

Structuring of the periodization in antiquity: the Roman military training

By Nelson Kautzner Marques Junior



Review Articles

Structuring of the periodization in antiquity: the Roman military training

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A. Conception and design of the study; B. Acquisition of data; C. Analysis and interpretation of data; D. Manuscript preparation; E. Obtaining funding

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Abstract

Background and Study Aim. The sportive periodization originated from the military periodization of ancient civilizations and of the Greek Tetrad for the sportive preparation the ancient Greek athletes. The objective of the review was to explain the periodization of the Roman military training.

Materials and Methods. The articles were selected in January and February of 2024 in 10 databases (Google Scholar, PubMed, Research Gate, Scielo, Redalyc, Scopus, DOAJ, ScienceDirect, Semantic Scholar, and Latindex) with the following keywords: Roman military training, Roman soldiers, Roman Empire territory, Tetrad during Roman military training, Roman military equipment, and Roman military tactics.

Results. Ancient Rome conquered almost all Western Europe, North Africa, and part of the Middle East because the nation was very militarized. The military training during ancient Rome for the soldiers and sailors had several types of training that were physical training, training, technical training, and technical and tactical training. So, for the war coach to organize all these training sessions for the Roman military, he needed to structure the periodization. The periodization of the Roman military training was used with several mesocycles of 4 to 6 months of duration during various moments of the year for the soldier and the sailor to always be prepared for war. In 146 B.C., the Roman Empire conquered ancient Greece and after this moment, the Romans used the scientific knowledge of the Greeks to structure the Roman military training. Then, the Romans used the Tetrad of the Greeks to structure the military training. Roman military training was structured with several Tetrad during 4 to 6 months. Therefore, the Tetrad was inserted into the mesocycle of 4 to 6 months.

Conclusions. In conclusion, the periodization of the Roman military training was very organized for the military to achieve a high performance in the war.

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War.



Introduction

Periodization began with the ancient military training of the Chinese (Marques Junior, 2023a), Egyptians, Greeks, and Romans (Barbanti, 1997; Marques Junior, 2022a). However, during this period, the term periodization did not exist. The term periodization originated from the word period (Bompa, 2002). The periods were created after of the Russian Revolution of 1917 by Russian sports scientists (Marques Junior, 2023b). So, the term periodization may be a Russian creation.

Other terms were created by the Russian Lev Pavilovch Matveev during the Soviet Union, they were the macrocycle, the mesocycle in 1971, and the microcycle in 1962 (Marques Junior, 2023c). The macrocycle is all contents of the sportive periodization, the mesocycle is composed of some microcycles and has a few weeks or months, and the microcycle consists of 2 days or more of training (Matveev, 1991; Moura et al., 2023; Platonov, 2004). The microcycle has a training load and is practiced in the session according to its training characteristics (Costa, 2022; Marques Junior, 2021a). For example, the shock microcycle the training is strong, the recuperative microcycle the training is with low load, and others (Marques Junior, 2023d; Platonov, 2004). Therefore, all these terms were created in the sportive periodization.

But the article is about the Roman military training. The study about the periodization of the Romans is important to understand how sports scientists based this content created the sportive periodization (Marques Junior, 2012). The 1st sportive periodization was created by the ancient Greeks, the microcycle was formed by Tetrad (Montero, 2020). After this period, the sports scientists of Soviet Russia and the Soviet Union improved the periodization (Issurin, 2014; Stone et al., 2021). Therefore, the article used the terms of the sportive periodization to explain how it was structured the periodization of the Roman military training.

The ancient Rome had a period of 753 before Christ (B.C.) until 476 during Christ (D.C.), the main physical activity of this nation was the military training (Fernández, 2018; Fernández, 2023; Ponte, 2017). Ancient Rome had three moments, the Roman Monarchy (753 to 509 B.C.), Roman Republic (509 to 27 B.C.), and Roman Empire (27 B.C. to 476 D.C.) (Fernández, 2018; Henrique, 2020; Ponte, 2017). Military training in ancient Rome began with children and continued into adulthood (Marques Junior, 2022b). The tasks for military preparation were swimming, use of weapons (archery, spear, sword), horse riding, canoeing, athletics, and other exercises. The militarization was so great that the entertainment was the gladiator fights (Marques Junior, 2021b).

