PHYSIOTHERAPY FOR ACUTE ANKLE SPRAINS: HOW DO WE COMPARE TO EVIDENCE BASED CLINICAL GUIDELINES?

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ABSTRACT

Ankle sprains are reportedly the most common lower limb injury amongst active individuals. The aim of this study was to investigate whether treatment interventions employed by physiotherapists during the first week of functional rehabilitation of an ankle sprain were aligned with evidence-based guidelines for acute ankle sprains.

DESIGN: *A descriptive cross-sectional study was conducted.*

PARTICIPANTS: *Ninety-one physiotherapists from the Western Cape Metropole (WCM) completed the questionnaire.*

METHOD: *Physiotherapists' treatment interventions were recorded based on a case study of a typical moderately sprained ankle.*

Relative occurrence of selected interventions during the first week of rehabilitation was calculated. Chi-square tests were used to compare differences between the physiotherapists' responses and the recommendations of the practice guidelines.

RESULTS: *The physiotherapists' overall selection of treatment interventions was in alignment with the 'Koninklijk Nederlands Genootschap voor Fysiotherapie' (KNGF) guidelines and correlated positively to the recommendations stipulated by KNGF. The physiotherapists indicated interventions for which good evidence exists, such as: compression, cryotherapy, early mobilisation and neuromuscular exercises. It is of concern that 49% – 91% (n = 91) physiotherapists indicated some form of manual therapy; there is limited evidence for this in treating acute sprains and therefore it is not recommended in the KNGF guidelines. More than two-thirds indicated the application of an electrotherapy intervention, which is also not recommended in the guidelines as it has very little clinical value.*

CONCLUSION: *Physiotherapists should reconsider using interventions for which there is no evidence as this may reduce the cost of care, without compromising patient outcomes.*

KEYWORDS: *BRACES, ELECTROTHERAPY, FUNCTIONAL REHABILITATION, MANUAL THERAPY, PRICE*

INTRODUCTION

Musculo-skeletal injuries are a world-wide healthcare issue (Handoll et al 2007). Ankle sprains are reportedly the most common lower limb injury amongst active individuals (Archer et al 2009). Annually, just over half a million ankle sprains are reported in the Netherlands (van der Wees et al 2006). In South Africa, the prevalence of ankle sprains is unknown, although the incidence of lower limb injuries at primary health care level in Cape Town is high (Parker and Jelsma 2010).

Ankle sprains are typically under-reported and the estimated prevalence may therefore be the tip of the iceberg. Ankle injuries remain under-reported because they are generally perceived to be minor injuries (Schwab et al 2008). Many individuals who suffer from an ankle sprain therefore tend to apply self-management strategies (Cooke et al 2003). Although medical treatment is not often considered for many ankle injuries, physiotherapists are frequently the first contact practitioners for assessment and treatment of ankle sprains (Hawson 2011).

Common physiotherapeutic modalities during the acute phase of an ankle sprain include electrotherapy, manual mobilisation, gait re-education and exercise therapy (Hing et al 2011). In addition, functional rehabilitation is recommended, which consists of protection, rest, ice, compression and elevation (PRICE) in combination with early mobilisation (walking with external support) to facilitate full weight-bearing (FWB) gait as soon as pain allows (Seah and Mani-Babu 2011) and (van Rijn et al 2010). Evidence suggests that functional rehabilitation, when compared to immobilisation, is associated with an earlier return to work or sport and reduced economic costs (Audenart et al 2010).The degree to which physiotherapists adhere to such evidence based interventions for acute ankle sprain is questionable.

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Evidence based practice (EBP) guidelines could guide physiotherapists with scientifically-researched recommendations for clinical interventions for a particular condition (Kerkhoffs et al 2012). EBP guidelines could therefore reduce variability in care and improve outcomes of physiotherapy treatment (Kooijman et al 2011). However, discrepancies between EBP guideline recommendations and poor uptake of evidence-based guideline recommendations into real life physiotherapy practice are widely reported (Kooijman et al 2011).

In light of reported good outcomes and cost effectiveness of functional rehabilitation, an investigation of physiotherapeutic practice patterns in South Africa was warranted to determine which interventions South African physiotherapists employ.

