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**Literature search results**

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**Search details**


**Resources searched**

NHS Evidence; National Library for Health; TRIP Database; Cochrane Library; CINAHL; AMED; MEDLINE; EMBASE; Google Scholar

**Database search terms:** “ankylosing spondylitis”; SPONDYLITIS, ANKYLOSING; exercise; exp EXERCISE; “treatment outcome”; exp TREATMENT OUTCOMES; benefit*; exp TREATMENT OUTCOME

**Google search string:** "ankylosing spondylitis" (exercise OR "exercise prescription") (benefit OR "treatment outcome")

**Summary**

Lots of research data for you. As the Cochrane Review of physiotherapy says:

“The results of this review suggest that an individual home-based or supervised exercise program is better than no intervention; that supervised group physiotherapy is better than home exercises; and that combined inpatient spa-exercise therapy followed by group physiotherapy is better than group physiotherapy alone.”

Exercise is seen as a component of therapy, either taken alone or as part of a multi-modal approach.

**Guidelines**

Annals of Rheumatic Diseases

ASAS/EULAR recommendations for the management of ankylosing spondylitis 2006

The final recommendations considered the use of non-steroidal anti-inflammatory drugs, disease modifying anti-rheumatic drugs, treatments with biological agents, simple analgesics, local and systemic steroids, non-pharmacological treatment (including
education, exercise, and physiotherapy), and surgical interventions.

**Clinical Knowledge Summaries**

**Ankylosing spondylitis**

Recommends referring patients to physiotherapy for assessment, education, development of a home exercise programme, and physical treatments such as hydrotherapy.

**Map of Medicine**

**Management of ankylosing spondylitis 2010**

There is good evidence that physiotherapy has beneficial effects for people with ankylosing spondylitis, in terms of improving function and reducing pain.

**NICE**

TA143 Ankylosing spondylitis - adalimumab, etanercept and infliximab: guidance

Physiotherapy, exercise and NSAIDs are often first-line therapies. No indication of effectiveness.

**Evidence-based reviews**

**Australian Journal of Physiotherapy**

**Effectiveness of exercise therapy: a best-evidence summary of systematic reviews** 2005

There are indications that exercise therapy is effective for patients with ankylosing spondylitis, hip osteoarthritis, Parkinson’s disease, and for patients who have suffered a stroke.

**Cochrane Database of Systematic Reviews**

**Physiotherapy interventions for ankylosing spondylitis** 2009

The results of this review suggest that an individual home-based or supervised exercise program is better than no intervention; that supervised group physiotherapy is better than home exercises; and that combined inpatient spa-exercise therapy followed by group physiotherapy is better than group physiotherapy alone.

**Database of Uncertainties about the Effects of Treatments (DUETs)**

**Physiotherapy for ankylosing spondylitis – review of Cochrane review above.**

The results of this review give low quality evidence for beneficial effects of exercise program compared to no intervention, and moderate evidence for benefits of supervised group physiotherapy compared to individualised home programs...

**Extended Primary Research**

**Exercise in Ankylosing Spondylitis: Discrepancies Between Recommendations and Reality**


Patients with AS perceive the benefits of exercise, with average EBBS benefits scores comparable to historical controls with similar conditions. Despite positive perceptions, the majority of patients with AS did not report participating in exercise on a frequent basis.

**Self- and manual mobilization improves spine mobility in men with ankylosing spondylitis—a randomized study**


This study shows that eight weeks of self- and manual mobilization treatment improved

This review demonstrates the importance of continued emphasis on exercise therapy, the need for a standardized approach to exercise therapy, and a potential biologic effect. Exercise therapy should remain a mainstay of ankylosing spondylitis treatment complementing medical therapy.


Physical therapy remains an essential part of the management plan, even though data are not sufficient to determine which specific physical therapy program should be recommended. All patients should receive instructions on proper posture and home exercises and be encouraged to perform water exercises if they can.


Tumor necrosis factor blockers are effective and safe in active spinal disease, but simple measures such as exercise and nonsteroidal anti-inflammatory drug therapy are still considered the basis of standard therapy.

Published research

1. Exercise in ankylosing spondylitis: discrepancies between recommendations and reality.
   Author(s): Passalent LA, Soever LJ, O'Shea FD, Inman RD
   Citation: Journal of Rheumatology, 01 April 2010, vol./is. 37/4(835-841), 0315162X
   Publication Date: 01 April 2010
   Abstract: OBJECTIVE: To determine the type and extent of exercise used by an ankylosing spondylitis (AS) cohort and to examine patients' perceptions of exercise. Recommendations for the management of AS identify exercise as the cornerstone of comprehensive management. METHODS: An exercise inventory questionnaire and the Exercise Benefits and Barriers Scale (EBBS) were administered to patients attending the AS clinic of a large teaching hospital. Benefits and barriers subscales of the EBBS were analyzed to identify the perceived benefits of, and barriers to, exercise. Higher benefits scores (range 29-116) indicate a more positive perception of exercise. Higher barriers scores (range 14-56) indicate a greater perception of barriers to exercise. RESULTS: Sixty-one patients with AS completed the questionnaires. Mean age was 38.0 years, and mean disease duration was 14.7 years. Walking (3 times/week) and stretching (3 times/week) were the most commonly reported types of exercise and were reported in 35.0% and 32.8%, respectively. The mean benefits EBBS score was 87.1 +/- 12.5. The most frequently reported benefits of exercise were that it "increases my level of physical fitness" (96.4%) and "improves functioning of my cardiovascular system" (96.4%). The mean barriers EBBS score was 29.2 +/- 5.3, and the most frequently reported barrier to exercise was that it "tires me" (71.4%). CONCLUSION: Patients with AS perceive the benefits of exercise, with average EBBS benefits scores comparable to historical controls with similar conditions. Despite positive perceptions, the majority of patients with AS did not report participating in exercise on a frequent basis.
   Source: CINAHL

2. Ankylosing spondylitis.
   Author(s): Keat A.
   Citation: Medicine, April 2010, vol./is. 38/4(185-189), 1357-3039 (April 2010)
   Publication Date: April 2010
   Abstract: Ankylosing spondylitis (AS) affects 0.2-0.5% of the northern European population, the prevalence varying with the prevalence of HLA-B27. It is a member of the...
spondyloarthropathy family and affects men three times more often than women. Symptoms usually begin in the third decade of life with inflammatory spinal pain. The key pathological element is enthesitis, though the main diagnostic feature is sacroiliitis. Approximately one-third of patients develop peripheral lesions including lower limb oligoarthritis, heel enthesitis, iritis, inflammatory bowel disease and psoriasis. Vertebral osteoporosis is not uncommon and cardiovascular disease and renal impairment may complicate severe AS. The diagnosis of AS is based on the modified New York criteria but criteria for early diagnosis, based on the co-occurrence of inflammatory spinal pain and demonstration of sacroiliitis by magnetic resonance scanning, are emerging. The cause(s) of AS remain unknown. Genetic factors, including HLA-B27 and the IL-23 receptor, confer susceptibility to AS but environmental precipitating factors have not been identified. Treatment involves the maintenance of spinal movement and comfort through exercise, supported, where necessary by analgesia and anti-inflammatory treatment. Disease-modifying anti-rheumatoid drugs are not effective for spinal disease but TNF-alpha inhibitor drugs provide dramatic improvements in symptoms, function and quality of life. copyright 2010 Elsevier Ltd. All rights reserved.

Source: EMBASE

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Available in fulltext at the ULHT Library and Knowledge Services' eJournal collection; Note: Click Login (top right-hand corner of screen) and then Athens login. Once logged in, you must search for the journal title, to access the content.

3. Are swimming or aerobic exercise better than conventional exercise in ankylosing spondylitis patients? A randomized controlled study

Author(s): Karapolat H., Eyigor S., Zoghi M., Akkoc Y., Kirazli Y., Keser G.

Citation: European Journal of Physical and Rehabilitation Medicine, December 2009, vol./is. 45/4(449-457), 1973-9087 (December 2009)

Publication Date: December 2009

Abstract: Aim. The aim of the study was to compare the effects of conventional exercise (CE), swimming and walking on the pulmonary functions, aerobic capacity, quality of life, Bath indexes and psychological symptoms in patients with ankylosing spondylitis (AS). Methods. Forty-five patients were randomised into either swimming (group 1), walking (group 2), CE group (group 3). Patients in Group 1 performed CE and swimming, patients in Group 2 performed CE and walking and patients in Group 3 performed CE only. Exercise sessions were performed three times a week for a period of six weeks. Patients were assessed before and after the rehabilitation program, with respect to, pulmonary function test (forced vital capacity [FVC, mL], forced expiration volume in one second [FEV1, mL], FEV1/FVC (%)) and vital capacity [VC, mL]), maximal oxygen uptake (pV[dot]O2), 6-minute walking test (6MWT), Bath Ankylosing Spondylitis Functional Index, Bath Ankylosing Spondylitis Disease Activity Index, Bath Ankylosing Spondylitis Metrology Index, Nottingham Health Profile and Beck Depression Inventory. Results. There were significant increases in pV[dot]O2 and 6MWT after treatment in Groups 1 and 2 (P<0.05). FeV1, FVC and VC improved significantly with treatment in all three groups (P<0.05). A statistically significant improvement was observed in energy, emotional reaction and physical mobility sub-scores of NHP in three exercise groups after completion of the exercise program (P<0.05). Conclusion. Swimming, walking and CE had beneficial effects on the quality of life and pulmonary functions. Aerobic exercises such as swimming and walking in addition to CE increased functional capacities of patients.

Source: EMBASE

4. The effectiveness of exercise therapy for ankylosing spondylitis: a review.

Author(s): Wang CY, Chiang PY, Lee HS, Wei JC

Citation: International Journal of Rheumatic Diseases, September 2009, vol./is. 12/3(207-10), 1756-1841;1756-185X (2009 Sep)
Abstract: Exercise therapy is an important component of current standard therapy for patients with ankylosing spondylitis. The purpose of this review is to provide important guidelines when prescribing exercises by reviewing articles evaluating the effectiveness and usefulness of exercise therapy in patients with ankylosing spondylitis.