This attention with the military training provided to the ancient Rome conquered almost all Western Europe, North Africa, and part of the Middle East. An of the reasons for these Roman conquests is related to the elaboration of war books for the study of the combat – technique of using weapons and war tactics (Tavares & Gonçalves, 2023). These war books were presented for the Roman military the periodization to organize the military training.

How the periodization of the Roman military training was structured?

Sports training articles (Api & Arruda, 2022; Cortes, 2023; Virgen et al., 2023), and books (Gomes, 1999; Padilla, 2017; Zakharov, 1992), do not have this information. Then, this content is important because the sports training literature did not inform how the periodization of the Roman military training was structured. Therefore, this article is rare in the sports training literature because the physical education teacher will learn how the mesocycles and microcycles were structured during the Roman military training. The objective of the review was to explain the periodization of the Roman military training.

Materials and Methods

Search Strategy.

The articles were selected in January and February of 2024 in 10 databases (Google Scholar, PubMed, Research Gate, Scielo, Redalyc, Scopus, DOAJ, ScienceDirect, Semantic Scholar, and Latindex) with the following keywords: (“roman military training” AND “roman soldiers” AND

“roman empire territory” AND “tetrad during roman military training” AND “roman military equipment” AND “roman military tactics”).

Exclusion Criteria..

The author of the study practiced analytical research of the type historical and of review to explain how the periodization of the Roman military training was structured (Thomas & Nelson, 2002). The included articles were selected using the following research strategies: (1) ancient Rome, (2) the type of task that was during the Roman military training, and (3) data collected on the structure of the Roman military training. Articles that did not meet these three criteria were excluded.

Procedur.

After collecting the articles, the author wrote the results about the periodization of Roman military training. Most of the articles were discarded because they did not mention the periodization of Roman military training. All articles were extracted from their sources and analyzed through Mendeley software to eliminate duplication of articles.

Results

Ancient Rome had several territories conquered because the nation was very militarized – see the territory in figure 1 (Coulston, 2004; Davies, 2024; Ramalho et al., 2021). Military training began at 7 years of age (Souza, 1972), and the period of military service began at 16 years of age (Parpiev, 2023). The minimum stature for military service was 1.70 meters (m), but a Roman very strong with the stature of 1.60 to 1.65 m the person could enlist in military service (Ponte, 2017).



Figure 1. Roman Empire with territory in the pink of the regions of Western Europe, North Africa, and part of the Middle East (27 B.C. to 476 D.C.) (Extracted in <https://www.rome.net/roman-empire>).

The age of the Romans in military service was between 16 to 28 years old (Marques Junior, 2022b). The time of the military service was of 6 years, but during a long war, the Roman military had 20 of service (Lei, 2023). The duration of service of the cavalry was at most 10 years, and the service time of the infantry was at most 16 years (Lie, 2023). The majority of the military completed the military service at the age of 25 years old (Ponte, 2017). Therefore, the life of a Roman military was very hard, during the training and at the time of war. Figure 2 presents the infantry and cavalry of the Roman Empire.



Figure 2. Type of military of the Roman Empire: infantry soldier (Extracted of [Westphalen, 2020](#)) and cavalry soldier (Extracted of <https://abutterfly.beauty/ancient-roman-cavalry>).

The military training during ancient Rome for the soldiers and sailors had several types of training that were physical training with strength training and cardiopulmonary training, technical training with the use of weapons, tactical training with the study of combat through of books and military classes, the technical and tactical training which was the team training that simulates a combat, and the martial art training ([Marques Junior, 2022b](#); [Westphalen, 2020](#)).

The Roman military had to train constantly to maintain good physical fitness and was technically and tactically well-prepared for the war ([Argüín, 2011](#); [Papiev, 2023](#)). Then, Roman military training used the principle of the continuity of sportive training ([Matveev, 1995](#)). But it did not exist in ancient Rome the principle of continuity. The person responsible by military training knew that the continuity of the training was important for the soldier and the sailor to be prepared for war or the military to be prepared for a possible enemy attack ([Fernández, 2018](#)). Generally, the person responsible by military training was a war veteran because he had a high practical and theoretical knowledge to teach the soldiers and sailors ([Soria, 2018](#)).

