#### #26135



## Running and walking during pregnancy : effects of an abdominal belt and increased cadence on the impact, dynamic instability of the pelvis

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# Hypothesis / aims of study

**Research** questions

- How do an abdominal belt and increased running cadence influence biomechanical parameters (impact magnitude, duration, pelvic instability) in pregnant women?
- Can these interventions improve comfort and increase physical activity during pregnancy?



The abdominal support belt (Siywina, Zhejiang, China) for pregnant women was placed on the lower abdomen to provide weight support, secured with Velcro at the



The RunEASI wearable system measures biomechanical variables using an accelerometer attached at L3-L5. It provides real-time and post-session biofeedback via Bluetooth.

## **Results and interpretation**



Expressed in milliseconds, was calculated by the time between the first deceleration happening when the foot hits the ground and the peak GRFs

#### **Running results**

#### Walking results

back. It was adjusted to ensure firm yet comfortable support, allowing normal breathing. The participant confirmed an even pressure distribution throughout the belt.

#### **Protocol of study**

	With abdominal belt	Without abdominal belt
Warm up	2' walking at 11 on Borg Scale (reaching 11 by increasing treadmill slope and speed)	2' walking at 11 on Borg Scale (reaching 11 by increasing treadmill slope and speed)
	30" increasing treadmill slope and speed	30" increasing treadmill slope and speed
	1' running/walking at 13 on Borg Scale (reaching 13 by increasing treadmill slope and speed)	1' running/walking at 13 on Borg Scale (reaching 13 by increasing treadmill slope and speed)
	1' walking at 11 on Borg Scale	1' walking at 11 on Borg Scale
Intervals	3 x (45" running/walking at Borg 13 – 45" walking at Borg 11) at a spontaneous cadence	3 x (45" running/walking at Borg 13 – 45" walking at Borg 11) at a spontaneous cadence
	30" adaptation to a 10% increased cadence	30" adaptation to a 10% increased cadence
	3 x (45" running/walking at Borg 13 – 45" walking at Borg 11) at a spontaneous cadence + 10%	3 x (45" running/walking at Borg 13 – 45" walking at Borg 11) at a spontaneous cadence + 10%
Active recovery	3' active recovery walking at 11 Borg Scale	3' active recovery walking at 11 Borg Scale
Passive recovery	10' passive recovery sitting on a chair between both session	



Wearing an abdominal belt during 39% pregnancy can improve pelvic stability and reduce impact forces during physical activity, but its effect on discomfort is limited, highlighting the need for further research to optimize its use for comfort and sustained physical activity.





#### References

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