



Original Article

Evaluation of Percentage-Based and RPE-Based Monitoring of Novice Powerlifters in Optimizing Powerlifting Performance

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Abstract

This research examined how effective Percentage-Based Training (PBT) is compared with Rate of Perceived Exertion (RPE)-based training for improving beginner lifters' powerlifting performance. There were twenty participants who had never tried powerlifting before. They were divided into two groups and followed a six-week training program focused on the squat, bench press, and deadlift. One group used percentage-based training, with weights set to a percentage of their one-repetition maximum. The other group used the rate of perceived exertion, adjusting the weight based on how hard the exercise felt on a scale from 1 to 10. Before and after the training program, tests were done to measure changes in strength and GL Points, which show performance based on body weight. Both training methods improved strength across all three lifts. However, the amount of improvement was not the same for both groups. The RPE group showed greater improvement, especially in squat strength ($p < 0.001$) and GL Points ($p = 0.021$). This means their overall strength and performance improved more compared to before. The PBT group also improved, but the changes were not statistically significant. This suggests that using fixed weights may not be as effective for beginners, since their strength can change from day to day. Overall, RPE-based training may be more effective because it allows participants to adjust their workouts based on how they feel, leading to better strength gains. The findings support the use of RPE-based training for beginner powerlifters because it is flexible, responds well to fatigue, and could enhance training stimulus. The study suggests that further research is needed on longer training periods, different groups of people, and mixed approaches combining PBT and RPE methods to achieve the best results in developing strength.

Keywords: powerlifting, percentage-based training, rate of perceived exertion, strength training, novice powerlifter

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Introduction

The three main lifts in powerlifting are the deadlift, bench press, and squat. Powerlifting is a strength-based sport. Increasing one's maximum strength in these exercises is crucial to performing well in powerlifting contests. As a result, powerlifters' training regimens typically focus on improving their strength through various methods. The two popular approaches to scheduling training loads in powerlifting are percentage-based and rate-of-perceived-exertion-based. Training loads are prescribed using PBT as a percentage of an athlete's one-repetition maximum. This approach is widely used because it provides a discernible, quantifiable increase in training load. Using a specific percentage of a repetition maximum allows coaches to set clear training intensities that help improve strength and manage fatigue. Studies show that percentage-based training can increase strength by controlling key training factors, such as the weight lifted, workout intensity, and exercise frequency. The structured approach of PBT helps beginner powerlifters follow set training intensities. This can be helpful for people who need clear guidance in their workouts (Zourdos et al., 2016).

RPE-based training uses how hard an athlete feels they are working to decide how heavy the weight should be. It usually uses a scale from 1 to 10, where lifters adjust the weight depending on how difficult a set feels. This method is more flexible and considers daily changes in both physical and mental condition (Helms et al., 2016). Many people like RPE-based training because it encourages lifters to listen to their bodies, which may help reduce the risk of overtraining and injury (Zourdos et al., 2013). It also allows self-regulation, which can be helpful for beginners who may have inconsistent performance due to differences in recovery and adaptation (Mann et al., 2020).

In strength training, there is an ongoing debate between percentage-based training (PBT) and RPE-based training. Some studies suggest that RPE-based training may be more effective for improving strength because it adjusts to how a person feels each day (Helms et al., 2017). On the other hand, others believe that PBT's structured and measurable approach leads to better long-term improvements (Schoenfeld et al., 2016). Some researchers also suggest that the effectiveness of each method may depend on the lifter's experience level. Beginners may benefit more from PBT's clear structure, while advanced lifters may prefer RPE because it offers greater flexibility and personalization (Mann et al., 2020).

Research on powerlifting training has increased as scientists try to determine which training methods work best for different skill levels. Beginner powerlifters often have uneven recovery, inconsistent technique, rapid nervous-system adaptation, and are more sensitive to training stress. Because of this, training programs should consider both gradual increases in difficulty and daily changes in fatigue. One concern with using RPE for beginners is that they may not accurately judge how hard they are working. However, some studies show that beginners can learn to use RPE correctly with proper guidance. Given the mixed results from previous research, more studies are needed to determine whether PBT or RPE is better for novice lifters.