The aim of this study was to investigate whether treatment interventions employed by physiotherapists at primary care level during the first week of functional rehabilitation of an ankle sprain (in the Western Cape Metropole), were aligned with evidence-based guidelines for acute ankle sprains.

METHODOLOGY

Approval for the study was provided by the Ethics Committee for Human Research of Stellenbosch University (Ethics approval number SLY/01/008).

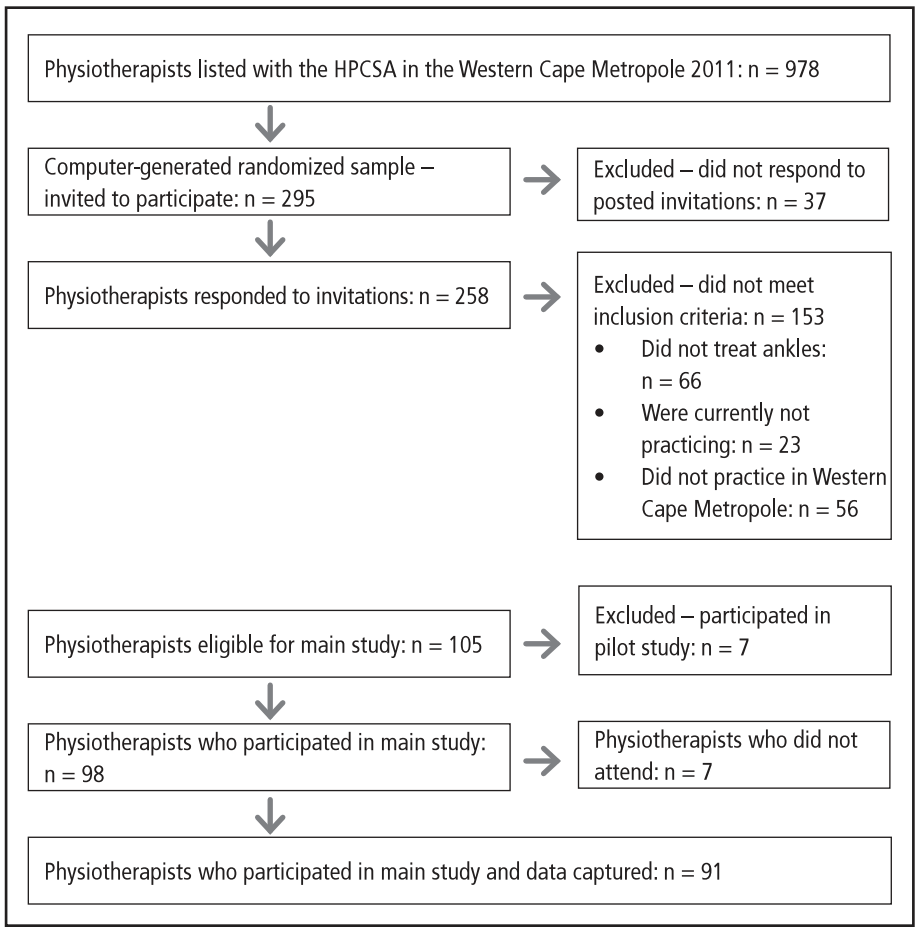
A descriptive cross-sectional study was conducted.

Selection and appraisal of guidelines

The author performed an in-depth search of electronic databases, guideline clearing houses, as well as the Internet to find clinical guidelines (published in English and Dutch) on 'management of ankle sprains' for the period June 2006 to June 2011. The publication of guidelines on the Internet ensures equal access to all physiotherapists and other medical practitioners (van der Wees et al 2007). A list of guidelines was collated, read and appraised for rigour of development, by the author. Critical appraisal of four guidelines (which adhered to all the inclusion criteria) was done with the iCAHE Clinical Appraisal Tool. A list of the appraised guidelines is attached as

Appendix A. The 2011 Koninklijk Nederlands Genootschap voor Fysiotherapie (KNGF) guidelines ('Richlijn Acuutlateraal Enkelbandletsel') were selected, as the full version had the highest score, included the most up-to-date peer reviewed literature and provided detailed information regarding physiotherapeutic interventions for acute ankle sprains. The recommendations of these guidelines were correlated to the physiotherapists' responses in this survey.

