

Selection of running shoes by amateur runners: characterization and association with the self-reported history of injury

A escolha do calçado por corredores amadores: caracterização e associação com o histórico de lesão auto reportada

La elección del calzado por los corredores aficionados: caracterización y asociación con el historial de lesiones autoinformado

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ABSTRACT | Running shoes are an essential element for sports practice. Evidence on the effect of the shoe characteristics and prescription in running injuries are scarce. Thus, this study aimed to investigate runners's process of choosing running shoes and to verify whether the variables related to running shoes and their selection process are associated with the presence and recurrence of injuries in the previous year. An observational study was conducted with 254 runners who answered a self-reported questionnaire about demographics, sports practice, shoe characteristics and selection criteria, and injuries in the last 12 months. The chi-square test evaluated whether there was a difference in the distribution of answers to each question. The logistic regression evaluated whether the variables related to shoes and selection criteria predicted injury's presence and recurrence in the previous year. The results showed that most runners had specific shoes for sports practice and considered some characteristics of the shoes to choose them, including intermediate cushioning and a difference in the heel-to-toe drop of approximately 10mm. Most respondents indicated knowing their foot type but not considering it when choosing shoes. Besides, most individuals did not use foot orthotics and did not receive guidance to select their shoes. The model obtained with the regression was not significant. Therefore, despite considering

shoe characteristics when choosing it, these features and the selection criteria were not associated with the presence and recurrence of injuries in the previous 12 months.

Keywords | Running Shoes; Runners; Athletic Injuries; Sports; Epidemiology.

RESUMO | O calçado é um elemento importante para a prática de corrida. As evidências sobre os impactos das características do calçado e de sua prescrição nas lesões de corredores são restritas. Dessa forma, os objetivos deste estudo foram investigar o processo de escolha do calçado por corredores e verificar se variáveis relacionadas ao calçado e seu processo de escolha estavam associadas à presença e recorrência de lesão no último ano. Foi realizado um estudo observacional com 254 corredores que responderam um questionário autoadministrado sobre características demográficas, a prática esportiva, o calçado e o processo de sua escolha, e lesões ocorridas nos últimos 12 meses. O teste qui-quadrado foi empregado para verificar se havia diferença na distribuição das respostas de cada questão, enquanto o teste de regressão logística para verificar se as variáveis relacionadas ao calçado e ao processo de escolha predizem a presença e recorrência de lesão no último ano. Os resultados indicaram que a maioria dos corredores possui ténis específico para a prática

Study conducted at the Centro Universitário de Belo Horizonte (UniBH) – Belo Horizonte (MG), Brazil. The findings of this study were presented in the final course paper for the specialization in Clinical Advances in Physical Therapy, area of concentration Sports Physical Therapy, of the Physical Therapy Department of the School of Physical Education, Physical Therapy and Occupational Therapy of the Universidade Federal de Minas Gerais, in 2020.

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esportiva e considera algumas características ao adquiri-lo, como o amortecimento intermediário e a diferença na altura do solado entre a parte posterior e a anterior de aproximadamente 10mm. A maioria indica conhecer seu tipo de pisada, mas não a considera na escolha do calçado. Além disso, a maioria não usa palmilha e não recebeu orientação para a escolha do calçado. O modelo obtido com a regressão não foi significativo. Assim, apesar de os corredores considerarem as características do calçado ao adquiri-lo, essas características e o processo de escolha não foram associados à presença e recorrência de lesão nos últimos 12 meses.

Descritores | Calçados de Corrida; Corredores; Lesões Esportivas; Esporte; Epidemiologia.

RESUMEN | El calzado es un elemento importante para la práctica deportiva de carrera. Sin embargo, es limitada la evidencia sobre los impactos de las características del calzado deportivo y su prescripción sobre las lesiones en los corredores. Por lo tanto, los objetivos de este estudio fueron investigar el proceso de elección de calzado por los corredores y verificar si las variables relacionadas con el calzado y su proceso de elección se asociaron con la presencia y recurrencia de lesiones en el último año. Se realizó un estudio observacional con 254 corredores que respondieron un cuestionario