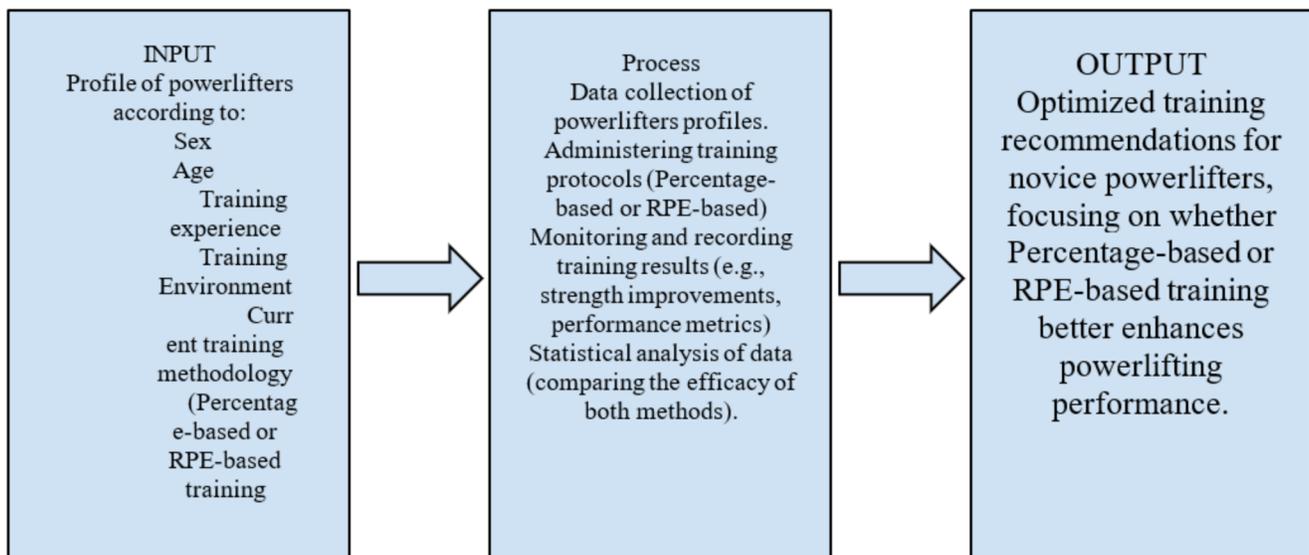
Based on these points, this study examines how PBT and RPE-based training affect powerlifting performance in beginners. Understanding which method leads to better strength gains can help coaches and new lifters make better decisions about training programs. This study aims to contribute to the discussion by directly comparing the effects of both methods on squat, bench press, and deadlift performance over a structured training period.

Objectives

The purpose of this study is to evaluate the effectiveness of PBT and RPE-based training for increasing performance in novice powerlifters. Specifically, it investigates whether the RPE-based method, which allows for individualized changes based on RPE, offers greater benefits in terms of strength and performance gains compared to PBT using a fixed 1RM rate.

1. What is the powerlifting performance of the novice powerlifters before and after the intervention program using Percentage-Based Training (PBT) method?
2. What is the powerlifting performance of the novice powerlifters before and after the intervention program using Rate of Perceived Exertion (RPE) based method?
3. Is there a significant difference in the powerlifting performance between the PBT and RPE based training methods of the novice powerlifters before and after the intervention program?

Conceptual Framework



The study provided training suggestions specifically tailored for beginner powerlifters. By looking at the results, the research provided insight into whether percentage-based or RPE-based training is better at boosting powerlifting skills. This helps athletes and coaches make informed decisions when designing future training programs.

