

## **Assignment #1 – The Time-Motion and Activity / Athlete Analysis**

Assignment #1 includes:

Part 1) the time motion analysis on a chosen sport,

Part 2) a detailed analysis and description of the chosen sport / activity.

### Part 1) Time Motion Analysis

Time Motion Analysis (TMA) is performed to determine the energy system requirements of a sport or activity. The TMA requires measurement of the various components of the competition or event. Analysis measures should be specific to the sport.

In order that the TMA is as accurate as possible, the researcher / coach should carefully prepare for the analysis by following these guidelines:

1. Decide which game or event will be used, giving consideration to the time of the season and the calibre of player and quality of opponent.
2. Refer to the checklist below and the calculated results from the TMA, and select those that give you the necessary information.
3. Determine in advance the method that will be used to collect and analyse the activity (videotape is recommended for all collection).

### TMA Measurements

1. Develop and complete the Time : Pause : Intensity Chart
2. Develop and complete the Detailed Movement Analysis Diagram (see example #1)
3. **OR** Develop and complete a detailed Movement Economy Chart

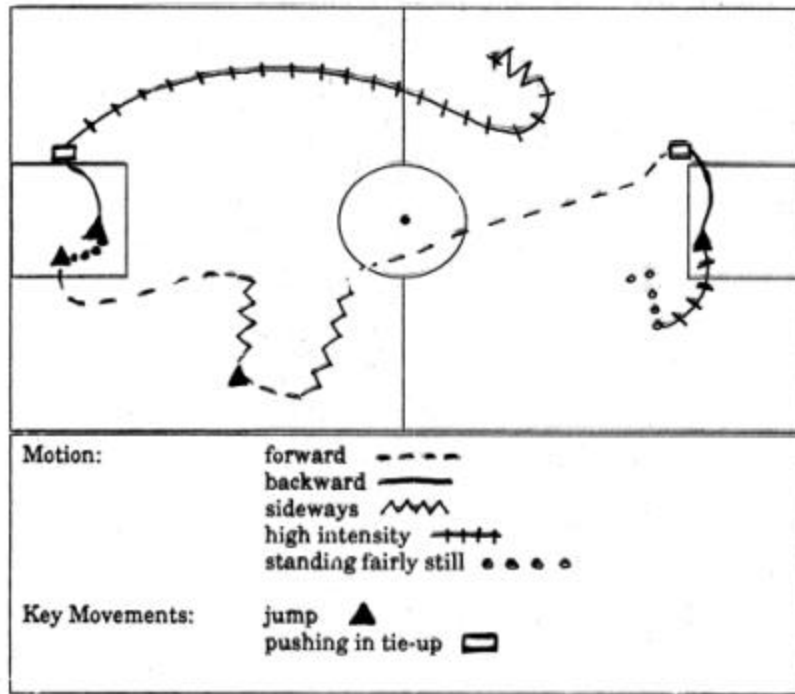
You must complete measurements 1 and either of 2 (team or interactive sport) or 3 (individual sport).

### Time : Pause : Intensity Chart

1. Total time (E+P time of play)
2. Total exercise time
3. Total pause time
4. Percent exercise time of total time ( $ex / tot \times 100$ )
5. Percent pause time of total time ( $pa / tot \times 100$ )
6. Range of duration of exercise period
7. Range of duration of pause period
8. Average duration of exercise period
9. Average duration of pause period
10. *Exercise to pause ratio (ave ex: ave pau)*
11. Total time of high and / or low intensity exercise
12. Total time of particular movements
13. Percent of high vs. low intensity exercise time of the total exercise time
14. Percent of particular movement time of the total exercise time
15. Total distance covered during exercise
16. Total distance covered during high vs. low intensity exercise
17. Total distance covered during particular movements
18. Percent distance covered by high and / or low intensity exercise of total distance
19. Percent distance covered during particular movement of total distance
20. Average velocity (total distance / total time)
21. High and / or low intensity velocities (intensity distance / intensity time)
22. Total number of repetitions of high and or low intensity exercise
23. Average and range of heart rate during exercise.
24. Any changes in intensity over the course of an event.
25. Changes and trends in length of exercise or pause periods over the course of the competition (due to fatigue or change in strategy)

This component should be completed in Excel or other spreadsheet format.

Detailed Movement Analysis Diagram **Example**



Movement Economy Chart **Example**

Name:	Athlete Name	Max HR:	198			
Test Date:	Date	Vcrit:	1.64	100Vcrit:	61.11	

SWIM TEST RESULTS	Swimming Test Results	200 # 1	200 # 2	200 # 3	200 # 4	200 # 5	Dive 150
	Time (seconds / 100m)	76.00	73.50	69.20	65.90	64.50	90.50
	Velocity (m/s)	1.32	1.36	1.45	1.52	1.55	1.66
	Stroke Count on 3rd 50	35	36	38	40	42	44
	Distance per Stroke (m / str)	1.43	1.39	1.32	1.25	1.19	1.14
	Stroke Rate (str / min)	55.26	58.78	65.90	72.84	78.14	87.51
	Heart Rate (bpm)	143	154	164	174	186	188
	Lactate (mmol/L)	2.0	2.5	4.0	6.8	9.6	12.10
	# of Breaths on last 50	9	10	11	12	17	21
	Distance per Breath (m / brth)	5.56	5.00	4.55	4.17	2.94	2.38
Breathing Rate (brths / min)	14.21	16.33	19.08	21.85	31.63	41.77	

Calculations:	V	Max HR	Vcrit	HR
	1	198	1.636	100
	2	198	1.636	198

Part 2) A detailed analysis and description of the chosen sport / activity and of the athlete.

In this part of the report you should take the information that you have obtained from the TMA and present the specific requirements of your chosen sport. It can include information on (but is not limited to):

Energy Systems (main section)

Strength

Power

Flexibility

Jumping

Other specific movements

Athlete analysis should include a detailed report on the athlete that has been analyzed. Describe all parameters that you feel are important. These parameters can include:

Fitness in each energy system

Strength and power status

Anthropometrics

Nutritional status

Mental skills

Flexibility

Technical competence

Level of competition, age, gender, experience, position, speciality...

The analysis should lead to a “where are they now” and “where do they need to go” conclusion that will guide the development of your year plan.

Material should be presented in a well-organized format and should include:

1. Title page
2. Table of contents
3. Introduction
4. Body of the report (you design this section)
5. Conclusions
6. References

There are no limitations (max or min) to the length of the paper. Perfect spelling and grammar are essential.