Figure 1: Flow chart of sampling procedure



Development of the questionnaire to ascertain the selection of physiotherapeutic interventions

A questionnaire (can be obtained from corresponding author upon request) was developed by the research team to capture information about the selection of physiotherapeutic interventions. It included a case study, which depicted the clinical presentation of a patient during the first week after an ankle sprain. The questionnaire was comprised of two sections:

1. Demographic and personal information about the physiotherapists using questions pertaining to: years of clinical experience (specifically in the musculoskeletal field); post-graduate qualifications; current area of practice; and questions aimed at assessing their awareness of the Ottawa Ankle Rules (OAR). The OAR are included and recommended as critical assessment tools in the KNGF guidelines to exclude fractures in a sprained ankle.

2. This part included the case study of a young male with an uncomplicated moderate ankle sprain and no previous sprains. Questions were set to determine the physiotherapists' treatment interventions during the first week after the sprain occurred.

Development of the acute sprain case study

Published research concerning low back pain has utilised case studies of typical clinical presentations to elicit information about the selection of management approaches (Mikhail et al 2005). This method was also selected for the case used in this study, as it reflects the differences in physiotherapists' choices of interventions, rather than the differences in presentation of the patient (Mikhail et al 2005). This case study was developed by the author, who has 20 years of experience in treating ankle sprains. It was based on a common clinical scenario of a male, aged between 18 and 25 years, who participated in sport and sustained a moderate, first-time ankle sprain (Fong et al 2007). A moderate sprain has partial macroscopic tears of the lateral ligaments with moderate pain on walking,

moderate swelling, some loss of motion and mild instability of the talo-crural joint (Hockenbury and Sammarco 2001).

To ensure a stable estimate of frequency, three treatment sessions were recorded during the first week after the sprain. Physiotherapists were requested to select their preferred treatment interventions from a comprehensive list of physiotherapeutic modalities obtained from a Cochrane review of functional treatment of ankle sprains (Kerkhoffs et al 2009).

Participant invitation

A computer-generated randomised sample of 295 registered physiotherapists was invited, in writing, to participate in this survey (see Figure 1). This sample was selected from a total of 978 physiotherapists registered with the Health Professional Council of South Africa's (HPCSA) database (2011), in the Western Cape Metropole (WCM). Oversampling was conducted to compensate for poor response rate and erratic postal services. Despite its potential shortfalls, this method was preferred as not all physiotherapists in primary health care have access to electronic mail. Invites were posted to the recipients' preferred postal addresses.

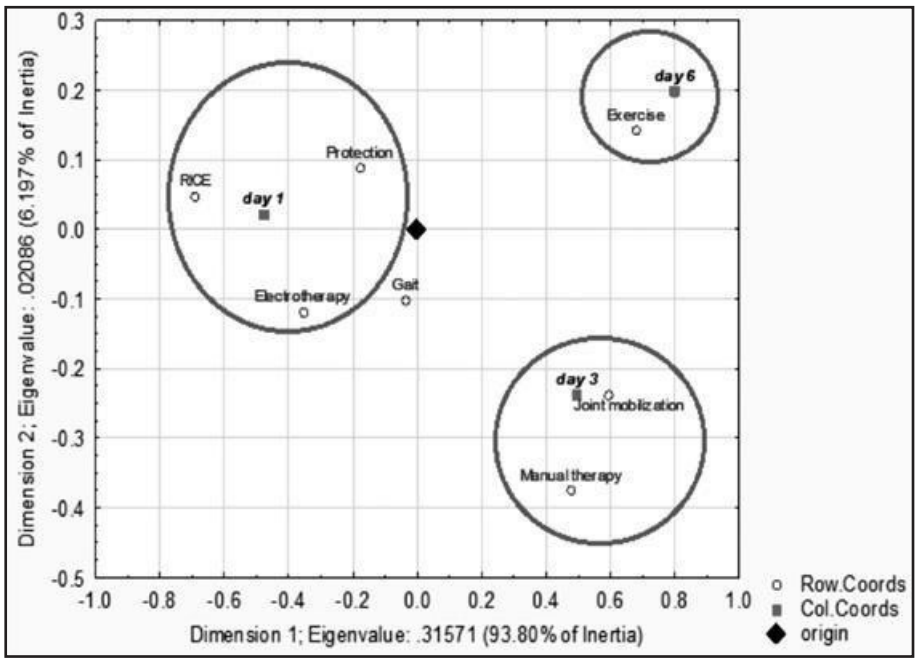
Positive replies were followed up with reminder emails and text messages to confirm attendance, time and directions to the venue. Figure 1 represents the study sampling procedure.

