

The easiest way how to carry luggage by bikes

1. Purpose

To reduce the burden on the body on the way to and from school. (Elements of "Ease")

2. Method

1. Attach a measuring device to the pedals of the bicycle and measure the change in pressure over a fixed distance (48.75 m) pedaled. Do this by changing the position of the load (10.0 kg) and examine the changes.

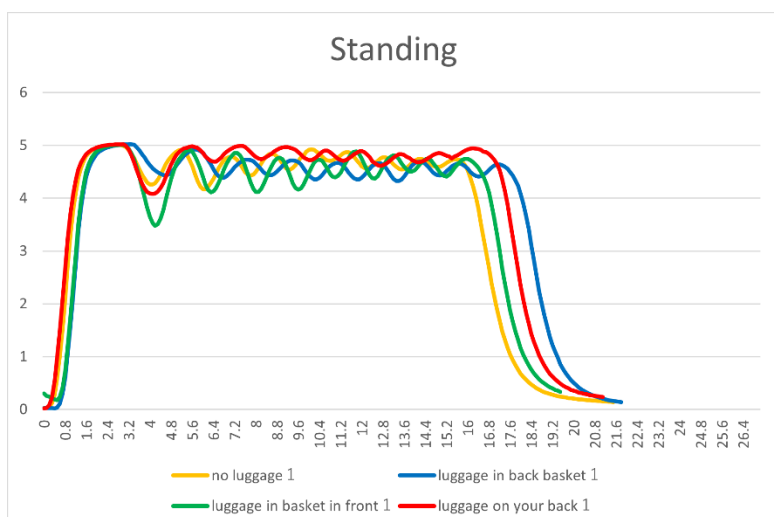
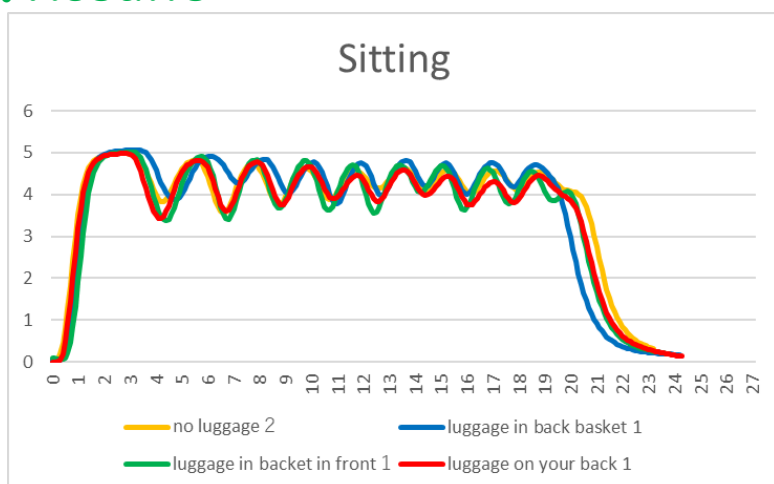
We define it "ease" that the distance traveled per unit force is long. (Ease=Distance/Force)

2. Measure the pressure by rowing method a load on his shoulder.

3. Hypothesis

- Carry the bag
- Stand up

4. Results



- The pressures don't change regardless of the position of the luggage. (The pressures may be the largest, when you stand.)
- Sitting... the wave amplitude of the graph is marked.
- Standing... The pressures keep high. ➡ You can go longer when you stand than when you sit because the power may be used efficiently.

5. Conclusion

"Ease" (we defined) are the same.*

6. Inspect

- ① The differences in time
 - ↳ The slight differences of area between the two graphs*
 - ↳ The slight differences of the magnitude of force between the two graphs
- ② The differences in wave amplitude (The amount of change of force which is applied to the pedals)
 - ↳ The differences of how to apply force:
 - sitting (large wave amplitude): only feet
 - standing (small wave amplitude): whole body
 - ↳ wave amplitude is deeply related to feet *

「Ease」 is defined by how long does it take to go and how large the burden on feet is.

7. Future prospects

In order to check out the definition of "ease", We concluded that it is necessary to do experiment, taking "time" into consideration, going longer distance, and measuring the burden of legs.

8. References

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