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CENTRO DI STUDI BIOMEDICI APPLICATI ALLO SPORT

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Ferrara, January 30th, 1998

To : Dr. Ignacio Estellés Rey
From : Prof. Francesco Conconi

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Dear Mr. Estelles,

setting up the comparison between your prototype and the traditional bike, took us longer than expected because of :

- 1) adaptation of the subjects to the Rotor pedalling
- 2) problems to be solved for setting up adequate experimental conditions.

Experimental conditions of the comparison

The wind-load ergometer schematised on fig. 1 was used. The apparatus allows to obtain reproducible aerodynamics resistances at various speeds. Identical rolling resistances for the two conditions were obtained by regulating the pressure of the rotating axle against the tire so to obtain identical times from a given speed to zero speed.

Using the apparatus, the subject under testing performed identical incremental protocols (from 60 rpm to 96-110 rpm, with 1 rpm increments every 30 seconds) with the two bikes.

The Heart Rate/Speed (HR/S) and Heart Rate/Watt (HR/W) relationships and the lactate concentration 5 minute after the end of the test was determined. Each session was performed by adequate standardised warm-up procedure.

The two test were separated by a 20 minute interval recovery period.

The two bikes were alternatively used in the first or second test.

Subjects

Although 4 athletes have used the Rotor, only 1 was able to use it for a time sufficient to get used to the Rotor pedalling.

Results

1. The lactate concentration reached after 12 incremental tests, was always higher (1.9 ± 1.2 mmol/l) after tests with the traditional bike.
2. The inclination of the straight part of the HR/S and HR/W relationships was always slightly better with the Rotor (fig.2).
3. The deflection point was at exercise intensities from 7 to 9% higher with the Rotor than with the traditional bike (fig.2).

Conclusions

The data so far obtained, indicate that in the laboratory conditions employed the Rotor is of advantage.

We are now collecting additional data in the laboratory, and as soon as the weather gets better we plan to analyze the Rotor outdoors in climbing.

Of course these data are preliminary and not ready for publication.

