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Ankle Supports Enhance Only Psychological Aspects of the Ankle-GO Score in Patients With Chronic Ankle Instability

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Context: Chronic ankle instability (CAI) is the most serious long-term complication after an ankle sprain. Taping and bracing are frequently employed in the return-to-sport (RTS) continuum to avoid injury recurrence and to maximize postinjury performance. The Ankle-GO score is a valid and reliable objective RTS criterion, but the influence of ankle supports on this score in CAI patients remains unknown.

Objectives: We aimed at evaluating the induced effects of taping or bracing on the Ankle-GO score among patients suffering from CAI.

Design: Crossover study.

Setting: Sports medicine research laboratory.

Patients or Other Participants: Thirty CAI patients (13 males and 17 females, age = 33.4 ± 11.7 years) performed the Ankle-GO score in 3 conditions (taping, bracing, and no ankle support).

Main Outcome Measure(s): The Ankle-GO is a 25-point score clustering 2 self-reported questionnaires (Foot and Ankle Ability Measure and Ankle Ligament Reconstruction–RTS after Injury) and 4 functional tests (single-leg stance, Star Excursion Balance Test, side hop test, and figure-of-8 test). Performances on each component as well as the total score were compared between conditions using a repeated measures analysis of variance.

Results: Taping and bracing significantly and equally improved the Ankle-GO score compared with no support (12.8 ± 5.3 and 11.2 ± 4.2 versus 8 ± 4.5 points, respectively, $P < .001$). However, significant improvements were found solely in self-reported questionnaires with ankle support ($P < .001$). No differences were found in functional tests, although both taping and bracing significantly lowered instability perception during the tests (+1.9 and +1.8 points, respectively).

Conclusions: Ankle-GO scores were significantly enhanced with taping or bracing. However, only self-reported function and psychological readiness were improved. Functional performance was not altered, although external supports enhanced perceived stability. Both taping and bracing supports appear equally important in improving self-confidence and perceived ankle stability among individuals with CAI returning to sport.

Key Words: ankle sprain, return to sport, Ankle-GO, taping and bracing, psychological readiness

Key Points

- Taping and bracing improved the Ankle-GO score among chronic ankle instability patients.
- Only psychological and perceptual aspects were improved, with no increase in performance in functional tests.
- Ankle supports may help patients during the return-to-sport continuum.

Lateral ankle sprain (LAS) is the most common injury, with an estimated incidence of 0.6–11.5 per 1000 inhabitants in the general population and a high recurrence rate.[1,2] Up to 40% of LAS patients develop chronic ankle instability (CAI) marked by perceived instability, episodes of giving way, recurrences, loss of function, and kinesophobia during daily activities and sports.[1] A key contributor to LAS recurrence and then CAI is poor management of return to sport (RTS).[1,3] This is probably partly due to the lack of consensus on objective RTS criteria, and decisions are typically time based, with many patients returning to sport with persistent deficits.[3–5]

The Ankle-GO is a newly developed score designed to monitor LAS treatment progress throughout the RTS continuum.[6] Poor performance on this test has been shown to reduce the likelihood of returning to the same level of play and increase the risk of recurrence ninefold within 2 years of the LAS.[6,7] The Ankle-GO score combines 4 functional tests and 2 self-reported

questionnaires, assessing both perceived level of function and the psychological readiness of patients. This score has already been the subject of several publications relating to the multidimensional definition of CAI, especially the dramatic consequences of LAS recurrences and the challenge to become a coper.[8,9] Indeed, considering only this risk of recurrence, recent findings revealed that the Ankle-GO score at 2 months after injury was lower in patients with a recurrent LAS (5.4 ± 2.8 versus 9.1 ± 4.5 points) and predicted the risk of reinjury (with area under the curve = 0.75): Patients with a score inferior to 8 points were found to have a significantly higher risk of reinjury (odds ratio = 8.6; 95% confidence interval = 2, 37.2).[7] In addition, patients scoring an Ankle-GO above 8 points were 5 times more likely to RTS at the same level of play within 4 months.[6] Regarding the challenge to become a coper or conversely the high risk to fall into CAI after an initial LAS, it has been shown that LAS patients (initial LAS or recurrence) scoring an Ankle-GO above 11 points were 12 times more likely to become LAS copers.[10] Therefore, it seems reasonable and relevant to use the Ankle-GO score among the CAI population, considering the valuable insights it has already provided in the literature regarding several key components of CAI.

