Study V

“Are there improvements in core strength from regular training on the Icaros Cloud? “

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Study V

Aim

To investigate whether training on the ICAROS Cloud leads to improvements in:

- Trunk strength
- Fun
- Experiencing flow state

Findings

- Five weeks of training on the ICAROS Cloud resulted in a 15.85% increase in trunk strength between the pre and posts tests.
- Participants had fun while training on the ICAROS Cloud (mean rating ,m =8.11 out of 10)
- It was found that the participants were extremely absorbed in the game and training events and that all of them felt that time passed very quickly during the training on the Cloud.

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Methods

Participant Demographics	Measured Variables
Number of participants, N = 9	Trunk strength : Time
	Rate of Perceived Exertion (RPE) / Borg Scale
Mean Age = 13 years	State of Flow
Sex : Females	Fun Factor

Study Design

Week 1

- Entrance Test
- Enrolment

Weeks 2-5

- 2 x weekly training on the ICAROS Cloud
  15 minute / session

Week 5

- Final Test
- Questionnaire

Setup of the pre and post test for the measurement of trunk muscle load-bearing capacity

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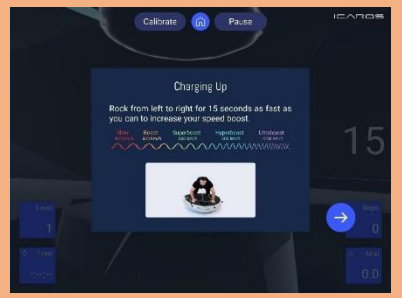
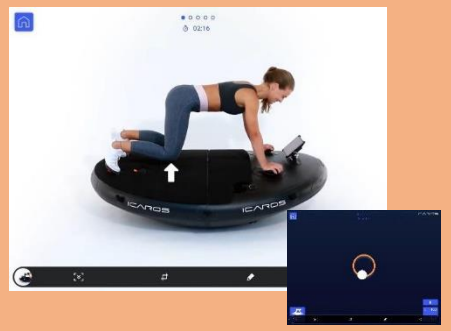
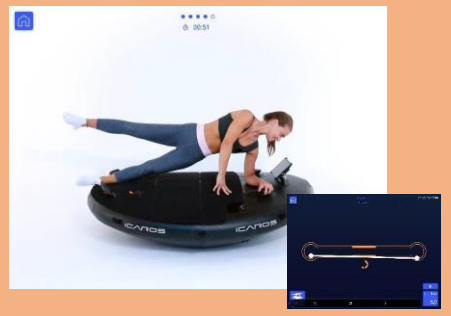
Training Programs used on the ICAROS Cloud

XLR 8 Sprint

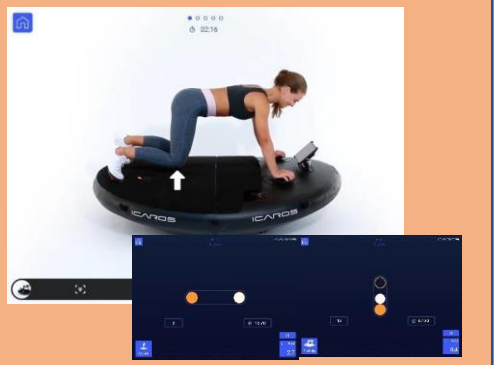


Core





Fast Forward



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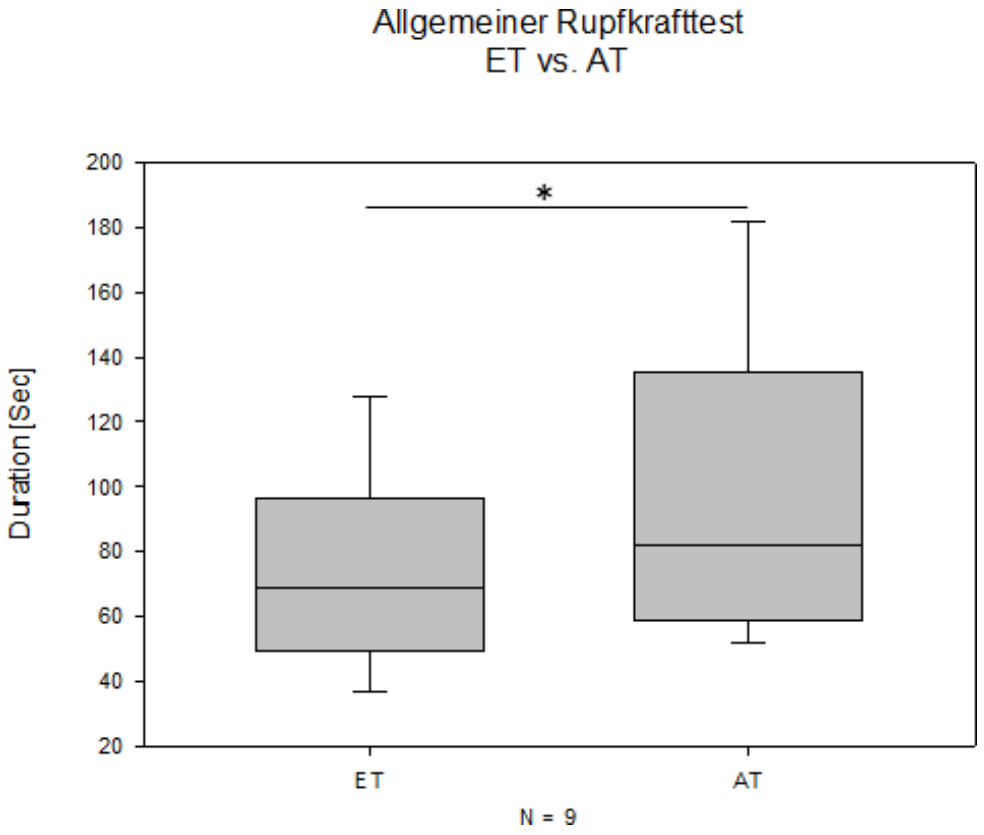
Results

