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Body composition analysis for nutritional program and exercise effects using training masks for tour de linggarjati kuningan cycling athletes

Análisis de la composición corporal para el programa nutricional y los efectos del ejercicio utilizando máscaras de entrenamiento para atletas ciclistas del tour de linggarjati kuningan

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Abstract. This research used experimental research methods, Running Interval Training (RIT) method which was divided into 2 groups (n=20) athletes, the experimental group (n=10) used a training mask for a 6 month period and the control group (n=10) did not use a training mask, for sampling using purposive sampling technique. BOD POD ® is highly accurate, and can detect even small changes in body fat and lean body mass. the experimental group using the Running Interval Training (RIT) method which uses the Elevation Training Mask is superior to the control group using the Running Interval Training (RIT) method without using the Elevation Training Mask. 17.19% superior to the control group, namely 13.74%, the difference in increase between the two groups was 3.45%, the RIT Method which uses the Training Mask has an effect on increasing the VO_2Max of Kuningan Cycling Athletes. The feedback receive from your BOD POD ® assessment can be used to measure the success of nutrition or exercise program, while the average of the twenty athletes whose body composition was analyzed was 16.9, Meaning they were at the Moderate Lean level, meaning the Fat% numbers were at a very good level.
Keywords: Running Interval Training (RIT), Elevation Training Mask, Body Composition.

Resumen. Esta investigación utilizó métodos de investigación experimentales, el método de entrenamiento en intervalos de carrera (RIT) el cual se dividió en 2 grupos (n=20) de atletas, el grupo experimental (n=10) utilizó una máscara de entrenamiento durante un período de 6 meses y el grupo control (n=10) utilizó una máscara de entrenamiento durante un período de 6 meses. =10) no utilizaron una máscara de entrenamiento, para el muestreo se utilizó la técnica de muestreo intencional. BOD POD ® es muy preciso y puede detectar incluso pequeños cambios en la grasa corporal y la masa corporal magra. el grupo experimental que utilizó el método de entrenamiento en intervalos de carrera (RIT) que utiliza la máscara de entrenamiento en elevación fue superior al grupo de control que utilizó el método de entrenamiento en intervalos de carrera (RIT) sin usar la máscara de entrenamiento en elevación. 17,19% superior al grupo de control, es decir, 13,74%, la diferencia en el aumento entre los dos grupos fue del 3,45%, el método RIT que utiliza la máscara de entrenamiento tiene un efecto en el aumento del VO_2Max de los atletas ciclistas de Kuningan. Los comentarios recibidos de su evaluación BOD POD ® se pueden utilizar para medir el éxito de un programa de nutrición o ejercicio, mientras que el promedio de los veinte atletas cuya composición corporal se analizó fue de 16,9, lo que significa que estaban en el nivel de magro moderado, es decir, el % de grasa. Los números estaban a muy buen nivel.
Palabras clave: Entrenamiento en intervalos de carrera (RIT), Máscara de entrenamiento en elevación, Composición corporal.

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Introduction

Various high-tech tools to optimize sports activities continue to emerge. One of them is an elevation mask. This type of mask is believed to be able to increase the user's VO2max levels. Based on the journal of John P. PORCARI, professor in the Department of Exercise and Sport Science at the University of Wisconsin-La Crosse, elevation masks do provide an improving impact in several aspects. One of them is VO2max. This research involved 24 students from the University of Wisconsin-La Crosse. They were divided into two groups. A total of 12 students wore masks, and 12 students without masks. They practiced for 30 minutes, twice a week, for six consecutive weeks with result There was a significant improvement in VO2max and PPO in both the control (13.5% and 9.9%) and mask (16.5% and 13.6%) groups, from this research, the author feels that he wants to develop or look for the impact of using this mask if applied to cycling athletes who in competitions need a good VO2max to get the expected results. VO2max is the greatest level of oxygen the body can utilize amid work out. VO2max is measured in milliliters (ml) of oxygen devoured in one miniature, per kilogram of body weight (ml/kg/minute) (Lee and Zhang 2021). Oxygen is the foremost vital portion of the respiratory handle. When oxygen is breathed in, the lungs assimilate it and change over it into vitality called adenosine triphosphate (ATP). ATP actuates the body's cells and makes a difference discharge carbon dioxide (CO2) made amid the breathing handle. The higher the VO2max, the more oxygen the body can devour and the more successful the body is in utilizing that oxygen to create the greatest sum of ATP vitality (Smith and Hill 1991). This implies that the body can work superior in carrying out oxygen consuming wellness exercises that require a parcel of oxygen admissions, such as running, swimming and different other sorts of cardio sports. VO2max can moreover be an pointer to anticipate athletic execution, particularly in the event that the competitor could be a swimmer