autoinformado sobre las características demográficas, la práctica deportiva, el calzado y el proceso de elección, y las lesiones que se llevaron a cabo en los últimos 12 meses. La prueba de chi-cuadrado se aplicó para verificar la existencia de diferencias en la distribución de respuestas para cada pregunta. Y se utilizó la prueba de regresión logística para determinar si las variables relacionadas con el calzado y su proceso de elección pueden predecir la presencia y recurrencia de lesiones en el último año. Los resultados indicaron que la mayoría de los corredores tienen zapatillas adecuadas para hacer deporte y consideran algunas características a la hora de adquirirlas, como una amortiguación intermedia y la diferencia de altura de la suela entre la parte delantera y la trasera de aproximadamente 10mm. La mayoría afirma conocer el tipo de paso, pero no lo considera a la hora de elegir el calzado. Además, la mayoría no utiliza plantillas y no recibe orientación sobre la elección del calzado. El modelo que se obtuvo con la regresión no fue significativo. Por lo tanto, aunque los corredores tienen en cuenta las características del calzado a la hora de adquirirlo, esas características y el proceso de elección no se asociaron con la presencia y recurrencia de lesión en los últimos 12 meses.

Palabras clave | Calzado de Correr; Corredores; Lesiones Deportivas; Deporte; Epidemiología.

INTRODUCTION

Street running has a growing number of practitioners motivated by the many health benefits this sport provides¹⁻³. The running shoe is considered an essential element for this practice since it is the interface of interaction between the runners' musculoskeletal system and the ground⁴. Therefore, the way the shoes interacts with the runners could influence the chances of injury and their performances during training sessions and competitions. Thus, choosing the most appropriate shoe for the runner can influence performance and permanence in physical activity.

The characteristics of running shoes affect how the musculoskeletal system of the runner interacts when running. Studies indicate that these characteristics can generate kinematic differences⁵, especially in the joints near the foot⁶, and in the activity of lower limb muscles^{7,8}, besides being related to energy expenditure during running⁹. Thus, different conceptions of the elements of running shoes are proposed by manufacturers and investigated by researchers^{5,10,11}. Cushioning, stability, traction, and weight are outcomes commonly addressed for planning such elements^{5,10}. Such outcomes are frequently

examined based on the perspective that impact forces and excessive movement may be related to the chance of injuring and to sports performance^{4,10,11}. Despite this, the literature lacks evidence as to the real effect of shoes on injury and sports performance, generating discussions about how to prescribe shoes for runners^{4,5,11,12}.

Several sports entities have already presented recommendations concerning running shoes¹², such as the American College of Sports Medicine (ACSM), with guidelines prepared by Vicent and Vicent¹³, who also indicated them in another publication¹⁴. The characteristics that should be considered when choosing a shoe include a minimal difference in heel-to-toe drop, a toe box that allows the movement of the toes, and lightweightness^{13,14}. In addition, the shoe should exclude components that restrict movement, like limiting pronation or supination, for example^{13,14}. The authors also advise that runners with changes in foot motion (such as excessive pronation) should undergo therapeutic follow-up to plan the most appropriate intervention¹³. The cushioning should be intermediate since, when excessive, it contributes to an additional movement of the lower extremity during initial contact and may be uncomfortable when minimal¹⁴.

Such characteristics have been indicated as a strategy to favor adequate performance and decrease the chances of injury. Nevertheless, the evidence supporting these recommendations is limited^{4,5,11,12}. Recent reviews recommend lightweight shoe¹⁵ with little restriction of pronation movement^{4,15} and minimal difference in heel-to-toe drop for casual runners⁴. Furthermore, immediate comfort may influence shoe choice, chances of injury, and energy expenditure more than specific characteristics of the shoe^{11,12,15}.

The need for studies investigating the criteria of the shoe selection process has already been highlighted in the literature due to the limited evidence that supports the recommendations of some sports organizations¹². Thus, this study aimed to investigate the amateur runners' process of choosing sports shoes and to check whether the variables related to shoes and their process of choosing are associated with injury and its recurrence in the last year. The outcomes of this study may contribute to the expansion of knowledge about this process, enabling the development of measures that can guide runners when choosing their shoes.

METHODOLOGY

Sample

This cross-sectional study was developed with 254 runners with a mean age of 37.2 ± 10.7 years, body mass of 71.7 ± 13.1 kg, and 1.71 ± 0.10 m height. Recruitment occurred by disseminating invites on social media, runner groups, and to professionals who work with runners. Inclusion criteria were runners aged over 18 years¹⁶, of both sexes, who practiced street running at least once per week¹⁷, and who participated in competitions in the previous year¹⁸. The exclusion criterion was running barefoot. All participants signed an informed consent form. The sample size was estimated based on *a priori* statistical power analysis conducted in the G*Power program, version 3.1.9.6¹⁹, considering the following parameters: 0.05 significance level (α), mean effect size ($w=0.30$), 0.85 statistical power (β), and degree of freedom of 10. The degree of freedom was determined according to the questionnaire item that had the greater amount of alternatives. The analysis indicated that 202 participants would be the minimum sample size for the chi-square test. This study recruited 254 (26.7% more participants), considering the possibility of data loss.

