

## Functional training: functional for what and for whom?

### *Treinamento funcional: funcional para que e para quem?*

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**Abstract** – The prescription of neuromuscular conditioning programs aimed at the development and maintenance of activities of daily living (ADLs) has been based on functionality. The functional training proposal needs further academic discussion. The present study presents a critical view on the functional training, assumptions, characteristics and definitions. The mere exercise selection does not make it a functional training, as there are no exercises that have greater or lesser functionality. For training to be functional, variables must be controlled and monitored, so that the prescription has the proper dose of exercise that the individual must perform in the training unit. Furthermore, a well-planned and objective training does not depend on a name, method, system, program, exercise or equipment.

**Key words:** Everyday activities; Physical education and training; Motor activity.

**Resumo** – A prescrição de programas de condicionamento neuromuscular voltados ao desenvolvimento e manutenção das atividades da vida diária (AVD's) tem-se baseado na funcionalidade. A proposta de treinamento funcional carece de maior discussão acadêmica. O presente texto apresenta visão crítica sobre o treinamento funcional, as premissas, características e definições. A mera seleção de exercícios não torna um treinamento funcional, assim como não existem exercícios que possuam maior ou menor funcionalidade. Para um treinamento ser funcional, deve-se controlar e manipular as variáveis para que a prescrição contenha a dose adequada de exercício que o indivíduo deve realizar na unidade de treinamento. Ademais, um treinamento bem planejado e objetivo não depende de um nome, método, sistema, programa, exercício ou material.

**Palavras-chave:** Educação física e treinamento; Atividade motora; Atividades cotidianas.

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## INTRODUCTION

A new training methodology based on functionality has emerged, which primarily includes the selection of activities, exercises and movements considered functional<sup>1,2</sup>. This proposal must be understood from the perspective of the principle of functionality, which proposes the performance of integrated and multiplanar movements. These movements require acceleration, stabilization (increasing in some movements, destabilizing elements) and deceleration, with the aim of improving the movement ability, strength of the trunk region (CORE) and neuromuscular efficiency. This proposal is justified by the possibility of broad application and “transfer” of the effects of this type of training for “activities of daily living” (ADLs) and “natural activities”<sup>3</sup>.

The American College of Sport Medicine<sup>4</sup> defines the concept of functional strength as “... the work performed against resistance so that the force generated directly benefits the performance of activities of daily living (ADL) and movements associated with sport”. Under this concept, training of such capacity is considered functional.

The terms in quotation marks: “transfer”, “activities of daily living” and “natural activities” are terms that appear in many articles posted on search websites and blogs, which lack of scientific rigor. Such expressions are frequently used outside the scientific context and are not used in the deep context of the concept of this terminology.

The aim of this study was to discuss the concepts associated with functional training, contribute to redefining them and make a critical view on the state of the art with regard to this issue.

### The term “functional”

The term “functional” can be understood as: a) Referring to the function or its performance; b) Concerning vital bodily functions or their improvement; c) It is said of something that is able to efficiently fulfill its utilitarian purposes; d) is also used as a particular adjective or relative to biological or psychic functions. I.e., the correct application of the term “functional” should be associated or related to the functions of the human psychobiological system, effectively and respecting the functions mentioned.

All training, without exception, should aim to develop some functionality variable. The training of the functional variable does not depend on any type of equipment and / or specific type of exercise (however, it seems that only training that has such characteristics receives the merit of being “functional”).

### Functional training

The prescription of functional training should provide adequate “dose” of exercise facing the possibilities of response to stimulus and ensure optimal adaptation in relation to the efficiency and functionality criteria.

By selecting a certain exercise, taking into account the perspective of functionality, it does not mean that “functional training” has been held

because different aspects should be considered. To be considered functional, training should include selected exercises considering their functionality and this is only possible by meeting five different functionality variables<sup>5</sup>: a) adequate frequency of training stimuli; b) volume of each session; c) adequate intensity; d) density, i.e., optimal relationship between exercise duration and recovery interval; e) methodological organization of tasks. The proper management of these variables allows effective achievement of objectives intended of improving or maintaining the functional capacity of the psycho-biological system.

Even simplistically, it could be said that functional exercise does not determine functional training by itself, but functional training must adequately select exercises for functional training. The simple analysis of the term suggests that often the concept of functional is masked when establishing a working philosophy based on certain methods and types of exercises.

Exemplifying the above: for an untrained individual, an inadequate “dose” of training (Example: errors in volume X intensity ratio, some of the variables previously discussed) or the selection of exercises with high levels of external stabilization (provided by several exercise resistance devices) may be more “functional” than proposing certain motor tasks with high demand of active internal stabilization, including implements that produce or add instability such as “bozu” or “fitball” (commonly associated with this type of training).

One of the assumptions associated with the concept of functional training is to “**transfer**”. The origin of this word is Latin (act of *transferre*, transfer), i.e., action or effect of transferring, which is the act of passing or taking something from one place to another. It is considered that all training has the sole purpose of achieving the greatest positive effect on specific yield<sup>6,7</sup>, in the case of functional training, effects on health and quality of life. The transfer will occur when one or more yield factors accumulate in the receiving transfer activity (angles at which the force is applied, type of muscle activation, movement phase and velocity), and this will occur in the exercise itself with no other demands<sup>8</sup>.