or runner (Menz et al. 2019). The maximum VO2max number can be used as a benchmark to monitor an athlete's performance progress during training, or if you want to maintain the VO2max value at a certain level to maintain performance. They did three phases of training. Namely five minutes of warm-up, 20 minutes of workout, and five minutes of cool-down. The aim is to improve their physical abilities with exercises including cycling exercise and playing basketball (Porcari et al. 2016).

As a result, from this exercise, whether the mask was worn or not, the changes were not very significant. Elevation mask users get an increase in VO2Max of 16 percent. Meanwhile, those who did not use an elevation mask also increased by 13%. Apart from VO2Max, there are several other aspects that have increased more significantly. Among them is an increase in strength during the ventilatory threshold and respiratory compensation threshold phases. In fact, the increase is more than 10% compared to without using an elevation mask. Utilizing this sort of cover for physical work out powers the heart and lungs to work harder. When the veil is expelled, for illustration some time recently taking portion in a marathon or other sports competition, the body will utilize oxygen more proficiently. Client of this sports cover claim that utilizing it can increment speed, perseverance and quality. The concept of how this cover works comes from the reality that a few competitors, particularly long-distance runners, frequently prepare at higher heights. Height preparing is accepted to extend the body's ruddy blood cells, which is thought to contribute to making strides the body's execution when returning to ocean level (Warren, Spaniol, and Bonnette 2017), (Dwi, Budi, and Agustan 2021). The use of Altitude training masks in strength training has recently been considered a new technology. Strategies for creating effective incentives for sport. Evaluate athletic performance and study it thoroughly, To understand the impact of an exercise program, it is necessary to understand how the body's systems respond to attacks Strength training. The aim of this study was to evaluate the effects of using the Elevation training mask during strength training on physiological responses and performance variables (Ramadan et al. 2021).

Basically, sports nutrition is the application of nutritional science to athletes with the aim of improving their performance during competitions, as well as improving overall body health and fitness through proper nutritional and fluid intake, especially for road bike athletes, who run hundreds of kilometers in competitions. This must be carefully considered. serious because if one nutritional component is lacking it can affect results and performance. Malnutrition can have fatal consequences, for example vitamin D deficiency in cyclists can cause serious problems. Avoiding vitamin D deficiencies and deficiency is important for athletes to protect their bone health. There is still a lack of information regarding the long-term impact of various diets and nutrition on the bone health of athletes, and this needs to be addressed before specific guidance can be provided(Sale and Elliott-Sale 2019). This can also be applied by everyone who actively plays sports even though they do not work as athletes. By meeting the needs for appropriate nutritional and fluid intake, it is hoped that the body's performance will become more optimal. In general, here are some sports nutrition needs that need to be met and their benefits for the body: (1) Carbohydrates: Produce energy and build muscle. (2) Fat: Maintains hormone function, balances energy, and accelerates muscle tissue recovery. (3) Protein: Relieves muscle pain, increases energy reserves, and accelerates body tissue recovery. (4) Vitamins and minerals: Protects body cells from free radicals, supports energy formation processes, and repairs bones and muscles.

In the event that competitors were over the hydration, at that point they devoured a little volume of water (150 mL) to attain 5hydration. A 60Wworkload was favored during both conventions in arrange to extend center temperature and trigger sweating but too limit muscle glycogen exhaustion, as glycogen consumption was related with a diminish in execution (Sale and Elliott-Sale 2019).

It is important to implement sports nutrition to help the body improve the following things:

1. Sports Competition

The body needs carbohydrates as the main energy producer and uses fat as an energy reserve. Without sufficient energy intake, exercise performance will not be optimal because the body will quickly feel tired.

