ADHERENCE TO SIX MONTHS OF INSTRUCTED MINIMALIST AND BAREFOOT RUNNING TRAINING

ABSTRACT

Introduction: The interest in minimalist and barefoot running is growing continuously. However, there is no data on how many runners drop out during this process. Objective: To describe the adhesion and dropout rates of a six-month instructed training program based on barefoot and minimalist footwear running. Methods: Thirty-four recreational runners participated in the study. 20 runners started the race training barefoot, while 14 runners were involved in training with minimalist footwear. Adhesion to intervention programs was evaluated through training spreadsheets and recording attendance at training sessions, while dropouts were evaluated at the end of training. A questionnaire was sent to participants who dropped out of the training, to obtain information related on why they had abandoned it. Results: Considering all participants (n = 34), 41.2% of the runners completed six months with reduced plantar protection; 70% of all dropouts occurred in barefoot training; the main reasons for leaving the training were injury/pain (40%) and lack of time/suitable place for training (40%); and the majority of dropouts (50%) occurred in the first month of training. The training with minimalist footwear (n = 14) had fewer dropouts (42.9%) than the barefoot training, all of them due to injury/pain; 50% of them occurred in the third month of intervention. Conclusion: Dropouts usually occur at the beginning of training. Training involving barefoot running has more dropouts than training with minimalist footwear. Intervention programs lasting six months based on minimalist footwear/barefoot seems to have similar adhesion to other supervised exercise programs. The main reasons for dropping out are injury/pain and lack of time/suitable place to run.

Keywords: running; patient dropouts; life style; exercise.

RESUMEN

Introducción: El interés en la carrera minimalista y descalza crece continuamente. Sin embargo, no hay datos sobre la evasión de corredores durante este proceso. Objetivo: Describir la adhesión y la evasión de un programa de entrenamiento de seis meses basado en la carrera descalza y en calzados minimalistas. Métodos: Treinta y cuatro corredores recreacionales participaron del estudio: 20 corredores iniciaron el entrenamiento con pés descalzos, mientras 14 se hicieron en entrenamiento con calzado minimalista. La adhesión a los programas de intervención se evaluó a través de hojas de entrenamiento y control de presencia en las sesiones de entrenamiento, mientras que la evasión se evaluó al final del entrenamiento. Un cuestionario se envió a los corredores que abandonaron los programas, para obtener información relacionada con la causa del abandono. Resultados: Considerando a todos los participantes (n = 34), 41.2% de los corredores finalizaron el entrenamiento con protección plantar reducida; 70% de las evasiones ocurrieron en el entrenamiento descalzo; las principales razones para abandonar el entrenamiento fueron lesión/dolor (40%) y ausencia de tiempo/lugar adecuado para el entrenamiento (40%) y a la mayoría de las desistencias (50%) ocurrió en el primer mes de entrenamiento. El entrenamiento descalzo (n = 20) presentó 70% de evasiones, siendo 57,1% debido a ausencia de tiempo/local apropiado para el entrenamiento; 71,4% de las evasiones ocurrieron en el primer mes de entrenamiento. El entrenamiento con calzado minimalista (n = 14) presentó menor evasión (42,9%) que el entrenamiento descalzo, siendo todas de lesión/dolor; 50% de las evasiones ocurrieron en el tercer mes de intervención. Conclusión: La evasión es generalizada en el inicio del entrenamiento. La carrera descalza presenta mayor evasión que la carrera con calzado minimalista. Los programas de intervención que duran seis meses, basados en calzado minimalista/pés descalzos parecen tener una adhesión similar a los de otros programas dirigidos a los corredores. Los principales motivos para abandonar el entrenamiento con calzado minimalista son lesión y dolor y falta de tiempo/local adecuado para correr.

Descritores: carrera; pacientes desistentes del tratamiento; estilo de vida; ejercicio.

RESUMO

Introdução: O interesse acerca da corrida minimalista e descalça cresce continuamente. Contudo, não há dados sobre a evasão de corredores nesse processo. Objetivo: Descrever a adesão e a evasão de um programa de seis meses de treinamento instruído baseado na corrida descalça e em calçados minimalistas. Métodos: Trinta e quatro corredores recreacionais participaram do estudo: 20 corredores iniciaram o treinamento de corrida com os pés descalços, enquanto 14 se envolveram no treinamento com calçado minimalista. A adesão aos programas de intervenção foi verificada por intermédio de planilhas de treinamento e controle de presença nas sessões de treino, enquanto a evasão foi avaliada ao término do treinamento. Um questionário foi enviado aos participantes que saíram do treinamento, obtendo-se informações relacionadas ao abandono das intervenções. Resultados: Considerando-se todos os participantes (n = 34), 41,2% dos corredores finalizaram os seis meses de treinamento com proteção plantar reduzida; 70% das evasões ocorreram no treinamento descalço; as principais razões para abandonar o treinamento foram lesão/dor (40%) e ausência de tempo/local apropriado para o treinamento (40%) e a maioria das desistências (50%) ocorreu no primeiro mês de treinamento. O treinamento descalço (n = 20) apresentou 70% de evasões, sendo 57,1% devido à ausência de tempo/local apropriado para o treinamento; 71,4% da evasão ocorreu no primeiro mês de intervenção. O treinamento com calçado minimalista (n = 14) apresentou menor evasão (42,9%) que o treinamento descalço, sendo todas devido à lesão/dor; 50% delas ocorreram no terceiro mês de intervenção. Conclusão: A evasão em geral ocorreu no início do treinamento. A corrida descalça apresenta mais evasão do que a corrida com calçado minimalista. Os programas de intervenção que duram seis meses, baseados em calçado minimalista/pés descalços parecem ter adesão similar à de outros programas dirigidos de exercício. Os principais motivos para o abandono são lesão e dor e falta de tempo/local adequado para correr.