Source: MEDLINE

5. Exercise in ankylosing spondylitis: discrepancy between recommendations and reality.
Author(s): Soever LJ, Passalent LA, O'Shea FD, Inman RD
Citation: Physiotherapy Canada, 02 June 2009, vol./is. 61/(70-70), 03000508
Publication Date: 02 June 2009
Source: CINAHL

6. Preliminary clinical prediction rule for identifying patients with ankylosing spondylitis who are likely to respond to an exercise program: a pilot study.
Author(s): Alonso-Blanco C, Fernández-de-las-Peñas C, Cleland JA
Citation: American Journal of Physical Medicine & Rehabilitation, 01 June 2009, vol./is. 88/6(445-454), 08949115
Publication Date: 01 June 2009
Abstract: OBJECTIVE: The aim of this study was to develop a preliminary clinical prediction rule to identify the potential predictors for identifying patients presenting with ankylosing spondylitis who are likely to respond to a specific exercise program. DESIGN: Consecutive patients with ankylosing spondylitis underwent a standardized examination and then received eight physical therapy sessions during a 2-mo period, which included an exercise program based on the treatment of the shortened muscle chains, following the guideline described by the global posture re-education method. Patients were classified as having experienced a successful outcome at 1 mo after discharge based on a 20% reduction on Bath Ankylosing Spondylitis Functional Index and self-report perceived recovery. Potential predictor variables were entered into a stepwise logistic regression model to determine the most accurate set of variables for identifying treatment success. RESULTS: Data from 35 patients were included, of which 16 (46%) experienced a successful outcome. A clinical prediction rule with three variables (physical role >37, bodily pain >27, and Bath Ankylosing Spondylitis Disease Activity Index >31) was identified. The most accurate predictor of success was if the patient exhibited two of the three variables, and the positive likelihood ratio was 11.2 (95% confidence interval, 1.7-76.0) and the posttest probability of success increased to 91%. The accuracy of prediction declined if either 1/3 (+likelihood ratio = 7.7; 95% confidence interval, 0.52-113.5) or 3/3 (+likelihood ratio = 2.6, 95% confidence interval, 1.6-4.0) variables were present. CONCLUSIONS: The present preliminary clinical prediction rule provides the potential to identify patients with ankylosing spondylitis who are likely to experience short-term follow-up success with a specific exercise program. Future studies are necessary to validate the clinical prediction rule.
Source: CINAHL

7. Spirometric changes after applying a kinetic therapy program in ankylosing spondylitis: a pilot study [Spanish].
Author(s): Blanco CA, López ESR, Peñas CF
Citation: Fisioterapia, 01 May 2009, vol./is. 31/3(87-93), 02115638
Publication Date: 01 May 2009
Abstract: Objective: The current pilot study aimed to evaluate changes in Spirometric
volumes and rib mobility after application of a physical therapy program based on a Global Posture Reeducation protocol or a conventional exercise program. Material and methods: Twenty patients diagnosed with Ankylosing Spondylitis were divided into a control and experimental group. The experimental group was treated with a Global Posture Reeducation Method based protocol whereas the control group was treated with a conventional exercise program. During a 3-month treatment period, patients received 12 sessions of supervised physical therapy. A spirometric analysis was performed to assess Forced Vital Capacity (FVC), Forced Expiratory Volume during the First Second (FEV1) and the FEV1/FVC coefficient and rib mobility pre-intervention and after the 3-month intervention period. An analysis of variance for repeated measures was used for the statistical analysis of each variable studied. Results: Significant differences were found with the analysis of variance for time factor in FVC (F=7.133; P<1) for rib mobility. Conclusions: The results from the present pilot study suggest that the application of a physical therapy exercise program, either conventional or based on the Global Posture Reeducation Method, may induce changes in spirometry in Ankylosing Spondylitis. Future studies are required in order to determine the clinical relevance of these changes.

Source: CINAHL

8. Effects of a home-based exercise program on quality of life, fatigue, and depression in patients with ankylosing spondylitis

Author(s): Durmus D., Alayli G., Cil E., Canturk F.

Citation: Rheumatology International, April 2009, vol./is. 29/6(673-677), 0172-8172 (April 2009)

Publication Date: April 2009

Abstract: The aim of this trial was to investigate the effects of a 12-week home-based exercise program (HEP) on quality of life (QOL) and fatigue in patients with Ankylosing Spondylitis (AS). Forty-three patients with AS were included in this study. Group 1 was given a HEP; Group 2 served as the control group. The functional capacity (Bath Ankylosing Spondylitis Functional Index), disease activity (Bath Ankylosing Spondylitis Disease Assessment Index), fatigue (Multidimensional Assessment of Fatigue Scale), depression (Beck Depression Inventory scores), and QOL (Short Form 36) of all participants were evaluated. There were significant improvements for all the parameters in two groups after the treatment. The improvements for all the parameters were better in the exercise group than in the control group. Home-based exercise programs are very effective in improving QOL and reducing fatigue. Because of these advantages, HEP should be advised for the management program in AS in addition to medical treatments. copyright 2008 Springer-Verlag.

Source: EMBASE

9. Effects of two exercise interventions on pulmonary functions in the patients with ankylosing spondylitis

Author(s): Durmus D., Alayli G., Uzun O., Tander B., Canturk F., Bek Y., Erkan L.

Citation: Joint Bone Spine, March 2009, vol./is. 76/2(150-155), 1297-319X (March 2009)

Publication Date: March 2009

Abstract: Objective: The aim of this study was to evaluate the impact of two different home-based daily exercise programs on pulmonary functions in the patients with ankylosing spondylitis (AS). Methods: Fifty-one patients with AS were distributed into three groups. Group 1 (n = 19) was given a conventional exercise regimen. Group 2 (n = 19) received exercises based on the Global Posture Reeducation (GPR) method. Group 3 (n = 13) was accepted as the control group. Patients were assessed according to pain, functional capacity (The Bath Ankylosing Spondylitis Functional Index - BASFI), disease activity (The Bath Ankylosing Spondylitis Disease Activity Index - BASDAI), chest expansion, pulmonary function parameters, and 6-min walk distance (6MWD) test. Results: Although there were significant improvements for BASDAI and BASFI scores in all groups, significant improvements in the VAS pain, chest expansion, pulmonary function parameters and 6MWD test were observed in the exercise groups. The improvements in pain, functional capacity, disease activity, chest expansion, pulmonary function parameters and 6MWD test were better in the exercise groups than in the control group. The GPR method
resulted in greater improvements than the conventional exercise program in specific pulmonary function parameters like forced vital capacity, forced expiratory volume in 1 s, and peak expiratory flow parameters. Conclusion: Both exercises are efficient in improving pulmonary functions. Since the improvements in pulmonary function tests were greater in the patients who performed the exercise according to GPR method, motivated patients should be encouraged to perform this exercise program. Copyright 2008 Elsevier Masson SAS. All rights reserved.

Source: EMBASE

10. The effect(s) of a six-week home-based exercise program on the respiratory muscle and functional status in ankylosing spondylitis

Author(s): Ortancil O., Sarikaya S., Sapmaz P., Basaran A., Ozdolap S.

Citation: Journal of Clinical Rheumatology, March 2009, vol./is. 15/2(68-70), 1076-1608 (March 2009)

Publication Date: March 2009

Abstract: BACKGROUND:: Ankylosing spondylitis (AS) is a chronic, inflammatory rheumatic disease. Involvement of costovertebral and costotransverse joints results in rigidity of the chest wall and inability to expand the chest fully on inspiration. Also significant reduction in exercise capacity in the AS patients was reported. OBJECTIVES:: To determine the effects of a 6-week home-based exercise program on the respiratory muscle and energy cost in AS. METHODS:: Twenty-two AS patients were included. Chest expansion, tragus-wall distance, modified Schober test, maximal inspiratory pressure, maximal expiratory pressure, 6-minute walking distance, physiologic cost index and functional status Bath Ankylosing Spondylitis Functional Index of patients were measured at baseline and repeated at the end of an open 6-week home-based exercise program. Breathing exercises and upper extremity exercises were taught to all the patients. The patients were then asked to practice these exercises at home individually for 6 weeks. RESULTS:: Chest expansion, maximal inspiratory pressure, and maximal expiratory pressure values and Bath Ankylosing Spondylitis Functional Index scores of patients significantly increased after 6 weeks (P < 0.001). Six-minute walking distance and physiologic cost index values did not change at the end of the 6 weeks (P > 0.05). CONCLUSIONS:: A home-based exercise program can have an effect on some measures respiratory muscle and functional status. Greater emphasis should be placed on maintaining cardiorespiratory fitness as well as spinal mobility to encourage patients with AS. Copyright 2009 by Lippincott Williams & Wilkins.

Source: EMBASE

11. The effectiveness of exercise therapy for ankylosing spondylitis: A review

Author(s): Wang C.-Y., Chiang P.-Y., Lee H.-S., Wei J.C.-C.

Citation: International Journal of Rheumatic Diseases, 2009, vol./is. 12/3(207-210), 1756-1841 (2009)

Publication Date: 2009

Abstract: Exercise therapy is an important component of current standard therapy for patients with ankylosing spondylitis. The purpose of this review is to provide important guidelines when prescribing exercises by reviewing articles evaluating the effectiveness and usefulness of exercise therapy in patients with ankylosing spondylitis. Copyright 2009 Asia Pacific League of Associations for Rheumatology and Blackwell Publishing Asia Pty Ltd.

Source: EMBASE

12. Ankylosing spondylitis early diagnosis, early treatment


Citation: Journal of Internal Medicine of Taiwan, December 2008, vol./is. 19/6(481-490), 1016-7390 (December 2008)

Publication Date: December 2008

Abstract: Ankylosing spondylitis is a common chronic inflammatory rheumatic disease,
characterized by axial joint inflammation, peripheral arthritis, and enthesopathy. It primarily affect young male, and has strong linkage with HLA-B27. Persistent inflammation could lead to the bony growth or syndesmophyte, ankylosing of the adjacent vertebral body, and loss of functional ability. Exercise and nonsteroidal anti-inflammatory drugs (NSAIDs) are the standard therapy for the patients with ankylosing spondylitis. Sulfasalazine is helpful in the patients with peripheral arthritis. Local steroids injections are also widely used in refractory enthesopathy and peripheral arthritis. The most important progress in the treatment of ankylosing spondylitis is the newly development of anti-tumor necrosis factor-alpha (TNF-alpha) drugs. Patient's can achieve rapid, significant and sustained improvement with these biologic agent.