2. Body Endurance

If the energy from carbohydrates has run out, the body can use fat as an energy source. So, the body's immune system is maintained. However, not only fat, fluid and electrolyte intake also plays a role in maintaining stable and optimal body condition during exercise.

3. Muscle Strength

One of the benefits of exercise is to build muscle mass. However, this effort will not be optimal without proper nutritional intake. To help build muscle mass, adequate nutrition is needed with special dietary standards. This also needs to be done to maintain bone strength and resilience.

4. Competition preparation for athletes

Every athlete from each sport requires special preparation before competing. This preparation includes meeting sports nutrition needs as well as implementing a special diet aimed at reducing fat, increasing muscle mass, etc.

Here, execution planning is seen as setting subordinate, being a implies of planning entertainers (e.g.children or tip top competitors) for prompt donning inclusion (e.g. intense engagement and delight or planning for an up and coming competition). (Woods et al. 2020)

The Kuningan Regency Government, West Java, carries out tourism promotion activities in its area by holding a bicycle racing event entitled Tour de Linggarjati (TDL). An activity included in the Kuningan Regency Calendar of Events is to hold a tournament and promote the natural beauty of Kuningan (sporttourism), TDL is attended by athletes or cyclists from national to international levels, so this sporttourism activity is guaranteed to be quite lively. There are nine competition categories in this event. Specifically for

men, there are six classes, namely Men Elite, Men Junior, MenYouth, Men Master A, Men Master B, and Men Master C. Meanwhile, the other three categories are for women, namely Women Elite, Women Junior and Women Youth. Kuningan Regency has successfully held this TDL event six times. This activity can introduce the natural beauty and uniqueness of tourism to the participants.

What is expected in the TDL: 1. Increasing achievements in bicycle racing 2. Developing Kuningan as a tourist destination 3. Equitable development of regional infrastructure and opening up regional access for markets and investment; 4. Increasing the positive impact of various creative economic businesses around the areas passed by the competition route, such as the growth of hotels, transportation, culinary, crafts, and tourist destinations.(Pemkab 2022)

This inquire about included 20 Kuningan Cycling at that point partitioned into two bunches, specifically 10 individuals for the test bunch and 10 individuals for the control gather, the test gather was the bunch that utilized the preparing strategy with an height preparing cover whereas the 10 individuals within the control bunch did not prepare wear an rise preparing veil. The preparing strategy in this inquire about employments Running Interval Training (RIT) which is carried out during micro-periodization, namely for 6 months.(Bompa 2019),(Bompa and Carrera 2015). Running Interval Training (RIT) is an work out that's productive in moving forward physical capacities which incorporate quality, high-impact and anaerobic perseverance, adaptability and coordination in one preparing session (Monaco 2018). Running Interval Training (RIT) is known successful in moving forward musculoskeletal, digestion system and cardiorespiration (Gould and Medbery 2016) This work out show has picked up a parcel of consideration around the world since of the tissue adjustments it produces, which are comparative to the adjustments created by other oxygen consuming works out. In any case, what trulyRunning Interval. Training (RIT) so appealing to exercisers around the world, is the time it takes to total a preparing session (Ramos et al. 2015) That's where Running Interim Training (RIT) comes into the picture. A high-intensity interim preparing session can be completed in a period of 20-30 minutes, depending on the length of each workout. Running Interim Training (RIT) may be a frame of work out carried out with tall escalated and dynamic and inactive recuperation forms (Moro et al. 2017)

Meanwhile, for body composition analysis measurements, a product from Cosmed, namely Bod Pod, is used, Bod Pod is a tool for measuring the Air Displacement Plethysmography (ADP framework which employments the standards of entirety body densitometry to decide body composition (Fat and Fat Free Mass) in competitor. The combination of precision, security and speed has come about in Bod Case being presently recognized as the down to earth Standard for body composition appraisal (Antonio et al. 2019). Bod Pod is ideal for assessing the body composition of special populations such as athletes as an analysis and recommendation to coaches in order to maintain maximum performance by considering the value of fat and muscle fibers of other internal organs which can be analyzed with Bod Pod. (Calvin, Highstead, and Miller 2019),(Boughman et al. 2019).

