Impact of training sessions and matches on the bodies and physical performance of women football players

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UPV/EHU researchers have measured the changes that take place in women as a result of the training sessions and matches throughout one season. There is a tendency for fat to be reduced and muscle mass to increase, and physical performance tends to improve, although no significant changes take place. However, substantial improvements have been detected at specific moments, and they have confirmed that playing in official matches is an important stimulus for improving physical performance.

Researchers in the UPV/EHU's department of Physical and Sports Education have worked with 21 players in the Athletic Club women's A team. They have studied the relationship between their routine training (including the matches played) and their anthropometric measurements, parts of the body and physical performance, and with the evolution in these variables.

For this purpose, anthropometric and performance measurements were taken of the players at the start and at the end of the pre-season, halfway through the season, and at the end of it. Furthermore, in the periods between the two measurements, the volume in minutes of all the training sessions and matches played was recorded, and this volume was divided into content types. "We are grateful to Athletic football club for their help and co-operation. The technicians and players have displayed all their goodwill in this study," explained Aduna Badiola, the author of the

study.

In the light of the data obtained, Badiola has identified various trends. As regards the anthropometric measurements, it was found that as the season progresses the percentage of fat falls and muscle mass increases. In the case of the fat, this occurs more at the height of the season. As regards physical performance, except in the ability test, in the other three Badiola found a trend towards improvement, although in general this improvement is not very significant. "It's understandable," says Badiola. "We're talking about eight or nine months of competition, and they have to be fit right from the start; you can't expect the performance of people who compete over eight months to improve all the time. They have to maintain a high physical level throughout the season. In the holidays they also keep an eye on themselves, and they may maintain their physical fitness."

In any case, Badiola did detect some occasional improvements. For example, in the high jump test the results improved considerably in the pre-season, whereas speed improved particularly between the end of the pre-season until halfway through the season. "Leg power is in fact developed during the pre-season, and one could think that this influences jumping." Furthermore, according to Badiola, there is a direct relationship between jumping and speed: "the fastest ones are the ones that jump the highest. Or the ones that improve in the jumping are the ones that improve most in speed. It is a relation that was maintained throughout the season, which shows that to run fast, it is important to have leg power." So the results suggest that working on leg power during the pre-season improves jumping, and that then influences speed.

There is also training content that exerts a negative influence on speed. This is what happens with tactics, which are worked on, above all, through games in restricted spaces. According to the results, the content that most develops tactics is the one that has the most negative effect on

speed. "It is an aspect to take into consideration. Despite the fact that this work is done very intensively, they do not appear to improve speed, quite the opposite," points out Badiola.

Badiola also stresses the relation between matches and various training content with stamina. For example, working on aerobic power and strength can improve stamina, and so can playing official matches. "The ones who have played more minutes have more stamina. The matches could be a necessary stimulus to maintain the level of stamina." That only happens with official matches; "it is clear that the friendly games don't provide such a stimulus."

On the basis of the results of the study, Badiola believes that the training sessions have the right approach. "We have seen that the training they do is beneficial for them. The next step would be to analyse together with the trainers what is needed at each moment, when the improvements we have discovered at specific moments are advisable. With the future in mind, we also want to try and measure the volume of the training content, its intensity, although it is very difficult, and to analyse what has to be worked on at each moment to achieve the desired result."

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