Ankle supports are also commonly employed in the late phase of rehabilitation (ie, patients gradually resume dynamic tasks such as running, hopping, and jumping or landing), and strong evidence supports the use of prophylactic taping and bracing for the prevention of LAS.[3,11,12] For example, in a large randomized controlled trial involving 1460 male and female high school basketball players, the incidence of acute first-time and recurrent ankle injuries was significantly reduced in the braced group compared with the control group (0.47 versus 1.41 per 1000 exposures).[12] In several systematic reviews, external supports were effective at preventing first-time LAS or recurrences.[13–15] Conversely, it has been proposed that the restriction of movement caused by an ankle support could negatively affect functional performance, leading to debate regarding their potential value.[16]

A growing body of evidence indicates that an ankle support may act as a placebo effect, by improving self-confidence, reducing kinesiophobia, and alleviating movement apprehensions.[17] For instance, in a qualitative investigation with 11 US collegiate athletes, Hunt and Short revealed that taping positively influenced athlete confidence and decreased their anxiety for injury or reinjury.[18] Similarly, survey data with 132 Division III collegiate athletes suggest that, regardless of history of ankle injury, a majority believed that ankle taping may act as a prophylactic modality in preventing injury.[19] These findings suggest that ankle supports may have psychological benefits above and beyond any potential functional enhancements.

The primary aim of this study was, therefore, to evaluate the effects of ankle strapping or bracing on the Ankle-GO score in patients with CAI. It was hypothesized that both types of support would increase the Ankle-GO score compared with the no-support (normal) condition. The secondary aim was to analyze each component of the Ankle-GO to better understand which of the 6 components of the score would be potentially altered. Based on previous studies, we hypothesized that taping or bracing would mainly improve perceived stability, level of function, and psychological readiness scores without altering functional performances.[11,20–22] It was also hypothesized that taping or bracing would have identical effects on the Ankle-GO and its 6 components.

METHODS

Study Design and Settings

This laboratory cross-sectional study complies with the Strengthening the Reporting of Observational Studies in Epidemiology statement.

Population

Based on previous research on the Ankle-GO score among patients with CAI,[6] an a priori sample size calculation revealed that, at a minimum, 28 patients would be needed to obtain a statistical power of 0.80 and type 1 error of 0.05.

Patients were recruited from 2 clinics (Clinique du Sport, Paris, and Hôpital Ambroise PARE, Paris). The study was performed in accordance with the Declaration of Helsinki. All patients provided written informed consent, their rights were protected, and the study received Institutional Ethics Approval (IRB00010835).

Patients were included only if they met the International Ankle Consortium recommended criteria for CAI.[9] More specifically, patients were required to be more than 12 months from the index ankle sprain and have suffered from at least 2 recurrent sprains; report feelings of instability (Cumberland Ankle Instability Tool [CAIT] < 24); and report loss of self-reported function (Foot and Ankle Ability Measure [FAAM] Activities of Daily Living subscale [$FAAM_{adl}$] $< 90\%$ or Sport [$FAAM_{sport}$] subscale $< 80\%$). The most recent LAS occurred more than 3 months before the study enrollment. Only patients with a detectable anterior talofibular or calcaneofibular ligament lesion were included. The presence of a lesion was assessed by clinical examination (anterior drawer test and talar tilt combined with palpation) and confirmed by magnetic resonance imaging. Patients were excluded in case of fracture or suspicion of syndesmotic injuries.

After inclusion, patients performed the Ankle-GO score under the supervision of an experienced physical therapist during a single session. To limit bias, patients were blinded on the objectives and hypothesis of the study.