The body composition analyzer is able to provide exact figures on fat levels inside the body. In this way, you can plan nutritional consumption the best for athletes. Apart from that, from these numbers there are the best steps to go on a diet with increase in muscle mass. This is done by doing various exercises according to the level of fat accumulation. (Entzur and Ravitz 2008), (Ballard, Fafara, and Vukovich 2004).

Body composition will also calculate the bone density in the body thereby helping athletes and coaches. If the analysis results indicates fragility, every patient can try to prevent it with diet nutritious food or exercise as needed. This is the importance carry out an analysis of the composition. The next benefit of a body composition analyzer is to identify risks health in the long term. Please be aware, if there is even one problem in the body, it will usually spread. This happens because of cause and effect, for example fat that accumulates in the body around the stomach, could be an indication of the risk of heart problems and can cause serious symptoms. The risk of health conditions does not just happen, but slowly and has an effect that will last for quite a long time. By knowing Fat levels make athletes understand how to maintain health (Albersen et al. 2010), (Vescovi et al. 2002). Previous research conducted by (Valenzuela Contreras et al. 2024) regarding differences in body composition and physical abilities in students as well as research conducted by (Sari et al. 2024) regarding the provision of food and aerobic exercise on the body composition of obese women became a reference for researchers to research this body composition.

Methods

This research is quantitative research which can be said to be a method of measuring quantitative data and objective statistics through scientific calculations derived from a sample of cycling athletes who trained using a training mask and body composition analysis. quantitative approach was used, with a experimental inter and intra object design and with repeated measures before and after the intervention (pre-test-exercise-posttest) (Naranjo, Pujalte-Cantó, and Arnau-Mollá 2023). This research used experimental research methods.

Where this research lasted for 6 months using the Running Interval Training (RIT) method which was divided into 2 groups, namely the experimental group and the control group, for the research subjects namely Kuningan Cycling Athletes totaling 10 people. experiment and 10 control groups, bringing the total number to 20 athletes, the experimental group used a training mask for a 6 month period

and the control group did not use a training mask. for sampling using purposive sampling technique. Test investigate plan Genuine exploratory inquire about depends on factual investigation to demonstrate or refute a speculation, making it the foremost exact frame of investigate. Of the sorts of test plans, as it were this plan can set up cause-and-effect connections inside a gather. In a redress test, three components must be met: (1) There's a Control Bunch, which can encounter no alter, and an Test Bunch, which can involvement the variable being changed, (2) A variable that can be controlled by the analyst, (3) Arbitrary conveyance .(Rita C. Richey 2009)(Rita C. Richey 2014).

Interval training consists of alternating short, high-intensity bursts of speed with slower recovery phases during one training session. Interval training can be a structured workout for athletes Helps prevent injuries associated with excessive and repetitive muscle use Benefits people with medical conditions such as COPD and metabolic syndrome, and can increase lung capacity or VO2max which is common in endurance athletes Burns more calories Becomes cross-training in exercise routines Increase training intensity without overtraining or fatigue and set training goals using Training Mask. The following is a picture of the training mask used for training.

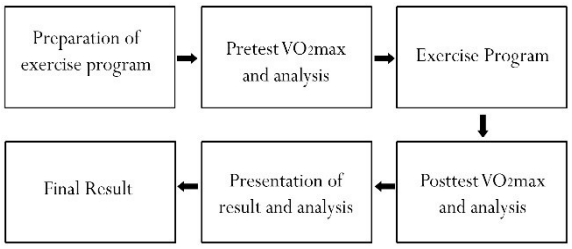

Figure 1. Research Roadmap

Figure 2. Front and side

Figure 3. Back and side

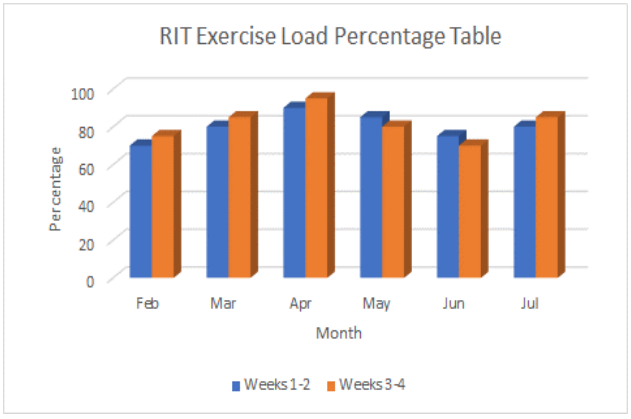

Figure 4. RIT Exercise Percentage

For training periodization for six months using micro training periodization with varying training loads each week, this aims to improve athlete performance, the term microcycle comes from the Greek micros, which means small, microcycles are carried out every week or 3 to 7 days in the training program annual. (KAUFMANN 1953). The following is the percentage of training load:

The periodization of training is based on the competition that will be undertaken, for this reason the method used is micro, the training percentage load has been adjusted to the athlete's condition to prevent overtraining, so that athletes can avoid muscle fatigue or injury. This is in accordance with what Joel expressed Abuse wounds are microtraumatic wounds to bones, muscles, or ligaments that are subjected to tedious push without adequate time to recuperate or experience a characteristic recuperation prepare. Abuse wounds can be separated into four stages:(1) torment within the influenced range after physical activity; (2) pain during activities without limitations; (3) pain on activity that limits performance; and (4) chronic pain that does not go away even after rest (Brenner et al. 2007).

Statistical analysis

For data analysis, the SPSSS Version 26 application for the Windows Platform was used (Morgan et al. 2019), while the analysis used included normality, homogeneity to determine the differences between the two groups and also improvements from Running Interval Training (RIT) exercises using the Elevation Training Mask. while for within-mixed analysis of variance (ANOVA) or two-way mixed analysis of variance (ANOVA) was applied to investigate the interaction effect.

Result

Demographic profiles

This research was conducted from February 2024 to July 2024 on Kuningan Kuningan Cycling Athletes (N = 20) who were evenly randomized and divided into 2 experimental groups using the Running Interval Training (RIT) method using the Elevation Training Mask while the control group only used Running Interval Training (RIT) training method without Elevation Training Mask, All participants are Men, the average age of the experimental group was 20 years, while the control group was 20.90 years, the average height of the experimental group was 168.30 cm and for the control group 169.60 cm, the average weight of the group experiment was 57.90 kg while for the control group it was 58.80 and for the Body Mass Index (BMI) data for the Experimental Group the average was 20.34 while for the control group it was 20.77.

The following is athlete demographic data:

Table 2.
Athlete Demographic

Group Statistics					
	Category	N	Mean	Std. Deviation	Std. Error Mean
Age_Years	Experimen Group	10	20.00	1.333	.422
	Control Group	10	20.90	1.370	.433
Height (Cm)	Experimen Group	10	168.30	5.697	1.802
	Control Group	10	169.60	3.893	1.231
Weight (Kg)	Experimen Group	10	57.90	8.089	2.558
	Control Group	10	58.80	5.922	1.873
BMI (kg/m^2)	Experimen Group	10	20.34	1.665	.526
	Control Group	10	20.77	1.791	.566

Test of Normality

The Ordinariness Test might be a test carried out with the point of assessing the transport of data in a bunch of data or variables, whether the data transport is frequently spread or not (Rukajat 2018).

The Typicality Test is valuable for deciding whether information that has been collected is ordinarily conveyed or taken from a typical populace.

Table 3.
Tests of Normality

	Group	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
N	Experiment Group	.223	10	.175	.900	10	.216
	Control Group	.177	10	.200*	.918	10	.340

According to the test results data above, the value of the normality test, namely Kolmogrov-Smirnov and Shapiro-Wilk, shows a Sig value. > 0.05, therefore it can be concluded that the data from both groups is normally distributed.

VO_2Max Test Results Using Multistage Fitness Test (Bleep Test)

The following are the results of the pretest and posttest from the experimental group.

From the data in the table above, it shows that the average pre-test vo_2max value for the group showed 47.1 and there was an increase after following the Running Interval Training (RIT) exercise method using the elevation training mask with a large increase in Vo_2max of 55.24, meaning an increase of 17.19%. Meanwhile, the Vo_2max statistical data results from the control group can be seen in the table below.