Methodology

Research Design

This chapter explains the methods used to compare percentage-based training (PBT) and rate of perceived exertion (RPE)-based training in beginner powerlifters. It describes the research design, participant selection, the training programs used, the data collection methods, and the analysis of results. The main goal of this study is to determine which training method is more effective at improving performance while ensuring the data collected is accurate and ethical. This study uses an experimental research design to examine how PBT and RPE-based training affect strength performance in beginners. The focus is on improvements in the squat, bench press, and deadlift. A clear, organized procedure is followed, including selecting participants, providing proper training, collecting data, and analyzing the results. Ethical considerations are also given strong importance. The researchers ensured participants' rights, safety, and privacy were protected throughout the study. By keeping our methodology well-structured, this chapter supports the precision and trustworthiness of the findings. It helps significantly when comparing PBT-based training systems with those based on RPE principles.

Participants

The research has included 20 novice powerlifters, at least 18 years old, with no prior experience and usually limited training experience. The researchers recruited candidates from MCU employees, specifically the janitorial services and campus security, with supervision of a professional powerlifter. The researchers were looking for participants with no prior powerlifting experience. Exclusion criteria include subjects with past musculoskeletal injuries, persistent pain, or any health issues that could worsen with heavy lifting.

Inclusion Criteria

This study used purposive sampling with the following criteria:

1. Novice Powerlifters - Individuals with no prior experience in powerlifting and typically limited or no training experience.
2. Age - Participants must be 18 years old and above.
3. Affiliation - Recruited specifically from MCU employees, such as those from janitorial services and campus security.
4. Health Status - Participants must be free from any musculoskeletal injuries, chronic pain, or medical conditions that may be aggravated by heavy lifting.

Data Gathering

Pre-Test and Post-Test Assessments

One week before the beginning of the training intervention, participants are scheduled for pre-test assessments. After completing a six-week program, they will again be tested one week later during post-test assessments. The purpose of these tests is to gauge the Strength of 1RM: Maximum strength for activities such as squats, bench press, and deadlifts will be evaluated using a standard 1RM testing protocol.

Percentage-Based Training (PBT) Group

The subjects in the PBT group will participate in training using loads as a fraction of their 1RM. The plan follows an increasing overload strategy, beginning at 70% of their most serious one attempt and gradually increasing to 95% over a span of six weeks. Practice times are scheduled three times a week, focusing on squatting, bench pressing, and deadlifting. Each workout will have 3-4 groups, with 4-6 repeats per exercise. There will be a 2-3 minute break between these groups.

Percentage-Based Training (PBT) Group

The subjects who are in the RPE-based group will apply the RPE scale to change their workout intensity. Each practice session requires them to select weights corresponding to an RPE of 6-9, allowing for daily variations in performance and tiredness. In a way like PBT participants, these members will exercise three times weekly, doing sets of four to six repetitions per activity, 3-4 times each time they train, resting periods lasting around two to three minutes between each set. The RPE scale lets people control their training intensity based on how hard they feel they are working. They should aim for a workload that is tough but manageable.

Data Management and Analysis

The researchers analyzed the data using SPSS software. Descriptive statistics have been applied to summarize this information, and inferential statistics, such as the T-test, standard deviation, and means, have been used to compare results before and after the test, both within and between groups. The significance level set is $p < 0.05$. Calculation of effect sizes has also been done to understand how big the differences between various training methods are.

Besides using statistical analysis, the GL Points Calculator will also be used for making strength improvements standard. This tool adjusts for differences in body weight, allowing a fairer comparison of overall performance changes. By combining these statistical and performance methods, the research covers all angles in examining how Percentage-Based Training (PBT) and Rate of Perceived Exertion (RPE)-based training affect powerlifting improvement.

Results

Table 1

Descriptive statistics of the weight of the novice powerlifters before and after the intervention program

PBT Method			RPE Method		
Novice Powerlifters	BW Before	BW After	Novice Powerlifters	BW Before	BW After
P1	60.4	61.3	R1	79.4	80.2
P2	88.7	89.5	R2	77.8	78.3
P3	95.2	96.1	R3	72.3	73.1
P4	97.1	97.8	R4	71.2	72.1
P5	65.8	66.3	R5	61.7	62.3
P6	79.3	80.1	R6	79	80.2
P7	76.4	77.8	R7	57.2	60.2
P8	55.8	55.4	R8	59.1	60.3
P9	53.3	54.3	R9	53.1	54.1
P10	117.6	118.2	R10	54.6	57.2
Mean	78.96	79.68	Mean	65.11	66.42
SD	20.82	20.90	SD	10.05	9.60