Ankle-GO Score

This reliable and valid tool was designed to evaluate sporting patients with CAI during the RTS continuum.[6] The score clusters 6 components targeting the main deficits associated with LAS (Table 1) comprising 4 functional tests: the single-leg stance (SLS), the modified Star Excursion Balance Test (mSEBT), the side hop test (SHT), and the figure-of-8 test (F8T). In addition, 2 patient self-reported questionnaires are included: the FAAM, comprising 2 subscales $FAAM_{adl}$ and $FAAM_{sport}$, as well as a measure of psychological readiness to RTS, the Ankle Ligament Reconstruction–RTS after Injury (ALR-RSI).[4]

Self-Reported Questionnaires. ***FAAM.*** This inventory evaluates patient-reported function with 21 items assessing daily activities, such as walking and going up and down stairs, and 8 items focused on perceived sports functional abilities, such as running, jumping, and cutting. Patients respond to each item on a 5-point Likert scale ranging from 0 (*incapable of performing the exercise*) to 4 (*without difficulty*) or *not applicable* when the activity in question is limited by something other than the foot or ankle. The percentage of each subscale is then determined.

Table 1. List of Tests and Self-Reported Questionnaires Used for the Construction of the Ankle-GO Score and System to Determine the Points for Each Component

Tests	Raw Values	Points	Maximum Score
Patient-reported outcome measure			
Foot and Ankle Ability Measure			
Activities of Daily Living	<90%	0	2
	90%–95%	1	
	>95%	2	
Sports	<80%	0	2
	80%–95%	1	
	>95%	2	
Ankle Ligament Reconstruction–Return to Sport after Injury	<55%	0	3
	55%–63%	1	
	63%–76%	2	
	>76%	3	
Functional performance testing			
Single-leg stance test	>3 errors	0	3
	1–3 errors	1	
	0 error	2	
	No apprehension	1	
Star Excursion Balance Test	<90%	0	7
	90%–95%	2	
	>95%	4	
	Anterior > 60%	1	
	Posteromedial > 90%	1	
	No apprehension	1	
Side hop test	>13 s	0	5
	10–13 s	2	
	<10 s	4	
	No apprehension	1	
Figure-of-8 hop test	>18 s	0	3
	13–18 s	1	
	<13 s	2	
	No apprehension	1	
Ankle-GO score			25

ALR-RSI. This questionnaire includes a total of 12 items such as confidence, emotions, and risk appraisals to assess psychological readiness to RTS among patients with LAS.[23] Items are scored on a scale from 0 (*no confidence*) to 10 (*fully confident*). The global score is expressed as a percentage.

Functional Performance Tests. *SLS.* The participant must stand barefoot on 1 leg, with the knee slightly flexed (10°), hands on the hips for 20 seconds, with eyes closed, on a firm surface. This test evaluates static postural control based on the patient's number of errors. One error was recorded for any of the following: lifting hands off hips, moving the thigh into more than 30° of flexion or abduction, lifting the forefoot or heel, remaining out of the testing position for more than 5 seconds, or opening one's eyes. After completion of 2 learning trials, the test was performed once.

mSEBT. The patient stands barefoot on the tested foot in the center of a Y formed by 3 branches on the ground. He or she must reach as far as possible with the opposite leg in the 3 directions—anterior (ANT), posteromedial (PM), and posterolateral (PL)—before returning to the original position. The trial is ceased if the patient takes his or her hands off the hips, if the weight-bearing leg moves or if the heel is raised, if the patient loses balance or falls, or if weight is transferred to one's non-weight-bearing foot. To obtain comparable results, the distances obtained are normalized in relation to the length of the patient's leg (from the anterior and superior iliac spine to the medial malleolus). After 4 learning trials in each direction for each leg, 3 trials were recorded and averaged. The composite (COMP) score was calculated as the average of the ANT, PM, and PL directions. One point was added if the measurement in the ANT direction was above 60% and another point if the measurement in the PM direction was above 90%.

SHT. This test consists of hopping barefoot on 1 leg laterally and medially as fast as possible 10 times over 2 lines 30 cm apart.[24] The first hop is always toward the outside. If the patient touches the line, that back-and-forth hop is not counted.

F8T. This test involves skipping barefoot on 1 leg in a figure of 8 around 2 posts 5 m apart as fast as possible.[24] The patient must perform 2 consecutive laps (for a total distance of 20 m).

Because Caffrey et al have clearly shown the importance of assessing perceived apprehension in patients with LAS, 1 additional apprehension point was added for each test if the patient did not experience instability during the task.[24] Perceived apprehension was assessed using the question: "When you performed the test, did you perceive feelings of instability or apprehension about your ankle?" (yes = 0, no = 1 point).