Table 4.
Result VO_2Max Experiment Group
Statistics

		Pretest	Posttest
N	Valid	10	10
	Missing	0	0
Mean		47.100	55.240
Median		47.400	55.150
Mode		47.4a	53.7a
Std. Deviation		1.6780	1.1325
Sum		471.0	552.4

Table 5.
Result VO_2Max Control Group

Statistics			
		Pretest	Posttest
N	Valid	10	10
	Missing	0	0
Mean		45.170	51.390
Median		45.200	51.500
Mode		41.8a	46.5a
Std. Deviation		2.2579	2.7355
Sum		451.7	513.9

From the data in the table above, it can be seen that the average pre-test Vo_2max value for the control group showed 45.1 and there was an increase after following the Running Interval Training (RIT) training method using an elevation training mask with an increase in Vo_2max of 51.3, meaning an increase of 13.74%. Thus, the results of the data for the two groups above show a significant increase in both groups, however the experimental group which used the Running Interval Training (RIT) training method using an elevation mask was superior to the control group. who do not use altitude training masks. This can be seen in the following table.

Table 6.
Difference in improvement between the two groups

Vo2max Increase (%)		Increase difference
Experiment Group	Control Group	
17,19	13,74	3,45%

Based on the data in the table above, the experimental group using the Running Interval Training (RIT) method which uses the Elevation Training Mask is superior to the control group using the Running Interval Training (RIT) method without using the Elevation Training Mask 17.19% superior to the control group, namely 13.74%, the difference in increase between the two groups was 3.45%, thus the Running Interval Training (RIT) Method which uses the Elecvation Training Mask has an effect on increasing the VO_2Max of Kuningan Cycling Athletes.

Homogenity Test

The homogeneity test could be a factual test strategy which points to appear that two bunches of information tests are taken from a populace that has the same change. The information underneath is the result of homogeneity calculations in this consider. This test determines if two populations experimental group and control group have the same distribution of a single categorical variable.

This test uses a 2-way ANOVA test, with the results presented in the following table.

Table 7.
ANOVA Test

ANOVA					
Pre_Post					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	83.521	1	83.521	4.703	.036
Within Groups	674.854	38	17.759		
Total	758.375	39			

Based on the ANOVA test yield table over, it is known that the centrality esteem (Sig.) of the variable VO_2max test comes about within the exploratory and control bunches is $0.036 > 0.05$, since the sig. is more noteworthy than the α esteem of 0.05, at that point the choice taken is to acknowledge Ho. This implies that there's the same change within the pretest and posttest information bunches or the fluctuation of both information is homogeneous.

T-Test

The Independent T Test is a parametric test for carrying out independent comparisons. An independent sample is a sample that produces data from different subjects (Xu et al. 2017). From the reference data, the researcher used the results of this t-test to determine the effect of the training process using a training mask, so that he could determine how effective the use of this mask was in increasing VO2max results. The following table shows the t-test results from the calculation.

Table 8.
Independent Sample T-Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Posttest	Equal variances assumed	9.564	.006	4.112	18	.001	3.8500	.9363	1.8830	5.8170
	Equal variances not assumed			4.112	11.997	.001	3.8500	.9363	1.8100	5.8900

The table above is the main table for the independent sample t test analysis. You can see the 2-way significance value Sig. (2t-tailed) $0.001 < 0.05$. So there is a significant difference in score points between the experimental group and the control group. Based on the descriptive value, it was proven that the experimental group with the Running Interval Training (RIT) method using the Elevation Training Mask got a higher score than the control group.

Analysis Body Composition Using BodPod

Numerous competitors are mindful of the significance of body composition and body fat rate (% BF) for ideal execution (8). In sports including quality, speed and perseverance Also, abundance body fat can impede an athlete's capacity to hop, run quick, or increment high-impact capacity. Alternately, moo BF% is related with conditions such as eating clutters, press insufficiency frailty, amenorrhea, early osteoporosis, and sports wounds .(Entzur and Ravitz 2008). Athletic populaces require high-precision body composition appraisals to distinguish genuine alter. Slightest noteworthy alter decides specialized blunder by means of same-day continuous tests but does not coordinated organic variety, which is more pertinent for longitudinal checking . (Carpenter 2003).