The tested groups showed moderate weight gains following their training programs. The PBT group demonstrated a slight mean weight increase from 78.96 lbs to 79.68 lbs, whereas the RPE group showed an average increase from 65.11 lbs to 66.42 lbs. The observed variations were insignificant and would not produce meaningful performance changes. Studies have shown that minor weight gains during resistance training commonly led to muscle hypertrophy rather than fat accumulation (Zourdos et al., 2021). The research timeframe was too brief to fully measure body composition alterations (Hickmott et al., 2024).

Table 2

Descriptive statistics of the powerlifting performance of novice powerlifters Percentage-Based Training (PBT) method, before and after the intervention program

PERCENTAGE-BASED TRAINING (PBT) METHOD						
Novice Powerlifters	Squat Before	Squat After	Bench Press Before	Bench Press After	Deadlift Before	Deadlift After
P1	150	200	130	160	180	180
P2	170	220	90	120	180	210
P3	170	230	160	170	310	290
P4	300	360	160	180	310	350
P5	70	120	70	70	180	180
P6	210	250	140	180	280	310
P7	170	190	130	130	240	290
P8	110	110	60	65	130	140
P9	70	140	60	50	130	180
P10	130	180	90	110	180	180
Mean	155.00	200.00	109.00	123.50	212.00	231.00
SD	68.19	73.03	39.57	49.22	68.44	71.87

The PBT group had gains in strength in the squat, bench press, and deadlift. The average squat went up from 155 lbs to 200 lbs. The average bench press went from 109 lbs to 123.5 lbs. The average deadlift went from 212 lbs to 231 lbs. The work shows structured, percentage-based training could cause strength gains by raising load intensity in a controlled way (Thompson et al., 2020). Due to the strict form of percentage-based programs, differences among people in recovery and fatigue might not have been considered well (Schoenfeld et al., 2016).

Table 3

Descriptive statistics of the powerlifting performance of novice powerlifters, Rate of Perceived Exertion (RPE) method before and after the intervention program

RATE OF PERCEIVED EXERTION (RPE)						
Novice Powerlifters	Squat Before	Squat After	Bench Press Before	Bench Press After	Deadlift Before	Deadlift After
R1	170	240	110	130	280	330
R2	170	240	120	140	310	300
R3	130	240	110	130	210	250
R4	170	240	130	140	260	280
R5	170	250	110	120	300	310
R6	210	220	150	170	230	270
R7	150	260	130	140	310	310
R8	130	200	90	110	200	250
R9	190	260	110	110	210	270
R10	130	200	90	120	210	260
Mean	162.00	235.00	115.00	131.00	252.00	283.00
SD	27.00	21.73	18.41	17.92	45.17	27.91

The RPE group showed gains in all three of the main lifts. The average squat went up from 162 lbs to 235 lbs. The average bench press went from 115 lbs to 131 lbs. The average deadlift moved from 252 lbs to 283 lbs. The squat and the deadlift had big gains. It seems that self-regulated workouts could be better for lower-body strength gains (Helms et al., 2017). Studies show that working out through RPE leads to improved adjustment to daily changes in performance. This may help achieve greater strength gains than set-percentage-based methods (Mann et al., 2020).

Table 4

Difference in the powerlifting performance between the PBT-based training method of the novice powerlifters before and after the intervention program

Program	Pretest		Posttest		t-value	p-value	Remarks
	Mean	SD	Mean	SD			
Squat	155.00	68.19	200.00	73.03	-1.424	0.171	Not Significant
Bench press	109.00	39.57	123.50	49.22	-0.726	0.477	Not Significant
Deadlift	212.00	68.44	231.00	71.87	-0.605	0.552	Not Significant

Level of Significance at 0.05

The data showed that the changes in squat, bench press, and deadlift in the PBT group did not reach statistical significance. Mean values did show some increase. The p-values for each lift were above 0.05. This suggests that any increase may be due to usual adaptation rather than a strong effect from the training. Prior studies show that while PBT may work well, its fixed approach to progression may not align with how each person builds strength (Zhang et al., 2022). Shows the variations in performance of novice lifters in terms of powerlifting before and after the six-week intervention program using the RPE-based training method. The table is a comparison of the pretest and posttest mean values, standard deviations, t-values, and p-values of the squat, bench press, and deadlift with level of significance of 0.05. The purpose of this analysis will be to establish whether training using the RPE resulted in statistically significant gains in the major lifts in powerlifting and to find out which exercises reacted best to this intervention.