Descritores: corrida; pacientes desistentes do tratamento; estilo de vida; exercício.
se verificó a través de hojas de cálculo y control de la presencia en las sesiones de entrenamiento, mientras la evasión se evaluó al final del entrenamiento. Se envió un cuestionario a los participantes que abandonaron el entrenamiento para la obtención de información relacionada con el abandono de las intervenciones. Resultados: De todos los participantes (n = 34), el 41,2% de los corredores han completado seis meses de entrenamiento con protección plantar reducida; 70% de evasión se produjo en el entrenamiento descalzo; las principales razones para abandonar el entrenamiento fueron: lesión/dolor (40%) y la falta de tiempo/lugar adecuado para el entrenamiento (40%); la mayoría de abandonos (50%) ocurrieron en el primer mes de entrenamiento. El entrenamiento descalzo (n = 20) mostró 70% de evasión, con 57,1% debido a la falta de tiempo/lugar adecuado para entrenamiento; 71,4% de la evasión se produjo en el primer mes de la intervención. La carrera con el calzado minimalista (n = 14) mostró evasión más baja (42,9%) que el entrenamiento descalzo, todos los casos debiéndose a lesión o dolor; 50% de ellas se produjo en el tercer mes de la intervención. Conclusión: El abandono por lo general ocurre al comienzo del entrenamiento. La carrera descalza presenta más evasión que la carrera con calzado minimalista. Los programas de intervención con duración de seis meses y en base a carrera minimalista/descalza parecen que tienen evasión similar a otros programas de ejercicios supervisados. Las principales razones para el abandono son las lesiones y el dolor y la falta de tiempo y/o lugar adecuado para la carrera. Descriptores: carrera; pacientes desistentes del tratamiento; estilo de vida; ejercicio.

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INTRODUCTION

Running is one of the most important recreational and sport activities. Despite footwear industry efforts to develop modern running shoes and protective elements to exercise, the incidence of running injuries is still high: about 30-80%. Running barefoot and/or in minimalist shoes have been suggested recently as an interesting training approach to prevent running related injuries. Running barefoot or in minimalist shoes that mimic this situation are considered as conditions in which external protection is minimal, presenting similar mechanical behavior and being classified as minimal running. Evidences show the adoption of minimal running could be positive to reduce the mechanical load imposed to human body, what could prevent runners from some running-related injuries. As result, many runners have been interested and encouraged to adopt this way of running.

According to recent surveys, most runners (about 80%) are interested about running barefoot or in minimalist shoes. Indeed, the primary motivating factor for being interested or to adopt barefoot running/minimalist shoes has been to prevent injuries. In contradic- tion, the most prevalent barrier in transitioning to minimal running is fear of developing injuries. This evidence is reflected in practice: only about 22% of runners had previously tried barefoot running, while about 31% had tried running in minimalist shoes.

The interest about adaptation to barefoot condition and minimalist shoe grows continuously. However, there is no data about how many runners drop out in this process. These data, which exists for other movements and training strategies, do not exist for minimal running. Minimalist and barefoot running training programs are uncommon and long-term researches concerning minimal running are rare. Indeed, the lack of drop-out data makes difficult to elaborate instructed intervention programs based on minimal running training. Participants were requested to mix soft and harder surfaces in their training. During the six months of intervention, participants ran progressively at the barefoot condition. In the first month, participants were instructed to walk 5% of their weekly training volume in soft surfaces. From second till sixth month, participants started to progressively run barefoot: they evolved gradually from 5% to 30% of their weekly training volume being performed without shoes during this period. Also, participants were requested to mix soft and harder surfaces in their training. Barefoot running training should be performed three times per week. The participants kept their normal running training routine,
using conventional running shoes in the remaining weekly volume, while they were involved in this research.

Three fitted pairs of shoes from New Balance® were given to each participant to mediate the intervention: a conventional running shoe, a “medium” minimalist shoe and a “low” minimalist shoe.

Conventional running shoe used was the NB 759 and it presents absolute heel height of 45 mm, has 18 mm of heel-forefoot offset and weighs 280g. The NB 890 was the “medium” minimalist shoe adopted and it presents intermediate values of absolute heel height (40 mm), heel-forefoot offset (12 mm) and weight (250g) when compared to conventional shoe and low profile minimalist shoes. The “low” minimalist shoe was the NB Minimus MR10BG, whose absolute heel height is 25 mm, heel-forefoot offset is four millimeters and it weighs 209g.