Source: EMBASE

13. Assessment and treatment of ankylosing spondylitis: Current status and future directions

Author(s): Zochling J.

Citation: Current Opinion in Rheumatology, July 2008, vol./is. 20/4(398-403), 1040-8711 (July 2008)

Publication Date: July 2008

Abstract: As measurement tools for disease state and progression in ankylosing spondylitis are refined, the assessment of response to therapy improves, with the aim that real effect on structural damage in ankylosing spondylitis may be detected. copyright 2008 Wolters Kluwer Health | Lippincott Williams & Wilkins.

Source: EMBASE

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Available in print at Lincoln County Hospital Professional Library
Available in print at Pilgrim Hospital Staff Library

14. Physical therapy in anti-TNF treated patients with ankylosing spondylitis

Author(s): Dubey S.G., Leeder J., Gaffney K.

Citation: Rheumatology, July 2008, vol./is. 47/7(1100-1101), 1462-0324;1462-0332 (Jul 2008)

Publication Date: July 2008

Source: EMBASE

Full Text:
Available in fulltext at Highwire Press

15. Stanger bath therapy for ankylosing spondylitis: Illusion or reality?

Author(s): Gurcay E., Yuzer S., Eksioglu E., Bal A., Cakci A.

Citation: Clinical Rheumatology, July 2008, vol./is. 27/7(913-917), 0770-3198 (Jul 2008)

Publication Date: July 2008

Abstract: We compared the short-term effects of Stanger bath therapy and conventional exercises on spinal mobility, functional capacity, disease activity, and quality of life with conventional exercise alone in ankylosing spondylitis (AS) patients. A total of 58 patients with a diagnosis of AS according to the modified New York criteria were included in this randomized prospective study. The patients were divided into two groups. Patients in group I (n=30) received Stanger bath therapy and an exercise program. Group II (n=28) patients were given the same exercise program but did not receive Stanger bath therapy. Patients were evaluated before (T0) and at the end of the treatments (T1). Evaluation parameters were the Bath AS Metrology Index (BASMI), Bath AS Functional Index (BASFI), Bath AS Disease Activity Index (BASDAI), and AS Quality of Life (ASQoL). In both patient groups, a significant improvement was determined in all clinical outcomes between T0 and T1 except for BASMI in group II. Comparison of the groups showed significantly superior results in group I parameters of BASMI, BASFI, BASDAI, and ASQoL. Stanger bath therapy showed
beneficial effects in spinal mobility, functional capacity, disease activity, and quality of life in AS patients immediately after the treatment period. We recommend Stanger bath therapy for AS patients in the short-term, but further research is imperative to assess whether improvement is sustained over a long-term follow-up. copyright Clinical Rheumatology 2008.

Source: EMBASE


Author(s): Oh D, Jeon H, Kwon O, You S, Park S, Hwang K, Kim T

Citation: Journal of Back & Musculoskeletal Rehabilitation, 01 July 2008, vol./is. 21/3(211-217), 10538127

Publication Date: 01 July 2008

Abstract: Objective: This study was carried out to investigate the effect of stomatognathic alignment exercise (SAE) program on pain, mouth opening range, and perceived level of functional impairments from temporomandibular joint dysfunction (TMD) associated with ankylosing spondylitis (AS).

Source: CINAHL

17. Does physical therapy still have a place in the treatment of ankylosing spondylitis?

Author(s): Elyan M, Khan MA

Citation: Current Opinion in Rheumatology, 01 May 2008, vol./is. 20/3(282-286), 10408711

Publication Date: 01 May 2008

Abstract: PURPOSE OF REVIEW: To review studies of various physical therapy programs in ankylosing spondylitis and identify their benefits and potential indications in the treatment of this disease. RECENT FINDINGS: Various exercise and physical therapy programs have been evaluated in clinical studies. Home exercise programs have been shown to improve symptoms, mobility, function and overall quality of life. Formal physical therapy under the supervision of a physical therapist has been shown to improve posture, fitness, mobility, function and mood. Water therapy may improve symptoms, function and overall sense of health. Inpatient rehabilitation may provide rapid short-term improvement in pain and stiffness, mobility, function and quality of life for patients with severe active disease. SUMMARY: Despite the advances in the pharmacological therapy of ankylosing spondylitis, physical therapy remains an essential part of the management plan. Even though data are not sufficient to determine which specific physical therapy program should be recommended, physicians should implement such nonpharmacological therapy as part of a comprehensive management strategy for this disease. All patients should receive instructions on proper posture and home exercises and be encouraged to perform water exercises if they can. Formal physical therapy and, in most severe cases, inpatient rehabilitation may be of benefit to select patients with ankylosing spondylitis.

Source: CINAHL

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Available in print at Pilgrim Hospital Staff Library

18. Is physical exercise useful in the treatment of ankylosing spondylitis?

Author(s): Robles A.L., Silva R.Q., Menendez M.S., Lopez M.M.A., Noriega J.L.R., Garcia F.J.B.

Citation: Seminarios de la Fundacion Espanola de Reumatologia, April 2008, vol./is. 9/2(96-104), 1577-3566 (01 Apr 2008)

Publication Date: April 2008

Abstract: Ankylosing spondylitis (AS) is a chronic inflammatory disease that affects mainly
young men. This disease can affect axial and peripheral joints as well as specific organs, thus impairing quality of life in these patients. There are three types of treatment interventions in these patients: medical treatment, surgical treatment and physical-rehabilitation therapy. Physical-rehabilitation therapy includes distinct modalities such as hydrotherapy, electrothermotherapy, massage, rest, ergotherapy and physical therapy (PT). Among these options, PT is the most important in the treatment of AS. The main objective of PT is to preserve the normal range of movement in affected joints, depending on the stage of the disease. In this setting, many exercises for peripheral and axial joints can be performed, through rehabilitation, breathing exercises and mildly aerobic sports. Although comparison of the results of different PT interventions is difficult, a review of the literature on this subject reveals that spa-exercise therapy is better than supervised group PT, and that the latter is better than individualized PT in the home. Several extrinsic factors influence the results of the above-mentioned interventions. A clear finding is that benefits are obtained if exercise is consistently performed.

Source: EMBASE

19. Rehabilitation in ankylosing spondylitis.

Author(s): Nghiem FT, Donohue JP

Citation: Current Opinion in Rheumatology, 01 March 2008, vol./is. 20/2(203-207), 10408711

Publication Date: 01 March 2008

Abstract: PURPOSE OF REVIEW: Medical therapy of ankylosing spondylitis has improved dramatically with the advent of anti-tumor necrosis factor therapy, but nonpharmacologic therapies have long been employed to treat the condition. The purpose of this review is to summarize the most recent data to assess the role of exercise and nonpharmacologic therapies in ankylosing spondylitis. RECENT FINDINGS: We review six articles published since 2005. The most common outcome measures (validated scores from Bath group) were only formally utilized in two studies. Four of the six studies were randomized controlled trials. One study using balneotherapy did not reveal any significant improvement in the medium term. One study used a multimodal exercise program, which revealed some benefit. Two studies assessed short and long-term efficacy of an experimental exercise protocol and suggested a prolonged benefit. Two small studies looking at biologic markers suggested that exercise may impact cytokine production. SUMMARY: All studies we reviewed had small numbers of participants without a standardized control group and each study used different outcome measures. This review demonstrates the importance of continued emphasis on exercise therapy, the need for a standardized approach to exercise therapy, and a potential biologic effect. Exercise therapy should remain a mainstay of ankylosing spondylitis treatment complementing medical therapy.

Source: CINAHL

Full Text:
Available in print at Lincoln County Hospital Professional Library
Available in print at Pilgrim Hospital Staff Library

20. Physiotherapy interventions for ankylosing spondylitis.

Author(s): Dagfinrud H, Hagen KB, Kvien TK

Citation: Cochrane Database of Systematic Reviews, 01 March 2008, vol./is. /1(0-), 1469493X

Publication Date: 01 March 2008

Abstract: Background:

Source: CINAHL

Full Text:
Available in fulltext at Wiley InterScience

21. Update on the spondyloarthropathies: early diagnosis is more important with
more effective therapies now available.

Author(s): Elyan M, Khan MA

Citation: Journal of Musculoskeletal Medicine, 01 January 2008, vol./is. 25/1(31-38), 08992517

Publication Date: 01 January 2008

Abstract: The spondyloarthropathies (SpA) are strongly associated with the HLA-B27 gene. The diagnosis is based primarily on clinical findings. Ankylosing spondylitis (AS) often involves the sacroiliac joints and spine. Psoriatic arthritis (PsA) occurs in up to about one third of patients with psoriasis. Reactive arthritis must be distinguished from other arthropathies. Arthritis occurs in about 30% of patients with inflammatory bowel disease. Undifferentiated SpA includes several related disorders. Radiographic evidence of sacroiliitis is a characteristic feature of AS. SpA management should include patient education and regular exercise. NSAIDs are the first line of treatment. The tumor necrosis factor a inhibitors are highly effective in patients with active AS and in those with PsA that is unresponsive to conventional therapy.

Source: CINAHL

22. Effect of stomatognathic alignment exercise on temporomandibular joint dysfunction associated with ankylosing spondylitis: A pilot study

Author(s): Oh DW, Jeon HS, Kwon OY, You SH, Park SB, Hwang KG, Kim TH

Citation: Journal of Back and Musculoskeletal Rehabilitation, 2008, vol./is. 21/3(211-7), 1053-8127 (2008)

Publication Date: 2008

Abstract: Objective: This study was carried out to investigate the effect of stomatognathic alignment exercise (SAE) program on pain, mouth opening range, and perceived level of functional impairments from temporomandibular joint dysfunction (TMD) associated with ankylosing spondylitis (AS). Methods. A sample of 10 patients with TMD associated with AS was recruited in this study. A 60-minute SAE program focusing on postural alignment and mobility of the temporomandibular joint, head, neck, and trunk was provided 3 times per week for 4 weeks. Outcome measurements included pain, maximum range of active mouth opening (MRAMO), radiographic test for anterior translation distance (ATD) of a mandibular condyle, and the mandibular function impairment questionnaire (MFIQ) at pre-treatment, post-treatment, and 6-week follow-up after successful completion of treatment. Results: Statistically significant improvement was observed in pain, MRAMO, ATD, and MFIQ after the intervention (p <0.05). The observed improvements in pain and MFIQ were well maintained throughout the follow-up period, whereas the improvement in ATD on the affected side was significantly decreased (p <0.05). Conclusion: The SAE program seems to be beneficial for the management of pain, range of motion, and mandibular function in AS patients with TMD.