Study procedures

Pilot study: The content of the questionnaire and case study, and the feasibility of administrating the questionnaire were piloted at a meeting with seven selected physiotherapists from the randomised sample. The participating physiotherapists were requested to read and complete an informed consent form and both sections of the questionnaire. Thereafter suggestions and comments regarding the clarity of the case study were discussed. The data capture form was adapted and modified based on the feedback obtained.

Main study procedures: Six meetings of identical format were scheduled within 18 days. Physiotherapists selected one meeting to attend. Several time options were offered to encourage a higher response rate. Two venues were used in order to facilitate travelling and to further optimise attendance. The short time frame was chosen in an attempt to avoid discussion of the contents of the questionnaire amongst colleagues.

Figure 2: Correspondence analysis of treatment interventions for Days 1, 3 and 6 to demonstrate the different treatments for each day during the first week of treatment. The relationships (row co-ordinates) are represented along these axes according their factorial score for each axis.



At the meetings, the participating physiotherapists selected a data capture form from the research assistant. Each form had a unique code typed on each page to ensure that the researcher was blind to the participant's identity and to ensure anonymous and unbiased responses.

Physiotherapists were asked to complete the entire questionnaire. The completed questionnaires were sealed in coded envelopes. Discussion amongst the physiotherapists was discouraged during questionnaire completion and they were requested not to divulge details of the case study to anyone. This was followed by a one-hour lecture on 'An Update of evidence on Physiotherapeutic Management of Chronic Ankle Instability'. The meeting was accredited in order to reward physiotherapists for their time spent participating in the survey.

Data analysis

The relative occurrence of the selected interventions used during the first week at three different treatment sessions (Days 1, 3 and 6) was calculated. Correspondence analysis was performed to calculate relative frequency of interventions amongst these three treatments. Multiple correspondence analyses have been used to study practice patterns of physiotherapists in the treatment of back pain. The analysis develops axes that are composed of the days of treatment and the treatment interventions, and then spatially represents the relationship according to the factorial score of each axis (Poitras et al 2007).

Chi-square tests were used to compare the differences between the physiotherapists' responses and the recommendations in the previously selected KNGF guidelines. The level of significance was set at $p < 0.05$.

If the use of intervention recommended in the KNGF guidelines was based on good evidence (Level 1), it was expected that 95% or more of physiotherapists would use this intervention. In contrast, if the recommendation advised that the intervention should not be used (based on good evidence/Level 1), no more than 5% of physiotherapists were expected to use it during the first week of treatment. A recommendation based on level 2 evidence was expected to be used by 75% or more physiotherapists. See Appendix B for a descriptive table of levels of evidence and expected use by physiotherapists.

'Total use' of a particular intervention was based on the cumulative use of the intervention (over three days) during the first week (Days 1, 3 and 6). The 'total use' was then correlated with the KNGF guideline's recommendation. The p-value was set at 0.05 to indicate a significant difference.

Table 1: Overview of treatment interventions for days 1, 3 and 6 after the sprain and correlation thereof to KNGF guidelines. Explanation of abbreviations in Table 2: SD = Standard deviation , * = significant p-value, MWMs = Mobilisation with movement, AFO = Ankle Foot orthosis, FWB = Full weight bearing , PWB= Partial weight bearing.