Procedures

Data were collected online with a self-report questionnaire created using the Google Forms application (Google Inc., United States) (Supplementary Material). This questionnaire was designed with closed questions and, to ensure clarity, the questions were numbered and grouped by theme²⁰. To check the understanding of the questions, this instrument was first evaluated in a pilot sample with five runners. After this, adjustments were made to get to the last version of the questionnaire. The questions investigated the following variables:

- Demographic characteristics: sex, age, body mass, and height.
- Characteristics of sports practice: for how long they have been practicing, training frequency and distance covered, whether training with professional guidance or not.
- Shoe characteristics and selection process: if they use specific shoes for running, their criteria for choice (brand, price, comfort, aesthetics, or shoe characteristics), if they know and choose considering their foot type, if they use foot orthoses, and if they receive professional guidance on choosing the shoe, type of cushioning (minimum, intermediate, or maximum) and difference in the heel-to-toe drop (same height or difference of approximately 1, 2, or 3 fingers, which corresponds to approximately 10, 20, or 30mm, respectively).
- Injury history: whether in the last year, they had a running-related injury, defined as one that resulted in a reduction in the distance run or interruption of training for one or more days¹⁷. If yes, the participant should indicate the number of injuries suffered, if they had professional help, which part of the body was affected (in the case of more than one injury, the runner should consider the one that generated the longest time loss), and if there was recurrence of the injury in the last 12 months.

Statistical analysis

The observed frequency and percentage in each response were calculated to describe the findings. The chi-square goodness of fit test was performed to check whether the observed distribution of responses was different from the expected distribution. Logistic regression tests were used to verify if the variables related to shoes and the process of choice predict the presence of

injury in the last year, as well as injury recurrence. A 0.05 significance level was adopted for all tests.

RESULTS

The sex distribution in the sample varied ($\chi^2(1)=12.84$, $p<0.001$). Males ($n=155$, 61%) showed higher frequency, while females ($n=98$, 38.7%) showed lower frequency than expected. Table 1 shows the distribution of responses regarding the characteristics of sports practice. The chi-square test showed that the distribution of responses varied, diverging from the expected in all variables analyzed: time of running practice ($\chi^2(1)=38.74$, $p<0.001$), weekly frequency of running training ($\chi^2(2)=110.93$, $p<0.001$), weekly distance of running training ($\chi^2(1)=8.00$, $p=0.01$), and professional guidance ($\chi^2(1)=17.74$, $p<0.001$).

Table 1. Characteristics of sports practice (n=254)

Characteristic	n (%)
Practice time	
<1 year	77 (30.0%)
>1 year	176 (69.3%)
Frequency of training	
1 to 2 times per week	51 (20.1%)
3 to 4 times per week	163 (64.2%)
>4 times per week	39 (15.4%)
Distance covered in training	
<15km	104 (40.9%)
>15km	149 (58.7%)
Do you have professional guidance?	
No	93 (36.6%)
Yes	160 (63.0%)

Variables whose sum of frequencies does not result in 254 is due to missing value.

Table 2 shows the distribution of responses regarding shoe characteristics and the selection process. The chi-square test showed that the distribution of responses varied, diverging from the expected in all variables analyzed: use of specific shoes for running ($\chi^2(1)=163.84$, $p<0.001$), how they choose shoes ($\chi^2(4)=229.35$, $p<0.001$), whether they know their foot type ($\chi^2(1)=22.74$, $p<0.001$), how did they discover it ($\chi^2(4)=155.86$, $p<0.001$), what is their foot type ($\chi^2(3)=17.56$, $p=0.001$), whether they consider it during shoe selection ($\chi^2(1)=53.40$, $p<0.001$), if they use foot orthoses ($\chi^2(1)=143.25$, $p<0.001$), if they receive professional guidance when choosing shoes ($\chi^2(1)=116.47$, $p<0.001$), difference in heel-to-toe drop ($\chi^2(3)=90.08$, $p<0.001$), and cushioning ($\chi^2(2)=89.44$, $p<0.001$).

