

The IPF Formula

Why it was time for a new IPF Formula

There are several reasons why the IPF decided to use a new IPF formula to calculate the IPF Relative Points.

- 1.The current formula has been developed more than 25 years ago with data gathered between 1988 and 1994. The available dataset was not as extensive as it is today.
- 2.At that time, there were not that many women taking part in competitions; therefore only a small dataset could be used for the analysis, especially for women.
- 3.The supportive equipment has made huge progress over the last few years.
- 4.Training methods have been improved and powerlifting became more and more professional.
- 5.Single championships in bench press take place on an international level. There has been no analysis how the used coefficient fits for single lifts.
- 6.The first World-Cup Classic Powerlifting Championships took place in 2012 followed by the first World Classic Powerlifting Championships in 2013.
- 7.Since 2016, the IPF competition calendar boasts World Classic Bench Press Championships for both men and women in all age categories.
- 8.The weight classes have been changed in 2011.
- 9.Humans have changed over the last 30 years: athletes have become heavier on average.

As you can see from the above, powerlifting has changed a lot over the last couple of years. Therefore, it was time to evaluate if the used formula was still suitable under these circumstances.

The evaluation process

During the last twelve months, the IPF received several more or less well prepared proposals to change the current system. Five of these proposals were considered appropriate for further analysis and scientific comparison. All of these proposed methods had advantages and disadvantages so the objective was to find the best model for all powerlifters.

Such an analysis requires not only mathematical, statistical and analytical knowledge, but also knowledge in sports science and biomechanics. Moreover, such an analysis can only be conducted by independent sports scientists. For this reason, the IPF asked experts for help.

Dr. Tobias Mayer and Prof. Dr. Christian Maiwald reviewed and evaluated the shortlisted proposals and discussed them with respect to the scientific reasoning and theoretical background of the modeling approach. The complete evaluation report is part of this announcement, see below.

According to their evaluation, two of the analysed methods were considered particularly promising. Although one method was based on an analytical model (methodology for calculating relative strength performance) and the other method proposed to model the lifters' performance as a lognormal function of body weight, the results of both models were very similar.

In their analysis, however, the two sports scientists came to the conclusion that the method developed by Joe Marksteiner will provide more fairness when all sub-disciplines and all performance levels are taken equally into account. This method, called IPF Formula, will subsequently replace the current Wilks Points as of 01/01/2019.

The advantages of the new formula

1. Fair system for all lifters at all performance levels and for all sub-disciplines, not only the top lifters
2. The new IPF Formula differentiates between men and women, classic and equipped powerlifting, classic and equipped bench press.
3. Based on a data set of 20.000 individual best performances across several years
4. Can be updated by simply changing the co-efficient on a regular basis
5. Analysed and evaluated by independent scientists

The new formula

While the new formula is more complex, it still uses lifter body weight and Total or Bench Press to compute points.

We will provide an Excel spreadsheet for download free of charge.

IPF Formula					
Formula	Total = 0: IPFPoints = 0 Total > 0: IPFpoints = $500+100*(Total-(C1*LN(BodyWeight)-C2))/(C3*LN(BodyWeight)-C4)$				
	Competition	Constant 1	Constant 2	Constant 3	Constant 4
MEN	Men Classic 3-Lift	310,67	857,785	53,216	147,0835
	Men Classic Bench	86,4745	259,155	17,57845	53,122
	Men Equipped 3-Lift	387,265	1121,28	80,6324	222,4896
	Men Equipped Bench	133,94	441,465	35,3938	113,0057
Women	Women Classic 3-Lift	125,1435	228,03	34,5246	86,8301
	Women Classic Bench	25,0485	43,848	6,7172	13,952
	Women Equipped 3-Lift	176,58	373,315	48,4534	110,0103
	Women Equipped Bench	49,106	124,209	23,199	67,4926

Description of the parameters

Total: Total Result of the athlete

BodyWeight: Body weight of the athlete

C1: Constant 1

C2: Constant 2

C3: Constant 3

C4: Constant 4

LN(Bodyweight): LN-Function

Responsibilities

Author:

Joe Marksteiner

Reviewers:

Prof. Dr. C. Maiwald, Chemnitz University of Technology, Department of Research Methodology and Data Analysis in Biomechanics

Dr. rer. nat Tobias Mayer, TecStat Analytics Werdau

IPF Executive:

Eva Speth