Physical training was very important for the Roman military because, during a war, the soldier and the sailor had a high resistance to the effort of long combat ([Gonçalves, 2016](#)). Military strength training was practiced with the heaviest wooden weapons (sword, spear, shield, and others) to develop strength with the weapons and improve the technique ([Fernández, 2018](#); [Kraemer & Häkkinen, 2004](#)). This activity was the special strength preparation, this training was scientifically developed by Russian Yuri Vitali Verkhoshanski of the former Soviet Union ([Verkhoshanski, 2001](#)). However, this term did not exist in ancient Rome, and there was no scientific study on this training.

The complementary strength training for the military of ancient Rome was useful in the cooperation and coordination, this task the soldiers and sailors performed in building the fortifications for the combat ([Coulston, 2013](#)).

Another type of physical training for the Roman military (soldier and sailor) was the cardiopulmonary training ([Porter, 2023](#)). Roman military practiced during the cardiopulmonary training the endurance march of 8 to 32 kilometers ([Gómez, 2010](#)), with slow to medium velocity ([Fernández, 2018](#)). Generally, the endurance march was practiced by soldiers carrying weapons, armor, helmet, and other war equipment that had approximately 35 kilos ([Rojo, 2019](#)). The endurance march was practiced in the forest, climbing mountains, passing through rivers, and in other places ([Gonçalves, 2016](#)). The cardiopulmonary training was practiced with other exercises for the soldier and sailor – swimming, continuous running, a primitive game of football, the old interval training with running until a short distance, and after the military practiced a pause, this action of effort and

pause was by some minutes, the old fartlek with running, jump, march, pause, and others actions (Cacena, 2023; Gómez, 2010; Porter, 2023; Tubino & Moreira, 2003).

The physical training with the strength training and/or with the cardiopulmonary training required more effort from Roman military and was practiced in the hot, cold, and with strong rain (McAvoy, 2017). This training in adverse weather was also practiced during the technical training with the use of weapons and in the technical and tactical training with the team training that simulates a combat.

Technical training the Roman military trained with various types of weapons and/or used wooden weapons with exercises practiced in the air and/or attacking a post fixed in the ground (the *palus*) with the objective of improving weapon combat technique (Fernández, 2018; Gómez, 2021). During the technical training, the Roman military could practice integrated training because it occurred at the same time as the technical training and the strength training when the military practiced the training with the heaviest wooden weapons (Zakharov, 1992). This term, integrated training, did not exist in ancient Rome.

During the technical training and in the integrated training (technical training with the strength training) the Roman military practiced more the exercises with the weapons that he was an expert (Gómez, 2021). This type of training was related with the principle of specialization (Gomes, 1999). This content of the sportive training did not exist in ancient Rome, but the war coach knew that specializing in a weapon resulted in better military performance in the war. This specialization with a type of weapon occurred in the technical and tactical training, during the team training each Roman military used the weapon most frequently that was specialized.

Technical and tactical training the Roman military practiced team training with collective actions of attack and defense (Gómez, 2010, 2021). This action was very trained for soldiers and sailors have coordination during real combat (Marques Junior, 2023a). Technical and tactical training exercises were with actions of attack and defense in the air and could occur with integrated training, the military practiced this training with the heaviest wooden weapons. The other technical and tactical training was the team training that simulates combat (Westphalen, 2020). Then, the training that simulates combat occurred with the wooden weapons to have fewer injuries (Fernández, 2018; Marques Junior, 2021b). This training was practiced with a fight between the soldiers and/or sailors. During the combat training, the military could be without weapons and he had to fight with the Roman martial arts, wrestling (McAvoy, 2017). The wrestling training was developed during the martial arts training, the two soldiers and/or two sailors practiced wrestling fighting. Figure 3 presents some types of training practiced by the Roman military.



Figure 3. (A) Technical training with sword attack on the *palus*, (B) technical and tactical training between soldiers with fight of wooden sword and shield (Extracted of <https://inaciem.com/diary/exercitacio>), and (C) technical and tactical training with team training in the traditional attacking position (Extracted of Rojo, 2019).