Table 2. Characteristics of shoes and the selection process (n=254)

Characteristic	n (%)
Use of specific shoes for running	
No	25 (9.8%)
Yes	229 (90.2%)
Selection of shoe	
Brand	39 (15.4%)
Price	12 (4.7%)
Comfort	63 (24.8%)
Aesthetics	2 (0.8%)
Characteristics	137 (53.9%)
Foot type	
Know their foot type	
No	89 (35.0%)
Yes	165 (65.0%)
How did you discover your foot type?	
Not applicable because they do not know	89 (35.0%)
At the shoe store	23 (9.1%)
Physical therapist	107 (42.1%)
Another professional	24 (9.4%)
By another fellow runner	9 (3.5%)
What is your foot type?	
Not applicable because they do not know	89 (35.0%)
Pronated	67 (26.4%)
Supinated	45 (17.7%)
Normal	53 (20.9%)
Consider their foot type in the choice of shoes	
No	184 (72.4%)
Yes	68 (26.8%)
Wears foot orthoses	
No	221 (87.0%)
Yes	31 (12.2%)
Had guidance on the choice of shoes?	
Did not receive professional guidance	213 (83.9%)
Received professional guidance	41 (16.1%)
Difference in heel-to-toe height.	
No difference (same height)	32 (12.6%)
Approximately 1 finger ($\approx 0.01m$)	103 (40.6%)
Approximately 2 fingers ($\approx 0.02m$)	97 (38.2%)
Approximately 3 fingers ($\approx 0.03m$)	19 (7.5%)
Cushioning	
Minimum	22 (8.7%)
Intermediate	145 (57.1%)
Maximum	87 (34.3%)

Variables whose sum of the frequencies observed in each category does not result in 254 is due to missing value.

In the sample, 114 (44.9%) runners indicated that they had 1.5 ± 0.8 injuries in the last 12 months, and 28 (24.6%) reported injury recurrence. Among those with an injury history, 44 (38.6%) sought out a physical therapist, 27 (23.7%) sought out a physician, 17 (14.9%) sought out a physician who referred them for physical therapy care, four (3.5%) sought out running coach, and 21 (18.4%) sought out no professional. Table 3 shows the distribution of the answers regarding the part of the body injured. The chi-square test showed that the distribution of responses varied, diverging from the expected regarding the part of the body injured ($\chi^2(7)=66.00$, $p<0.001$).

Table 3. Injured body part (n=114 runners with history of injury in the previous year)

Injured body part	n (%)
Knee	38 (33.3%)
Shank	20 (17.5%)
Hip/pubis	18 (15.8%)
Ankle	12 (10.5%)
Foot	9 (7.9%)
Thigh	7 (6.1%)
Lumbar spine/sacrum/pelvis	7 (6.1%)
Upper extremity	1 (0.9%)

Two questionnaires presented missing values.

The model obtained with logistic regression from the variables related to the shoe and the selection process was not significant for predicting the presence of injury ($\chi^2(13)=19.72$, $p=0.10$) and the recurrence of injury in the previous year ($\chi^2(12)=13.41$, $p=0.34$).

DISCUSSION

This study investigated how amateur runners choose their shoes for running and verified how the characteristics of these shoes and the selection process relate to the history and recurrence of injury in the past 12 months. Most participants were males with more than one year of practice, who trained three to four times per week, and covered more than 15km. Longer distances and more frequent training have been related to injuries in runners^{21,22}. Based on this perspective, a better weekly distribution of training volume and rest time is indicated to allow the musculoskeletal system to recover²³. The weekly frequency observed suggests that most runners consider this indication since they distribute the training volume throughout the week, with three to four days of rest.

Moreover, most participants receive professional guidance, which may indicate their interest in obtaining specialized help for safer running practice. Thus, the profile of the majority of the sample consisted of more experienced runners who practice running throughout the week with guidance.

Most practitioners have specific shoes for running. The literature recommends using specific shoes because their cushioning capacity decreases with use due to the deterioration of shock-absorbing materials²⁴. Therefore, using the same shoe for other activities could accelerate the wear process, reducing its durability. Moreover, most participants choose their shoe based on its characteristics, a practice advised by recent reviews^{4,15}. The second most frequent criterion for shoe selection was comfort. Comfortable shoes are associated with lower oxygen consumption and lower frequency of motion-related injuries^{11,15}. Because comfort is difficult to define and quantify, authors suggest that the runner use their own criteria¹¹.

