

## PROFILE OF BRAZILIAN AND BRITISH CLIMBERS: TRAINING AND INJURIES

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### Abstract

Climbing is a sport that has an increasing number of participants, not only by its insertion at Tokyo Olympics in 2020, but also by a growing demand from society for the practice of sports in nature. Climbing requires a physical fitness (flexibility, strength and endurance of specific muscle groups) but also has individual psychological factors involved in performance, such as resilience. In general, the insertion in the sport takes place in climbing gyms with a brief explanation about the activity by a professional or by supervision of an experienced climber for up to 3 meetings. However, development and evolution in sports occur gradually, based on individualized training, which also prevents injuries. However, not all practitioners are aware and willing to acquire such a service and end up training for themselves. The lack of guidance and injury resulting from improper practice leads many to quit the sport. The present research sought to verify the profile of Brazilian and British climbers related to their training, injuries and evolution in the sport. From research such as this one we can think of more pedagogical ways to make climbers aware of the importance of adequate training for their health and longevity in the sport.

**Keywords:** climbers; Brazil; UK

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## PROFIL DE GRIMPEURS BRÉSILIENS ET BRITANNIQUES: FORMATION ET BLESSURES

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### Résumé

L'escalade est un sport qui a un nombre croissant de participants, non seulement pour son inscription sur les Jeux olympiques de Tokyo en 2020, mais aussi par une demande croissante de la société pour la pratique du sport dans la nature. La montée nécessite une remise en forme (flexibilité, la force et l'endurance des groupes musculaires spécifiques), mais comprend également des facteurs psychologiques individuels impliqués dans les performances telles que la résilience. En général, l'inclusion dans le sport se produit dans les salles d'escalade avec une brève explication de l'activité par un professionnel ou la supervision d'un alpiniste expérimenté jusqu'à 3 réunions. Cependant, le développement et l'évolution du sport se font progressivement, sur la base d'une formation individualisée, qui évite également les blessures. Cependant, tous les praticiens ne sont pas conscients et désireux d'acquiescer un tel service et finissent par s'entraîner pour eux-mêmes. Le manque de conseils et de blessures résultant d'une mauvaise pratique conduit beaucoup à abandonner le sport. La présente recherche a cherché à vérifier le profil des alpinistes brésiliens et britanniques liés à l'entraînement, aux blessures et à l'évolution du sport. Une recherche comme celui-ci, nous pensons que des moyens d'enseignement pour sensibiliser les grimpeurs sur l'importance d'une formation adéquate pour la santé et la longévité dans le sport.

**Mots-clés:** grimpeurs; Brésil; UK

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## Introduction

There are data in the literature that denote a gradual increase in the practice of outdoor sports or sports in nature (Kelly, 1980). Inclusive specifically research about Brazilian trends (DaCOSTA, 2006) and United Kingdom perspective (Roberts & Brodie, 1989; Coalter, 1999).

More than that, there are research which considers how being outside in natural surroundings may improve health and how outdoor physical activities benefit participants, from children to elderly people (Godbey, 2009).

This growth in outdoor sports is also important for the promotion of environmental education and sustainable development (Tahara, Dias, & Schwartz, 2006; Rosa, Carvalhinho, & Soares, 2017).

However, there are not always studies that accompany this growth and the demands from it. There is still a lot of research that needs to be done. As, for example, a more accurate knowledge about the injuries that affect climbers, after all it is necessary to know how they occur to prevent them (Bollen, 1988; Bollen & Gunson, 1990; Backx, Beijer, Bol, & Erich, 1991; Timm, 2000; Schlegel, Büchler, & Kriemler, 2002; Quaine, Vigouroux, & Martin, 2003). It is clear that a pattern to report injuries needs to be established according Grønhaug & Norberg (2016). Likewise, we need to see whether the injuries are the same in different cultures, as we have a survey about British climbers (Limb, 1995) but not about Brazilian climbers.

Also, it is necessary to make climbers aware of the necessary knowledge about proper training. Whereas many climbers do training by themselves and often follow their personal preferences in a standard workout, which is often the source of injury (Timm, 2000).

In addition to the individual training, it should prioritize firstly the needs and secondly the preferences of the climber, also the type of climbing (Fanchini, Violette, Impellizzeri, & Maffiuletti, 2013), especially considering his practice time in climbing (Magiera & Roczniok, 2013). There are many factors involved in training and all of them should be considered (Watts, Martin, & Durtschi, 1993; López-Rivera & González-Badillo, 2012; Michailov, 2014; McCallum, 2017).