Source: AMED

23. Comparison of group-based exercise versus home-based exercise in patients with ankylosing spondylitis: effects on Bath Ankylosing Spondylitis indices, quality of life and depression

Author(s): Karapolat H, Akkoc Y, Sari I, Eyigor S, Akar S, Kirazh Y, Akkoc N

Citation: Clinical Rheumatology, 2008, vol./is. 27/6(695-700), 0770-3198 (2008 Jun)

Publication Date: 2008

Abstract: The objective of this non-randomised controlled trial was to evaluate the impact of group-based exercise programme and a home-based exercise programme on Bath Ankylosing Spondylitis Indices, depression and quality of life in patients with ankylosing spondylitis (AS). Approximately 41 patients in a rehabilitation unit were divided into two groups, either group- or home-based exercise programme. Exercise sessions were performed three times a week for a period of 6 weeks. The patients were compared before and after the rehabilitation programme, with respect to Bath Ankylosing Spondylitis Functional Index (BASFI), Bath Ankylosing Spondylitis Disease Assessment Index
(BASDAI), Bath Ankylosing Spondylitis Metrology Index (BASMI), Beck Depression Inventory (BDI) and The Nottingham Health Profile (NHP). A statistically significant improvement was observed on BASDAI, BASMI and energy, pain, reaction of emotional and sleep subscores of NHP in both exercise groups after the exercise programme (p<0.05). No statistically significant changes were detected in BASFI, BDI and social and mobility subscores of NHP in both exercise groups (p>0.05). No statistically significant differences were found between the two exercise programmes (p>0.05). Group and home-based exercise programmes are efficient in improving symptoms and mobility and had an important effect on quality of life in patients with AS. Home-based exercise programme, as it is cheaper, more easily performed and efficient, may be preferable for the management programme in AS.

Source: AMED

24. Therapeutic options for ankylosing spondylitis

Author(s): Ebner W.

Citation: Journal fur Mineralstoffwechsel, 2008, vol./is. 15/2(84-88), 1023-7763;1680-9408 (2008)

Publication Date: 2008

Abstract: As in many other inflammatory rheumatologic diseases the treatment of ankylosing spondylitis has evolved in a very imposing manner over the past years. This has not only been on the strength of new highly effective anti-inflammatory drugs but is also due to the development of new treatment strategies and a reappraisal of established therapies. But just as important has been the development of outcome measures with the possibility to assess the effect of different kinds of therapy. The ASAS International Working Group in collaboration with EULAR has done this exercise very consistently also producing recommendations for the management of ankylosing spondylitis. But despite of the availability of highly effective drugs we must not neglect special patient education and physiotherapy in the management of ankylosing spondylitis.

Source: EMBASE

25. Influence of supervised physical therapy on spinal mobility and pain in patients with ankylosing spondylitis

Author(s): Levitova A., Dadova K.

Citation: Ceska Revmatologie, 2008, vol./is. 16/1(4-8), 1210-7905 (2008)

Publication Date: 2008

Abstract: Objective: Ankylosing spondylitis is a systemic inflammatory disease affecting sacroiliac joints, spine, and sometimes peripheral joints or other organs. Physical therapy represents an important strategy of the complex management. The aim of the study was to evaluate the effect of 21-week supervised exercise program in patients with ankylosing spondylitis. Methods: Thirty patients with ankylosing spondylitis were enrolled to this study. The study population was divided into the exercise and control groups. Pain was assessed by visual analogue scale. Parameters such as static posture (methods by Klein and Thomas modified by Mayer), mobility of lumbar and thoracic spine (Schober and Stibor Flexion Test, Thomayer finger tip to floor distance and lumbar extension) and chest elasticity (chest expansion) were evaluated. Results: Significant reduction in pain intensity (64.8 vs. 26.4 %), improvement in static posture, increased spinal mobility for all distances and improved chest expansion were demonstrated for exercise group compared to control group. Conclusion: In this study we confirmed significant contribution of regular supervised group exercise in the management of patients with ankylosing spondylitis.

Source: EMBASE

26. Effects of dynamic exercise on circulating IGF-1 and IGFBP-3 levels in patients with rheumatoid arthritis or ankylosing spondylitis

Author(s): Karatay S., Yildirim K., Melikoglu M.A., Akcay F., Senel K.

Citation: Clinical Rheumatology, October 2007, vol./is. 26/10(1635-1639), 0770-3198
Abstract: This study was performed to determine the effects of short-term dynamic exercise on serum insulin-like growth factor-1 (IGF-1) and insulin-like growth factor binding protein-3 (IGFBP-3) levels in the patients with rheumatoid arthritis (RA) and ankylosing spondylitis (AS). Patients with RA or AS and healthy controls were recruited. Dynamic treadmill exercise therapy was accomplished for 20 min/session with all of the participants. There were five sessions per week for 2 weeks. Morning stiffness duration, body pain, Stanford health assessment questionnaire, Ritchie articular index, Bath ankylosing spondylitis disease activity index (BASDAI), and Bath ankylosing spondylitis functional index (BASFI) were evaluated in the RA and AS patients. Laboratory assessments included: erythrocyte sedimentation rate, serum C-reactive protein, IGF-1, and IGFBP-3. Clinical and laboratory assessments were recorded at baseline and during exercise treatment on days 7 and 15. Twenty patients with RA, 15 with AS, and 14 healthy controls were included in this study. The pain evaluation, Ritchie, BASDAI, and BASFI scores were significantly improved by the exercise treatment in both patient groups. The important increases were found in circulating IGF-1 in RA (p < 0.001) and AS (p = 0.001) at the end of 2 weeks. In control individuals, serum IGF-1 levels showed a significant decline in the first week (p < 0.05). No significant changes were observed on serum IGFBP-3 levels. Our data suggest that serum IGF-1 levels are increased by the dynamic exercise program in RA and AS patients. The increased IGF-1 may play an important role in the beneficial effects of dynamic exercise therapy in these patients. copyright 2007 Clinical Rheumatology.

Source: EMBASE

27. Does group exercise program add anything more to patients with ankylosing spondylitis?

Author(s): Cagliyan A, Kotevoglu N, Onal T, Tekkus B, Kuran B

Citation: Journal of Back & Musculoskeletal Rehabilitation, 01 April 2007, vol./is. 20/2-3(79-85), 10538127

Abstract: Objective: To compare group exercise program performed at hospital with home exercise program in patients with ankylosing spondylitis and to observe the efficacy of type of exercises. Patients and method: Forty-six patients with ankylosing spondylitis were enrolled into this prospective, randomized, comparative, open clinical trial. The first group performed instructed exercises at home for 6 months whereas the second group did the same exercises at the hospital for 2 hours weekly under the observation of a physiotherapist for 3 months. Three and 6 months after; pain at rest (VAS) and during activity, spinal mobility, functional capacity were evaluated. Results: In group 1 significant improvement was observed at rest and during activity pain (p<0.005). Functional improvement was better in the second group within 3 months. Since group 1 had a good range of cervical rotation, group 2 improved better (p<0.01). Conclusion: Spinal ranges of motion, functional status, depression and quality of life improved in group 2 patients remarkably. Group exercise had a decreasing effect on pain, activity of disease and fatigue. While home exercises improved spinal activity, it had no effect on functional status, disease activity, depression and fatigue.

Source: CINAHL


Author(s): Ribeiro F, Leite M, Silva F, Sousa O

Citation: Acta Reumatologica Portuguesa, April 2007, vol./is. 32/2(129-37), 0303-464X:0303-464X (2007 Apr-Jun)

Abstract: Physical exercise (PE) is a regular component in various disorders management, such as ankylosing spondylitis (AS). AS is a chronic and systematic rheumatic disorder without an effective treatment to restore the health. PE plays an important role on the
prevention and management of the deformities related to AS. This review summarizes the randomized controlled trials that have examined the role of PE in AS patients’ therapeutic process in order to promote an evidence based practise and to improve the AS patients care. Thirteen randomized controlled trials with a total of 1056 participants were identified in a Cochrane Central, Pubmed/ Medline and PEDro databases computer-based search. The quality assessment of the thirteen randomized controlled trial was 5.62 points in the PEDro scoring scale. Three trials assessed the effects induced by the addition of PE interventions to the medication program, three trials compared individualized home exercise with supervised group exercise, five trials compared alternative exercise programs (hydrotherapy and global posture reeducation) with traditional exercise programs usually recommended to treat AS patients, and two trials investigated the therapy effectiveness. The trials included in this review suggest that PE is a helpful therapy in the management of AS patients; PE should be performed in group under the physiotherapist supervision. New exercise-based approaches, hydrotherapy or global posture reeducation, offers promising results in the management of patients suffering AS.

Source: MEDLINE

29. Predicting general health perception and exercise habits in ankylosing spondylitis.

Author(s): Brodin N, Opava CH

Citation: Advances in Physiotherapy, 01 March 2007, vol./is. 9/1(23-30), 14038196

Publication Date: 01 March 2007

Abstract: The aims of this study were to describe changes over time in work, civil status, exercise habits, medication, self-reported disease activity, activity limitation, general health perception and body functions, and to predict self-reported general health perception and exercise habits, in 50 patients with ankylosing spondylitis (AS) according to the modified New York criteria. Logistic regressions were used to identify predictors. Exercise frequency decreased and general health perception improved significantly over time, while all other variables remained stable. Predictors for good general health perception were low activity limitation, good general health perception, full-time work and living alone. Predictors of exercise >=2/week were long symptom duration, previous exercise habits, high disease activity and living alone. We believe our study has contributed to the prediction of exercise habits and good general health perception in AS by suggesting ways of establishing what variables might be important to consider. The ability to identify those individuals who are likely to maintain good health and healthy exercise habits leaves room for physiotherapists to direct resources to those who need more support.

