MUSCLE FAILURE

Muscle failure is the momentary inability of the muscle that is being exercised to continue generating the tension necessary to overcome the resistance that the load places, occurring in the weakest angle of the positive phase of the repetition, that is, the moment in the repetition in which we can not continue anymore.

Most people who train muscle failure do not actually reach that failure, because to do it must be involved to the maximum in each repetition of the effective series. Many people come to a technical failure and never really cause muscle failure.
Therefore, we can say that groupings of series to failure with the same load and volume do not exist, for example, 4 series of 10RM. In this case, if a subject actually performs the first 10 repetitions to the failure, the second series could not execute it unless he reduced the weight (kg).

Some professionals say that you have to reach the failure in all series, others that only in the last series of the exercise, even lately, some say it is an obsolete technique and that reaching muscle failure is not necessary.

Personally, I position myself as the world leader in strength training, among others, Dr. Juan José González Badillo, who in many publications, including his book, "The speed of execution as a reference for programming, control and evaluation of strength training "defends the position that reaching muscle failure has no advantages, rather, disadvantages.
Among them we can highlight:
-Induce excessive fatigue
-High muscle damage
-Reduction of the force that a muscle can generate
-Reduction of the capacity of the nervous system to voluntarily activate the musculature
- It can lead to unwanted transformations towards slower isoforms in the expression of muscle fiber myosin.

In conclusion, the training until muscle failure seems to indicate a reduction in sports performance due to all these reasons, also not be necessary for the gain of muscle hypertrophy, since approaching the failure is more than enough.

References:

Badillo, J. J. G. (2017). *La velocidad de ejecución como referencia para la programación, control y evaluación del entrenamiento de fuerza*. Ergotech.

Pareja-Blanco, F., Rodríguez-Rosell, D., Sánchez-Medina, L., Sanchis-Moysi, J., Dorado, C., Mora-Custodio, R., ... & González-Badillo, J. J. (2017). Effects of velocity loss during resistance training on athletic performance, strength gains and muscle adaptations. Scandinavian journal of medicine & science in sports, 27(7), 724-735.

Sampson, J. A., & Groeller, H. (2016). Is repetition failure critical for the development of muscle hypertrophy and strength?. Scandinavian journal of medicine & science in sports, 26(4), 375-383.