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## Consensus Statement of the International Ankle Consortium: Prevalence, Impact and Long-term Consequences of Lateral Ankle Sprains

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**Consensus Statement of the International Ankle Consortium: Prevalence, Impact and Long-term Consequences of Lateral Ankle Sprains**

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1 Abstract

2 The Executive Committee of the International Ankle Consortium presents this position paper  
3 with recommendations for information implementation and continued research based on the  
4 paradigm that LAS, and the development of CAI, serve as a conduit to a significant global health  
5 care burden. We intend our recommendations to serve as a mechanism to promote efforts to  
6 improve prevention and early management of LAS. We believe this will reduce the prevalence of  
7 CAI and associated sequelae that have led to the broader public health burdens of decreased  
8 physical activity and early onset ankle joint PTOA. Ultimately, this can contribute to healthier  
9 lifestyles and promotion of physical activity.

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9 1 Lateral ankle sprain is the most common musculoskeletal disorder documented in  
10 2 physically active populations.[1-5] An acute lateral ankle sprain causes pain and typically results  
11 3 in a temporary period of reduced functioning and disability.[6] Early management and follow-up  
12 4 treatment can modulate the healing process and speed up return to desired activities.[7] Despite  
13 5 this fact, many patients do not receive supervised or professionally administered care.[8] This  
14 6 suggests that as an isolated injury occurrence, lateral ankle sprain is often considered an  
15 7 innocuous injury that will heal expediently and with minimal treatment. Unfortunately, the  
16 8 majority of patients with a history of lateral ankle sprain will sustain at least one additional  
17 9 sprain,[1 9-11] with many developing physical and subjective functional limitations, with  
18 10 ongoing “giving-way” in the affected ankle[6], resulting in the defined condition of chronic  
19 11 ankle instability.[12-14]

20 12 Our group has previously presented standards for defining chronic ankle instability,[15-  
21 13 17] documenting its prevalence and most consistent characteristics to promote refined and  
22 14 focused efforts to research and treat chronic ankle instability. A history of lateral ankle sprain is  
23 15 common in the general population,[18] suggesting this is not just a problem among the young  
24 16 and physically active. Compounding the high percentage of the population that reports a history  
25 17 of lateral ankle sprain, is evidence of early onset post-traumatic osteoarthritis of the ankle;[19]  
26 18 along with decreases in physical activity levels[20-22] and health-related quality of life[23-26].  
27 19 This illustrates that post-traumatic osteoarthritis of the ankle is a degenerative health issue that is  
28 20 not exclusive to middle-aged and elderly populations. Furthermore, the financial impact of  
29 21 lateral ankle sprain is high,[5 27 28] with billions spent annually on initial treatment and follow-  
30 22 up care. The negative consequence of lateral ankle sprain and chronic ankle instability are  
31 23 concerning and improved efforts to address these conditions must be initiated.

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9 1 Therefore, the Executive Committee of the International Ankle Consortium presents this  
10 2 position paper with recommendations for information implementation and continued research  
11 3 based on the proposition that lateral ankle sprains, and the development of chronic ankle  
12 4 instability, serve as a conduit to a significant global health care burden. We intend our  
13 5 recommendations to serve as a mechanism to promote efforts to improve prevention and early  
14 6 treatment of lateral ankle sprains. We believe this will reduce the prevalence of chronic ankle  
15 7 instability and associated sequelae that can lead to the broader public health burdens of decreased  
16 8 physical activity and early onset post-traumatic osteoarthritis of the ankle. Ultimately, this can  
17 9 contribute to healthier lifestyles and promotion of physical activity. A comprehensive discussion  
18 10 of the supporting literature for our recommendations is found in a companion review paper that:  
19 11 (A) establishes the burden of lateral ankle sprains and (B) raises awareness of the mid- and long-  
20 12 term negative consequences of lateral ankle sprains.  
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### 35 14 **Summary and Recommendations**

36 15 Lateral ankle sprain is the most prevalent musculoskeletal injury in physically active  
37 16 populations as well as a common condition in the general population, and has numerous sequelae  
38 17 that contribute to a substantial health care burden. The treatment for lateral ankle sprain is quite  
39 18 variable, with many patients returning to activity in a short period of time[29]; however, half of  
40 19 those who incur a lateral ankle sprain may never seek initial treatment.

41 20 Injury recurrence rates following lateral ankle sprain are high, leading to a large  
42 21 percentage of patients developing chronic ankle instability.[30] Lingering ankle instability  
43 22 contributes to ongoing sensorimotor deficits and constrained functioning, which associate with  
44 23 decreased physical activity and quality of life. Not surprisingly, patients with a history of lateral  
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1 ankle sprain and chronic ankle instability dominate post-traumatic osteoarthritis cases, which  
2 comprise the majority of the ankle joint osteoarthritis surgical cases. Additionally, the onset of  
3 post-traumatic osteoarthritis of the ankle is happening relatively early in life.

4 While the direct costs for treatment of an isolated lateral ankle sprain are relatively low,  
5 compounding these costs are the indirect costs from follow-up care and injury associated time  
6 loss. With a large percentage of the population experiencing this injury, the societal costs are  
7 high. As these costs for treatment of lateral ankle sprains are combined with the costs of  
8 managing the loss of physical activity and treatments for onset and care for post-traumatic  
9 osteoarthritis of the ankle, it is to see that the healthcare burden that emerges from a "simple"  
10 lateral ankle sprain is substantial.