Source: CINAHL

Full Text:
Available in fulltext at EBSCO Host

30. Physiotherapy for ankylosing spondylitis in Trondheim and nearby communities

Author(s): Enger KJ, Dagfinrud H, Fuglesang V, Skomsvoll JF, Svean Koksvik HS

Citation: Fysioterapeuten, 2007, vol./is. 2007/8(33-9), 0016-3384 (2007 Aug)

Publication Date: 2007

Abstract: In this study we investigated the use of physiotherapy services and, exercise facilities by patients with Ankylosing Spondylitis in Trondheim and three surrounding counties. Patient satisfaction with regard to the services was also recorded. Associations between patient characteristics and the use of physiotherapy were investigated. The aim was to assess the adequacy of the services and facilities offered and to get knowledge of characteristics associated with the use of physiotherapy services. Totally 220 of 410 patients (57 percent) answered a mailed questionnaire about access to and use of physiotherapy services and exercise facilities including questions regarding disease activity (The Bath Ankylosing Spondylitis Disease Activity Index, BASDAI), physical functioning (The Bath Ankylosing Spondylitis Functional Index, BASFI) and burden of disease (BAS-G). The results indicate that 61 percent of the patients had received physiotherapy treatments during the last year, and those who were most affected with regard to disease
activity, physical functioning and burden of disease had received more treatments. Pain had the biggest impact on the amount of physiotherapy services received whereas age, residence-county and gender had no influence. Around one third of the patients used exercise facilities outside the regular health care system, while 60 percent stated that the services corresponded well to their needs. The percentage that was satisfied varied between 87 and 100 with the different services. About one third of the patients desired extended physiotherapy services beyond normal working hours. 'Download see www.fysioterapeuten.no'.

Source: AMED

31. Treatment of ankylosing spondylitis.

Author(s): Clegg DO

Citation: Journal of Rheumatology, 02 September 2006, vol./is. 33/(24-31), 0315162X

Publication Date: 02 September 2006

Abstract: Ankylosing spondylitis (AS) is a condition characterized by inflammatory back pain and associated with considerable disability and diminished quality of life in affected individuals. The condition is undertreated in part due to a delay in diagnosis and limited therapeutic interventions. Although traditional treatment approaches (physical therapy, exercise, patient education, nonsteroidal antiinflammatory drugs) remain important components of the management of AS, the demonstrated efficacy of tumor necrosis factor-α (TNF-α) antagonists such as etanercept and infliximab have allowed clinicians to more effectively manage this condition. These targeted therapies have demonstrated rapid and consistent effectiveness in reducing the axial and peripheral symptoms of AS, slowing disease progression, and improving patient function and quality of life. Appropriate and timely use of TNF-α antagonists offers additional options for patients with active AS who are inadequately controlled with conventional treatment.

Source: CINAHL


Author(s): Fitzpatrick M, FitzGerald O, Staines A, Hurley DA

Citation: Physical Therapy Reviews, 01 September 2006, vol./is. 11/3(218-218), 10833196

Publication Date: 01 September 2006

Source: CINAHL

Full Text: Available in fulltext at EBSCO Host

33. Influence of aquatic physical therapy on lung function in patients with ankylosing spondylitis: case series [Portuguese].

Author(s): Hernandes NA, Ide MR, Buosi DF

Citation: Fisioterapia e Pesquisa, 01 September 2006, vol./is. 13/3(48-52), 18092950

Publication Date: 01 September 2006

Abstract: Ankylosing spondylitis (AS) is a rheumatic disease characterized by spine and joints inflammatory processes. Involvement of the lung, usually asymptomatic, leads to a restrictive ventilatory pattern. Aquatic physiotherapy is a recommended treatment in as much as water physical properties assist in reducing symptoms and performing exercises. This study aimed at assessing the effects of a program of aquatic physical therapy in AS patients lung function, through the analysis of spirometric parameters (FVC = forced vital capacity, FEV = forced expiratory volume, MVV = maximum voluntary ventilation). Four patients with AS, three men and one woman (mean age 33.25), were submitted to lung functional evaluation before and after the program, applied for 10 weeks, thrice a week. FVC increased in one subject; FEV increased in one, diminished in another and remained unchanged in the other two subjects. Tiffeneau index decreased in one subject and increased in two. MVV increased in one, decreased in another and did not change in the
other two subjects. Since results of the spirometric assessment were not uniform along the subjects, further studies with greater samples and longer periods of time are necessary to check whether changes here found were hazardous or due to the treatment.

**Source:** CINAHL

34. The role of nonsteroidal anti-inflammatory medications and exercise in the treatment of ankylosing spondylitis.

**Author(s):** Elyan M, Khan MA

**Citation:** Current Rheumatology Reports, August 2006, vol./is. 8/4(255-9), 1523-3774;1523-3774 (2006 Aug)

**Publication Date:** August 2006

**Abstract:** Ankylosing spondylitis (AS) is a chronic systemic rheumatic disease that primarily affects the sacroiliac joints and spine. Even with the development of tumor necrosis factor-alpha inhibitors, which have revolutionized the treatment of this disease, the combination of nonsteroidal anti-inflammatory drugs (NSAIDs), physical therapy, and a lifelong exercise program still form the first step in its management. Multiple clinical trials have addressed the efficacy and safety of both nonselective and selective NSAIDs. Gastrointestinal toxicity remains their major side effect, with increased concern about the potential of cardiovascular toxicity, especially with the selective cyclooxygenase-2 inhibitors. A specific set of recommendations has been proposed for the management of AS.

**Source:** MEDLINE

35. The effect of balneotherapy on patients with ankylosing spondylitis

**Author(s):** Altan L., Bingol U., Aslan M., Yurtkuran M.

**Citation:** Scandinavian Journal of Rheumatology, July 2006, vol./is. 35/4(283-289), 0300-9742;1502-7732 (01 Jul 2006)

**Publication Date:** July 2006

**Abstract:** Objective: To compare the effect of balneotherapy on physical activity and quality of life as well as the symptoms of pain and stiffness with exercise alone in ankylosing spondylitis (AS) patients. Methods: A total of 60 patients who had a diagnosis of AS according to the modified New York criteria were included in the study. The patients were randomly assigned to two groups. In Group I (n = 30) the patients received balneotherapy in a therapeutic pool for 30 min once a day for 3 weeks. All patients received instructions on the exercise programme, which they were requested to repeat once a day for 30 min during the study. The patients in this group continued the same exercise programme after the end of the balneotherapy protocol to complete a course of 6 months. In Group II the patients were given the same exercise protocol but did not receive balneotherapy. Patients were evaluated before the start of the study and at 3 weeks and 24 weeks. Evaluation parameters were daily and night pain, morning stiffness, the patient's global evaluation and the physician's global evaluation (according to a scoring system of 1 to 5), the Bath Ankylosing Spondilitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), Dougados Functional Index (DFI), tragus-wall distance, chest expansion, modified Shober test (MST), fingertip-fibula head distance, and Nottingham Health Profile (NHP). Results: Evaluations were completed in 54 patients in the two groups. Comparison of the groups showed significantly superior results for Group I for parameters of BASDAI, NHP total, pain, physical activity, tiredness and sleep score, patient's global evaluation and the physician's global evaluation at 3 weeks, but only for the parameters of patient's global evaluation and MST at 24 weeks. Conclusion: Balneotherapy has a supplementary effect on improvement in disease activity and functional parameters in AS patients immediately after the treatment period. However, in the light of our medium-term evaluation results, we suggest that further research is needed to assess the role of balneotherapy applied for longer durations in AS patients. copyright 2006 Taylor & Francis on license from Scandinavian Rheumatology Research Foundation.

**Source:** EMBASE

36. One-year follow-up of two exercise interventions for the management of
OBJECTIVE:: To assess the long-term effects on functional and mobility outcomes of two exercise interventions for the management of patients with ankylosing spondylitis. DESIGN:: In an extended 12-mo follow-up of a randomized controlled trial, 40 patients who were diagnosed with ankylosing spondylitis according to the modified criteria of New York, allocated to control or experimental groups using a random numbers table, and who performed their respective exercise program at least three times per month, were included in this long-term study. The control group was treated during 15 sessions with a conventional exercise regimen in ankylosing spondylitis, whereas the experimental group received 15 sessions of exercises based on the treatment of the shortened muscle chains following the guidelines described by the Global Posture Reeducation method. These patients were followed up and assessed again 1 yr after entering the study, reapplying the same validated indexes: BASMI (Bath Ankylosing Spondylitis Metrology Index [tragus to wall distance, modified Schober test, cervical rotation, lumbar side flexion, and intermalleolar distance]), BASDAI (Bath Ankylosing Spondylitis Disease Activity Index), and BASFI (Bath Ankylosing Spondylitis Functional Index). RESULTS:: The intragroup comparison between follow-up and postintervention data showed that both groups decrease their clinical and functional measures during the follow-up period. This decrease was only significant for lumbar side flexion and intermalleolar distance measurements, being more significant in the control group (P = 0.001 and P = 0.002, respectively). Intragroup differences between follow-up and preintervention assessments revealed that improvements in all mobility measures of the BASMI index and in the BASFI index were partially maintained at the 12-mo follow-up in the experimental group but not in the control group. The intergroup comparison (unpaired t test analysis) between changes on each outcome during the long-term follow-up (post-follow-up; and pre-follow-up) showed no significant differences in the decrease between postintervention and follow-up data between the study groups. On the other hand, the intergroup comparison between preintervention and follow-up data revealed significant differences in almost all mobility measures of the BASMI index (except for cervical rotation) and in the BASFI index, in favor of the experimental group. CONCLUSIONS:: An exercise regimen based on the Global Posture Reeducation method and focusing on specific strengthening and flexibility exercises of the shortened muscle chains offers promising short- and long-term results in the management of patients who have ankylosing spondylitis.
physical examination at baseline and at 12 weeks. The examinations were conducted under the supervision of a physician who specialized in physical medicine and rehabilitation and included the assessment of spinal mobility using 2 methods: clinical measurements (chin-to-chest distance, Modified Schober Flexion Test, occiput-to-wall distance, finger-to-floor distance, and chest expansion) and inclinometer measurements (gross hip flexion, gross lumbar flexion, and gross thoracic flexion). In addition, vital capacity was measured by a physiologist, and physical work capacity was evaluated by a doctorally prepared exercise instructor. RESULTS: The measurements of the exercise group for chest expansion, chin-to-chest distance, Modified Schober Flexion Test, and occiput-to-wall distance were significantly better than those of the control group after the 3-month exercise period. The spinal movements of the exercise group improved significantly at the end of exercise program, but those of the control group showed no significant change. In addition, the results showed that the posttraining value of gross thoracic flexion of the exercise group was significantly higher than that of the control group. Physical work capacity and vital capacity values improved in the exercise group but decreased in the control group.