Most runners knew their foot type, which was identified by a physical therapist. Although shoe characteristics influence foot movement, a recent literature review found no evidence on shoe prescription based on the assessment of the static foot posture or rearfoot movement during the contact phase¹⁵. Another review suggests that despite limited evidence, shoe characteristics that favor minimal restriction of pronation movement could be favorable for the group of runners with excessively pronated feet⁴. ACSM guidelines do not recommend specific shoes based on foot type, instead, they recommend neutral shoes¹³. For cases in which adaptation is necessary, for example, due to a change in foot motion, the ACSM recommends using foot orthoses¹³. Thus, knowing the foot type could direct the runner to choose suitable shoes, despite the limited evidence for this. Contrarily, our study found that even though most runners knew their foot type, 72.4% ignored it when choosing their shoes.

Most runners reported not using foot orthoses. The use of foot orthoses as a strategy to prevent injuries has contradictory results in the literature. One study indicated that the use of foot orthoses in healthy runners did not prevent overload injuries in the lower limb²⁵. Another study showed that orthoses effectively reduced pain in runners with chronic injuries²⁶. Thus, the prescription of orthoses may be restricted to groups of runners with musculoskeletal disorders.

Regarding the choice of shoes, most participants did not have any professional guidance. One study showed

that shoe store salespeople had beliefs not supported by evidence, such as believing that more expensive shoes were better than cheaper ones for preventing injuries²⁷. Additionally, most salespeople had undergone employer-provided training on shoes and injury-related foot pronation in runners²⁷. Notably, the lack of plantar pressure and comfort difference between shoes of different brands and prices has already been revealed²⁸. Therefore, salespeople may be frequently asked to help choosing a shoe, but they may not have enough training to guide runners.

Regarding the difference in heel-to-toe drop, the most frequent was approximately 10mm, which, among the alternatives, was the smallest difference. The ACSM guideline recommends no or minimal difference in this measurement¹³. One study found that this measurement was not associated with a higher risk of injury in the overall sample²⁹. However, when performing a subgroup analysis of runners, they found that shoes with minimal difference in sole height were associated with lower risk in casual runners and higher risk in regular runners²⁹. Thus, some runners might benefit from shoes with a small difference in heel-to-toe drop.

Most participants chose shoes with intermediate cushioning. A recent literature review indicated controversial results regarding the ability of cushioning to reduce impact forces¹⁵. A study observed that runners with lower body mass benefited from shoes with higher absorption properties, which was not observed in those with higher body mass³⁰. Thus, most of the investigated runners seek intermediate cushioning, when the literature suggests that this characteristic may not bring benefits or benefit only thinner people.

In this study, 44.9% of the runners had a running-related injury in the past year, and 24.6% reported injury recurrence. Our prevalence of injuries is similar to that of a recent systematic review that identified a 44.6%±18.4% rate of running-related musculoskeletal injuries in the total population analyzed³¹. Most runners also indicated that they sought professional help to treat their injuries. Knee injuries were the most prevalent, followed by the shank, hip/pubis, and ankle, body parts also reported in other studies^{22,31,32}. Furthermore, none of the variables related to shoe characteristics and their selection process were associated with the presence and recurrence of injury. Other factors not investigated, such

as characteristics of the musculoskeletal system, may have contributed to these injuries. Recent literature proposes that sports injury can be understood as a complex phenomenon, in which non-linear interactions among several factors, such as biomechanical, behavioral, physiological, and psychological characteristics, may contribute to the occurrence of injuries³³. Therefore, future studies should investigate whether the interactions of these factors, including shoe characteristics, explain injuries in runners.

This study has limitations. Shoe characteristics were not assessed by a single evaluator; instead, they were reported by the participants, which may have introduced variability in this assessment. To minimize this, we chose a questionnaire with closed questions and easy-to-understand terms, a procedure already used by other studies³⁴. The questionnaire applied was developed by the researchers, considering the variables needed for this study, and its clinimetric properties were not investigated. Although this strategy has been used by other studies^{17,32,35} and the questionnaire was verified in a pilot study, the absence of clinimetric properties does not eliminate biases in the instrument. Although not identified and not reported to the researchers in the pilot study, due to the absence of the “I do not know” answer alternative, some questions may have induced participants to choose a response. Furthermore, assessing other shoe characteristics, such as its mass and sole wear pattern, as well as the influence of other variables, for example, whether shoe choice behavior differed by runner’s age, were impossible to assess due to the study design.

CONCLUSION

Most amateur runners have specific shoes for practicing sports and consider characteristics such as intermediate cushioning and a difference in heel-to-toe drop of approximately 10mm. These runners indicated that they knew their foot type, which was identified by professionals, but ignored it when selecting a shoe. Additionally, although most of them ran with professional guidance, they did not receive professional orientation for choosing their shoes. Finally, the characteristics and the process of shoe choice failed to show an association with the presence and recurrence of injury in the last year.