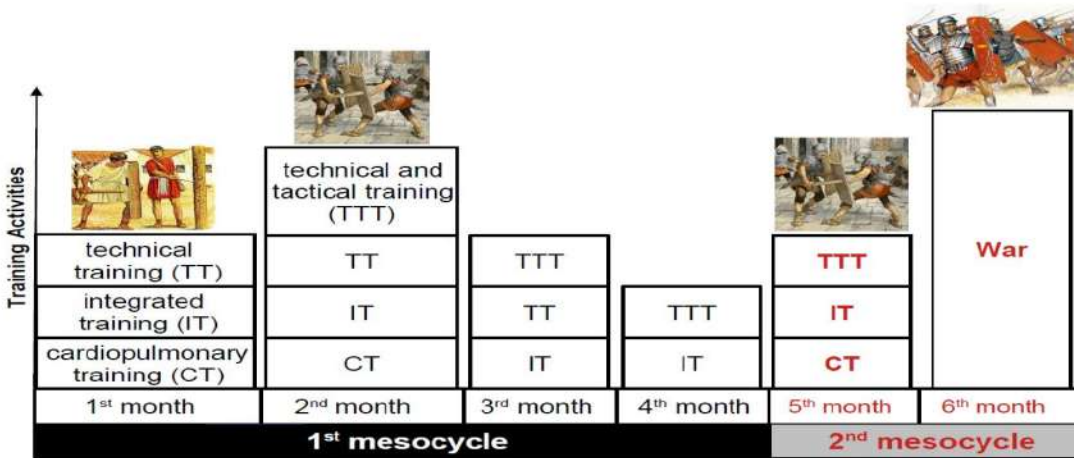
So, for the war coach to organize all these training sessions (physical training, technical training, technical and tactical training, and martial arts training) for the Roman military, he needed to structure

the training planning (Stout, 1921). But in this article, the author used the term periodization of the sportive training to explain how the training planning was organized. Other terms used of the sportive training were the mesocycle, and the microcycle to explain the military periodization of the Romans. Remember, all these terms were not used in ancient Rome.

The ancient periodization of the Roman military training was used with several mesocycles of 4 to 6 months of duration during various moments of the year for the soldier and the sailor to always be prepared for war (Fernández, 2018; Sorrosal, 2013). Then, the Romans organized the military training with a period of duration (4 to 6 months) that caused an improvement in the physical preparation, technique, and tactics of the military.

After of 4 to 6 months of the mesocycle, the war coach prescribed some tests to check the military's progress with the trainer (McAvoy, 2017; Stout, 1921). Then, the war coach evaluated the physical preparation with the long march of the military and determined the technical and tactical quality during the combat training with wooden weapons, practicing wrestling combat training, and in the team combat training with wooden weapons. Therefore, the Roman military training was very updated for the moment. The training was similar to athlete preparation (Costa, 2022; Matveev, 1991).

Figure 4 presents an example of how the mesocycle could be structured. The reader can observe that the training load of each mesocycle is related to the quantity of activities. However it was not found in the Roman military training literature another way to measure training load. In the example of figure 4, the Roman military practiced 5 months of training and in the 6th month a war occurred with an enemy of ancient Rome. Remember, at the end of each mesocycle the war coach prescribed some tests to evaluate the military, but in the example of figure 4 the test was the war.



IT activity (strength training + technical training): heaviest wooden weapons.

TTT activity: team training with actions of the weapons in the air, combat training with wooden weapons and/or wrestling.

Figure 4. Mesocycle of the Roman military training with 6 months of duration (Elaborate by the author).