DISCUSSION AND CONCLUSION: In this study, a multimodal exercise program including aerobic, stretching, and pulmonary exercises provided in conjunction with routine medical management yielded greater improvements in spinal mobility, work capacity, and chest expansion.

Source: CINAHL

Full Text:
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Available in fulltext at EBSCO Host

38. Effect of combined spa-exercise therapy on circulating TGF-beta1 levels in patients with ankylosing spondylitis

Author(s): Shehata M., Schwarzmeier J.D., Hilgarth M., Demirtas D., Richter D., Hubmann R., Boeck P., Leiner G., Falkenbach A.

Citation: Wiener Klinische Wochenschrift, May 2006, vol./is. 118/9-10(266-272), 0043-5325 (May 2006)

Publication Date: May 2006

Abstract: Background: Ankylosing spondylitis (AS) is a chronic inflammatory disease of the axial joints with no satisfactory therapy. Reduction of joint pain has been reported after a course of therapy at a spa, Gasteiner Heilstollen, in Badgastein in Austria. The mechanism underlying this beneficial effect is not clearly understood and objective evidence for the biological response to therapy is lacking. The aim of this study was to find evidence for a biological response to speleotherapy in patients with AS and to study the involvement of the anti-inflammatory cytokine TGF-beta1 in this response. Patients and methods: 83 patients with AS were treated in Badgastein for 3-4 weeks. Therapy included active exercises, hyperthermia and exposure to low doses of radon in a former mine. Response to therapy was assessed from measurement of morning pain and immunoassay of serum levels of TGF-beta1 before and after therapy. Ten AS patients who received conventional therapy and 10 patients with low back pain (LBP) served as controls. Results: A significant increase in TGF-beta1 (total and active) was found in AS patients after spa therapy. Mean concentration of total TGF-beta1 increased from 28,715 pg/ml to 43,136 pg/ml, (P < 0.01) and active TGF-beta1 increased from 77 pg/ml to 1096 pg/ml (P < 0.001). When the AS patients were divided into two groups according to pain reduction, group 1 (decrease in morning pain, responders: n = 46) exhibited a 17-fold increase of active TGF-beta1 levels (96 pg/ml to 1654 pg/ml, P < 0.0001) whereas group 2 (no change or an increase in morning pain: nonresponders: n = 37), showed only 7-fold increase (53 pg/ml to 402 pg/ml, P < 0.01). There was a moderate increase in active TGF-beta1 from 31 pg/ml to 42 pg/ml (P < 0.05) in patients with LBP and no significant change was observed in the patients treated with conventional therapy. Conclusion: These results demonstrate a significant increase in circulating TGF-beta1 in patients with AS after the combined spa-exercise therapy in Badgastein. The results also provide evidence for a biological response to speleotherapy and suggest that TGF-beta, through its anti-inflammatory function, may play a role in this response. copyright Springer-Verlag 2006.

Source: EMBASE
39. **ASAS/EULAR recommendations for the management of ankylosing spondylitis**


**Citation:** Annals of the Rheumatic Diseases, April 2006, vol./is. 65/4(442-452), 0003-4967 (Apr 2006)

**Publication Date:** April 2006

**Abstract:** Objective: To develop evidence based recommendations for the management of ankylosing spondylitis (AS) as a combined effort of the 'Assessment in AS' international working group and the European League Against Rheumatism. Methods: Each of the 22 participants was asked to contribute up to 15 propositions describing key clinical aspects of AS management. A Delphi process was used to select 10 final propositions. A systematic literature search was then performed to obtain scientific evidence for each proposition. Outcome data for efficacy, adverse effects, and cost effectiveness were abstracted. The effect size, relative risk, number needed to treat, and incremental cost effectiveness ratio were calculated. On the basis of the search results, 10 major recommendations for the management of AS were constructed. The strength of recommendation was assessed based on the strength of the literature evidence, risk-benefit trade-off, and clinical expertise. Results: The final recommendations considered the use of non-steroidal anti-inflammatory drugs (NSAIDs) (conventional NSAIDs, coxibs, and co-prescription of gastroprotective agents), disease modifying antirheumatic drugs, treatments with biological agents, simple analgesics, local and systemic steroids, non-pharmacological treatment (including education, exercise, and physiotherapy), and surgical interventions. Three general recommendations were also included. Research evidence (categories I-IV) supported 11 interventions in the treatment of AS. Strength of recommendation varied, depending on the category of evidence and expert opinion. Conclusion: Ten key recommendations for the treatment of AS were developed and assessed using a combination of research based evidence and expert consensus. Regular updating will be carried out to keep abreast of new developments in the management of AS.

**Source:** EMBASE

**Full Text:**

Available in fulltext at Highwire Press

Available in fulltext at National Library of Medicine

40. **Current evidence for the management of ankylosing spondylitis: A systematic literature review for the ASAS/EULAR management recommendations in ankylosing spondylitis**

**Author(s):** Zochling J., Van Der Heijde D., Dougados M., Braun J.

**Citation:** Annals of the Rheumatic Diseases, April 2006, vol./is. 65/4(423-432), 0003-4967 (Apr 2006)

**Publication Date:** April 2006

**Abstract:** Objective: To assess available management strategies in ankylosing spondylitis (AS) using a systematic approach, as a part of the development of evidence based recommendations for the management of AS. Methods: A systematic search of Medline, Embase, CINAHL, PEDro, and the Cochrane Library was performed to identify relevant interventions for the management of AS. Evidence for each intervention was categorised by study type, and outcome data for efficacy, adverse effects, and cost effectiveness were abstracted. The effect size, rate ratio, number needed to treat, and incremental cost effectiveness ratio were calculated for each intervention where possible. Results from randomised controlled trials were pooled where appropriate. Results: Both pharmacological and non-pharmacological interventions considered to be of interest to clinicians involved in the management of AS were identified. Good evidence (level Ib) exists supporting the use of non-steroidal anti-inflammatory drugs (NSAIDs) and coxibs for symptomatic treatment. Non-pharmacological treatments are also supported for maintaining function in AS. The use
of conventional antirheumatoid arthritis drugs is not well supported by high level research evidence. Tumour necrosis factor inhibitors (infliximab and etanercept) have level Ib evidence supporting large treatment effects for spinal pain and function in AS over at least 6 months. Level IV evidence supports surgical interventions in specific patients.

Conclusion: This extensive literature review forms the evidence base considered in the development of the new ASAS/EULAR recommendations for the management of AS.

Source: EMBASE

Full Text:
Available in fulltext at Highwire Press
Available in fulltext at National Library of Medicine

41. Exercise and ankylosing spondylitis -- which exercises are appropriate? A critical review.

Author(s): Fernández-de-las-Peñas C, Alonso-Blanco C, Águila-Maturana AM, Isabel-de-la-Llave-Rincón A, Molero-Sánchez A, Miangolarra-Page JC

Citation: Critical Reviews in Physical & Rehabilitation Medicine, 01 February 2006, vol./is. 18/1(39-61), 08962960

Publication Date: 01 February 2006

Abstract: Ankylosing Spondylitis (AS) is a chronic rheumatic disorder involving the axial skeleton that progressively limits spinal mobility. Exercises are considered as basic therapy to increase the functional capacity and quality of life in these patients. Today, there are different exercise programs for AS; however, not all of these exercises are specific for patients with this disease. Although an analysis of the peer-reviewed literature shows that exercise is effective in the management of AS patients, adequate, well-designed follow-up studies are still required due to the heterogeneous follow-up periods of the published trials. The main question that clinicians need to address is: Which exercises are more appropriate for patients with AS? In the present article we discuss a scientific justification for the employment of global and functional approaches for the management of these patients. With that aim, we examine the principles of the Global Posture Re-education (GPR) method, a rehabilitation method based on the concept of muscle chains. With this concept in mind, physical therapists can analyze, from a functional and global viewpoint, which exercises would be more appropriate for the management of patients with AS. Moreover, we also discuss the protocol that we employ in our clinic, based on the concept of muscle chains, which has been analyzed in a randomized controlled trial published by our research group.

Source: CINAHL

42. One-year follow-up of two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial

Author(s): Fernandez-de-Las-Penas C, Alonso-Blanco C, Alguacil-Diego IM, Miangolarra-Page JC

Citation: American Journal of Physical Medicine and Rehabilitation, 2006, vol./is. 85/7(559-67), 0894-9115 (2006 Jul)

Publication Date: 2006

Abstract: OBJECTIVE: To assess the long-term effects on functional and mobility outcomes of two exercise interventions for the management of patients with ankylosing spondylitis. DESIGN: In an extended 12-mo follow-up of a randomized controlled trial, 40 patients who were diagnosed with ankylosing spondylitis according to the modified criteria of New York, allocated to control or experimental groups using a random numbers table, and who performed their respective exercise program at least three times per month, were included in this long-term study. The control group was treated during 15 sessions with a conventional exercise regimen in ankylosing spondylitis, whereas the experimental group received 15 sessions of exercises based on the treatment of the shortened muscle chains following the guidelines described by the Global Posture Reeducation method. These patients were followed up and assessed again 1 yr after entering the study, re-applying the same validated indexes: BASMI (Bath Ankylosing Spondylitis Metrology Index [tragus to
wall distance, modified Schober test, cervical rotation, lumbar side flexion, and intermalleolar distance), BASDAI (Bath Ankylosing Spondylitis Disease Activity Index), and BASFI (Bath Ankylosing Spondylitis Functional Index). RESULTS: The intragroup comparison between follow-up and post-intervention data showed that both groups decrease their clinical and functional measures during the follow-up period. This decrease was only significant for lumbar side flexion and intermalleolar distance measurements, being more significant in the control group ($P = 0.001$ and $P = 0.002$, respectively). Intragroup differences between follow-up and pre-intervention assessments revealed that improvements in all mobility measures of the BASMI index and in the BASFI index were partially maintained at the 12-mo follow-up in the experimental group but not in the control group. The intergroup comparison (unpaired t test analysis) between changes on each outcome during the long-term follow-up (post-follow-up; and pre-follow-up) showed no significant differences in the decrease between post-intervention and follow-up data between the study groups. On the other hand, the intergroup comparison between pre-intervention and follow-up data revealed significant differences in almost all mobility measures of the BASMI index (except for cervical rotation) and in the BASFI index, in favor of the experimental group. CONCLUSIONS: An exercise regimen based on the Global Posture Reeducation method and focusing on specific strengthening and flexibility exercises of the shortened muscle chains offers promising short- and long-term results in the management of patients who have ankylosing spondylitis.

