



# Athlete and coach's perspectives on sports nutritionists' role in enhancing sports performance in Indonesia Sports Training Centers

## *Perspektif atlet dan pelatih terhadap peran ahli gizi dalam mendukung performa olahraga di Pusat Latihan Olahraga di Indonesia*

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## Abstract

The role of a nutritionist as a sportsman was a legal mandate listed on Law No. 3 of 2005 in Article 63 concerning the National Sports System, stated that nutritionists are one of the sports personnel. However, the implementation of the nutritionist's role in the athlete training center was still lacking. The importance of nutritionist existence ought to be assessed to explore the perception of athletes and coaches. Qualitative approach was used to analyze focus group discussions on 15 athletes and 10 coaches located in 3 cities in Indonesia (Jakarta, Yogyakarta, Malang). Results, the acceptance of the food in the training center are satisfactory even though some still eat out. More knowledge concerning nutrition, performance, and posture are obtained from in-class education, brochure, personal counselling, and small talk by the presence of nutritionists. Conclusion, athletes and coaches perceive that nutritionists are urgently necessary for optimum nutrition support to enhance sports performance.

**Keywords:** Sport nutritionist, athlete, coach, nutrition support

## Abstrak

Peran ahli gizi sebagai tenaga keolahragaan telah tercantum dalam UU No. 3 Tahun 2005 Pasal 63 tentang Sistem Keolahragaan Nasional, yang menyebutkan bahwa ahli gizi adalah salah satu tenaga keolahragaan. Meskipun demikian, implementasi peran ahli gizi di pusat latihan masih rendah. Penelitian bertujuan untuk mengidentifikasi urgensi keberadaan ahli gizi di pusat latihan olahraga dari sudut pandang atlet dan pelatih. Metode penelitian yaitu menggunakan pendekatan kualitatif melalui FGD terhadap 15 atlet dan 10 pelatih yang berlokasi di Jakarta, Yogyakarta, dan Malang. Hasil, penerimaan makanan yang disediakan di asrama atau pusat latihan tergolong memuaskan meskipun sebagian atlet masih memiliki kebiasaan mengkonsumsi makanan di luar asrama. Pengetahuan terkait gizi dan performa olahraga umumnya diperoleh dari edukasi di kelas, brosur, dan konseling individu bersama ahli gizi. Kesimpulan, atlet dan pelatih menganggap bahwa peran ahli gizi memiliki urgensi yang tinggi untuk membantu terpenuhinya status gizi optimal sehingga mendukung performa olahraga.

**Kata Kunci:** Ahli gizi olahraga, atlet, pelatih, pendampingan gizi

## Introduction

Athletes are at high risk of disproportionate nutritional intake, both in student-athletes and professional athletes (Kim et al., 2019; Majewski et al., 2016; Ong & Brownlee, 2017). Studies conducted on endurance athletes from various sports revealed that 80,8% of them had less carbohydrate intake, while 70% had a higher intake of fats, saturated fatty acids, and cholesterol (Baranauskas et al., 2015). Myriad studies on various athletes – gymnastics, football, athletics – in Indonesia undertaken in 4 sports training centers (SKO Ragunan, ASIFA Malang, PPLP DIY, PPLP Aceh) had also shown unbalanced nutrient intakes (Penggali et al., 2017; Penggali et al., 2016).

Sports nutritionists have an important role in addressing the nutritional problems described above. One of which is assisting their individual and collective needs by organizing mass meals to optimize the nutritional status of athletes in the training center and in the sporting match which likely happening in the 2000 Sydney Olympics involving ten nutritionists (Juzwiak, 2016). This attempt knowingly increased food acceptance by athletes (Pelly et al., 2009).

In comparison with the nutritionist roles on patient care, nutrition assistance on athletes is indistinguishable. Nutritionists apply the same Standard Nutrition Care Principle for Indonesian (PAGT). It is comparable to what world-class sports nutritionists have done in supporting athlete performance – counselling, mentoring, regulating athletes' intake of micro and macronutrients including fluid, controlling body weight, body composition, and somatotype – which advantageously meet the activity energy during training and competition (Steinmuller et al., 2014).

