Bioenergetics of muscular exercise

EXERCISE 1

What are the main energetic substrates used to produce ATP for:

- The first 10 seconds of an intense exercise
- The first 2 minutes of an intense exercise
- Long-duration exercise (marathon for instance)

EXERCISE 2

Define the characteristics of the two anaerobic processes:

- Energetic substrates used
- Product resulting from their degradation
- Cell compartments where they happen
- Main limitations for these processes consumption

EXERCISE 3

What are the main reasons that can explain fatigue after an exercise of 15-30 sec and 2-4 hours?

EXERCISE 4

Where does glucose consumed in glycolysis come from?

EXERCISE 5

Cite the three main enzymes of the glycolysis

EXERCISE 6

Once produced by glycolysis, what is the fate of pyruvate?

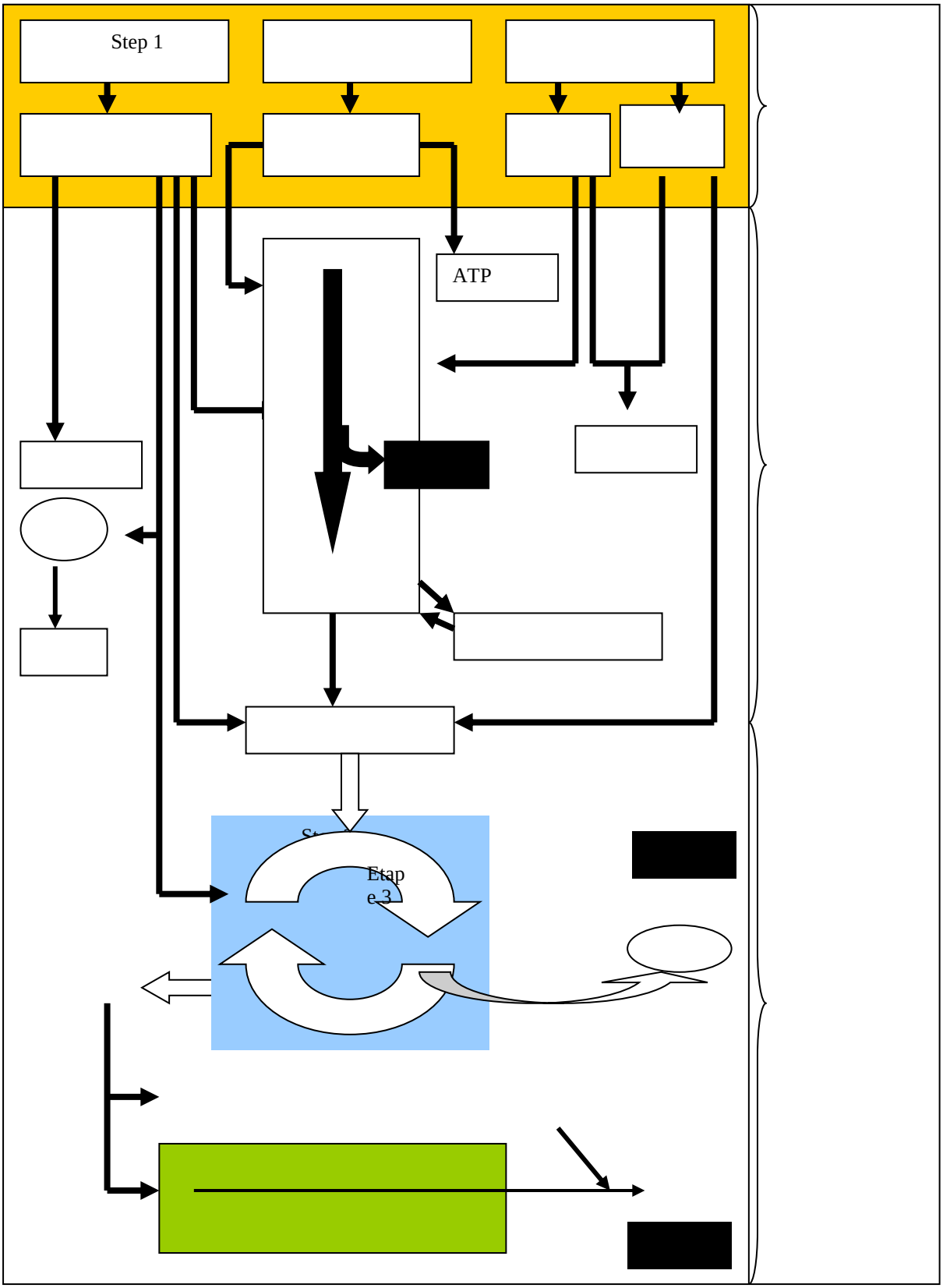
EXERCISE 7

Using the figures of the Krebs cycle and respiratory chain:

- What are the final products of the catabolism of 1 mole of pyruvic acid through the Krebs cycle?
- How many moles of ATP are produced during the complete oxidation of 1 mole of pyruvic acid?
- How many mole of ATP are produced from the catabolism of 1 mole of glucose?

EXERCISE 8

Fill the summary table for each energetic processes.


Step 1
ATP
Etap
e 3