Table 5

Difference in the powerlifting performance between the RPE-based training method of the novice powerlifters before and after the intervention program

Program	Pretest		Posttest		t-value	p-value	Remarks
	Mean	SD	Mean	SD			
Squat	162.00	27.00	235.00	21.73	-6.661	<0.001	Significant
Bench press	115.00	18.41	131.00	17.92	-1.969	0.064	Not Significant
Deadlift	252.00	45.17	283.00	27.91	-1.846	0.081	Not Significant

Level of Significance at 0.05

The RPE group showed a statistically significant gain in squat ability ($p < 0.001$), but gains in bench press and deadlift ability were not significant. The data backup work that proposes RPE-based practice offers greater flexibility and can lead to greater strength gains compared to fixed percentage methods

(Zourdos et al., 2016). Though all lifts improved, the meaningful gain in squat performance highlights the likely benefits of self-run practice for lower-body strength growth (Rodríguez-Rosell et al., 2020).

Table 6

Difference in the powerlifting performance between the PBT and RPE-based training methods of the novice powerlifters before and after the intervention program

Program	PBT		RPE		t-value	p-value	Remarks
	Mean	SD	Mean	SD			
Squat	45.00	20.68	73.00	27.51	-2.573	0.019	Significant
Bench press	14.50	16.06	16.00	8.43	-0.261	0.797	Not Significant
Deadlift	19.00	24.24	31.00	24.24	-1.107	0.283	Not Significant

Level of Significance at 0.05

The RPE group showed significantly greater improvements in squat performance ($p = 0.019$) compared to the PBT group. However, the improvements in bench press and deadlift were not statistically significant. This suggests that RPE-based training may be especially effective for developing lower-body strength, particularly in beginner lifters. One reason for this could be that squat performance is strongly influenced by daily fluctuations in fatigue, recovery, and overall readiness. Previous studies support these results, showing that RPE-based training allows lifters to adjust the intensity of their workouts according to how prepared they feel on any given day, which can help improve strength more effectively over time (Orange et al., 2024). By allowing participants to increase or decrease the weight based on effort, RPE-based training helps prevent excessive fatigue, reduces the risk of overtraining, and still encourages steady progress. This flexibility may make RPE particularly useful for beginners who are still learning how their bodies respond to training.

The results of this study indicate that novice powerlifters may benefit more from the flexibility of RPE-based training compared to fixed percentage-based programs. Beginners often experience inconsistent strength levels as they adapt to training, and RPE allows workouts to better match these changes. Additionally, GL Points provide a standardized way to compare lifters with different body weights, making the improvements more meaningful and fair across all participants.

Table 7

Descriptive statistics of the powerlifting performance of novice powerlifters, Percentage-Based Training (PBT) method, before and after the intervention program in terms of GL Points

PBT Method			RPE Method			
Novice Powerlifters	GL Points Before	GL Points After	Novice Powerlifters	GL Points Before	GL Points After	
P1	34.13	39.76	R1	36	44.77	
P2	26.75	33.29	R2	38.98	44.03	
P3	37.59	40.34	R3	30.36	41.6	
P4	44.79	51.59	R4	38.09	44.6	
P5	22.69	26.13	R5	42.55	49.63	
P6	42.53	47.36	R6	38.03	42.21	
P7	35.45	39.63	R7	45.19	52.78	
P8	32.49	34.31	R8	31.53	41.59	
P9	29.22	40.49	R9	40.63	50.38	
P10	31.22	36.35	R10	33.68	44.31	
Mean	33.69	38.93	Mean	37.50	45.59	
SD	6.80	7.15	SD	4.72	3.94	

The PBT group showed an increase in GL Points, rising from 33.69 to 38.93. This shift was not statistically meaningful ($p = 0.111$). The result suggests that while percentage-based training aided strength gains, it did not cause obvious improvements in relative performance when body weight was factored in. Studies show that the strict nature of PBT can hinder adaptation when it is set against training models that offer greater flexibility (Ferland et al., 2019).