Patients randomly and successively performed the Ankle-GO score in 3 different conditions (control, taping, and bracing). For each condition, all patients performed the tests in the same order (SLS followed by SEBT, SHT, and F8T). Then patients were asked to answer the questionnaires by imagining wearing the external supports in their daily and sporting activities. Approximately 5 minutes of rest was given to put on or remove the strap or brace and ensure sufficient recovery between test conditions.

Taping and Bracing Techniques

Taping was applied by the same experienced physiotherapist using a figure-of-8 method with elastic bands, commonly used in sports physiotherapy to limit inversion of the foot (Figure). For bracing, the same semirigid ankle brace, Malleo Dynastab Boa (THUASNE), was used for all patients (Figure). Taping and bracing were applied to the injured ankle only.

Statistical Analysis

Data from the 6 components—SLS (in number of errors); ANT, PM, PL, and the COMP score of the SEBT (%); SHT (seconds); F8T (seconds); $FAAM_{adl}$ and $FAAM_{sports}$ (%); as well as the ALR-RSI (%)—and total Ankle-GO score were calculated for each condition (control, taping, and bracing). In addition, the sum of apprehension points (ie, points obtained if patient did not report feelings of instability during functional tests, for a maximum 4 points) was calculated for each condition (Table 1).

Data were checked for normality and homogeneity of variance using with Shapiro-Wilk and Levene tests. Means and standard deviations (SDs) were compared between the 3 conditions using an analysis of variance. Welch corrections were applied in case of assumption violation, and post hoc analyses were conducted if needed (Bonferroni corrections). The statistical analysis was performed using JASP (Version 0.17.2.1; University of Amsterdam). Level of significance was set at 0.05, and effect sizes (η^2) were reported.