Pre-Test Time vs Post-Test Time

- Measure of Trunk Strength & Stability
- All students improved significantly in the plank position (+15.85%) suggesting improved core strength and stability.
- Using Wilcoxon signed-rank test, a significant difference (P = 0.039), (α = 0.05; β = 0.8) was found after five weeks of core training on the ICAROS Cloud.
- Median Values :
  - Pre-Test Time = 69.00 seconds
  - Post-Test Time = 82.00 seconds



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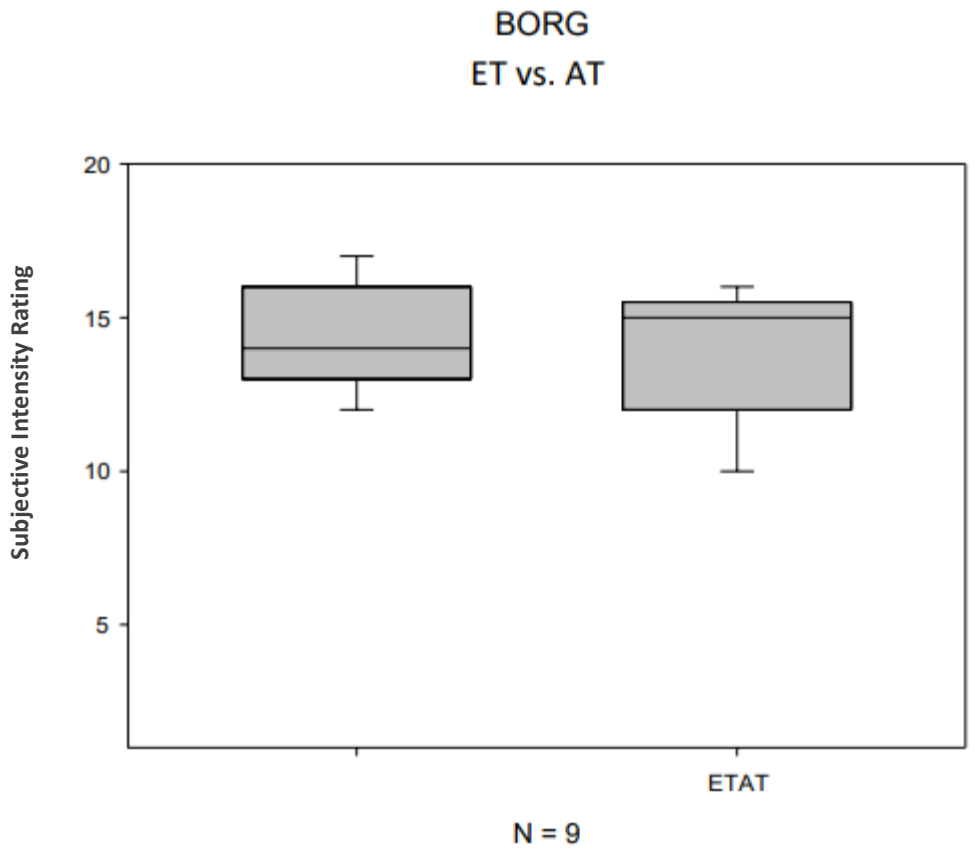
Results