Table 8

Difference in the powerlifting performance between the PBT-based training method of the novice powerlifters before and after the intervention program in terms of GL Points.

Indicator	Pretest		Posttest		t-value	p-value	Remarks
	Mean	SD	Mean	SD			
PBT-GL Points	33.69	6.80	38.93	7.15	-1.678	0.111	Not Significant

Level of Significance at 0.05

The RPE group showed a significant increase in GL Points ($p = 0.001$). This supports the idea that RPE training effectively builds strength. Research shows that auto-regulated training aids lifters in achieving top performance. They do so by changing training loads based on how recovered and tired they feel. This can lead to greater gains over time (Androulakis-Korakakis et al., 2021).

Table 9

Difference in the powerlifting performance between the RPE-based training method of the novice powerlifters before and after the intervention program

Indicator	Pretest		Posttest		t-value	p-value	Remarks
	Mean	SD	Mean	SD			
RPE-GL Points	37.50	4.72	45.59	3.94	-4.156	0.001	Significant

Level of Significance at 0.05

The RPE group showed a clear increase in GL points, rising from 37.50 to 45.59 ($p = 0.001$), which shows that their relative strength improved over the six-week training period. This finding supports previous research emphasizing the benefits of RPE-based training for maximizing performance by enabling flexible, adaptive adjustments to the load (Androulakis-Korakakis et al., 2021). By letting lifters change the intensity based on how tired they feel or how ready they are on a particular day, RPE-based training helps match the workout to the athlete’s current condition, which can lead to better results. Because this approach allows participants to self-regulate their training, RPE-based programs may be more effective at improving competitive strength than strict percentage-based training, which does not account for day-to-day changes in performance (Ferland et al., 2019). These results suggest that RPE-based training is especially beneficial for beginners, who are still learning to adapt to the demands of powerlifting and develop consistency in their workouts. By allowing them to adjust effort, RPE helps prevent overtraining while still promoting steady strength gains.

Table 10

Difference in the powerlifting performance between the PBT and RPE-based training methods of the novice powerlifters before and after the intervention program in terms of GL Points

Program	PBT		RPE		Mean Difference	t-value	p-value	Remarks
	Mean	SD	Mean	SD				
PBT-GL Points	33.69	6.80	38.93	7.15	2.65	-2.520	0.021	Significant
RPE-GL Points	37.50	4.72	45.59	3.94	8.09			

Level of Significance at 0.05

The results showed that the RPE group had a much greater increase in GL Points compared to the PBT group ($p = 0.021$). This supports the idea that RPE-based training, which allows lifters to adjust the weight based on how hard the exercise feels, can lead to better overall strength improvements (Liao et al., 2021). Because RPE considers individual effort, it helps match the training load to each person’s current ability. Previous studies have also shown that autoregulated training programs help lifters manage fatigue more effectively and avoid overtraining. By adjusting intensity based on readiness, lifters can maintain

better performance throughout the training period, potentially leading to improved results (Held et al., 2021). This could explain why the RPE group showed greater improvements in GL Points. Overall, the findings suggest that beginner powerlifters may benefit more from RPE-based training, especially when the goal is to improve overall strength and competition-related performance. The flexibility of RPE-based training may allow beginners to progress more consistently compared to programs that use fixed percentages.

Discussion

The findings of this paper show that both Percentage-Based Training (PBT) and Rate of Perceived Exertion (RPE)-based training were useful in enhancing the performance of novice powerlifters in terms of strength improvement within a six week intervention. The level of improvement however varied across groups. The statistically significant differences between the training group based on RPE and the PBT one are that the first group had significantly more positive changes in squat performance ($p < 0.001$) and total GL Points than the latter. These results indicate that structured percentage prescriptions can aid in the development of strength, but autoregulated interventions may offer better adaptations in the case of novice groups.