Intervention	Expected use (%)	Day 1 (%)	Day 3 (%)	Day 6 (%)	Total users (%)	p -value *	Concurs with EBP Guideline
SHOULD NOT DO							
Interferential	≤ 5	26	25	12	32	p < 0.05*	No
Laser	≤ 5	15	20	18	27	p < 0.05*	No
Ultrasound	≤ 5	53	59	33	71	p < 0.05*	No
Needling	≤ 5	8	8	12	16	p < 0.05*	No
Cross frictions	≤ 5	0	4	7	16	p < 0.05*	No
Moist heat packs	≤ 5	1	7	3	9	p < 0.05*	No
CONSIDER NOT DOING							
Maitland	≤ 25	16	42	48	71	p < 0.05*	No
Mulligan MWMs	≤ 25	10	26	35	49	p < 0.05*	No
Manipulations Gr V	≤ 25	1	4	5	9	p < 0.05*	No
Medical massage	≤ 25	57	53	4	71	p < 0.05*	No
SSTMs	≤ 25	30	67	79	91	p < 0.05*	No
Immobilisation: AFO	≤ 25	2	1	0	2	p < 0.05*	Yes
Brace: Soft neoprene	≤25	7	4	8	18	p < 0.05*	Yes
SHOULD DO							
Compression	≥ 75	87	64	13	88	p < 0.05*	Yes
Cryotherapy	≥ 75	84	56	4	87	p < 0.05*	Yes
Elevation	≥ 75	87	57	9	89	p < 0.05*	Yes
Gait (FWB)	≥ 75	7	44	67	90	p < 0.05*	Yes
Exercise: balance	≥ 75	10	40	93	100	p < 0.05*	Yes
Exercise: functional	≥ 75	3	25	85	100	p < 0.05*	Yes
Exercise: stretches	≥ 75	9	27	45	77	p < 0.33	Yes
Exercise: strength	≥ 75	7	30	65	93	p < 0.05*	Yes
Education	≥ 75	100	86	86	100	p < 0.05*	Yes
Brace: Lace-up	≥ 75	20	24	21	44	p < 0.05*	No
Brace: Semi-rigid	≥ 75	11	14	4	20	p < 0.05*	No
Taping	≥ 75	59	56	44	80	p < 0.10	Yes
CONSIDER DOING							
Exercises: free active	≤ 5	35	23	3	46	p < 0.05*	No
Exercises: gym	≤ 5	0	1	0	4	p < 0.40	Yes
Exercises: agility	≤ 5	0	0	3	30	p < 0.05*	No
Exercises: core stab	≤ 5	15	25	43	75	p < 0.05*	No
Exercises: short foot	≤5	34	53	45	74	p < 0.05*	No
Crutches (PWB gait)	≤25	70	18	0	71	p < 0.05*	No

RESULTS

Response rate

A total of 91 (35.3%) physiotherapists actually participated in the main study compared to the 258 physiotherapists who responded to the invitations (n = 258) Figure 1. There were 153 physiotherapists who did not meet the inclusion criteria to participate in the study (see Appendix C for details).

Demographics of the sample

The average age of the 91 physiotherapists in the study was 39.9 years (SD = 10.9 years). Physiotherapists (n = 91) were mostly female (87%) and based in private practice (89%). They had worked an average of 14.45 years (SD = 10.02 years) in the musculo-skeletal field. Of those, 48 (53%, n = 91) had no post-graduate qualifications; but 21 (23 %, n = 91) physiotherapists had done a course with a focus on the lower limb. Thirty-nine (43%, n = 91) of the physiotherapists knew about the Ottawa Ankle Rules (OAR).

Description of Interventions per treatment session

The graph in Figure 2 demonstrates the correspondence of the interventions to each of three recorded days of treatment during the first week. Treatments differed for each of the three treatment sessions. PRICE, protection provided with taping and electrotherapy (ultrasound) were the most commonly used interventions at the first treatment (Day 1). On Day 3, joint mobilisations (Maitland mobilisations), manual therapy and specific soft tissue mobilisations (SSTMs) were most often used. On Day 6, exercise was most frequently recorded.

Description of physiotherapy interventions compared to evidence based physiotherapy guidelines

Table 1 illustrates the use of interventions at three treatment sessions as well as 'total use' during the first week of treatment as compared to the EBP guideline recommendations. During this stage, physiotherapists indicated a total of 54 different treatment interventions.

