



# Effect of Different Energy Drinks on Endurance Performance in Male Athlete

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## Abstract

Energy drinks have gained popularity among athletes. The purpose of the study was to see the effect of different energy drinks on endurance performance in male athlete. The subjects selected for the study was 10 male AIU handball players with age ranged between 20-25 years from lovely professional university phagwara. The subjects were performed 1000mtr running test four days apart from each other. In each session, in a randomized, placebo-controlled, counterbalanced and double-blind design was applied 250ml of Gatorade, red bull and water was consumed 40 min before an exercise test. All analyses were performed by SPSS version 20, the analysis of variance and Least Significant Difference (LSD), was applied. The significant difference was found in between water and red bull, as the p-value is 0.02 and the significant difference was found in between water and Gatorade with p value 0.008 which is lesser than 0.05. No significant difference was observed in between Gatorade and Red bull as the p-value is 0.696 which is greater than 0.05. In conclusion, two commercially available energy drinks had ergogenic effects on endurance performance.

**Key Words:** Energy Drinks, Endurance Performance, Male Athlete.

## **1. Introduction:**

Sports and games is a vigorous physical activity which involves physical exertion, energy expenditure and skill. It is generally played between two teams against each other under some rules and regulations to win or defeat other team. Sports and games are the most easy and convenient way to do physical and mental exercise. The benefits of doing sports are unseen and un common in every individual. Sports encourage or motivate the individual or person to live a healthy and prosperous life. It is the way of "life to live most and serve the best".

The drinks are very useful for the athletes in the competition period as well as in the practice or transition period it is required to stimulate the body over the period for the warm up session, it rather in competition or the practice session warm up the passively warmed up body can reduce the energy expenditure in the warming up phase, the body get warmed up in minimum time possible.

Hence, the purpose of the study was to see the effect of different energy drinks on endurance performance in male athlete.

## **2. Materials & Methods:**

The subjects for this study were selected from the LPU phagwara. The study was conducted on 30 male AIU handball players with the age ranged in between 20-25 years. Endurance was tested by 1000mtr running and recorded in meters. To determine the Effect of isotonic strength training program on physiological variables of football players paired - 't' test was used using SPSS version 20.

### 3. Result & Discussion:

**Table - 1**  
**DESCRIPTIVE STATISTICS OF ENDURANCE**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Water	10	3.227	0.1
Red bull	10	3.046	0.19
Gatorade	10	3.017	0.17
<b>Total</b>	<b>30</b>	<b>3.096</b>	<b>0.18</b>

Table1 Showed the mean and standard deviation values of the different energy drinks in water the value is 3.227±0.108, in red bull 3.04 ±0.19 in Gatorade 3.017±0.17.

**Table - 2**  
**ANALYSIS OF VARIANCE OF ENDURANCE**

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	0.259	2	0.13	4.808	0.016
Within Groups	0.727	27	0.027		
<b>Total</b>	<b>0.986</b>	<b>29</b>			

\*Significant at 0.05 Level

$$F_{0.05}(2, 27) = 3.59$$

Table 2 Revealed that there was a significant difference found in the endurance variables in different Energy drinks as calculated value of 'F' (4.808) is greater than the tabulated value (3.59) at .05 level of significance with (2, 27) degree of freedom.

**Table - 3**  
**LSD POST HOC COMPARISON MEANS OF DIFFERENT ENERGY DRINKS ON ENDURANCE**

<b>(I) energy drinks</b>	<b>(J) energy drinks</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>	<b>95% Confidence Interval</b>	
				<b>Lower Bound</b>	<b>Upper Bound</b>
Water	Red bull	.181*	0.02	0.03	0.33
	Gatorade	.210*	0.008	0.05	0.36
Red bull	Water	-.181*	0.02	-0.33	-0.03
	Gatorade	0.029	0.696	-0.12	0.17
Gatorade	Water	-.210*	0.008	-0.36	-0.05
	Red bull	-0.029	0.696	-0.17	0.12

\*. The mean difference is significant at the 0.05 level.

In Table 3, it can be seen that mean difference in Endurance is found to be significant in between Water and Red bull as the p-value is 0.02 which is less than 0.05, it is also found that significant difference was seen in between Water and Gatorade as the p-value is 0.008 which is less than 0.05. The insignificant difference between Gatorade and Red bull was found as the p value 0.696 is greater than 0.05.

### 4. Discussion and Conclusion:

The analysis of data revealed that there was a significant difference found in different Energy drinks as calculated F -value (4.808) which is greater than the tabulated F-value (3.59) at .05 level of significance with (2, 27) degree of freedom. Mean difference in Endurance is found to be significant in between water and Red bull as the p-value is 0.02 which is less than 0.05. It is also found that significant difference was found in between Water and Gatorade as the p-value is 0.008 which is less than 0.05. Endurance is the long duration activity, which involve all the respiratory as well as cardiovascular functioning of the body. It is the ability to sustain or continue activity or resist the fatigue. In the present

study, the significant difference was found in between red bull and water it may be due to the red bull contains the caffeine content which increases the rate of blood flow to the muscles which is the main stimulant to heart and it also decreased the chance of lactic acid accumulation. Energy drink consumption has been anecdotally linked to the development of adverse cardiovascular effects on athlete. The effects of Red Bull energy drink were seen to evaluate pain threshold and pain tolerance before and after Red Bull consumption. Red Bull consumption was associated with a significant increase in pain tolerance in all participants and it also useful for the removal of stress. So, may be due to this reason the athlete who consumed RB they performed well in the endurance run test. Adrenaline is the pain tolerance hormone to dull the pain or delay the production of lactic acid and the energy drink helps to replenish the electrolyte. The reason is also supported by the study of Scott C. Forbes in his findings the intake of Red Bull energy drink increased the level of muscular endurance of the healthy young adults. According to John L. Ivy 2009, in his study he found that consuming a red bull energy drink before exercise can pick up endurance performance and that this improvement might be in part the result of increased effort without a concomitant increase in perceived exertion. In the present study, the significant difference was found in between Gatorade and water as Gatorade consists of carbohydrates and electrolytes, which help fluid absorption in the body. There is 56 grams of sugar present in each regular sized of Gatorade bottle and it consists of Sodium, which is an essential electrolyte, that helps to keep fluid inside body instead of losing it by urination. Water is the most logical form of hydration. However, sports drinks like Gatorade contain sugar and electrolytes like sodium and potassium. Sports drinks can help replace what we lose during longer duration exercise, especially in the heat. According to Kim Nunley, 2017 also the Gatorade is thought to be better over water in helping headaches that are caused by dehydration as it can rehydrate more efficiently. Insignificant difference was found in between Gatorade and Red bull, because both the drinks have similar nutrition values and composition but in different proportion. So, both the energy drinks are found equally effective and beneficial for the endurance performance inclination of the athlete, or it may be due to lower sample size taken in the study.

## 5. References:

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