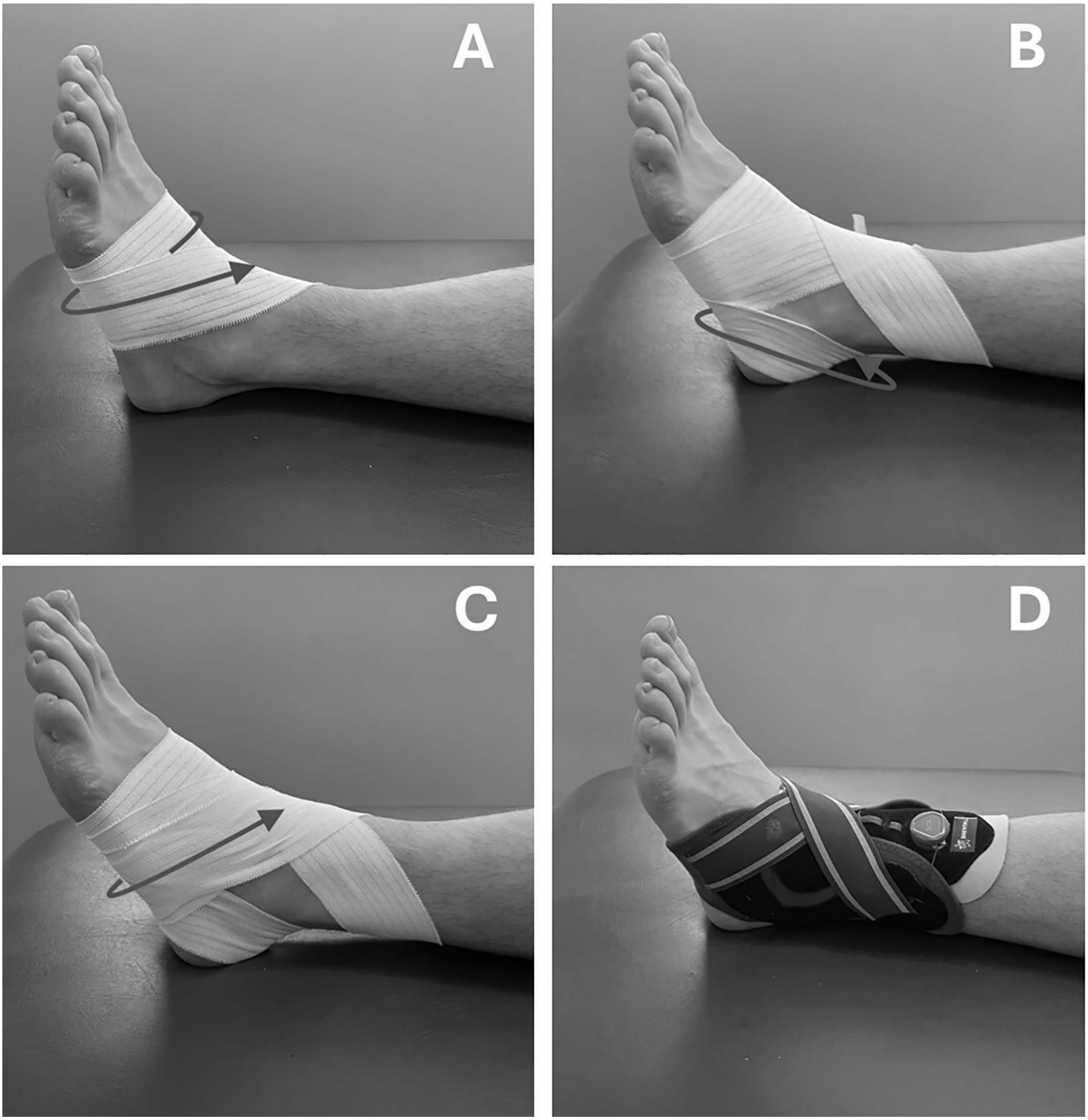

Figure. Application technique of ankle strapping. A, The elastic band starts at the midfoot and stabilizes the lateral edge of the foot (styloid process of the fifth metatarsal) to limit ankle inversion. B, The band tightens the inferior tibiofibular joint and extends toward the medial malleolus, forming a figure-of-8, and then stabilizes the calcaneus to limit rearfoot varus. C, The final passage in the lateral edge of the foot limits supination of the ankle. D, Ankle bracing.

RESULTS

Thirty patients with CAI were included (17 females and 13 males, age = 33.4 ± 11.7 years; Table 2). The Ankle-GO score was significantly higher with both taping or bracing than no ankle support (12.8 ± 5.3 and 11.2 ± 4.2 versus 8 ± 4.5 points, respectively, $P < .001$, $\eta^2 = 0.160$; Table 3), indicating that both types of ankle support positively affect functional capabilities among individuals with CAI. When comparing each component of the Ankle-GO, only the self-reported questionnaires ($FAAM_{adl}$, $FAAM_{sports}$, and the ALR-RSI) significantly improved with taping or bracing. No significant differences were identified on the performance of functional tests of the Ankle-GO (Table 3). Nevertheless, apprehension reported during these tests was significantly lowered with both taping and bracing. This last finding further suggests that ankle supports exert their influence on patient's perceptions rather than his or her actual functional capacities.

Table 2. Patient Demographics

Sex	13 males and 17 females
Age, (y), mean ± SD	33.4 ± 11.7
Injured side	12 left and 18 right
Type of sport, No. (%)	
In line	13 (46.3%)
Pivot	11 (36.7%)
Pivot-contact	6 (20%)
Level of play, No. (%)	
Professional	1 (3.3%)
Intensive (>6 h/wk)	11 (36.7%)
Regular (2–6 h/wk)	15 (50%)
Casual (<2 h/wk)	3 (10%)
Cumberland Ankle Instability Tool, (points)	10.4 ± 4.9
Foot and Ankle Ability Measure, (%)	
Activities of Daily Living	82.1 ± 14.3
Sports	55.5 ± 22.2

Lastly, no significant differences between the taping and bracing were found for any parameters. This indicates that both supports prove equally effective in enhancing patient beliefs regarding perceived ankle stability and psychological readiness to RTS.