DISCUSSION

Functional treatment and gait

Early mobilisation encourages FWB gait with respect to the patient's tolerance of pain. The KNGF guidelines recommend a short period of immobilisation if necessary; but to proceed with gait (supported with crutches and or a brace) as soon as pain allows (Kerkhoffs et al 2012). As a patient with a moderate sprain is expected to walk with a minimal limp, return to full function within two to six weeks after the initial injury, is anticipated (Hockenbury and Sammarco 2001).

It was expected that the majority of physiotherapists (75%, Level 2 evidence) would introduce FWB at least on day 3. FWB gait without the support of crutches was only introduced on day 6 (the third treatment session), by 90% of the participating physiotherapists. This was an unexpected finding, as the benefits of early gait have been reported (Tully et al 2012). In fact, walking is reported to be effective in inducing the necessary optimal mechanical load on ankle ligaments to promote protein synthesis. This early activation of the lower limb musculature positively influences functional movement patterns without undue stress to the injured ligaments (Tully et al 2012).

Physiotherapists in the WCM appear to prefer the opinions of clinical experts (low level evidence, Level 4) who advise the introduction of FWB rehabilitation only once optimal strength and range have been restored (Archer et al 2009). The lack of knowledge of physiotherapists of the OAR could explain a more cautious approach to promoting FWB gait. Teaching of the Ottawa Ankle and Foot rules needs to be included in the undergraduate training of physiotherapists. The improved ability of physiotherapists to save costs by determining the need for radiographic investigations has the potential to unburden the under-resourced trauma units and overburdened general practitioners.

Cryotherapy

Although many physiotherapists introduced cryotherapy at the first treatment (as recommended in the KNGF guidelines), they did not indicate the use of this intervention at the following two sessions (day 3 and 6). They might have recommended this as a home treatment, but although home advice was recorded, this particular data was not extracted or analysed. The combination of cryotherapy and exercises has been shown to be effective in reducing the use of analgesics during the acute stage of treatment. Cryotherapy minimise the need for analgesics, therefore facilitating exercising without discomfort (Bleakley et al 2004). Cryotherapy is therefore recommended throughout the acute treatment phase.

Protection: braces and taping

The KNGF guidelines recommend semi-rigid braces as well as taping (in the case of athletes) to provide external support to the injured ankle ligaments. Braces provide support to injured ligaments without reducing functional performance of the athlete and have been associated with prevention of recurrent sprains for patients who have sprained their ankle (McGuine et al 2012), semi-rigid braces provide superior protection compared to taping and other types of braces such as lace-up and soft braces (Kemler et al 2011). It is reported that ankle braces are more cost-effective than taping (Lardenoye et al 2012).

However, the majority of physiotherapists in this survey preferred taping as a form of support. This preference of using taping was also reported in previous surveys about methods to protect ankles sprains where braces were rarely used in the acute stages of treatment. However it was not in the scope of this study to investigate why the physiotherapists preferred taping.

Neuromuscular training

A significant number of participants (81%) in this study indicated that they would use evidence-based exercises combined with PRICE as recommended by the KNGF guidelines. The KNGF guidelines strongly recommend neuromuscular training to be combined with standard care (PRICE regime) throughout the acute phase of treatment. It was therefore positive to note that exercise was the most frequently indicated intervention used by 94% (85, n = 91) of the WCM-based therapists during the acute phase of treatment.

The trend noted with delayed progression to FWB gait was repeated in exercise prescription with most exercises being of non-weight bearing nature (free-active type exercises, 46%; core, 75%; short foot exercises, 74%) despite good evidence for the effectiveness of closed-chain exercises in the acute phase of treatment (Bleakley et al 2010). Patients tolerated accelerated rehabilitation (introducing of functional exercises during the first week of rehabilitation) well and experienced no increase in their pain compared to standard treatment

(Bleakley et al 2010) and (Tully et al 2012).