Nutritionists also provide assistance to female athlete's triad and those experiencing eating disorders, besides in the condition of the post-injury recovery and its therapy proportionate with the sports to deter re-injury risk. The administered assistance is distinguishable between sports since the needs of individual athletes are heterogeneous (Rollo et al., 2018).

The placement of nutritionists at the athletes training center, SKO, and PPLP, is an attempt to optimize athletes' achievements,

considering only two employed professional nutritionists recently, PPOP DKI Jakarta, and ASIFA Malang. Therefore, this study aims to examine the perceptions of nutritionist-assisted and non-assisted athletes regarding the roles, functions, and benefits of nutritionists on their performance. This study expectedly strengthens the policy for nutritionist's placement as sports personnel in Indonesia.

## Methods

This study involved 15 athletes from PPOP DKI Jakarta (6), PPLP DIY (5), and ASIFA Malang (4). The secondary resource person was coaches comprising of 10 from PPOP DKI Jakarta (3), PPLP DIY (5), and ASIFA Malang (2).

Research data was collected online using the Zoom Cloud Meetings platform. The research subjects were taken by purposive sampling. Discussion topics for athletes including the perceptions of both subjects regarding the acceptance of food delivery in the dormitories, nutrition education, understanding of the urgency of nutritionists for athletes and, the perceived benefits of having a nutritionist.

The FGD was conducted in 60-90 minutes of duration guided by a moderator who referred to the question guide. All conversations in the interview process were recorded by means of video-taker and by note-taker. The method of this study was qualitative on a focus group discussion (FGD) approach.

Data analysis was carried out using the analysis framework method by a qualitative data analysis technique with a systematic and structured approach that allowed researchers to label, classify, and organize data related to themes and concepts according to the question framework used. The undergone stages were transcription, coding, matriculation, connection & interrelation, and data presentation.

This study is part of research entitled "Study on the Implementation of Policy on the Role of Nutritionists in the Ministry of Youth and Sports of the Republic of Indonesia in order to Support National Athlete Achievement". Ethical Clearance had been obtained from the Ethical Commission of FKMK UGM with number: KE/FK/0292/EC/2020 on March 10, 2020.

## Result and Discussion

### Understanding of the Urgency of Nutritionists Among Athletes

The existence of a nutritionist for athletes is considered crucial. Nutrition assistance for athletes is a form of sports science application to support achievement (Lambert et al., 2022). Subsequently, different characteristics of sports determine the nutrition requirements (Mustafa et al., 2020). Athletes support this urgency as evidenced by the interview responding to the question about the importance of sports nutritionist on a 1 to 10 scale. The respondents stated that from scale 1 to 10, they score the urgency of nutritionist for athletes as 9-10, implying that they perceive nutritionist's role as very important.

According to the interviews from this study, it shows that the coach's understanding of nutrition science in two training centers was very limited to assist the nutritional needs of athletes. The coaches also expressed that they have limited skill in and persuading and convincing athletes to be obedient to their nutrition recommendation. If a sports nutritionist existed, foreseeably, the athletes would be more willing to obey the nutrition recommendations (Trakman et al., 2019).

Therefore, competent sports nutritionists are paramount to provide appropriate nutritional interventions for athletes. The duties are described as follows:

- (1) Measuring the physical growth of athletes regularly;
- (2) Providing nutrition education to athletes, coaches, and other supporting teams;
- (3) Managing the nutritional needs according to the sports periodization;
- (4) Organizing the food management for athletes (Steinmuller et al., 2014).

### Benefits from The Support of Sport Nutritionist

The interviews with athletes, coaches, and managers of PPOP DKI Jakarta and ASIFA Malang in this study shows that there were substantial benefits after the nutritionist employment, for instance, in managing body weight and maintaining the balanced diet of athletes. It relevant to the previous study which stated that beside convenience and taste preference, counseling from registered

nutritionist or dietitian influence the athletes' food choices (Eck & Byrd-Bredbenner, 2019).

"In my case, it is easy to gain and lose weight. When gaining weight, it is quite successful, sis, when losing weight too...." Athlete H

"In my opinion sis, it's like... the work of nutritionist is very important because we have already trained, spent a lot of energy and it's like the work of a nutritionist is very important to (maintain) our diet." Athlete R

While the athletes in ASIFA Malang, stated that nutritionists' role is not limited to monitoring body fat, weight, and height, but includes delivering nutritional knowledge.