Source: AMED

43. Effects of a multimodal exercise program for people with ankylosing spondylitis

Author(s): Ince G, Sarpe T, Durgun B, Erdogan S

Citation: Physical Therapy, 2006, vol./is. 86/7(924-35), 0031-9023 (2006 Jul)

Publication Date: 2006

Abstract: BACKGROUND AND PURPOSE: Few randomized controlled studies have examined the effects of exercise in patients with ankylosing spondylitis (AS). This study investigated the effects of a 12-week, multimodal exercise program in patients with AS.

SUBJECTS: A convenience sample of 30 patients with AS (18 male, 12 female), with a mean age of 34.9 years (SD=6.28), participated in the study. Twenty-six subjects were classified as having stage I AS and 4 subjects were classified as having stage II AS according to the modified New York Criteria. METHODS: This study was a randomized controlled trial. Subjects were assigned to either a group that received an exercise program or to a control group. The exercise program consisted of 50 minutes of multimodal exercise, including aerobic, stretching, and pulmonary exercises, 3 times a week for 3 months. Subjects in both groups received medical treatment for AS, but the exercise group received the exercise program in addition to the medical treatment. All subjects received a physical examination at baseline and at 12 weeks. The examinations were conducted under the supervision of a physician who specialized in physical medicine and rehabilitation and included the assessment of spinal mobility using 2 methods: clinical measurements (chin-to-chest distance, Modified Schober Flexion Test, occiput-to-wall distance, finger-to-floor distance, and chest expansion) and inclinometer measurements (gross hip flexion, gross lumbar flexion, and gross thoracic flexion). In addition, vital capacity was measured by a physiologist, and physical work capacity was evaluated by a doctoral prepared exercise instructor. RESULTS: The measurements of the exercise group for chest expansion, chin-to-chest distance, Modified Schober Flexion Test, and occiput-to-wall distance were significantly better than those of the control group after the 3-month exercise period. The spinal movements of the exercise group improved significantly at the end of exercise program, but those of the control group showed no significant change. In addition, the results showed that the posttraining value of gross thoracic flexion of the exercise group was significantly higher than that of the control group. Physical work capacity and vital capacity values improved in the exercise group but decreased in the control group.

DISCUSSION AND CONCLUSION: In this study, a multimodal exercise program including aerobic, stretching, and pulmonary exercises provided in conjunction with routine medical management yielded greater improvements in spinal mobility, work capacity, and chest expansion.

Source: AMED
44. Evaluating a physiotherapist facilitated programme for people with ankylosing spondylitis (AS): a patients perspective

Author(s): Wylie R, Ryan SJ

Citation: Aqualines-Newsletter of the Hydrotherapy Ass of Chartered Physiotherapists, 2006, vol./is. 2006/1(17-23) (2006 Spring)

Publication Date: 2006

Abstract: Aim: to evaluate a physiotherapist facilitated programme for people with AS. Intervention: a physiotherapist facilitated programme including exercise, hydrotherapy and education. Participants: 5 people who had attended the group for more than 2 years, 4 males and 1 female, age range: 45-75 years. Method: Semi-structured interviews were conducted lasting between 20 and 60 minutes in a quiet location. Thematic content analysis drew out the participants experiences and perceptions. Results: Group physiotherapy effectively maintained participants physical fitness and psychological well being, and it encouraged self-efficacy. Conclusion: the programme provided the participants with support, improved physical fitness, self-confidence and coping strategies.

Source: AMED

45. Exercise and Ankylosing Spondylitis - Which exercises are appropriate? A critical review

Author(s): Fernandez-de-las-Penas C., Alonso-Blanco C., Aguila-Maturana A.M., Isabel-de-la-Llave-Rincon A., Molero-Sanchez A., Miangolarra-Page J.C.

Citation: Critical Reviews in Physical and Rehabilitation Medicine, 2006, vol./is. 18/1(39-61), 0896-2960 (2006)

Publication Date: 2006

Abstract: Ankylosing Spondylitis (AS) is a chronic rheumatic disorder involving the axial skeleton that progressively limits spinal mobility. Exercises are considered as basic therapy to increase the functional capacity and quality of life in these patients. Today, there are different exercise programs for AS; however, not all of these exercises are specific for patients with this disease. Although an analysis of the peer-reviewed literature shows that exercise is effective in the management of AS patients, adequate, well-designed follow-up studies are still required due to the heterogeneous follow-up periods of the published trials. The main question that clinicians need to address is: Which exercises are more appropriate for patients with AS? In the present article we discuss a scientific justification for the employment of global and functional approaches for the management of these patients. With that aim, we examine the principles of the Global Posture Re-education (GPR) method, a rehabilitation method based on the concept of muscle chains. With this concept in mind, physical therapists can analyze, from a functional and global viewpoint, which exercises would be more appropriate for the management of patients with AS. Moreover, we also discuss the protocol that we employ in our clinic, based on the concept of muscle chains, which has been analyzed in a randomized controlled trial published by our research group. Copyright 2006 by Begell House, Inc.

Source: EMBASE

46. The Cochrane review of physiotherapy interventions for ankylosing spondylitis

Author(s): Dagfinrud H, Kvien TK, Hagen KB

Citation: Journal of Rheumatology, 01 October 2005, vol./is. 32/10(1899-1906), 0315162X

Publication Date: 01 October 2005

Abstract: OBJECTIVE: To update the Cochrane review on the effectiveness of physiotherapy interventions in the management of ankylosing spondylitis (AS). METHODS:
All randomized studies available in systematic searches (electronic databases, contact with authors, reference lists) up to February 2004 were included. Two reviewers independently selected trials for inclusion, assessed the validity of included trials, and extracted data. Investigators were contacted to obtain missing information. RESULTS: Six trials with a total of 561 participants were included. Two trials compared individualized home exercise programs with no intervention. Low quality evidence for effects in favor of the home exercise program was found in physical function and spinal mobility (absolute benefit 10.3 cm on fingertip to floor distance; relative percentage difference (RPD) 37%). Further, the trials showed low quality evidence for no group differences in pain. Three trials compared supervised group physiotherapy with an individualized home exercise program. Moderate quality evidence for effectiveness was found in patient global assessment and spinal mobility in favor of the supervised group. The trials showed moderate quality evidence for no differences in pain intensity between the groups. One trial compared a 3-week inpatient spa-exercise therapy followed by weekly outpatient group physiotherapy with weekly outpatient group physiotherapy alone. Moderate quality evidence was found for effects in pain (absolute benefit 0.9 cm on visual analog scale; RPD 19%), physical function (absolute benefit 1 cm; RPD 24%), and patient global assessment (absolute benefit 1.3 cm; RPD 27%), in favor of the combined spa-exercise therapy. CONCLUSION: The current best available evidence suggests that physiotherapy is beneficial for people with AS. However, it is still not clear which treatment protocol should be recommended in the management of AS.

Source: CINAHL

47. Effectiveness of exercise therapy: a best-evidence summary of systematic reviews [Dutch].

Author(s): Smidt N, de Vet HCW, Bouter LM, Dekker J

Citation: Nederlands Tijdschrift Voor Fysiotherapie, 01 August 2005, vol./is. 115/4(86-95), 0377208X

Publication Date: 01 August 2005

Abstract: PURPOSE. To summarize available evidence on the effectiveness of exercise therapy for patients with disorders of the musculoskeletal, the nervous, the respiratory and the cardiovascular system. METHODS. Systematic reviews were identified by means of a comprehensive search strategy in ii bibliographic databases (08/2002), in combination with reference tracking. Systematic reviews that included i) at least one randomized controlled trial investigating the effectiveness of exercise therapy, 2) clinically relevant outcome measures, and 3) full text written in English, German, or Dutch, were selected by two reviewers. Thirteen independent and blinded reviewers participated in the selection, quality assessment, and data extraction of the systematic reviews. Conclusions about the effectiveness of exercise therapy were based on the results presented in reasonable or good quality systematic reviews (quality score 60 out of 100 points). RESULTS. A total of 104 systematic reviews were selected, 45 of which were of reasonable or good quality. Exercise therapy is effective for patients with knee osteoarthritis, sub-acute (6 to 12 weeks) and chronic (>/= 12 weeks) low back pain, cystic fibrosis, chronic obstructive pulmonary disease, and intermittent claudication. Furthermore, there are indications that exercise therapy is effective for patients with ankylosing spondylitis, hip osteoarthritis, Parkinson's disease, and for patients who have suffered a stroke. There is insufficient evidence to support or refute the effectiveness of exercise therapy for patients with neck pain, shoulder pain, repetitive strain injury, rheumatoid arthritis, asthma, and bronchiectasis. Exercise therapy is not effective for patients with acute low back pain. CONCLUSIONS. Exercise therapy is effective for a wide range of chronic disorders. Therefore, it is of major importance that exercise therapy is available and accessible for patients with these disorders. This abstract was translated into English by the publisher or author.

Source: CINAHL

48. Relationship between self-efficacy and exercise duration in patients with ankylosing spondylitis.

Author(s): Lim HJ, Lim HS, Lee MS

Citation: Clinical Rheumatology, August 2005, vol./is. 24/4(442-3), 0770-3198;0770-3198
49. Relationship between self-efficacy and exercise duration in patients with ankylosing spondylitis

Author(s): Lim H.-J., Lim H.-S., Lee M.S.