DISCUSSION

The primary objective of this study was to evaluate the effects of ankle strapping or bracing on the Ankle-GO score in patients with CAI. Results indicated that both supports improved the Ankle-GO score compared with no support, with increases of +4.8 and +3.2 points, for taping and bracing, respectively. These improvements exceed the minimum detectable change (MDC = 1.2 points), indicating a significant effect of ankle support during the RTS continuum.[6] Notably, ankle supports helped patients to overcome a critical Ankle-GO cutoff score of 8 points, which predicts RTS at the same level of play and reduces recurrence risk after an LAS, in patients with or without CAI. Patients scoring above 8 points were 5 times more likely to RTS at the same level of play within 4 months and 9 times less likely to suffer a reinjury within 2 years after an LAS.[6,7] Recent findings also revealed that patients scoring above 11 points were 12 times more likely to fully recover (ie, become LAS copers).[10] In the present study, both taping and bracing helped patients exceed this threshold with scores of 12.8 and 11.2, respectively. Since the Ankle-GO score is the first objective RTS criterion after LAS (inaugural episode of sprain or recurrence), these results may support the recommendation for prophylactic bracing to enhance psychological readiness and potentially reduce reinjury risk in CAI patients.[11]

When examining the effects of taping or bracing on Ankle-GO scores, it appeared that the performance increase was solely attributable to patients' perceived improved abilities, specifically in the subjective aspects of patients' ankle-related function. Notably, both taping and bracing significantly enhanced patients' perception of stability during the functional tests (+1.9 and +1.8 apprehension points, respectively), exceeding the MDC of the Ankle-GO scores. Additionally, self-reported questionnaires ($FAAM_{adl}$ and $FAAM_{sports}$) showed significant improvements with ankle support. Interestingly, taping or bracing allowed patients to reach the $FAAM_{adl}$ cutoff score identifying CAI patients (90%).[1] The addition of external supports also surpassed the minimal clinically important difference of the $FAAM_{sports}$ score (9 points), indicating a tangible perceived beneficial effect.[4] Moreover, a significant increase of 26.5% with taping and 20% with bracing was observed in the ALR-RSI, exceeding the MDC (8.4%) among LAS patients.[23]

Overall results are in line with previous research, highlighting the beneficial psychological effects of ankle support.[17–19] A placebo effect of taping and bracing has been previously reported, with improvements of feelings of ankle stability, confidence, and reassurance during functionals tests in CAI patients.[20,25] In their critical appraisal of the literature, Simon and Donahue revealed that physically active individuals experienced a significantly increased sense of stability, reassurance, and confidence when their ankle was taped or braced compared with no support.[17] Authors have suggested that ankle taping and bracing are effective in allowing individuals to be more psychologically assured when engaging in dynamic-balance tasks.

However, no difference was observed between conditions in functional tests of the Ankle-GO score, indicating that ankle supports did not affect functional performance. This supports the conclusions of Simon and Donahue, who reported that, despite the psychological benefits of ankle supports, ankle taping or bracing did not translate to improved

Table 3. Comparison of the Total Score and Each Component of the Ankle-GO (Mean ± SD) Between the Control and Ankle Support Conditions

	No Ankle Support	Taping	Bracing	*P* Value	Effect Size
Ankle-GO (/25 points)	8 ± 4.5[a]	11.2 ± 4.2	12.8 ± 5.3	<.001	0.160
Ankle-GO apprehension (/4 points)	2.7 ± 1.3[a]	3.5 ± 0.9	3.6 ± 1.3	.007	0.108
$FAAM_{adl}$, (%)	82.1 ± 14.3[a]	89.8 ± 10.9	91.0 ± 9.0	.007	0.108
$FAAM_{sport}$, (%)	55.5 ± 22.2[a]	71.7 ± 20.0	75.0 ± 19.9	.001	0.148
ALR-RSI, (%)	34.2 ± 24.0[a]	53.4 ± 25.2	60.7 ± 27.1	<.001	0.166
SLS, (errors)	3.1 ± 2.6	2.9 ± 2.3	2.4 ± 2.0	.471	0.017
SEBT COMP, (%)	84.4 ± 7.3	86.6 ± 6.5	87.9 ± 7.2	.152	0.042
SEBT ANT, (%)	62.8 ± 6.9	65 ± 6.9	63.9 ± 6.9	.48	0.017
SEBT PM, (%)	95.9 ± 9.8	99.9 ± 10.1	98.2 ± 9.2	.28	0.283
SEBT PL, (%)	94.3 ± 10.6	99 ± 9.1	97.5 ± 8.8	.152	0.042
SHT, (s)	24.4 ± 16.0	18.8 ± 12.7	17.6 ± 11.5	.12	0.048
F8T, (s)	19.9 ± 10.7	17.8 ± 9.1	17.9 ± 9.2	.65	0.010

Abbreviations: ALR-RSI, Ankle Ligament Reconstruction–Return to Sport after Injury; ANT, anterior; COMP, composite; F8T, figure-of-8 test; $FAAM_{adl}$, Foot and Ankle Ability Measures–Activities of Daily Living subscale; $FAAM_{sport}$, Foot and Ankle Ability Measures–Sports subscale; PL, posterolateral; PM, posteromedial; SEBT, Star Excursion Balance Test; SHT, side hop test; SLS, single-leg stance.

