

News to 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 was developed more than 25 years ago with data gathered between 1988 and 1994. The available dataset then was not as extensive as it is today.
2. At that time, there were fewer women taking part in competitions; therefore, only a small dataset could be used for the analysis, especially for women.
3. Supportive lifting apparel has changed and improved over the last few years, altering the applicability of the previous formula for today's lifters.
4. Training methods have improved and powerlifting has become more professional, hence the sport and its athletes have evolved thus the body weight formula must reflect this evolution.
5. Bench-press-only championships in both classic and equipped formats for men and women of all age categories now take place on an international level. There had been no analysis as to how the previous coefficient fit the single-life event across these formats.
6. World Classic Powerlifting Championships are now a feature of the international calendar, the coefficient must now reflect and cater to this format of lifting at the international level.
7. The IPF weight classes changed in 2011, hence reformulation of the coefficient is appropriate.
8. Athletes in general have on average, changed bodyweight and body composition over the last 30 years since the creation of the previous formula. It was time for an updated formula that reflects the changing athlete profile.

As you can see from the above, powerlifting and its athletes have changed significantly since the previous formula was conceived. Therefore, an evaluation of the previous formula was indicated to determine its continuing validity and applicability.

The evaluation process

During the last twelve months, the IPF received several proposals for alternative formulas for consideration. Five of these proposals were considered appropriate for further detailed 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 was deemed best 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 modelling 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 provided more fairness when all sub-disciplines and all performance levels were taken equally into account. This method, now called the IPF Formula, will subsequently replace the current Wilks Points as of 01/01/2019.

The advantages of the new formula

1. This is a fair system for all lifters at all performance levels (not just elite level) and for all sub-disciplines in powerlifting.
2. The new IPF Formula differentiates between men and women, classic and equipped powerlifting, classic and equipped bench press.
3. The new formula is based on a data set of 20,000 individual best performances across several years.
4. It can be updated by simply changing the co-efficient when and as necessary.
5. The new formula has been analysed and evaluated by independent scientists.

The new formula

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

For single squat and deadlift events the same formula is used, only the parameters differ.

Limitations: Based on the available data set, the formula is valid for

- body weights ≥ 40 kg
- athletes at an age ≥ 14 years

The IPF 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	310,6700	857,7850	53,2160	147,0835
	Men Classic Bench	86,4745	259,1550	17,5785	53,1220
	Men Equipped 3-Lift	387,2650	1121,2800	80,6324	222,4896
	Men Equipped Bench	133,9400	441,4650	35,3938	113,0057
Women	Women Classic 3-Lift	125,1435	228,0300	34,5246	86,8301
	Women Classic Bench	25,0485	43,8480	6,7172	13,9520
	Women Equipped 3-Lift	176,5800	373,3150	48,4534	110,0103
	Women Equipped Bench	49,1060	124,2090	23,1990	67,4926
For Single Lift Squat Events					
	Competition	Constant 1	Constant 2	Constant 3	Constant 4
Men	Classic Squat	123,1000	363,0850	25,1667	75,4311
	Equipped Squat	150,4850	446,4450	36,5155	103,7061
Women	Classic Squat	50,4790	105,6320	19,1846	56,2215
	Equipped Squat	74,6855	171,5850	21,9475	52,2948
For Single Deadlift Events					
	Competition	Constant 1	Constant 2	Constant 3	Constant 4
Men	Classic Deadlift	103,5355	244,7650	15,3714	31,5022
	Equipped Deadlift	110,1350	263,6600	14,9960	23,0110
Women	Classic Deadlift	47,1360	67,3490	9,1555	13,6700
	Equipped Deadlift	51,0020	69,8265	8,5802	5,7258

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

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