All participants were instructed to perform three training sessions per week using a determined pair of shoes, while they maintained their habitual weekly running distance and routine of training sessions. During the first and second months, participants were instructed to use the conventional shoes given. The “medium” minimalist shoe should be worn in the third and fourth months of intervention. Lastly, the “low” minimalist shoes should be adopted in the fifth and sixth months of training. All training sessions were supervised by the researchers.

Participation and adhesion to both interventions were evaluated through training spreadsheets and presence control. In the end of intervention period, the dropouts were evaluated. A questionnaire was sent by email to participants who abandoned interventions in order to access the reasons for dropping out the training.

Descriptive statistics and percentages were used to summarize the adherence to interventions and the reasons for dropping out.

RESULTS

Considering both interventions together, of 34 participants who initiated minimal running instructed training, 41.2% (n=14) remained until the end of six months, occurring 20 dropouts in this period. Seventy percent of dropouts (n=14) occurred in the barefoot intervention, while 30% (n=6) was observed in minimalist shoe intervention. The most reported reasons for dropping out from minimal running training were injury/pain (40%, n=8) and lack of time/appropriate place for training sessions (40%, n=8) (Figure 1). Fear of developing injury were also reported as a factor for interrupting training (Figure 1). Fifty percent (n=10) of dropouts from minimal training (barefoot and minimalist shoe interventions together) occurred in the first month of training; five participants persisted until the end of six months of training, occurring 6 dropouts.

Analyzing each intervention solely, 30% of participants (6 of 20) finished the training period in barefoot intervention, occurring 14 dropouts. Lack of time/place for training sessions (57.1%, n=8) and fear of developing injury (58.8%, n=3) were reported as the main reasons to abandon barefoot training. Two participants quitte barefoot intervention due to injury/pain (14.3%) and one participant suffered an accident. For barefoot training, 71.4% (n=10) of dropouts occurred in the first month of intervention.

In minimalist shoe intervention, about 57.1% (8 of 14 participants) persisted until the end of six months of training, occurring 6 dropouts. All participants who quit minimalist training (100%, n=6) reported injury/pain. Three of them (50%) dropped out in the third month; one participant quitted the intervention in the fourth month and two runners abandoned training in the fifth month.

DISCUSSION

This is the first study to propose a long instructed intervention based on minimal running (barefoot and minimalist shoes), with standardized and supervised training. Moreover, our study is the first to evaluate adhesion to and dropouts from a minimal running intervention, as well as to describe the time and reasons of dropping out from a barefoot/minimalist running training.

Data indicates about half of participants who initiate a six-month instructed intervention mediated by minimal running (barefoot and minimalist shoes) adhere to training till the end of period. Considering evidences that many runners have fear to develop injuries during minimal running12,13, a considerable number of dropouts would be expected. Surprisingly, results indicate the dropouts in the present study are according to the percentage found for others supervised exercise programs. The typical dropout rate from different types of supervised exercise programs reported by literature is around 50%15-20. Considering barefoot and minimalist shoe interventions together, our study observed 58.8% of dropouts from an instructed minimal running training.

Minimalist shoe training also presented a dropout similar to that reported for other exercise programs (42.9%). On the other hand, a higher number of dropouts was observed for barefoot training: 70% of runners dropped out abandoned barefoot running. This result may reflect a higher discomfort in the adoption of barefoot running and greater concern about protection of plantar surface. Although minimalist shoe serves to mimic the mechanical condition imposed by barefoot condition, the small protection offered by this shoe to plantar surface may diminish sore and discomfort in this region. This fact could favor the maintenance of participants in the training program.

Nevertheless, fear of developing injury or discomfort were not the most reported motivating factor for dropping out from the instructed minimal running intervention. In opposition to literature12,13, the main reason found to leave minimal running training was the occurrence of injury and/or pain, and the lack of time and/or an appropriate place to run barefoot or in minimalist shoes. The concern about an appropriate place to perform minimal training may carry an implicit insecurity and/or discomfort in maintaining these training strategies, also. Forty percent of runners who abandoned minimal running training suffered...
injury and/or pain. Such data corroborate to studies about injuries in novice minimal runners: cases of stress fractures in lower limbs have been reported in runners who had been used barefoot/minimalist shoe as training strategy. However, it is important to highlight the study is linked to an intervention program of running, what naturally restricts our coverage. Additionally, the participants selected to the study are recreational runners. Thus, results must be interpreted and extrapolated cautiously to different populations and contexts.

CONCLUSION

A six-month instructed intervention based on barefoot and minimalist shoe running has similar adhesion of other supervised exercise programs. The most common reasons for dropping out from minimal training are the occurrence of injury and/or pain, and the lack of time and/or an appropriate place to run barefoot and in minimalist shoes. Barefoot training showed higher number of dropouts than minimalist shoe training, concentrated in the first month of training, while minimalist training dropouts usually occurred in the middle of intervention. Results suggest barefoot and minimalist shoes are practicable strategies to implement minimal running training.

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