"Yes, we got explained... so that we know how our body's growth from year to year." Athlete O

Similarly, the ASIFA Malang coach mentioned that in comparison to other non-assisted sports schools (SSB), athletes trained in ASIFA Malang had a better understanding of diet, prior to and following the match which was beneficial to attain a peak performance in the game.

"Yes. From my point of view, sis, the difference is very striking. So, it is much more dominant and more important to pay attention to it. Because football (athletes) needs suggestions. ...." Coach T

Positive benefits were also obtained by athletes, in terms of regulating a regular diet and measuring athlete's development. The athlete notified that they feel an alteration when undergoing training at the nutritionist-assisted sports school (PPOP DKI Jakarta or ASIFA Malang) compared to the non-assisted one. They perceived that the meals are more appetizing, nutritious and healthier, their stamina and performance are enhanced, as well as improvement in their overall anthropometric measurements.

### Acceptance of Food Delivery for Athletes and Coaches in Dormitories

The administration of meals at the PPOP DKI Jakarta training center is fully managed by the DKI Jakarta Provincial Government using APBD funds and its standard refers to the Governor Decree of DKI Jakarta number 1977 of 2013. Meanwhile, the management of meals at the ASIFA Malang is managed independently using fees from students included in the living cost

unit at ASIFA. The details of food management in three training centers are depicted in Table 1.

**Table 1.** Meal Management in The Training Centers

Characteristics	PPOP DKI Jakarta	PPLP DIY	ASIFA Malang
Food management	Catering partner	Catering partner	Catering by ASIFA
Nutritionist involvement	Yes	No	Yes
Fund	Local Government	Local Government	Student cost living
Budget (person/ day)	110,000	Unknown	75,000
Service	Buffet	Buffet	Semi-buffet
Meals per day (times)	3	3	3
Snacks per day (times)	2	2	2
Class of sports for portion	Light: Gymnastics Archery Medium: Basketball Athletics Volleyball Badminton Sepak takraw Tennis Table tennis Heavy: Rowing Wrestling Judo Pencak silat Swimming Football Taekwondo Heavyweight: Cycling Weightlifting	No reference	Adolescents' RDA (10-19 yo)

The athletes also admit that the food is acceptable in taste and in portion in those two training centers.

“Ya, the food is tasty here.” .... “Balanced” .... “There is carbohydrate, protein, and so on lah.” Athlete E

“It is good, sis.” Athlete A

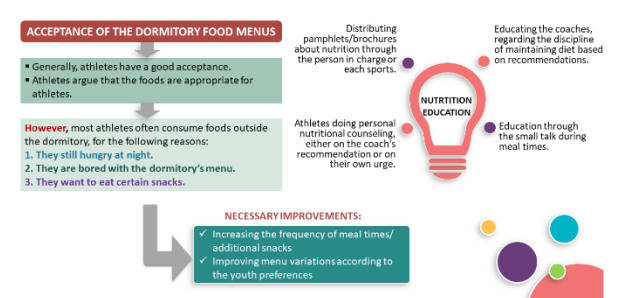
Even though the meals are palatable and acceptable by athletes, they do eat-out occasionally.

“Ya, I eat out sis. Eh sometime I eat out.” Athlete N

“I have sis, often.” ... “Only chicken crispy, sis.” Athlete A

There are no strict regulations prohibiting or limiting athletes from eating out because managers worry that the food served by the dormitories has not fully satisfied the

athletes after undergoing a long period of strenuous exercise routines. In addition, nutritionists also coordinate with the cook to add a wide range of menus preferred by teenage athletes, hence athletes do not fed-up. The athletes’ acceptance of the menu served at the boarding house is illustrated in Figure 1.



**Figure 1.** Athlete’s acceptance towards dormitory menu (Source: personal documentation).

**Nutrition Education Program**

Nutritionists’ role is not limited to manage the food, but also provide education to athletes about the role of nutrition in supporting the ideal physical appearance and sports performance, giving a recommendation of types of food and the appropriate sports food, besides choosing the right supplements (Penggali, 2017).

Athletes of this study revealed that they used to access personal nutritional counselling by meeting a nutritionist in the polyclinic or medical room. The nutritional counselling is be carried out at the will of the athlete himself or on a recommendation from the coach. In general, the topics consulted are about losing or gaining weight, increasing muscle mass or endurance, speeding up injury recovery, and so forth.

