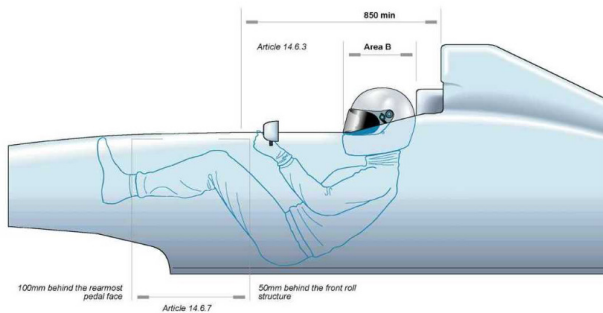


Various physical parameters of formula1: Is physical preparation necessary?



We could imagine not because:

- Position is seated
- Energy output is supposedly low in comparison with others sports
- Position is static and could be considered as passive
- Heart beat rates recorded are sometimes related to psychological pressure :
 - o Notably at the start(between 120 and 190bpm)
 - o During the race, for emotional reasons, related to the danger aspect

However, different physiological parameters prove otherwise:

1) Heart beat :

- o between 140 and 180 bpm as in many other high level sports
- o around 150bpm an average during a grand prix
- o The rise in heart beat is due to:
 - psychological reasons, at the start for example. Psychological and emotional changes engender a physical adaptation.
 - the decrease in cardiac output is due to:
 - isometric effort which is very repetitive.
 - acceleration (up to 5G laterally)
 - reduction in intake oxygen caused by statics energy output and apnea



2) How to improve (manage) the cardio respiratory system?

- By learning how to control breathing, for example at the start or during specific moments of the race.
- The driver should learn to relax and take advantage of straight routes in order to breathe deeply.
- By relaxing but remaining concentrated and receptive to drive. Relaxation is indispensable in order to undertake any technical manoeuvre whatever the sport. Mastering breath control will be of prime importance for success.
- Having excellent physical condition. In order to achieve one's ends many exercises must be done and mastered. This is what we will be developed in the next chapter Monday 3rd March.

3) Energy output and hydration :

- Approximately 1000 kcal per grand prix. Some people burn calories faster than others. We talk about people having a fast metabolism. Metabolic speed is linked genetically but may be accelerated by certain factors as stress, high temperature and G force.
- 1.5l to 3.5l dehydration during a grand prix (as in Singapore).
- A big adrenaline rush reacts on the adrenergic cardiovascular receptors. This causes a rise of glycogenolysis and consequently a risk of hypoglycemia during the race.



4) How to manage the energy output?

- With physical training
- Anticipating carbohydrate requirements. It is important to make the correct dietary choices in order to satisfy the body's requirements for the complete duration of the grand-prix; Energy bars are recommended before the race. Even the type of drinks during the race are also important depending on the circuit or the heat.
- The objective is :
 - To avoid dehydration cause of cramps
 - Avoiding hypoglycemia and exhaustion of the body's energy resources
 - Compensation of minerals and vitamins
 - Avoiding digestive troubles
- After the race :
 - preparation for the next race
 - rehydration
 - Addition Mineral and vitamin supplements
 - Building up energy reserves
 - Moderate intake of alcohol in the case of victory... 😊
 - Active and passive rest time



Conclusion :

The practice of motorsports, notably formula one, necessitates excellent physical conditions. It permits:

- Better management of cardiovascular effect linked to stress and difficult situations when driving
- Better management of the thoracic pressure, of abrupts accelerations and G force
- Improved metabolism and consequently enhanced energy management
- Enhances concentration in specific driving circumstances.

Next article, monday 3rd Marc:

“Differents aspects of physical fitness and the necessary tools for preparation”.