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SUPPLEMENTARY MATERIAL

QUESTIONNAIRE

Demographic Characteristics

- (1) What is your name? (For the researchers' control only, it will not be published). _____
- (2) Please mark your sex: () Male () Female
- (3) How old are you? _____years
- (4) What is your weight? _____kg
- (5) How tall are you? _____m

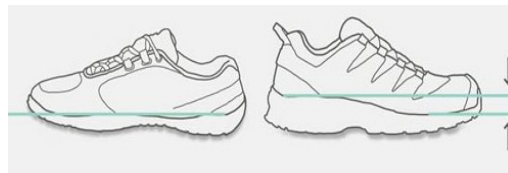
Characteristics of sports practice

- (1) How long have you been running?
 - () 3 to 6 months
 - () 6 to 12 months
 - () 12 to 18 months
 - () 24 months
 - () >24 months
- (2) On average, how many times do you run in a typical week?
 - () 1 to 2 () 3 to 4 () 5 to 6 () 7
- (3) On average, how many kilometers do you usually run in a typical week?
 - () 2 to 5 () 5 to 10 () 10 to 15 () >15
- (4) Do you have professional guidance to do your running practice? If yes, which one?
 - () I have no guidance from any professional
 - () Yes, physical education professional
 - () Yes, running coach
 - () Another _____

Shoe characteristics and your selection process

- (1) Do you have a specific shoe to run?
 - () Yes () No
- (2) How do you choose the shoes you wear to run? Check the option you consider as the primary one for your choice.
 - () Brand
 - () Price
 - () Comfort
 - () Aesthetics
 - () By its characteristic (e.g., sole thickness and cushioning)
- (3) Do you know which is your foot type (normal, supinated, or pronated)?
 - () Yes () No
- (4) If you answered **Yes** in the previous question, check the option below with the phrase that best identifies how you discovered your foot type.
 - () I do not know my foot type
 - () I tested at the shoe store
 - () I was evaluated by a physical therapist
 - () Another professional evaluated and indicated to me
 - () A fellow runner informed me

- (5) If you know your foot type, please identify it below:
 I do not know my foot type
 Supinated Pronated Normal
- (6) Do you consider your foot type when choosing shoes?
 Yes No
- (7) Do you use some kind of biomechanical/orthopedic foot orthoses during running?
 Yes, to correct excessive pronation
 Yes, to correct excessive supination
 No
- (8) Who guides you to choose your running shoes?
 No one
 Physical education professional
 Physical therapist
 Running coaches
 Store salespeople
 Fellow runners
 I search for information on the Internet
- (9) We would like to know more about the characteristics of the shoes you currently wear. Comparing its heel-to-toe height, your current shoes is:



Source: Salomon.

- The heel is about three fingers higher than the toe
 The heel is about two fingers higher than the toe
 The heel is about one finger higher than the toe
 The heel is the same height as the toe
- (10) As for the cushioning in the heel of the shoes you wear in the run, you choose:
 Shoes with maximum cushioning
 Shoes with intermediate cushioning
 Shoes with minimal cushioning

Running-related injuries

- (1) Considering that a running-related injury reduces the distance run or interrupts training for one or more days, have you suffered any injury in the previous year?
 Yes No
- (2) If yes, how many injuries? _____
- (3) If you have been injured in the previous year, did you most often go to a professional for care/guidance?
 If yes, who did you attend to?
 I have not suffered an injury in the previous year
 I did not seek professional help
 Yes, I sought a physician
 Yes, I sought a physical therapist
 Yes, I went to a physician who referred me to a physical therapist
 Yes, I talked to the coaches of my running group

- (4) If you have had more than one injury in the previous year, I would like you to consider the injury that has kept you off the longest. Which part of your body was injured?
- I have not suffered an injury in the previous year
 - Foot/Toe
 - Ankle
 - Shank/Achilles tendon
 - Knee
 - Thigh
 - Hip/pubis
 - Lumbar spine/sacrum/pelvis
 - Thoracic spine (upper back)
 - Neck/cervical spine
 - Upper limb (arm, forearm, hand, and fingers)
- (5) Considering the body part you marked in the previous question, have you injured it more than once in this past year?
- I have not suffered an injury in the previous year
 - Yes, I have injured that part more than once
 - No, I had only one injury