In addition to making climbers aware of the importance of the training, inclusively to prevent injuries, it is necessary to make them aware of the other knowledge necessary to practice climbing, especially in the outdoor environment, which involves risks inherent in being in the wild (Yaron, Niermeyer, Lindgren, & Honigman, 2002; Kuepper, Wermelskirchen, Beeker, Reisten, & Waanders, 2003)

## Methods

This research was conducted by a questionnaire applied anonymously with volunteer climbers from different regions of Brazil and the United Kingdom. In total we had the participation of 210 Brazilians and 49 Britons. This participation is proportional to the population of these two nations, since Brazil has 207.7 million inhabitants (1.01%) and in the United Kingdom 65.64 million inhabitants (7.57%). Therefore our sample corresponded to 1% of the Brazilian population and 7% of the UK population.

The questionnaire had four sections.

First a characterization of the participants of the research – region or country, age, sex, objectives with climbing, red point in climbing routes and boulders.

Second, related to climbing we argued for how long are they climbing, if they have some injuries and sought a professional to treat them.

Third, about climbing training we investigate whether:

(1) they were doing specific training for climbing and how it was done - where, how often, for how long each session lasted, and what they did specifically;

(2) they performed another sport or complementary training for climbing (such as bodybuilding, flexibility, etc.), what and how often

And finally, how often did they climb outdoors.

## Results & Discussion

Related to the first aspect of the research, the characterization of the participants, both Brazilian and British climbers are predominant male, which is a pattern in adventure sports (Schwartz, Figueiredo, Pereira, Christofolletti, & Dias, 2013). Related to region we had participants from all of them in both countries. The age group consisted from 16 to 49 years old in Brazil and to 17 to 51 years old in UK. The red point in climbing routes was 8b for Britons and 9a+ for Brazilians, but in boulders was V13 for both. Considering the objectives, the predominant among Brazilians was “challenge my own limits”, while among the Britons was “to evolve in the sport”.

Related to how long are they climbing, in UK we had climbers with 2 years climbing (4%) up to climbers with more than 10 years climbing (24,5%). In Brazil we had climbers less than 1 year climbing (10,9%) up to climbers with more than 10 years climbing (33,2%). Among them 57% of the Briton climbers never stopped to climb, against 36% of the Brazilians. This is proportional to the lesion index since the Britons had 75,5% injured against 62,2% Brazilians injured. Moreover, in both the injuries were predominantly in fingers, shoulder and elbow. Among the Britons 70% searched for a professional to help them against 76% of the Brazilians. About climbing training, see the table below.

*Table 1.* Climbing training

Aspects of the training	Brazilians (62,2% injured)	Britons (75,5% injured)
Specific training for climbing	60%	65%
Where: climbing gym; climbing wall at home	79,3%; 20,7%	96,9%; 3,1%
How often (maximum per week)	47,4% (2x/week)	50% (More than 3 times a week)
How long each session (maximum)	7,8% (3h)	34,4% (3h)
What they do in the session (some aspects are highlighted here)	Warm up 72% Endurance at wall 81% Exercises 80% Core training 62% Stretching 62% Flexibility 38% Finger 55% Campus 39%	Warm up 100% Endurance at wall 81% Exercises 81% Core training 68% Stretching 62% Flexibility 65% Finger 65% Campus 50%
Do other activities or sports besides climbing	77%	59%

Finally, about how often did they climb outdoors, the majority of the Britons (61,2%) do that at least once a week, while the majority of Brazilians (40%) do that twice a week. This variation can be also related to the different weather conditions of the countries.

As a conclusion, we point out that more investigation is needed related the relationship between the characteristics of the training and the injuries' index, which should be adjusted for how long they practice the sport.

