



AN ANALYSIS OF SELECTED PHYSIOLOGICAL VARIABLES AMONG PLAYERS BORN IN THE SAME AND DIFFERENT MONTH

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ABSTRACT:

The purpose of the study was to determine the effect of birth month on selected physiological variables like Maximum Voluntary Ventilation (MVV), Vital Capacity (VC), and Forced Vital Capacity (FVC). A total of 30 Intervarsity male volleyball and basketball players from LNIFE Gwalior were selected for the study with age ranging from 20 to 25 years among which 15 were born in same month and 15 were born in different months. To measure the selected physiological variables Spirometry was used to collect the data. Independent 't' test was applied to find out the difference among the selected players on respiratory variables between players born in same month and different month. The level of significance was set at 0.05 and SPSS version 20 was used for all statistical process. The results showed that there was no significant difference found on MVV, VC and FVC among players born in the same month and different month.

KEYWORDS: Voluntary Ventilation (MVV), Vital Capacity (VC), and Forced Vital Capacity (FVC).

INTRODUCTION :

Simply by being up to 12 months older than later-born students in the same class, children born early in the school year have a significant advantage over those born later in the year. They do admirably in terms of academic success, athletic ability, and emotional and social development. Such Relative Age Effects (RAEs) frequently last longer than one would expect given how naturally maturational benefits are ironed out. One explanation is psychological: they result from positive feedback loops that instill a sense of self-worth and capability. There are turning points in life when opportunities are presented to those displaying potential at an early age, which is more plainly apparent in somewhat older youngsters (Doyle, 2018).

The relative age effect is a phenomena where the birth dates of elite athletes tend to cluster immediately after age-group cut-off dates. When the calendar year is divided into either quarters (3-month periods) or halves (6-month periods), there is a significant bias towards birth dates that occur early in the season in multiple sports, according to a recent systematic review. Due to physical and/or developmental advantages over their classmates born later in the year, relatively older children who were born early in the school/sports selection year are initially more likely to participate in representative sports. This benefit might then be amplified using a modified version of "The Matthew Effect." It is challenging to pinpoint possible seasonal or month-of-birth affects since nations and sports have different age-group cut-offs. Although there is little evidence of any maturational, anthropometric, or physiological differences in age-grouped children according to relative age, this could be because studies are frequently conducted in extremely selective settings, like football academies. Participants who have been chosen for academies are likely to be physically stronger and more mature than age-matched peers who are not chosen. Only one study has compared the physiological traits of a non-

selective population according to birth date, despite the fact that such comparisons are extremely uncommon. In 9–12-year-olds, the authors found a negligible relative age effect for cardiorespiratory fitness that was unrelated to maturational differences. We argue that the relative age impact is so convincingly demonstrated in sports that birthdate clustering research may have been sacrificed in favor of studying the relative age effect. Adults' weight and height, for instance, appear to vary depending on the month they were born.

There is ample evidence linking the month of birth with adult body size. Being born in November increases lifespan in the northern hemisphere, and people born in the winter months had a decreased incidence of multiple sclerosis. Birth month is linked to a variety of things, including IQ and the incidence of Crohn's disease. Possible causes for this include early in utero illness, body weight, birth environment temperature, and vitamin D levels from sunshine. Body size and muscle function interactions are crucial for sports performance, and there is mounting evidence linking maternal vitamin D to healthy musculoskeletal systems and strong muscles (Sandercock et al, 2014).

The research seeks to provide insights into the possible effects of birth month on respiratory function and performance among selected players therefore the aim of this study is to determine whether there are differences in indicators of selected physiological variables according to birth-month. Present study was conceptualized to investigate the Respiratory indices among players born in the same and different month and further it was hypothesized that there would be a significant difference among the players born in the same and different month in relation to Respiratory indices.

METHODOLOGY

For the purpose of measuring the Respiratory indices, 30 male players in total were chosen as the subjects. All the participants were selected from intervarsity level volleyball and basketball player of the LNIPE Gwalior, with participants' ages ranging from 20 to 25. Vital capacity (VC), forced vital capacity (FVC), and maximum voluntary ventilation (MVV) were chosen as the physiological variables for the current study. Data were gathered using WinspiroPRO 4.4 (Spirometry Standard Mode) software with a MIR MiniSpir Spirometer, and a standard testing protocol and procedure were used to administer the test to the subjects. To compare the selected physiological variables among volleyball and basketball players born in same and different month, T-test was used and the level of significance was set at 0.05 and SPSS version-20 was used for all statistical techniques employed in the present study.

RESULT

The results of the selected variables were presented in Table 1-3.

Table 1
Comparison on Vital Capacity on players born in same & different month

Group	Mean	SD	df	t-ratio
Same month	4.453	0.946		
Different month	4.68	1.467	28	-1.274

* Level of significance at 0.05, Tab. t (28) -1.701

Table 1 reveals that the calculated 't' (-1.274) was smaller than the tabulated value; as a result, it was determined to be non-significant at the 0.05 level of significance. Basketball and volleyball players born in the same month and different month were shown to have no difference on Vital Capacity.

Table 2
Comparison on Forced Vital Capacity on players born in same & different month

Group	Mean	SD	df	t-ratio
Same month	3.950	0.954		
Different months	3.875	1.462	28	0.478

* Level of significance at 0.05, Tab. t (28) -1.701

Basketball and volleyball players born in the same month and in separate months had no difference on Forced Vital Capacity, as shown in table 2, which indicates that the calculated 't' (0.478) was smaller than the tabulated value and was thus not significant at the 0.05 level of significance.

Table 3
Comparison on Maximum Voluntary Ventilation on players born in same & different month

Group	Mean	SD	df	t ratio
Same month	129.560	14.443		
Different months	116.140	10.267	18	0.693

* Level of significance at 0.05, Tab. t (28) -1.701

According to table 3, the computed 't' (0.693) was smaller than the tabulated value, making it non-significant at the 0.05 level of significance and showing that basketball and volleyball players born in the same and different month had no difference on maximum voluntary ventilation.

CONCLUSION

The study might be useful for figuring out the significance of aerobic capacity in sports performance by determining the association between birth month and respiratory indices among chosen athletes. Based on the study's findings, it was determined that there was no significant difference in MVV (Maximum Voluntary Ventilation) between volleyball players and basketball players born in the same month and those born in different months, nor was there a difference in VC (Vital Capacity) or FVC (Forced Vital Capacity) between volleyball players and basketball players. The respiratory fitness and performance in many games and sports may be significantly influenced by birth month. To comprehend the insights among the athletes born in the same month and various months, more research was required. It is also worthwhile to do research on a sizable sample size that ought to be watched in athletes since it may be a significant indication of respiratory health. Overall, the study emphasizes the need for more research in this field and the significance of taking birth month into account when choosing a player for a team or as a possible factor in assessing respiratory fitness among players. Adrian Barnett's (2010) research provided support for the findings of the current investigation. The discovery that players born in the same month and in a different month had no discernible impact on the variables chosen may have contributed to the selection of early and late born players for the current study. In order to obtain a more accurate and comprehensive understanding of the current study, this factor needs to be taken into account for the success of the investigation. On the basis of the finding of the study, hypothesis stated that, "there would be a significant difference in MVV, VC and FVC among volleyball and basketball players born in the same and different months" was rejected.

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