

EQUIVALENT PERFORMANCE TABLES

EXPLANATORY NOTES INTRODUCTION

These tables are a reworked and expanded version of the original EQUIVALENT PERFORMANCE TABLES commissioned by the A.S.A. and developed by Rex Smith.

Four new tables have been added to cater for the 50 metres on each of the strokes. The range of times covered by the tables has been reviewed in line with current World Records, National Standard Times and the lowest grade of the Graded Swimming system.

The tables have been determined and printed using modern computing methods, however the rules for converting times has been retained. Where differences from the original tables occur they are due to the inherently greater accuracy of the modern digital computer and to the direct transfer from computer to printers artwork.

The programme for EQUIVALENT PERFORMANCE TABLES is also available on disk (for IBM compatible computers) from SPORTSYSTEMS-price £9.00.

An advantage from the use of the digital computer is that the same rules are available in computer programs for maintaining swimmers records, for determining grades and LEN points. Computer systems for these requirements are available from SPORTSYSTEMS (0203-412321).

The individual times have been computed in step sizes which become larger the slower the time. For the 50 metres pool length column the step sizes are always 0.1, 0.2, 0.5, 1.0, 2.0 or 5.0 seconds.

In real life the times actually recorded by swimmers will seldom occur exactly in the tables. To overcome this problem it is necessary to carry out a simple arithmetic calculation known as interpolation.

The procedure is as follows:

Find the lines in the tables where the times in the same length of pool lie either side of the time actually recorded.

Subtract these two times from each other to find the range of time covered in the actual length of pool. Move along the tables to the column for the pool length to which you wish to convert and again note the times which must lie above and below the value you will be converting to.

Subtract these two times from each other to find the range of time covered in the new length of pool. Divide the range in the new pool by the range in the actual pool to give a rate of change of time. Now calculate the amount by which the actual time achieved exceeds the base time in the actual pool.

Multiply this value by the rate of change of time to get the correction to be applied and finally **add this to the base time for the new pool.**

EXAMPLE 1

A swimmer achieves a time of 21:37.2 in a 1650 yards Freestyle event in a 25 yard pool and is required to **convert the time for seeding** for a 1500 metres event to be held in a 50 metres pool:

Step 1

Find the tables for the distance and stroke

1500 METRES				1650 YARDS		1650 YARDS		
50 Metres	33 Metres	25 Metres	20 Metres	36 Yards	27½ Yards	33⅓ Yards	25 Yards	20 Yards
21:45.0	21:37.0	21:29.1	21:21.1	21:44.9	21:36.9		21:32.9	
21:50.0	21:42.1	21:34.1	21:26.2	21:50.0	21:42.0		21:38.0	
21:55.0	21:47.1	21:39.2	21:31.3	21:55.0	21:47.1		21:43.1	
22:00.0	21:52.1	21:44.2	21:36.4	22:00.1	21:52.2		21:48.2	
22:05.0	21:57.2	21:49.3	21:41.5	22:05.2	21:57.3		21:53.2	

Step 2

Locate the column for the same length of pool where the time was recorded and find the rows where the time achieved lies between the times listed in the table. In this example look down the 25 yard column until the times 21:32.9 and 21:38.0 which lie either side of the actual time of 21:37.2

Step 3

Subtract the faster time from the slower to find the difference, which can be referred to as answer 'A'. In this example:

$$A = 21:38.0 - 21:32.9 = 5.1 \text{ seconds}$$

Step 4

Now move along the table to the column of the pool length to which you wish to convert and again subtract to find the difference, which can be referred to as answer 'B'. In this example to convert to 50 metres.

$$B = 21:50.0 - 21:45.0 = 5.0 \text{ seconds}$$

Step 5

Divide the range in the NEW pool length by the range in the ACTUAL pool length to obtain the rate of change which we can call 'R':

$$R = 5.0 / 5.1 = 0.98$$

Step 6

Calculate the amount by which the actual time exceeds the fastest time in the table for the actual pool length and call this 'D':

$$D = 21:37.2 - 21:32.9 = 4.3 \text{ seconds}$$

Step 7

The correction to add to the base time in the 50 metre column is:

$$D \times R = 4.3 \times 0.98 = 4.2 \text{ to the nearest tenth}$$

Step 8

Add the correction to the base time in the 50 metre pool to get the converted time of:

$$T=21:45.0+4.2-21:49.2$$

In practice many conversions are much simpler than this because the differences between the two rows are the same as each other.

EXAMPLE 2

For an actual time of 21:51.7 in the 25 yards pool, which lies between 21:48.2 and 21:53.2, the first difference becomes:

$$A = 21:53.2 - 21:48.2 = 5.0 \text{ seconds}$$

Since B = 5.0 seconds also the Range 'R' = 1.0 and hence the process only involves simple subtraction and addition. Thus the converted time would be:

$$T=21:51.7-21:48.2+22.:00.0=22:03.5$$

EXAMPLE 3

A swimmer achieves a time of 21:52.8 in a 1650 yards Freestyle event in a 36 $\frac{2}{3}$ yard pool and is required to convert the time for seeding for a 1500 metres event to be held in a 25 metres pool. The appropriate rows of the table are:

50 Metres	33 Metres	25 Metres	20 Metres	36 $\frac{2}{3}$ Yards	27 $\frac{1}{2}$ Yards	33 $\frac{1}{3}$ Yards	25 Yards	20 Yards
21:45.0	21:37.0	21:29.1	21:21.1	21:44.9	21:36.9		21:32.9	
21:50.0	21:42.1	21:34.1	21:26.2	21:50.0	21:42.0		21:38.0	
21:55.0	21:47.1	21:39.2	21:31.3	21:55.0	21:47.1		21:43.1	

$$\begin{aligned} A &= 21:55.0 - 21:50.0 = 5.0 \text{ seconds} \\ B &= 21:39.2 - 21:34.1 = 5.1 \text{ seconds} \\ R &= 5.1 - 5.0 = 1.02 \\ D &= 21:52.8 - 21:50.0 = 2.8 \text{ seconds} \\ T &= 21:34.1 + 1.02 \times 2.8 \\ &= 21:34.1 + 2.8 \text{ (to the nearest tenth)} \\ &= 21:36.9 \end{aligned}$$