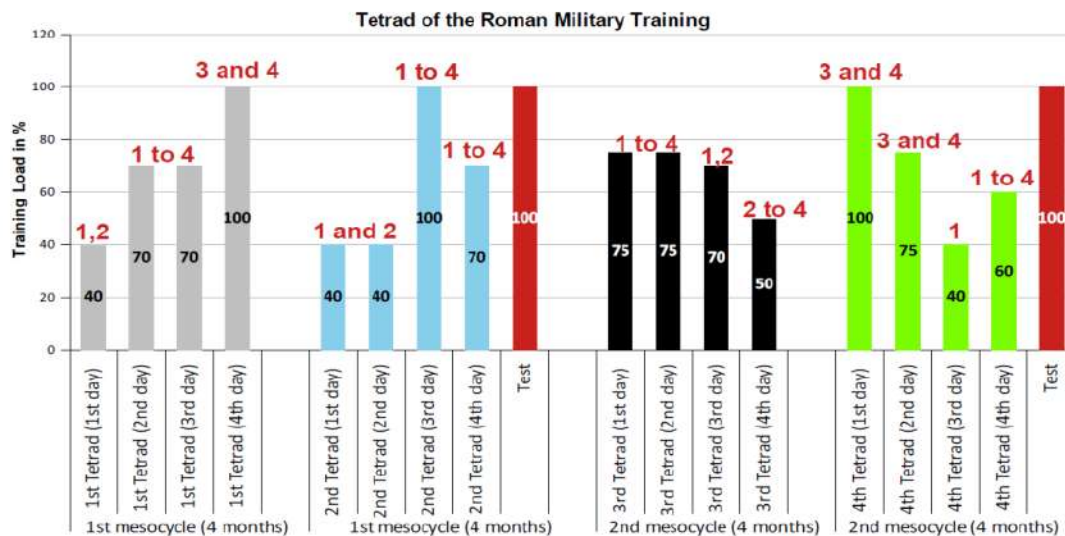
6 Ancient Rome had several wars with various civilizations when was Roman Monarchy (753 to 509 B.C.), Roman Republic (509 to 27 B.C.), and Roman Empire (27 B.C. to 476 D.C.) (Henrique, 2020; Ponte, 2017). In 146 B.C., the Roman Empire conquered ancient Greece and after this moment, the Romans used the scientific knowledge of the Greeks to structure the Roman military training (Marques Junior, 2021b; McAvoy, 2017). Then, the Romans used the Tetrad of the Greeks to structure the military training. The Tetrad was the microcycle of the Greek athletes for preparation in the ancient Olympic Games (Montero, 2020; Padilla, 2017). The Tetrad was organized with four days of training, the Greek coach prescribed different training loads each day for the athlete perform the

training tasks of the sport in which he competes (Costa, 2022). The Tetrad was performed with the following training load: 1st day had light training, 2nd day was with hard training, 3rd day the athlete practiced a passive or active rest, and 4th day the training load was medium (Marques Junior, 2022b).

The Tetrad was criticized by Roman war coaches because the training was structured with a rigid training load, in four days of training the military practiced the same load training (Porter, 2023; Stocking, 2016). Then, the Roman war coach practiced adaptations of the Tetrad for the soldiers and sailors have better training. The Tetrad applied in the Roman military training had a load training of four days different from the Greek Tetrad, the Roman war coach determined the load training (light, medium, hard, and passive or active rest) according to the objective of the microcycle, which was the Tetrad (Porter, 2023). The Tetrad had four days with the training load of several variations, for example, four days of hard load, or two days of light load and two days of hard load, and other variations of the training load.

The Roman war coach knew that 4 to 6 months of military training caused improvement in the Roman military (physical preparation, technique, and tactics) (Fernández, 2018; Sorrosal, 2013). Then, the Roman military training was structured with several Tetrad during 4 to 6 months, after this period the military practiced tests for the war coach to determine the effect of the training (Porter, 2023). Therefore, the Tetrad was inserted into the mesocycle of 4 to 6 months. This procedure occurs in Matveev's traditional periodization, the microcycle inserted in the mesocycle (Matveev, 1991).

Figure 5 presents an example of the Tetrad in the mesocycle with the types of training. The author did not find how the Roman war coach determined a training load light, medium, hard, and very light in the active rest for the military training. Then, the training load of each day of the Tetrad was presented by percentage to facilitate the explanation of figure 5. However, in ancient Rome, the percentage was known. In figure 5, a light load was 10 to 40%, a medium load was 50 to 70%, a hard load was 75 to 100% (Marques Junior, 2023d), and a very light load in the active rest was 5 to 9%. The 1st and 2nd Tetrad were used several moments in the 1st mesocycle that had a duration of 4 months. After this mesocycle, the war coach prescribed the tests to determine the effect of the training in the military. The other mesocycle with the 3rd and 4th Tetrad had a similar procedure of the 1st mesocycle.



4

The red number above of the training load bar is the types of training practiced during the day of the Tetrad: 1) physical preparation (cardiopulmonary training and strength training), 2) technical training, 3) combat training with weapons and/or wooden weapons, and 4) wrestling combat training.

Figure 5. Tetrad in each mesocycle of the Roman military training with 8 months of duration (Elaborate by the author).