The fact that the positive changes were stronger in the RPE group can be attributed to the principle of autoregulation that enables day-to-day changes of the training intensity, depending on the readiness of an athlete and perceived exertion. The literature has indicated earlier models that RPE based, can be used to provide more personalized load prescription which factors in variability in fatigue, recovery state, and neuromuscular preparedness. Conversely, PBT is based on pre-established percentages of one-repetition maximum which is not necessarily applicable in day-to-day performance variability. In the case of novice lifters, whose strength ratios can be gained quickly, and in which the technical skill has not yet attained full development, fixed percentages may either under- or over-rate correct loading. This non-congruity may diminish training stimulus or enhance unwarranted fatigue which might be the reason behind the lesser improvements in the PBT group.

The major increase in the performance of squats in the RPE group correlates with the previous research which suggested that autoregulated training improves lower-body strength adaptations. The squat as a highly technical and neuromuscular coordination exercise might be especially advantageous with load modifications regarding the performance feedback in real-time. In case the above studies mentioned in your review have expressed the same results on autoregulation and strength gains, the current result supports these findings. On the other hand, in case other studies were also able to identify a weak difference between PBT and RPE models, the present results can indicate that the training status is a significant moderating factor as novices react better to flexible programming compared with more practiced lifters.

The fact that the GL Points have improved also justifies the practical efficacy of RPE-based training. The larger change in GL Points is indicative of the fact that RPE training is able to translate to competition-relevant changes because GL Points are an indication of overall performance in competition and not specific changes in strength. This is consistent with the literature that autoregulated models improve performance outputs by maximizing training intensity and cumulative fatigue management.

Practically, these results have significant implications on the work of strength and conditioning practitioners with beginner powerlifters. PBT is a structured and popular technique, but with RPE-adjustments, it can benefit the development of the squats and the general performance in the competition. Coaches can also use RPE as an addition to percentage prescriptions, especially at the beginning of training when the gains are high in lifters.

Although these results were obtained, some limitations should be taken into consideration. The sample size is relatively small and the period of intervention is not long and this can hamper generalizability. Besides, since novices were utilized in this research, the findings cannot be generalized to intermediate and advanced lifters who might react differently to autoregulated and fixed-intensity models. The future studies are to examine longer training durations, bigger cohorts, and various training conditions to ensure that the relative efficacy of PBT and RPE-supported programming is better clarified.

On the whole, the current results are applicable to the current knowledge on the benefits of auto-regulated training methods. Although the two training methods (PBT and RPE-based) have similar effects on strength enhancement among novice powerlifters, it is indicated that the RPE-based training method shows higher effects on the squat performance and overall competitive scoring, and thus, a flexible and individualized intensity regulation technique might prove to be a more effective intervention in early-stage powerlifting training.

Conclusion and Recommendations

In this research, Percentage-Based Training was compared with the Rate of Perceived Exertion (RPE) based training to determine the best method of enhancing strength among the novice powerlifters, and at the end of the six weeks, both methods yielded results, but the RPE group showed more improvement, especially in squat performance and general strength score (GL Points). The high performance in the RPE group implies that giving beginners the option of setting training loads according to perceived effort achieves maximum performance and better alignment to everyday readiness. Although these results are positive, there were certain lifts that did not improve in some subjects of both groups which could be explained by such factors as fatigability, insufficient rest, improper nutrition, lack of sleep and inability to follow the training program. The researchers also suggest the RPE-based training to be used by beginners, but with proper instruction to allow the lifters to evaluate their effort correctly and prevent under- or overloading. Also, the training programs and studies of the future need to take into consideration the more extended periods of intervention and the size of the sample, preferably to over 20 participants and a more diverse group of participants like athletes, older adults, or more experienced lifters, to make the results more valid. Finally, it is highly recommended to monitor sleep and nutritional intake since these variables may also have a powerful impact on training responses, especially in training programs that are based on RPE, with the perception of exertion being a crucial element.

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