[a] Indicates a significant difference between control and ankle supports conditions but no difference between the type of support.

performance during the SEBT or the overall stability index measured by the Biodex Balance System.[17] On the effect of ankle taping on performance, researchers have shown mixed results.[26–29] Our finding aligned with studies in which authors showed no detrimental effects on functional performance, which is particularly noteworthy for athletes, as it suggests they can use ankle supports to reduce injury risk without compromising performance.[26,27,30]

The evidence on whether taping or bracing is more effective remains inconclusive.[31] However, bracing appears more efficient to prevent reinjury among LAS patients as measured by the number of patients needed to treat.[32] Additionally, bracing seemed more cost-effective than taping, with lower risk of skin irritation.[31] Nonetheless, both types of supports lose their restrictive properties during exercise, with a significant loss of mechanical stability within 20 minutes of exercise.[33,34] Bracing, however, maintains its mechanical properties for a longer period, making it a better choice, especially for regular athletes, though clinician experience and patient preference should also be considered.[34]

In this study, we used elastic bands or a semirigid brace commonly used by clinicians. Results showed no influence of these external supports on performance in any functional tests. These findings are in adequation with the results from the network meta-analysis of Tsikopoulos et al (2020), revealing that external supports of any type did not improve dynamic postural control in patients with ankle instability.[15] Delahunt et al (2010) compared lateral subtalar sling and fibular repositioning tape with no tape and found no difference in dynamic postural stability in participants with CAI.[20] Such findings also align with those of Sawkins et al (2007), who found no significant differences of 2 distinct taping techniques (ie, real taping and placebo taping) compared with no taping on SEBT and hopping test performance among CAI patients.[22] The real taping technique employed consisted of a combination of 3 stirrups, a figure-of-6 pattern, and a heel lock using inelastic tape. Conversely, the placebo taping involved a single 10-cm rigid tape applied above the lateral malleolus along the lateral aspect of the tibia. More recently, De Ridder et al used a double figure-of-6 and a single heel lock with a nonelastic band in patients with CAI and found no difference in postural control during dynamic landing tasks in the frontal and sagittal planes but an improvement in perceived instability compared with no tape.[25] It seems, therefore, that the type (rigid versus elastic) and pattern technique do not influence performance on postural stability and hopping tests but improve perceived stability among CAI patients.

When comparing functional performances obtained in the control condition (Table 3) with the results from Linens et al (2014) in CAI patients, all outcomes were below their proposed cutoff values to identify CAI patients (SLS $>$ 3 errors, SHT $>$ 12.8 seconds, and F8T $>$ 17.36 seconds), except for the PL direction of the SEBT ($<$91%).[35]

When focusing on the SEBT scores, McCann et al (2017) revealed similar results on the ANT direction (61% versus 62.8%) but lower performances on the PM and PL directions (82.5% and 73.1%, respectively, versus 95.9% and 94.3% in the present study) among CAI patients with self-reported questionnaires of $FAAM_{adl} = 89.3\%$, $FAAM_{sports} = 71.9\%$, and CAIT = 15 points.[36] Star Excursion Balance Test performances from the present study were very similar to those obtained by Doherty et al (2016) in the ANT, PM, and PL directions (61.7%, 93.2%, and 100.7%, respectively), but CAI patients from their study reported higher self-reported function ($FAAM_{adl} = 95.7\%$, $FAAM_{sports} = 85.5\%$, and CAIT = 22.3 points).[37] The testing procedure of the SEBT could partially explain the difference on SEBT performances among CAI populations.[38,39] When performing the SEBT during the Ankle-GO, it is recommend to use a toe-fixed position for all 3 directions, which leads to very similar results obtained among CAI populations.[4,6,37,38]

Another explanation of variability in SEBT scores among CAI is the multicausal nature of CAI, with some patients experiencing dynamic postural control deficits while others do not.[8]

Regarding SHT and F8T performances, poorer scores than Caffrey et al (2009) were observed for the unstable ankle (10.5 and 11.3 seconds, respectively).[24] Unfortunately, only the Ankle Instability Instrument was used to include patients in their CAI group, and no information about the self-reported function of CAI patients was available.