The nutritionists in ASIFA stated that in spite of giving individual education, nutritionists had also run classes in 2 training centers befitted with each sport. Yet, this agenda cannot be frequently carried out since, firstly, it needs to adjust to the athletes’ absolute free time without interfering their schedule of training, school, and rest. Secondly, there is a limited number of nutritionists to deliver the material in-class of each type of sport. To overcome this, nutritionists conduct the education by means of pamphlets/brochures and convey it to the person in charge of each sport, then ask to forward it to their mates.

The findings in this study befitted with the study conducted by Pelly et al. (2018) which mentioned that teenage athletes' food choices are often influenced by sensory and psychological factors, even though they conceded that the food was sufficiently meeting their needs. To address this problem, an improvement in the variety of food menus without ignoring the principles of nutrition is crucial in boosting their acceptance. If the meal was arousing the appetite, it will subtly increase the intake and finally enhance the athlete's resistance during strenuous exercise as the athletes had more energy. This is fitting with the previous study which explored the athlete's perspective on barriers and enablers to nutritional adherence, in which one of the enablers is the understanding of emotional being and the eating habits of the athletes (Bentley et al., 2021).

In general, this study shows that athletes have a good acceptance of the food served in the training center. They already understood the concept of meeting energy and nutrients need to present the best performance, and considering whether the food was decent and recommended or bad and should be avoided. Nevertheless, eating out was become habits among athletes in spite of its hygiene risk and under guaranteed quality. The motives revealed from the discussion with athletes were 1) hunger at night, 2) boredom with the frequent menu, and 3) desire to consume unprepared food by the training center such as boba milk tea, fried rice, high sodium snacks.

Responding to this habit, providing guidelines for eating out is surmount because athletes of this study revealed that they tend to dine out, while most of the food stalls near the dorm are fast foods merchants. It correlates to the previous study in Saudi Arabia athletes that they have high preference in consuming fast food and fizzy drinks (Altowerqi et al., 2020). The recommendation is to select the healthy one which dense in nutrition, less fat, and contains complete macro and micronutrients. These guidelines will be practical when the athletes travel for competition abroad or out of town (Eck & Byrd-Bredbenner, 2019).

Unlike PPOP DKI and ASIFA Malang, PPLP DIY has not employed nutritionists in organizing meals. The catering partner had been the responsible parties selected by a tender system

organized by the DIY Public Procurement Agency (LKPP). In the implementation, the food budget of athletes is determined by the Education, Youth and Sports Bureau of DI Yogyakarta (DIKPORA) as well as the menu plan in collaboration with PPLP management or manager.

PPLP DIY training center practice buffet model for serving food, comparably with the two training centers mentioned above. Yet in the presentation, there is no difference in the amount or variety of food for each sport. The meals are delivered three times a day, breakfast, lunch and afternoon snack, dinner and evening snack. In addition, plain bread and a sachet of sweetened condensed milk are given to all athletes every morning.

Skipping meals had been experienced regularly by some athletes in PPLP DIY because of many reasons. 1) Skipping breakfast due to early departure because of the far distance between school and training center, 2) skipping lunch because of school hour ended in the afternoon. A few athletes went back to the training center for having lunch, while others brought a breakfast menu for lunch or bought outside. Dinner is the only mealtime that considered attended by all athletes. This condition also occurred in a study conducted by Rais (2019) at Jatidiri Athlete's Dormitory, Semarang, Central Java Province. Athletes did not have enough time for breakfast after morning training and had to go to school. Sometimes, athletes also skip dinner in the dormitory and choose to eat out because dinner time has ended due to night practice.

Eating out habit also occurred in PPLP DIY training center, the major motives were boredom of the provided menus. Coaches also admitted that athletes were disallowed to do so. They even realized that the system needed an improvement in the variety of menus. Athletes also acknowledged this statement. They wished that the menu would be more miscellaneous if nutritionist were employed there. At Jatidiri Athlete's Dormitory, nutritionists from the Office of Youth and Sports (Dinpora) are involved in the process of organizing the meals. Monitoring is carried out every 2-3 days and they hold discussions to improve the food services which have an impact on increasing the food intake of athletes in dormitory (Rais & Palupi, 2019).