Regarding the proposals suggesting transfer to ADL, which supposedly does not occur in strength training programs using a more analytical exercise (most conventional equipment for resistance training), there is no consistent scientific literature objectively addressing the effects of training with functional features for the development and improvement of different morphological characteristics, neuromuscular fitness and functional status.

The development of integrated, diverse, multiplanar exercises will always be appropriate considering the factors of minimum stimulus and in turn, the needs of repetition and systematization to produce adaptations. These exercises must be planned and programmed according to the load applied (internal-external) in relation to the individual's level and the overall training process. On the other hand, there are exercises that are based on movements that can cause deficits in basic aspects such as postural hygiene. Exercise selection is vital, and the focus on only variables

of ADLs should not be established as criteria, but caution is needed since some joint actions or their combination increase the likelihood of injuries and postural deviations<sup>1</sup>.

The proposed functional training needs application and progression criteria based on fundamentals of sports training. Furthermore, it seems that there is no approach that integrates functional training methodology to traditional healthy fitness programs. This lack of systematization can lead functional training not to be as effective as it proclaims, helping to expand the erroneous concept of exclusion and specificity of this methodology and its exercises.

Another factor that seems to be superficially used is the “naturalness”, i.e., some motor tasks applied to some individuals are more “natural” than to others, which do not appear to have this characteristic. When seeking definition for the term natural, the following concept is found: “belonging to or relating to nature according to the quality and property of things”. Following this conceptualization, exercises that meet the bio-psychological properties would be more natural; in contrast, those that do not would be less natural. Another aspect of “naturalness” to be considered is associated with the absence of artifices, i.e., exercises without implements should be performed. Finally, it is common to say that what is linked to aspects of an individual’s life is more natural.

Based on the first definition of the term natural and using it to characterize and support functional training, this approach is considered appropriate, since what does not meet the bio-psychological reality of the individual is not considered functional. Regarding the use of tools and auxiliary equipment, a more detailed assessment should be performed before deciding to use them or not. It would be like to think that in case of a disease, the best situation would not be to make use of advances of pharmacology and medicine, leaving the “nature” to act. This decision could not be made without careful consideration. Finally, it is not always necessary to repeat what one does in everyday life, for example, one spends several hours sitting throughout the day, which would not be wise to repeat.

Currently, many protocols and exercises have been developed supported on the premise of functionality; however, their supposed transfer to ADLs was not even analyzed, either in general or specific level. In this context, the training protocol should be carefully calculated, since the advances of modern society tend to lead individuals to sedentary lifestyle and hypokinesia, leading more and more people to shorter, less varied and less frequent movements.

As in sports training, the characteristics of the individual’s ADL should be carefully analyzed, so that a training program that enhances the demands of the individual and compensates for possible mismatches can be designed. Importantly, ADLs occupy approximately 1/3 of the daytime, so, 2-3 hours per week should be devoted so that positive changes are transmitted and the negative habits inherent to lifestyle are controlled<sup>9-11</sup>.

## From functional training to functional exercises

The specific literature frequently considers using certain exercise groups with well-defined characteristics (e.g., those of stabilization), and specific materials (Bozu, fitball) as functional training, even though these procedures do not contemplate the variables inherent in this method. These studies also report other examples and types of exercise that have other features and make use of no equipment considered non-functional. It is noteworthy that there are differences in the appropriate situation to use the terms in relation to an exercise group or training and their functionality.

Training means preparing and this term is defined as to prevent or to have some purpose or future action, in short, to extract necessary actions for obtaining a certain product. This is more linked to processes that organize, structure and operate a number of variables that end up by defining an exercise dose (prescription) than to the mere fact of describing a series of sequenced exercises and often with little discretion in their selection and even in the very definition of dose<sup>11</sup>.

The term exercise derives from Latin "*exercitium*" which is defined as a set of body movements performed to maintain physical fitness<sup>12</sup>. Therefore, any body movement can be considered an exercise, since the selection, application variables and performance (dose) are incorporated into a training program that is adequate enough to maintain or achieve physical fitness<sup>2</sup>.

Thus, training comprises a process that must be structured even before the selection and prescription of exercises. Their functionality component must be taken into account, since the operating capacity is limited (exercises per session); the selection should be guided by the objectives to be achieved. In this sense, there is no functional and non-functional exercise because provided that the safety and efficacy requirements are fulfilled, all exercises can be fit into a training phase and generate the desired adaptation.

## FINAL COMMENTS

Training planning and prescription should follow a method. In this respect, there are various scientific studies, some of which have been published in the last five years. For training to be functional, the criteria discussed in this study must be met. Throughout the periodization process established, variables should be controlled and manipulated in order to obtain prescription containing appropriate exercise dose that the individual must perform in the training unit. If training is properly performed, the psycho-biological status will be properly stimulated, generating positive responses and adaptations.

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