Currently a limited evidence base exists to support this trend in exercise interventions. The use of a core stability exercises (75%, n = 91) is difficult to explain as only one clinical expert included the use of core stability in ankle sprain rehabilitation (Owens 2010). Although short foot exercises were frequently indicated, only one report included short foot exercises in their functional rehabilitation regime of ankle sprains (Hultman, Fältström and Öberg 2010).

Manual therapy:

Even though the KNGF guidelines recommend that manual therapy need not be added to standard care due to limited added clinical value (Kerkhoffs et al 2012), physiotherapists indicated the use of manual interventions throughout the first week of treatment. A similar trend was reported in a survey of ankle sprain practice in France where 89% of the physiotherapists added manual therapy to standard care (Guillodo, Le Goff and Saraux 2011). This is an indication of the ongoing importance that physiotherapists place on manual interventions (Kooijman et al 2011) and (Wikstrom and McKeon 2011).

A systematic review on joint mobilisation interventions by Wikstrom and McKeon, published since the publication of the KNGF guidelines, reported that multiple sessions of oscillatory mobilisations may improve the function of the talo-crural joint (Wikstrom and McKeon 2011).

One claimed benefit of joint mobilisations for acutely sprained ankles is the improvement of restricted posterior talar glide, which could limit ankle dorsiflexion (DF) (Wikstrom and McKeon 2011). Limited DF has been identified as a risk factor for recurrent sprains (Brantingham et al 2009). Mobilisation with movements (MWMs) is thought to be particularly effective in improving DF and just over a quarter of physiotherapists (26%, n = 91) indicated that they would use MWMs. Yet there is little evidence reported about the 'very limited benefit' of MWMs during the first week of rehabilitation (Vicenzino, Paungmali and Teys 2007).

The KNGF guidelines do not include SSTMs, as a complete absence of evidence for SSTMs (for ankle ligament sprain specifically) exists – yet in this survey, 91% of WCM-based physiotherapists used SSTMs. The popularity of SSTMs is based on the recommendations of Hunter (1998). However, Hunter did not recommend SSTMs during the lag phase (first week of healing) as it could disrupt the formation of fibrin. .

Manual therapy techniques continue to be widely used in clinical practice. Physiotherapists should be made aware that to date there is a lack of evidence for SSTMs and limited evidence for joint mobilisations during the early stages of healing (Wikstrom and McKeon 2011). Physiotherapists should also consider that the claims of effectiveness of manual therapy are often based on anecdotal evidence (Wikstrom and McKeon 2011).

Physical agents: electrotherapy

Physiotherapists place large emphasis on electrotherapy and ultrasound (71%), in particular to reduce pain, despite the overwhelming evidence that exists for its small and limited clinical importance (van den Bekerom et al 2011). This is a disappointing finding. Application of electrotherapy modalities could take 10 minutes of valuable treatment time. Yet, physiotherapists continue to use electrotherapy to reduce pain even though overwhelming evidence exists of ultrasound's small and limited clinical importance in the treatment of ankle sprains (van den Bekerom et al 2011).

Physiotherapists should be encouraged to concentrate on evidence based treatment interventions for which good evidence exists, such as PRICE, protection with a semi-rigid brace, the early introduction of FWB gait as well as functional exercises. Physiotherapists should be made aware that good evidence is emerging for the benefits of accelerated mechanical loading (FWB gait and exercises) during the first week after an ankle sprain. (Bleakley et al 2010) and (Tully et al 2012).

LIMITATIONS

Physiotherapists could have over-reported the use of certain interventions as they were provided with a list of all possibilities. The interventions reported were based on a hypothetical case and some discrepancies in grading the sprain could have impacted on the physiotherapists responses. As actual treatment records do not exist, no comparison was possible between reported interventions (in this study) and actual daily practice by physiotherapists in primary care in the Western Cape Metropole.

The low sample return was disappointing and the use of the HPCSA register is not recommended. The list provided by HPCSA does not provide addresses with information about the region where the physiotherapist is working. Physiotherapists could be practicing outside of South Africa, but to maintain their HPCSA registration they need to provide a local postal address. This does not mean that the physiotherapist necessarily lives at this address.

This survey was limited to the Western Cape and findings were thus not generalisable to South Africa.

