - D. All of the above are true with regard to RSPs.
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**2. The data of this study suggest that as athletes exert greater forces on the ground and/or adjust the angle between the peak resultant ground reaction force and their RSP during stance, prosthetic stiffness is altered.**

- A. True
  - B. False
- 

**3. Which of the following was responsible for almost half of the dissipated energy?**

- A. Rubber soles
  - B. The residual limb / socket interface
  - C. RSP stiffness
  - D. All of the above
- 

**4. The height of RSPs need to be within a relatively narrow range for athletes with unilateral amputations.**

- A. True
  - B. False
- 

**5. Prosthetic stiffness adjustments would primarily be accomplished by changing:**

- A. Stiffness category
  - B. Sagittal plane angle
  - C. Both (A) and (B)
  - D. None of the above
-

**6. Prosthetic stiffness varies with the magnitude of applied force.**

- A. True
  - B. False
- 

## **Effect of Running Speed and Leg Prostheses on Mediolateral Foot Placement and Its Variability**

**7. Providing external lateral support:**

- A. Decreases step width variability.
  - B. Decreases metabolic cost.
  - C. Reduces the effort to maintain lateral balance.
  - D. All of the above.
- 

**8. All of the following are true with regard to ML foot placement, except for:**

- A. ML foot placement variability in sprinters with and without transtibial amputations generally increases with running speed up to maximum sprint speed.
  - B. ML foot placement variability is symmetrical between the right and left legs of non-amputee sprinters and asymmetrically greater for the affected leg, with an RSP, compared to the unaffected leg of sprinters with a unilateral transtibial amputation.
  - C. Increases in ML foot placement variability across speed differs between the affected and unaffected leg.
  - D. All of the above are true with regard to ML foot placement.
- 

**9. Which of the following tend to show a systematic tendency to place their feet closer to the body's midline as they approach maximum speed?**

- A. Non-amputee sprinters
  - B. Unilateral transtibial amputee sprinters and bilateral transtibial amputee sprinters
  - C. Non-amputee sprinters and bilateral transtibial amputee sprinters
  - D. None of the above
- 

**10. Which of the following exhibited the greatest increases in ML foot placement variability with speed?**

- A. Unilateral transtibial amputee sprinters
  - B. Bilateral transtibial amputee sprinters
  - C. Non-amputee sprinters
  - D. Both (A) and (B)
-

# **Spatiotemporal Parameters of 100-m Sprint in Different Levels of Sprinters with Unilateral Transtibial Amputation**

**11. In the present study, average velocity over 100 meters was greatest for:**

- A. Elite sprinters
  - B. Sub-elite sprinters
  - C. Non-elite sprinters
  - D. Average velocity was equal for all sprinters
- 

**12. The average step length was the longest for the non-elite sprinters, compared to the sub-elite and elite sprinters.**

- A. True
  - B. False
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**13. The differences in sprint performance between the elite, sub-elite, and non-elite sprinters is mainly due to the average step frequency rather than the average step length.**

- A. True
  - B. False
- 

**Does amputation side influence sprint performances in athletes using running-specific prostheses?**

**14. It has been demonstrated that during sprinting on a curved track, the inner leg consistently generates smaller peak forces than the outer leg, leading to a reduction of maximum performance of the entire locomotive system.**

- A. True
  - B. False
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**15. This study shows that athletes with left side amputations have slower race times than those with right side amputations.**

- A. True
  - B. False
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**16. The results of the current study suggest that amputation side is a factor that needs to be taken into consideration to ensure fairness in 200- and 400-m sprint events.**

- A. True

B. False

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