## References

- Backx, F. J. G., Beijer, H. J. M., Bol, E., & Erich, W. B. M. (1991). Injuries in high-risk persons and sports: a longitudinal study of 1818 school children, *19*(2), 124–130.
- Bollen, S. R. (1988). Soft tissue injury in extreme rock climbers. *British Journal of Sports Medicine*, *22*(4), 145–147. <http://doi.org/10.1136/bjsem.22.4.145>
- Bollen, S. R., & Gunson, C. K. (1990). Hand injuries in competition climbers. *British Journal of Sports Medicine*, *24*(1), 16–19.
- Coalter, F. (1999). Sport and recreation in the United Kingdom: Flow with the flow or buck the trends? *Managing Leisure*, *4*(1), 24–39. <http://doi.org/10.1080/136067199375913>
- DaCOSTA, L. P. (2006). Cenário de tendências gerais dos esportes e atividades físicas no Brasil. Retrieved March 23, 2014, from <http://cevs.org.br/arquivo/biblioteca/4013539.pdf>
- Fanchini, M., Violette, F., Impellizzeri, F. M., & Maffiuletti, N. A. (2013). Differences in climbing-specific strength between boulder and lead rock climbers. *The Journal of Strength & Conditioning Research*, *27*(2), 310–314.
- Godbey, G. (2009). Outdoor recreation, health, and wellness: Understanding and enhancing the relationship. *Recreation*, (May), 1–42. <http://doi.org/10.2139/ssrn.1408694>
- Grønhaug, G., & Norberg, M. (2016). First overview on chronic injuries in sport climbing: proposal for a change in reporting of injuries in climbing. *BMJ Open Sport & Exercise Medicine*, *2*(1), e000083. <http://doi.org/10.1136/bmjsem-2015-000083>
- Kelly, J. R. (1980). Outdoor recreation participation: A comparative analysis. *Leisure Sciences*, *3*(2), 129–154. <http://doi.org/10.1080/01490408009512931>
- Kuepper, T., Wermelskirchen, D., Beeker, T., Reisten, O., & Waanders, R. (2003). First aid knowledge of alpine mountaineers. *Resuscitation*, *58*(2), 159–169. [http://doi.org/10.1016/S0300-9572\(03\)00122-9](http://doi.org/10.1016/S0300-9572(03)00122-9)
- Limb, D. (1995). Injuries on British climbing walls. *British Journal of Sports Medicine*, *29*(3), 168–170.
- López-Rivera, E., & González-Badillo, J. J. (2012). The effects of two maximum grip strength training methods using the same effort duration and different edge depth on grip endurance in elite climbers. *Sports Technology*, *5*(3–4), 100–110. <http://doi.org/10.1080/19346182.2012.716061>
- Magiera, A., & Roczniok, R. (2013). The climbing preferences of advanced rock climbers. *Human Movement*, *14*(3), 254–264. <http://doi.org/10.2478/humo-2013-0031>
- Mccallum, S. (2017). Muscle fatigue , muscle recovery and how this knowledge applies to rock climbers. *The Duluth Journal of Undergraduate Biology*, *4*, 12–18.
- Michailov, M. L. (2014). Workload Characteristic , Performance Limiting Factors and Methods for Strength and Endurance Training in Rock Climbing. *Medicina Sportiva*, *18*(3), 97–106. <http://doi.org/10.5604/17342260.1120661>
- Quaine, F., Vigouroux, L., & Martin, L. (2003). Finger flexors fatigue in trained rock climbers and untrained sedentary subjects. *International Journal of Sports Medicine*, *24*(6), 424–427. <http://doi.org/10.1055/s-2003-41174>
- Roberts, K., & Brodie, D. A. (1989). The rise of Sports Participation in the United Kingdom. *Loisir et Société / Society and Leisure*, *12*(2), 307–324. <http://doi.org/10.1080/07053436.1989.10715332>
- Rosa, P. F., Carvalhinho, L., & Soares, J. (2017). O Desporto De Natureza E O Desenvolvimento Sustentável : Perspectivas De Desenvolvimento E. *Movimento*, *23*(1), 419–436.
- Schlegel, C., Büchler, U., & Kriemler, S. (2002). Finger injuries of young elite rock climbers. *Schweizerische Zeitschrift Fur Sportmedizin Und Sporttraumatologie*, *50*(1), 7–10.
- Schwartz, G. M., Figueiredo, J. P., Pereira, L. M., Christofolletti, D. A., & Dias, V. K. (2013). Preconceito e esportes de aventura: A (não) presença feminina. *Motricidade*, *9*(1), 56–67. [http://doi.org/10.6063/motricidade.9\(1\).2463](http://doi.org/10.6063/motricidade.9(1).2463)
- Tahara, A. K., Dias, V. K., & Schwartz, G. M. (2006). A aventura e o lazer como coadjuvantes do processo de educação ambiental. *Pensar a Prática*, *9*(1), 1–12. <http://doi.org/10.5216/rpp.v9i1.121>
- Timm, C. (2000). *The Effect of Training Pattern on Overuse Injuries Among Rock Climbers*. San José State University.
- Watts, P. B., Martin, D. T., & Durtschi, S. (1993). Anthropometric profiles of elite male and female competitive sport rock climbers. *Journal of Sports Sciences*, *11*(2), 113–117. <http://doi.org/10.1080/02640419308729974>
- Yaron, M., Niermeyer, S., Lindgren, K. N., & Honigman, B. (2002). Rock Climbers' Self-Perceptions of First Aid, Safety, and Rescue Skills. *Wilderness & Environmental Medicine*, *13*(1), 238–244.