11 In our companion evidence review [paper](#), we have expanded on the premise we describe  
12 above, and introduce emerging areas that are in need of continued research. From that extensive  
13 review, the Executive Committee of the International Ankle Consortium proposes the following  
14 recommendations for utilizing our summary of information, as well as needs for specific future  
15 research. It is our opinion that implementing these recommendations will address this public  
16 health care burden to reduce the prevalence of lateral ankle sprains, as well overcome deficits in  
17 those that sustain a lateral ankle sprain; ultimately improving the physical activity and quality of  
18 life in the sporting and general populations.

#### 19 Recommendations

- 20 1. To reduce the prevalence of lateral ankle sprains, efforts are needed to promote the  
21 adoption and implementation of effective prevention protocols. A full review of the  
22 existing evidence is beyond the scope of this paper, but sports governing bodies,  
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9 1 clinicians and researchers should strive to implement existing information that provides  
10 2 viable, proven solutions for lateral ankle sprain prevention.
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12 3 2. Efforts should be implemented to encourage the use of a structured examination for  
13 4 patients presenting with a lateral ankle sprain. This should include appropriate clinical  
14 5 tests with the addition of imaging when necessitated. This will facilitate a correct  
15 6 diagnosis and appropriate treatment.
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18 7 3. Efforts for initial treatment should include the acknowledgement of lateral ankle sprain as  
19 8 a noteworthy musculoskeletal injury that warrants treatment by a trained medical  
20 9 professional. Continued research is needed to determine the optimal treatment of lateral  
21 10 ankle sprain, to encourage return to activity levels and to lessen the chance for re-injury.
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24 11 4. To reduce the high propensity for lateral ankle sprain recurrence and development of  
25 12 chronic ankle instability, clinicians and researchers should encourage proper follow-up  
26 13 with a standard of rehabilitation that addresses sensorimotor and arthrokinematic deficits,  
27 14 whilst simultaneously allowing for optimal tissue restoration. Continued research is  
28 15 needed to determine the optimal treatment protocols that address the critical deficits in  
29 16 these patients that lead to the development of chronic ankle instability.
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32 17 5. Future research is needed to determine the onset timeline of ankle joint post-traumatic  
33 18 osteoarthritis of the ankle relative to lateral ankle sprain injury. Additionally, research is  
34 19 needed to determine what aberrant sensorimotor deficits contribute to the exacerbation of  
35 20 ankle joint degeneration and eventual development of post-traumatic osteoarthritis.
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38 21 6. Future research is needed to determine the onset timeline of declines in physical activity  
39 22 and quality of life following initial lateral ankle sprain. This knowledge will help support  
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9 1 the need for improved interventions (timing, dosage and intensity) to alleviate these  
10 2 declines.

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12 3 7. Future research is needed to examine potential associations of lateral ankle sprains to co-  
13 4 morbidity risk due to declines in physical activity and increased risk of post-traumatic  
14 5 osteoarthritis.

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18 6 8. Direct and indirect financial and societal costs for treating lateral ankle sprains and their  
19 7 sequelae are high. Crude estimations based on prevalence and regional costs, along with  
20 8 extended timeline projections, make the potential costs staggering. Future research is  
21 9 needed to conduct comprehensive cost analyses from national and international  
22 10 perspectives. Confirming these cost projections from longitudinal studies will confirm the  
23 11 need for improved prevention and management efforts for lateral ankle sprains.  
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1 Competing interests

2 None Declared

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4 Contributorship

5 All authors contributed the planning, drafting and approval of this manuscript

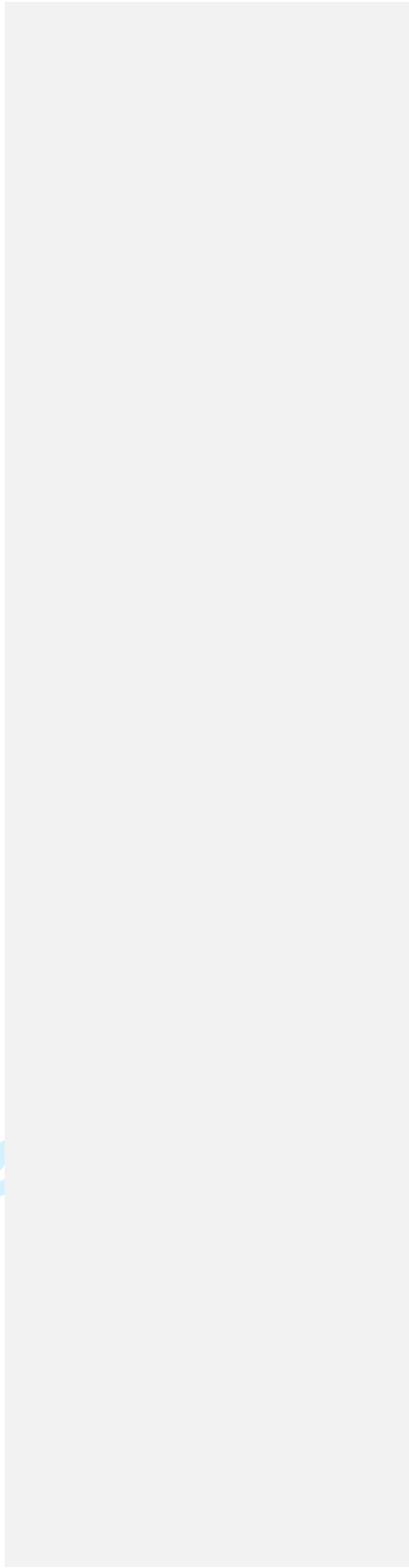
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