Strength and Limitations

A potential limitation of this study is that the effect of ankle support was assessed over a relatively short duration (approximately 15 minutes). Future researchers could explore the effect of ankle support on the psychological components of the Ankle-GO scores over longer periods, such as after 20 minutes of sports participation. Additionally, it would be relevant to examine whether ankle supports influence perceived function (eg, confidence, psychological readiness) throughout the RTS continuum. It is reasonable to assume that the psychological benefits of ankle support may be greater in the later stages of rehabilitation as functional deficits diminish and ankle function improves.

Patients were asked to imagine the potential psychological benefits of ankle support when completing the questionnaires (ie, FAAM and ALR-RSI), rather than experiencing potential psychological benefits while engaging in real-life tasks. While it is difficult to truly assess the psychological aspects by asking patients to consider the perceived benefits, the increases in reported confidence found in the present study, especially in perceived stability during functional testing, nonetheless provide additional support for the psychological benefits of ankle support.

Lastly, the generalizability of these findings should be approached with caution, particularly for high-level athletes or other types of ankle sprains such as syndesmotic injuries. Data indicate poor self-reported function and instability among patients included in the present study ($FAAM_{adl} = 82.1\%$, $FAAM_{sports} = 55.5\%$, and CAIT = 10.4 points), and the effect of bracing and taping might be different in patients with more favorable outcomes. Furthermore, regarding the generalizability to a broader population and given that the present study focused specifically on CAI patients, it is challenging to predict whether ankle supports would have the same effects or would work to the same extent in patients suffering from a first acute ankle sprain.

Clinical Implications

Both taping and bracing may enhance rehabilitation by improving psychological readiness and perceived ankle stability, potentially facilitating an earlier return to active sport.[21] However, caution is needed to avoid premature returns to sport,

particularly when psychological readiness exceeds actual physical or functional capabilities. This concern is supported by the present study, in which we found high psychological readiness values (mean ALR-RSI = 61% for ankle bracing), despite comparatively low functional abilities (ie, mean SEBT composite score < 90%).[23,40] Evidence suggests that social desirability issues (eg, reporting elevated levels of readiness because that is what tough-minded athletes do, because they believe it is desirable in the eyes of others to be confident, or because they believe higher scores will increase the likelihood that decision-makers return them to sport) may affect self-reported psychological readiness among athletes. This issue requires careful consideration when evaluating, interpreting, or making decisions based on athletes' readiness to RTS.

Patients and practitioners can be confident that external support may increase the likelihood of returning to the same level of play without affecting functional performance during sports tasks. Caution is warranted for clinicians to avoid relying solely on ankle supports to enhance balance and postural stability in individuals with CAI. Unfortunately, clinicians understand many athletes prefer to convince themselves that the ankle brace or tape provides sufficient protection and become addicted to this tool rather than engaging in comprehensive rehabilitation.

CONCLUSIONS

Taping and bracing significantly improved performance on Ankle-GO scores among g CAI patients. However, improvements were only associated with psychological aspects and perceived stability, and no differences between conditions were observed on functional components of the Ankle-GO. Lastly, no difference was found between taping and bracing on any component of the Ankle-GO score. This indicates that both supports could be used to enhance psychological readiness in the RTS continuum to lower the risk of reinjury without incurring any detrimental effects on performance.

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Patient involvement statement: Study participants were not involved in the design, conduct, interpretation, or translation of the current research.

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Contributorship: A.H., F.F., R.L., and B.P. designed the study. The preparation of the material, the writing of the report, and the critical revision of the work were carried out by B.P., F.F., R.L., L.P., and A.H. Data collection was carried out by C.M., C.L., G.R., A.M., and W.L. Statistical analysis was carried out by B.P. B.P. drafted the first version of the manuscript, and all authors critically reviewed later versions until all authors could approve the final manuscript. A.H. is the guarantor of the data in this study.

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