This condition was comparable to the study carried out at SMAN Sports (SMANOR) in Riau Province (Rahayu & Rustiadi, 2020). Professional nutritionists have not yet been involved in the preparation of the meals. The school manager is the party responsible for this matter. Indistinguishably, meals were delivered three times a day – morning, afternoon, evening – and served in a buffet model with the same variations for all sports. The absence of nutritionists in the system caused no supervision to the amount and composition of food taken by athletes, thus, monitoring the nutrients compliance was only based on self-estimation of the athletes. Lack of education also exacerbates the monitoring process which highly risky to an imbalance intake because athletes had no knowledge measuring their consumption. Dewi et al. (2021) suggest using the sample of household size daily food portion to help athletes apply their nutritional recommendation (Dewi et al., 2021).

Likewise, sports nutritionists also have a role to determine the variety of foods for specific conditions (M. H. S. T. Penggalih et al., 2017). These are foods during competition, evening snacks following the match on the field and on the return trip, food during Ramadan fasting, food for the fulfilment of basic nutrients, therapeutic food, low-calorie diet, food for multiple locations of the competition, travel food (if the venue is different with the athlete overnight), take-away food from the dining room, food for recovery phase (Burkhart & Pelly, 2014).

Moreover, challenges that ought to be accepted by a nutritionist are giving education. A recent study stated that coaches, athletes, and parents often perceive supplements as “miracle foods” which optimized the athletes’ performance. At this condition, a nutritionist should be able to explain that these “miracle foods” have never been existed. In order to compete better, athletes need to consume a balanced diet matched with the periodization (Pande, 2019).

The absence of nutritionists in the training centers can cause the management to work less optimally. As happened in PPLP DIY, the athletes obtained the nutrition-related information mainly from the coaches instead of sports nutritionists. Some acquired from a research project of which they were the subject. A study

conducted by Zuniga et al. (2017) showed that NCAA athletes obtained nutrition information from their family, athletic trainers, and internet/media.

Several ways can be done to improve the skills of athletes in choosing healthy food, education by utilizing technology such as smartphones can be an alternative. Young athletes are millennial generations who are very familiar with technological developments like the internet, mobile applications, and social networks. There is a high probability that athletes are interested in using the app to reach nutrition information (Zuniga et al., 2017). Trakman et al. (2019) revealed that football athletes in Australia seek information about nutrition through dietitians, nutritionists, and the internet (Trakman et al., 2019).

The study conducted by Belski et al. (2014) showed that social media can be used for education for athletes. A study conducted in New Zealand uttered that social media is the platform used by athletes to find information about good food and nutrition during exercise. In accordance with Trakman et al. (2019) research, some of searched information were sports nutrition, individual consultation, and general information about food (Belski et al., 2017; Trakman et al., 2019).

Considering that the coach is the closest party to the athlete, the nutritionist also provides nutrition education to the coach, mostly about the importance of discipline for athletes in implementing the recommended diet. Therefore, it’s important to perform systematic nutritional education for coaches to improve athlete’s nutrition understanding (Gao et al., 2021). An investigation conducted on 101 elite student-athletes, found that information related to nutrition was mostly obtained from coaches, at 45%, while nutritionists contributed to 16% (Bird & Rushton, 2020). Furthermore, this nutritionist-to-athlete’s agenda was delivered informally and casually during mealtime, however, the message often conveyed unevenly to all athletes. Logue et al. (2021) suggest that nutritionists should improve nutritional advice delivery to athletes. Nutritionists should give messages as specific as possible to athletes to support their self-awareness of nutritional-related behavior changes (Logue et al., 2021).

Several studies stated that the role of nutritionists not limited to providing meal plans

but also to periodic monitoring. The latter stage is crucial to determine and escalate athletes' acceptance of the food. There are 3 matters should be evaluated: 1) satisfaction relating to the food, human resources engaged in serving, and the environment or atmosphere of food service, 2) the nutritional content on specific periodization, in the regular schedule or in the competition, and 3) the organoleptic evaluation. The evaluation of the components was menu quality, food safety, labelling nutritional information for local food types, and foods for specific conditions. Sports nutritionists also obliged to provide information on the nutritional content of food to the feeding-service officers. In case the athletes ask, they are able to give correct and valid information (Burkhart & Pelly, 2014; Mohalijah et al., 2014).