This test aims to determine the athlete's body composition, whether there are lumps of fat or more dominant muscle. This aims to increase the athlete's peak performance, (Farley, Slater, and Hind 2021) so that from here the coach can analyze whether excess body fat is not good for an athlete, especially Kuningan Cycling Athletes in running events. Muscle should be more dominant than fat because it can reduce the load when sprinting. To analyze body composition, use the BodPod tool which can be seen in the image below. An accurate assessment of body composition is important in determining a person's health status. Measuring body composition rather than body mass index (BMI) is more meaningful in determining disease risk (Bailey et al. 2018) Body volume was measured by air displacement plethysmography using a BodPod. Weight and volume measurements were used to calculate each participant's body mass density, and a

modified Siri equation was used to estimate body fat percentage. The BodPod is calibrated before testing using a cylinder of known volume to estimate the volume of gas in the casket. Previous research shows that BodPod provides valid estimates of body fat in the general population (Triplett and Kuenze 2021)

Figure 5. BodPod Body Composition Analyze (COSMED Srl 2020)

This test is carried out after implementing the Running Interval Training (RIT) program or method. The results of this analysis can describe the athlete's nutritional intake needed after carrying out the test, so that the coach can determine the appropriate nutritional intake to increase the athlete's body value. The following are the results of body composition tests for athletes using BodPod.

Table 9.
Body Composition Result.

Statistics			
		Fat %	Fat Free Mass %
N	Valid	20	20
	Missing	0	0
Mean		16.950	83.050
Median		16.900	83.100
Mode		11.4a	77.9a
Std. Deviation		3.0360	3.0360
Minimum		11.4	77.9
Maximum		22.1	88.6

a. Multiple modes exist. The smallest value is shown

There are two information from the Body Composition test, to be specific Fat n Fat Free Mass %. Body Fat ertain amoun of fat is completely vital for great wellbeing. Fat Plays part in securing inside organs, giving vitality and controlling hormons. The negligible sum of basic fat is roughly 3-5% for men. Fat Free Mass % is everything but fat. It incorporates muscle, water, bone and internals organs. Muscle is the metabolic motor of the body that burns calories (fat) and plays an imperative keeping up quality and vitality. Sound levels of fat free nass contribute to physical wellness and may anticipate conditions such as osteoporosis (Triplett and Kuenze 2021).

This testing is very helpful for athletes and coaches in analyzing training results and nutritional intake so that this analysis can help coaches in planning future training to be even better, so that athletes' performance can improve and their expected achievements and targets can be achieved according to their goals.

Therefore, body composition analysis is very important, especially in sports science, which plays a role in supporting the system for producing good athletes, so there is great hope, especially in long-term coaching or Long Term Athlete Development, that it can be achieved with this long-term coaching program (Istvan Balyi, Richard Way 2013),(Ford et al. 2011).

Based on the results of the body composition analysis obtained from BodPod, the results show the highest figure for Fat %, namely 22.1. This figure for the body fat rating is at the Excess Fat level, meaning there must be a decrease in fat levels to be at the Moderate Lean level, this can be added with the exercise portion to reduce fat and carbohydrate and fat intake is reduced by the adjusted portion, while the lowest value is 11.4, meaning this is at a good level, but it must be remembered that the energy produced also comes from burning fat, which is at the figure Athletes must slightly increase their Fat% levels so that they have the energy to produce energy.

While the average of the twenty athletes whose body composition was analyzed was 16.9, meaning they were at the Moderate Lean level, meaning the Fat% numbers were at a very good level, to increase performance you just have to adjust the training program that will be undertaken next, while for nutritional intake it is enough to just maintain your diet so that the Fat% level does not increase or decrease drastically. For the Fat Free Mass % figure, the most noteworthy esteem is 88.6, which implies it is exceptionally great since Fat Free Mas incorporates muscles, water, bones and inner organs. Muscle is the body's metabolic motor which burns calories (fat) and plays an vital part in keeping up quality and vitality. Sound levels of fat-free nass contribute to physical wellness and can avoid conditions such as osteoporosis.