Discussion

Roman military training had a very sophisticated organization because the periodization had a mesocycle of 4 to 6 months and some Tetrad in each mesocycle was the microcycle. After each mesocycle, the war coach practiced tests to determine the effect of the training. This procedure is used in the sportive periodization, most periodizations have mesocycle and microcycle, and after some mesocycles, the coach prescribes tests to determine the physiological adaptations of the athlete with evaluations of velocity, strength, and other motor capacities, and uses tests to check the athlete's technique and tactics (Api & Arruda, 2022; Padilla, 2017).

This same procedure occurs in sportive periodization because the content was based on the periodization of the military training of ancient civilizations (China, Rome, Greece, and Egypt) and in the Tetrad created by the Greeks for the ancient sportive training (Marques Junior, 2022a). Another motive of this procedure of the sportive periodization, the sports researchers determined with research that this training structure causes high performance (Dantas et al., 2022; Matveev, 1997).

The periodization of the Roman military training had a training with divisions, how physical training, technical training, technical and tactical training, integrated training, and martial arts training. This military organization was similar in ancient China because the structure of the Chinese military training had divisions, with technical training, technical and tactical training, and martial arts training (Marques Junior, 2023a). In sportive periodization, the training also has this organization, because the training causes improvement in the athlete (Navarro, Núñez & Caraballo, 2023; Marques Junior, 2022c).

The periodization of Chinese military training had two types of periods, the military training period and the war period (Marques Junior, 2023a). But in the studies about the periodization of the Roman military training, this was not mentioned (Fernández, 2018; McAvoy, 2017; Porter, 2023; Sorrosal, 2013). However, the Roman military had two moments during military service, the first moment the military needed to always be training to be prepared for the war, or the military was fighting in the war (Parpiev, 2023; Ramalho et al., 2021). Then, the periodization of the Roman military training had two periods, the military training period and the war period, but the war coach did not use this term. Therefore, the periods of the military periodization were used according to the geopolitical event that ancient Rome was passing.

In sportive periodization, the creation of periods occurred for other reasons. Soviet sports researchers created the periods because of the seasons of Soviet Russia (1917 to 1922) and later of the Soviet Union (1922 to 1991) (Marques Junior, 2020). So, in the winter the Soviet athletes practiced during the preparatory period, and in the summer the Soviet athletes performed during the competitive period. The scientific knowledge of the Soviet sports researchers improved, so the periods were structured according to the physiological adaptations, the technical and tactical evolution, and the sportive calendar (Costa, 2022; Marques Junior, 2023b; Platonov, 2004). Another motive of the periods in the sportive periodization, this structure of the training organization guides the coach in the best way to apply the training loads (Marques Junior, 2022d).

The physical training, the technical training, and technical and tactical training of the Roman military training were exercised with more stress when the military trained in the hot, cold, and strong rain (McAvoy, 2017). This procedure is practiced in sportive training because the type of climate (hot, cold, and others) the athlete needs to train for adaptation to occur with the climate stress to have high performance (Platonov, 2004).

So, the reader learned a little about how Roman military training was organized. The review article had limitations, the author did not find how the training load was quantified in the mesocycle of 4 to 6 months and the microcycle, that was the Tetrad.

Conclusion

The sportive periodization originated from the military periodization of ancient civilizations and of the Greek Tetrad for the sportive preparation the ancient Greek athletes. Then, the study about the

periodization of the Roman military training is an important topic for sportive training researchers. The organizations of the Roman military training were very sophisticated, with several types of training (physical training, technical training, and technical and tactical training) that were structured by periodization. The periodization of the Roman military training the microcycle was the Tetrad that was inserted in the mesocycle of 4 to 6 months. But in the traditional periodization created by Matveev in the years 50, the microcycle with the training load in percentage is inserted in the mesocycle. Perhaps the Soviet sports researchers elaborated the microcycle inserted into the mesocycle based on the periodization of the Roman military training.

After each mesocycle of the Roman military training, the military practiced tests for the war coach determining the evolution of the training. This is frequently used by coaches of the current sport. Perhaps these evaluations made in the sport after the mesocycles were based on the ancient Romans. The periodization of the Roman military training had two periods, the military training period and the war period, but had limitations the periods because the Romans did not use the transition period for the military to have an active rest. An active rest was important for the Roman military because the military service was very intense during the training, and an active rest reduced the chance of injury. In conclusion, the periodization of the Roman military training was very organized for the military to achieve a high performance in the war.

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1 Conflict of Interest And Funding

There is no conflict of interest.

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