Accurate timing and dietary composition are decisive for athlete's training adaptation and performance. Thus, it is a prerequisite for nutritionists to learn. It is congruent with a report conducted by Mustafa et al. (2020) elucidated that knowledge about athlete's body composition, training objectives, training time, periodization of nutrition, as well as cultural and economic backgrounds of nutritionists enable them to perform more comprehensively in planning meal (Mustafa et al., 2020).

Prior to 2016, PPOP DKI Jakarta training center did not hire nutritionists. The alteration had done after the amendment of the organization from PPLP to PPOP under PERGUB DKI/367/2016 (Provincial Governor Regulation of DKI Jakarta). Previously, the role of nutrition education for athletes was emphasized to the coach. However, the coaches stated that the workload was quite heavy, thereby, nutritionists are urgently necessary. As the results of a study conducted by Gao et al. (2022), the soccer team didn't assign nutritionists and coaches were the primary source of their dietary advice (Gao et al., 2022).

By law, the involvement of nutritionists at PPOP DKI Jakarta is guaranteed on Governor Decree of DKI Jakarta number 1591 of 2018 which regulated the nutritional operating cost and honoraria for nutrition staff in its unit cost. The commitment of the government had been also depicted in Governor Decree of DKI Jakarta number 1977 in 2013 mentioned to ensuring the fulfilment of ideal nutrition to support athlete's performance.

The participants of the study stated that by following the nutritionists' placement policy, the understanding of coaches, managers, and athletes about their role is growing. The obvious changes are the awareness of seeking information from nutritionists. In advance, nutritionists are the active party in approaching targets (athletes, coaches), at present, the targets volunteered themselves to consulting their problems. It is identical to a study run by Kaur et al. (2020) on nutritionist-assisted athletes and non-assisted athletes. The former group showed more appropriate behaviors in consuming fluids and better in fulfilling nutritional needs than those non-assisted (Kaur et al., 2020).

The presence of a nutritionist for athletes is greatly urgent which considered as a form of sports science application. The high variability among sports determines the different treatments to the athletes as each sport has its own characteristic and requirement. Organizing athlete's diet along with training is a top priority in the athlete nurseries since it has a huge influence on health and fitness as well as performance (Rahayu & Rustiadi, 2020).

The nutrition assistance is not limited to sports clubs or schools, but including sports events as in the 2000 Sydney Olympics which became the first sporting event having collaborated between food service providers and nutritionists. Approximately 10,651 athletes from 199 countries and 28 sports were served (Pelly et al., 2009).

Digging in more detail, the interviewed nutritionist of this study expressed that the challenges faced by nutritionists were collaborating with many partners managing large-scale food for athletes from different sports and requirements besides their origins which diverse in culture, region, and religion. Afterward, nutritionists also conducted an evaluation of menu management that involved some athletes.

Moreover, nutritionists need to regard menu variations, adjustments to meet different nutritional needs for each sport, and special diets for athletes such as allergenic substances, athletes with special conditions, athletes with disease conditions like diabetes (Juzwiak, 2016). Aspects of food safety, preferences, belief factors, and eating behavior of athletes according to its availability at the location of the

sporting event organizer must also be considered to achieve good acceptance by athletes (Burkhart & Pelly, 2014).

Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine (ACSM) (2016) summarizing the role of sports nutritionists including assessment of nutritional needs and dietary practices, interpretation of test results (biochemistry, anthropometry), diet prescription and education, collaboration and integration, evaluation and professionalism. The Academy of Nutrition and Dietetic in 2014 published a standard operating procedure and stand at the operational performance for sports nutritionists. It is explained that the role of sports nutritionists in various contexts of activities, including: Clinical practitioners; Sports nutritionist; Researchers; Educators; and Group counsellors (Steinmuller et al., 2014).

## Conclusion

Regarding the examined aspects, athletes and coaches perceive that nutritionists are urgently necessary in supporting athletes' performance since the alterations are obvious in meal acceptance, performance, and nutrition knowledge. The projected roles of sports nutritionists are not limited to organizing meals but also include educating all related parties (coaches, athletes, parents, team officials), monitoring and evaluation program, as well as collaborating with other sportsmen.

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