RECOMMENDATIONS

South African physiotherapists should consider implementing the KNGF Guidelines, as in the Netherlands, as most physiotherapists here are also based in primary care. The recommendations from the KNGF guidelines are within the scope of South African physiotherapists skills. The KNGF guidelines have been meticulously compiled according the AGREE principle with a strong input from physiotherapists (van der Wees 2009). The ADAPTE Collaboration promotes the use of these existing guidelines (van der Wees 2009), as it is understood that recommendations may be useful worldwide. As the overall selection of high-level treatment interventions of the WCM physiotherapists concurs well with the KNGF guidelines, the author proposes that South African physiotherapists should consider contextualizing and implementing these guidelines.

An investigation into the incidence of ankle sprains is warranted, as no current evidence exists.

This study could be repeated by linking interventions to treatment goals to get a better understanding of physiotherapists' clinical reasoning. A comparison of actual practice with proposed treatment interventions will also provide more accurate records of current practice in South Africa.

CONCLUSION

The aim of this study was to investigate whether interventions selected by physiotherapists in WCM during acute phase treatment of acute ankle sprains at primary care level are aligned with recommendations from evidence-based physiotherapy guidelines for moderate ankle injuries (during the first week after sprain). The

overall selection of high-level treatment interventions (PRICE and exercises, inclusive of functional, strength and balance exercises) concurs well with the guideline recommendations. A large proportion of physiotherapists used interventions (such as manual therapy) for which there is still limited evidence. During the first week after an ankle sprain, physiotherapists used electrotherapy and non weight-bearing exercises such as core rehabilitation, which is not recommended. This implies that physiotherapists should reconsider interventions for which there is no evidence, as this may reduce the cost of care without compromising patient outcomes

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APPENDIX A:

List of appraised evidence based practice guidelines
"RICHTLIJN ACUUT LATERAAL ENKELBAND-LETSEL" by KNGF in Dutch, 2011; Score 12/14
Australian Physiotherapy Association: (APA) Evidence-based Clinical Statement, Physiotherapy management of ankle injuries in Sport 2006; Score 11/14
Institute for Clinical Systems Improvement (ICSI) Health Care Guideline: Ankle Sprain, 2006; Score 11/14
Agency for Healthcare Research and Quality (AHRQ): Ankle and foot (acute and chronic), 2011, Score 11/14

APPENDIX B:

Descriptive table of levels of evidence from the literature and 'expected use' of interventions by physiotherapists
KNGF guidelines (2011 version)
Grading
4 Levels of conclusion/evidence:
Level 1 – 'Good': One systematic review **(A1)** or at least two independent studies of **A2** quality studies.
Level 2 – 'Good': At least two independent studies of **B** quality.
Levels 1 – Expected use; At least 95% or more of physiotherapists are expected to use a recommended intervention. If the intervention is recommended at Level 1 not to be used, 5% or less of physiotherapists are expected to use the intervention.
Level 2 – Expected use: At least 75% or more of physiotherapists are expected to use a recommended intervention. If the intervention is recommended at Level 2 not to be used, 25% or less of physiotherapists are expected to use the intervention.
Level 3 – One study of **A1** or **B** or several of level C quality.
Level 4 – Expert opinion or that of Committee members.

Classification of methodological quality of studies:
A1 – Systematic review, including some studies of A2 quality, with results consistent across individual studies.
A2 – Randomised comparative clinical trial (RCT) of sound methodology (randomised, double blind and controlled) of sufficient size and consistency.
B – RCT of moderate quality or insufficient size, other comparative study (non randomised, cohort or case control studies).
C – Non-comparative studies.
D – Expert opinion or opinion of committee members.

APPENDIX C:

Inclusion criteria of physiotherapists to participate in survey
- Proficient in English
- Studied at South African Institution and obtained a diploma or degree in Physiotherapy
- Currently and has worked in musculo-skeletal field in the past 2 years
- Has treated at least 2 ankle sprains in the past 2 years

Cooke MW, Lamb SE, Marsh J, Dale J 2003 A survey of current consultant practice of treatment of severe ankle sprains in emergency departments in the United Kingdom. *Emergency Medical Journal* 20:505-507

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