Meanwhile, the lowest number is 77.9, meaning it is still at a good level. And the average score of the twenty athletes teste d was 83, meaning it was at a very good level, just need to adjust the next training program made by the coach. So the conclusion is that for testing the Body Composition Analyze using a bodpod, the athlete's nutrition is quite good, there are no athletes who are below 5% for fat and fat free mass. To find out the analysis of the body compostion analyzer, use a table that contains the categories of the tool, this makes it easier for us to see the effectiveness of the measurement results and analyze the results. The following is a classification table for the norms listed in the measurement scale.

Table 10.

Bod Pod Body Fat Rating.

Body Fat Rating	Male	Explanation
Risky (High Body Fat)	>30 %	Ask your health care professional about how safely modify your body composition.
Excess Fat	20.01 - 30 %	Indicates an excess accumulation of fat over time
Moderately Lean	12.1 - 20 %	Fat level is generally acceptable for good health
Lean	8.1 - 12 %	Lower body fat levels than many people. This range is generally excellent for health and longevity
Ultra Lean	5 - 8 %	Fat levels often found in elite athlete
Risky (Low Body Fat)	< 5 %	Ask your health care professional about how safely modify your body composition.

Discussion

The limitation in this research lies in the number of samples which can be said to be very limited, therefore the researcher wants further research with a larger number of samples to strengthen the research results. From the results of Running Interval Training (RIT) training using an Elevation Training Mask within a period of 6 months, the experimental group training was proven to be able to increase the VO_2max results of Kuningan Cycling Athletes with an increase of 17.19%, with this, Running Interval Training (RIT) training using the Elevation Training Mask can used as a reference for trainers to increase athletes' VO_2max, the author realizes that there are still many shortcomings and developments to improve the athlete's performance. Meanwhile, for the control group which used the Running Interval Training (RIT) method without using the Elevation Training Mask, there was the same increase but was superior to the one using the Elevation Training Mask, this is based on the percentage increase obtained, namely 13.74% compared to those using the Elevation Training Mask which is better with a percentage increase of 17.19%. Using the Elevation Training Mask can increase the lung capacity of Kuningan Cycling Athletes, especially in sprint events, so that it can also improve the athlete's performance, because VO_2max is the foundation of the athlete outside of the techniques and training programs created by the coach.

Maybe if the application of this training is applied long term it will be even better because after all, getting used to long term use and training will help with a good adaptation process, so that the athlete can develop again, with this training it gives the athlete a burden when training but when competing it will have an effect. which is good for energy so that you can maximize sprints and record the best possible time. In terms of development, there are still many training patterns or other methods that can improve athlete performance. It is hoped that this research can be developed even better in the future, so that it can produce outstanding athletes.

Then for the results of body composition analysis, it is deemed necessary because it can help coaches in preparing training and nutrition programs that will be given to athletes. For the results of this analysis, all the athletes tested had good body composition. This is proven by the results obtained with an average Fat% value of 16.9 and for the fat free mas% value of 83, this proves that the condition of the athlete's Body Fat Rating is at Moderately Lean, which at this level is a good body value for athletes. For the Long Term Athlete Development program, it is very good for coaches to train their athletes from an early age, because they can control and understand the characteristics of their athletes, by starting training from an early age until retirement, coaches can have big data as a reference when compiling further training programs. will be applied to athletes who will undergo training camps. Especially at the youth age, athlete performance must be strengthened through a well-structured training program and providing nutrition which also determines the trainer's success in training athletes, so that when nutrition is met the trainer just needs to adjust the athlete's deficiencies, whether it is a lack of protein or carbohydrates. etc. In adolescence, the coach must also be able to control the athlete's emotions because at that age the athlete's psychology can still be influenced by external factors which can cause down performance, therefore the coach must also be able to develop training methods and not burden the athlete's mind because it will make the athlete a lot of burden. When going to compete, coaches are required to be able to raise the athlete's competitive mentality.

Conclusion

Running Interval Training (RIT) training using an Elevation Training Mask over a period of 6 months can increase athletes' VO_2max for cycling athlete in Kuningan, West Java Indonesia, This exercise has a good and significant effect on stamina so that it can improve performance and good VO2max then the result of body composition during training is at a good level, so it can be concluded that this training has a significant influence, with good results on the athlete's body composition, the athlete's development will also increase with the support of good training and nutrition so that they can maintain the quality or value of their body.

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