BORG Pre- Test vs Borg Post-Test

- Subjective evaluation of training intensity.
- Using a paired t-test, no significant difference (P = 0.401; α = 0.05; β = 0.8) was found.
- Mean values :
  - Pre-Test = 14.556 ± 1.74
  - Post-Test = 14.00 ± 2.34



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Results

Core Training

- The analysis using Spearman correlation and linear regression showed an improvement in core training.
- The range of the positive correlation coefficients of all 9 test persons was between r = 0.106 and 0.927. The mean value of the correlation coefficients was 0.551 with a standard deviation of 0.301

Fast Forward training

Squats

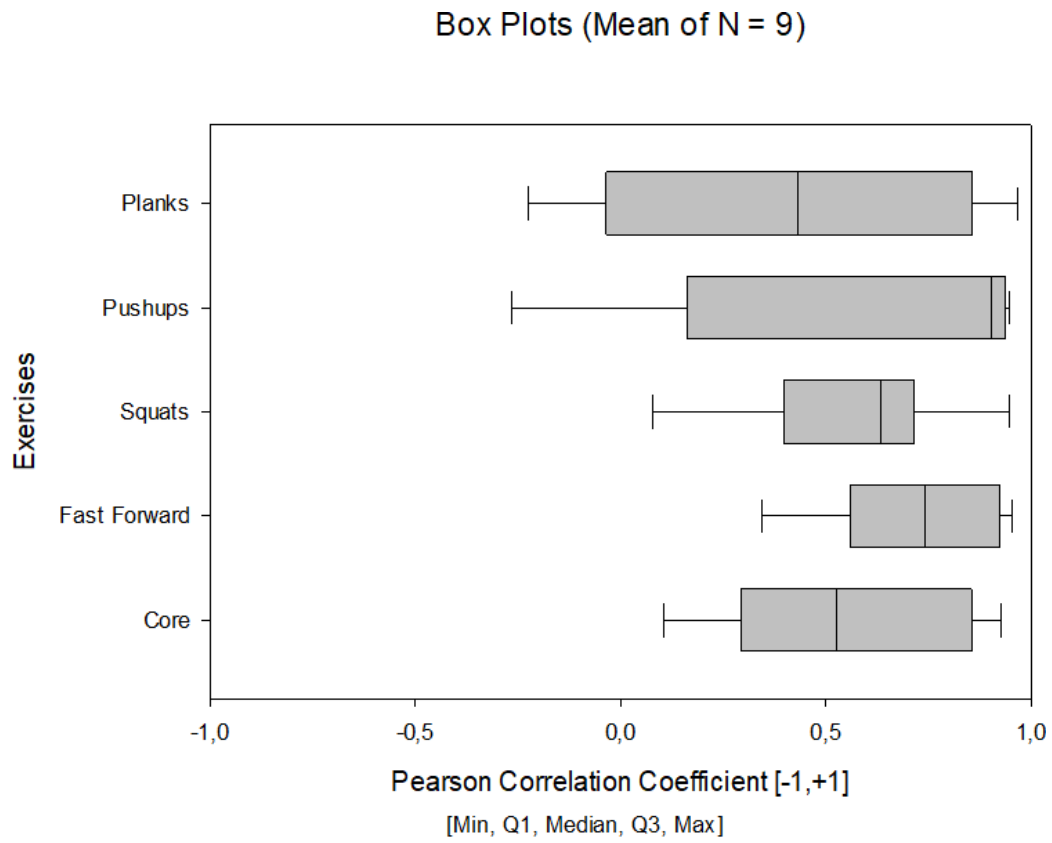
There was a measurable improvement in the number of squats per training session with a mean positive correlation of 0.555.

Push-ups

The number of push-ups per training session increased at a mean positive correlation of 0.620.

Planks

The mean positive correlation of 0.473 was measured for the plank push ups per training session



Conclusions

- Training on the ICAROS Cloud leads to an increase in cardiopulmonary and metabolic parameters compared to training on a training mat as is evident in the absolute values of all the measured variables even though the differences were not significant.
- The energy metabolism on the ICAROS Cloud is about 5% higher than on training on a mat. Since the trainings on both the ICAROS Cloud and Mat mirror each other, the higher calorie consumption can directly be attributed to the effectiveness of ICAROS Cloud.
- The lactate concentration after training on the ICAROS Cloud is 7 % higher than training on the mat. Similarly, the heart rate is also about 1 % higher on The ICAROS Cloud.
- In terms of ‘fun factor’, there is a clear and significant difference between training on the Cloud and on the mat as it is more fun to train on the ICAROS Cloud.
- The findings show that despite the tendency to be more demanding, there is a higher willingness to train on the ICAROS Cloud than the mat. This would also imply a higher willingness to train on the ICAROS Cloud and therefore a potential to increase the intensity as well as the quantity of training sessions.