Francesco Conconi

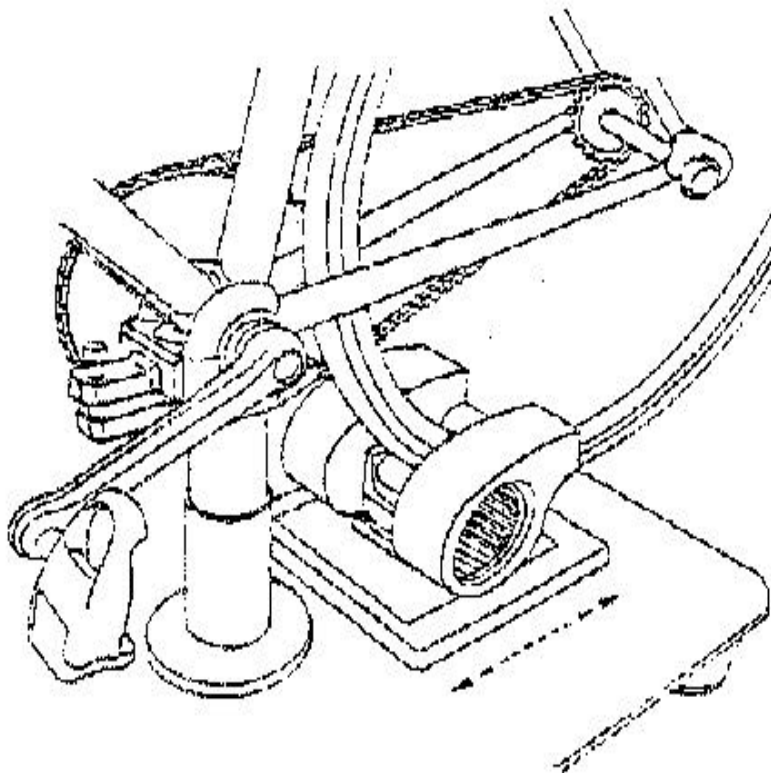


FIG. 1

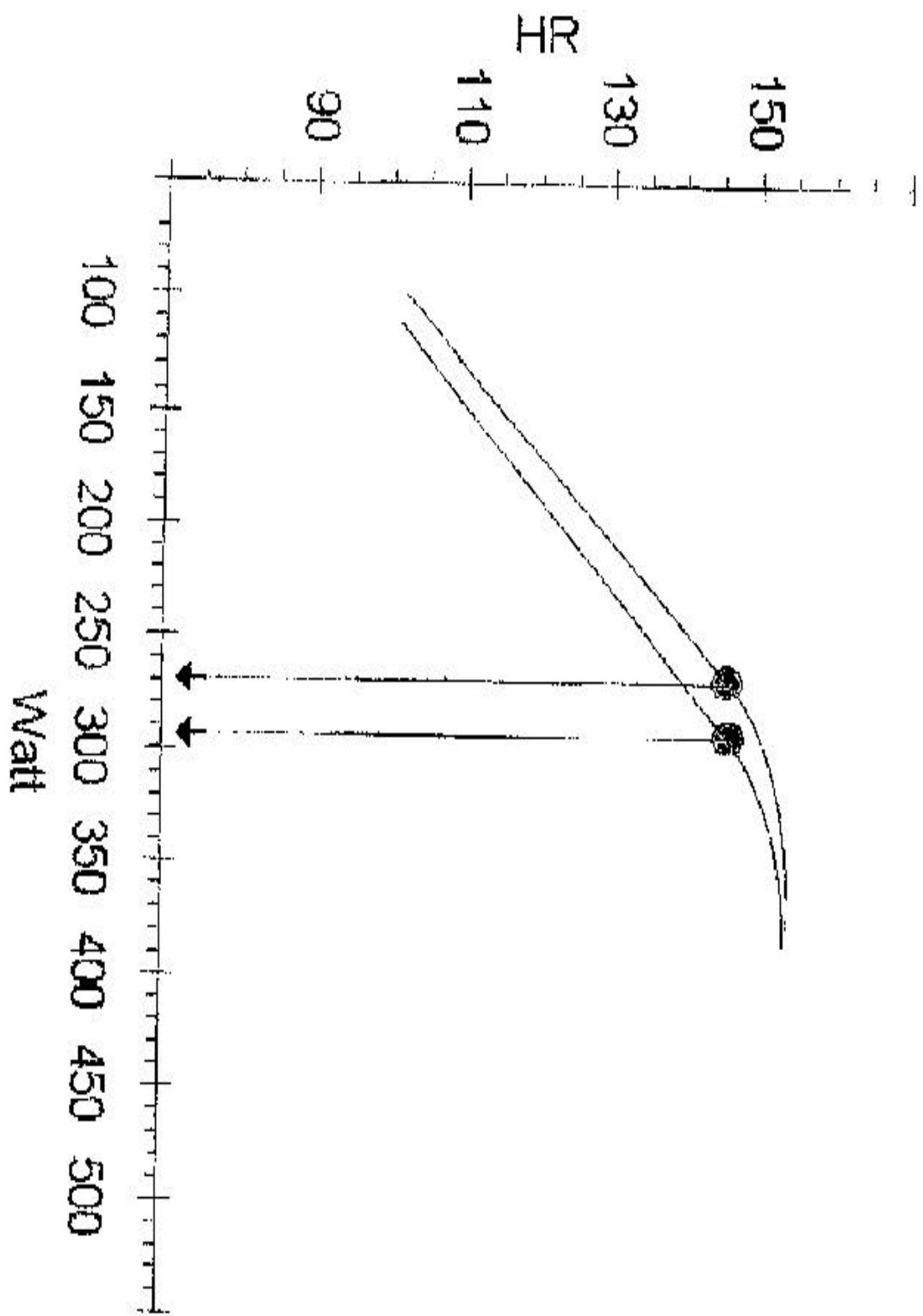


FIG. 2