Citation: Clinical Rheumatology, August 2005, vol./is. 24/4(442-443), 0770-3198 (Aug 2005)

Publication Date: August 2005

Source: EMBASE


Author(s): Henderson C, Davis JC Jr.

Citation: Journal of Musculoskeletal Medicine, 01 July 2005, vol./is. 22/7(332-336), 08992517

Publication Date: 01 July 2005

Abstract: NSAIDs, exercise, physical therapy, and disease-modifying antirheumatic drugs (DMARDs) are the standard treatments for patients with spondyloarthritis. NSAIDs may be associated with significant morbidity. DMARD therapy has provided relief of symptoms but appears not to affect disease progression. Improved response has been seen with the biologic agents targeted against tumor necrosis factor. Results of clinical trials have shown significant benefit with minimal adverse effects. Etanercept has been shown to be well tolerated in patients with psoriatic arthritis and ankylosing spondylitis (AS). Infliximab has demonstrated effectiveness in patients with AS and undifferentiated spondyloarthritis but with more adverse effects. Adalimumab is being studied in patients with AS and appears to be safe and effective, according to an open-label study.

Source: CINAHL

51. Management and treatment of ankylosing spondylitis

Author(s): Zochling J., Braun J.

Citation: Current Opinion in Rheumatology, July 2005, vol./is. 17/4(418-425), 1040-8711 (Jul 2005)

Publication Date: July 2005

Abstract: Purpose of review: Our purpose is to review the developments in the treatment of ankylosing spondylitis in 2004. Recent findings: Tumor necrosis factor blockers have been shown to have rapid and persistent efficacy with limited additional toxicity up to 4 years with continuing therapy, but cessation of therapy results in relapse in most patients. Therapy is cost-effective. There are some differences between the different tumor necrosis factor blockers currently available. Other biologic therapies are not as promising. Algorithms have been developed to aid in early diagnosis. This may be relevant for future therapeutic strategies. Summary: Tumor necrosis factor blockers are effective and safe in active spinal disease, but simple measures such as exercise and nonsteroidal anti-inflammatory drug therapy are still considered the basis of standard therapy. Early disease diagnosis is becoming easier, and is likely to be important for optimal therapeutic responses. Future research will include the effect of tumor necrosis factor blockade on structural disease progression. copyright 2005 Lippincott Williams & Wilkins.

Source: EMBASE

Full Text:

Available in print at Lincoln County Hospital Professional Library

Available in print at Pilgrim Hospital Staff Library
52. Effectiveness of exercise therapy: a best-evidence summary of systematic reviews.

Author(s): Smidt N, de Vet HCW, Bouter LM, Dekker J

Citation: Australian Journal of Physiotherapy, 01 June 2005, vol./is. 51/2(71-85), 00049514

Publication Date: 01 June 2005

Abstract: The purpose of this project was to summarise the available evidence on the effectiveness of exercise therapy for patients with disorders of the musculoskeletal, nervous, respiratory, and cardiovascular systems. Systematic reviews were identified by means of a comprehensive search strategy in 11 bibliographic databases (08/2002), in combination with reference tracking. Reviews that included (i) at least one randomised controlled trial investigating the effectiveness of exercise therapy, (ii) clinically relevant outcome measures, and (iii) full text written in English, German or Dutch, were selected by two reviewers. Thirteen independent and blinded reviewers participated in the selection, quality assessment and data-extraction of the systematic reviews. Conclusions about the effectiveness of exercise therapy were based on the results presented in reasonable or good quality systematic reviews (quality score > or = 60 out of 100 points). A total of 104 systematic reviews were selected, 45 of which were of reasonable or good quality. Exercise therapy is effective for patients with knee osteoarthritis, sub-acute (6 to 12 weeks) and chronic (> or = 12 weeks) low back pain, cystic fibrosis, chronic obstructive pulmonary disease, and intermittent claudication. Furthermore, there are indications that exercise therapy is effective for patients with ankylosing spondylitis, hip osteoarthritis, Parkinson's disease, and for patients who have suffered a stroke. There is insufficient evidence to support or refute the effectiveness of exercise therapy for patients with neck pain, shoulder pain, repetitive strain injury, rheumatoid arthritis, asthma, and bronchiectasis. Exercise therapy is not effective for patients with acute low back pain. It is concluded that exercise therapy is effective for a wide range of chronic disorders.

Source: CINAHL

53. Two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial.

Author(s): Fernández-de-las-Peñas C, Alonso-Blanco C, Morales-Cabezas M, Miangolarra-Page JC

Citation: American Journal of Physical Medicine & Rehabilitation, 01 June 2005, vol./is. 84/6(407-419), 08949115

Publication Date: 01 June 2005

Abstract: OBJECTIVE: The purpose of this clinical trial was to evaluate the impact of a 4-month comprehensive protocol of strengthening and flexibility exercises developed by our research group versus conventional exercises for patients with Ankylosing Spondylitis (AS) on functional and mobility outcomes. DESIGN: Randomized controlled trial. Forty-five patients diagnosed with AS according to the modified criteria of New York were allocated to control or experimental groups using a random numbers table. The control group was treated with a conventional protocol of physical therapy in AS, whereas the experimental group was treated with the protocol suggested by our research group. The conventional intervention consisted of 20 exercises: motion and flexibility exercises of the cervical, thoracic, and lumbar spine; stretching of the shortened muscles; and chest expansion exercises. The experimental protocol is based on the postural affectation of the AS and the treatment of the shortened muscle chains in these patients according to the Global Posture Reeducation (GPR) method. This intervention employs specific strengthening and flexibility exercises in which the shortened muscle chains are stretched and strengthened. The study lasted 4 mos. During this period, patients received a weekly group session managed by an experienced physiotherapist. Each session lasted an hour, and there were 15 total sessions. Changes in activity, mobility, and functional capacity were evaluated by an assessor blinded to the intervention, using the following previously validated scores from the Bath group: BASMI (tragus to wall distance, modified Schober test, cervical rotation, lumbar side flexion, and intermalleolar distance), BASDAI (The Bath Ankylosing Spondylitis Disease Activity Index), and BASFI (The Bath Ankylosing Spondylitis Functional Index).
RESULTS: Both groups showed an improvement (prepost scores) in all the outcome measures, mobility measures of the BASMI index, as well as in BASFI and BASDAI indexes. In the control group, the improvement in tragus to wall distance ($P=0.009$) and in lumbar side flexion ($P=0.02$) was statistically significant. Although the rest of the outcomes also improved, they did not reach a significant level ($P>0.05$). In the experimental group, the improvement in all the clinical measures of the BASMI index ($P<0.01$) and in the BASFI index ($P=0.003$) was statistically significant. The intergroup comparison between the improvement (prepost scores) in both groups showed that the experimental group obtained a greater improvement than the control group in all the clinical measures of the BASMI index, except in tragus to wall distance, as well as in the BASFI index. CONCLUSIONS: The experimental protocol developed by our research group, based on the GPR method and specific strengthening and flexibility exercises of the muscle chains, offers promising results in the management of patients suffering from AS. Further trials on this topic are required.

Source: CINAHL

54. Experts’ beliefs on physiotherapy for patients with ankylosing spondylitis and assessment of their knowledge on published evidence in the field. Results of a questionnaire among international ASAS members

Author(s): Mihai C., Van Der Linden S., De Bie R., Stucki G.

Citation: Europa Medicophysica, June 2005, vol./is. 41/2(149-153), 0014-2573 (Jun 2005)

Publication Date: June 2005

Abstract: Aim. The aim of this study was to assess both the opinion of an international group of experts about the place and importance of physiotherapy in the management of ankylosing spondylitis (AS) as well as the awareness of the responders about scientific evidence on efficacy and cost-effectiveness of physiotherapy in AS. Methods. An e-mail questionnaire “Experts’ Beliefs on Physiotherapy for Patients with Ankylosing Spondylitis” has been sent to all 71 international Assessment of Ankylosing Spondylitis (ASAS) members. Completion of the twenty-eight-item questionnaire was done through the ASAS website (www.ASAS-group.org). Results. The number of responders was 53 (response rate 73%). Altogether 94% of the responders regard themselves as experts in the field of clinical care for AS patients. There is almost unanimous (86-92%) consensus on the efficacy of physiotherapy (widely defined, i.e. as physical therapy-including exercises, application of physical modalities and spa-therapy) for patients with axial and peripheral joint manifestations of AS. Physiotherapy is considered to be indicated for both early AS (less than 2 years after diagnosis) (88%) and AS of longer duration (2 to 10 years) (94%), implying that this non-pharmaceutical intervention should be made available for or should be prescribed to AS patients. Also daily exercises at home are considered indicated for both early (less than 2 years after diagnosis) AS (90%) and AS of longer duration of disease (90%). High-level evidence (Cochrane reviews or publications of one or more randomized controlled clinical trials) favoring efficacy of physiotherapy was considered available by 33% of the participants, whereas 43% replied “no” and 24% did not know. Finally, excluding the costs of the intervention, 39% of the participants reported that Spatherapy might reduce health care costs as usage of NSAIDs, physician visits and ability to work or sick leave, whereas 26% said “no” and 35% did not know. Conclusion. The international ASAS experts hold a favorable opinion on the efficacy of physiotherapy in AS, including group exercises and spa therapy, almost irrespective of disease duration and type of articular involvement (axial/peripheral). Awareness of published evidence on physiotherapy in AS is unsatisfactory.

Source: EMBASE

55. Effects of home-based daily exercise therapy on joint mobility, daily activity, pain, and depression in patients with ankylosing spondylitis.

Author(s): Lim HJ, Moon YI, Lee MS

Citation: Rheumatology International, April 2005, vol./is. 25/3(225-9), 0172-8172;0172-8172 (2005 Apr)

Publication Date: April 2005

Abstract: We investigated the effects of home-based daily exercise on joint mobility,
functional capacity, pain, and depression in patients with ankylosing spondylitis (AS). The patients were randomly assigned to a wait-list control group or to an exercise-therapy group. The exercise-therapy group performed a 20-min exercise program once per day for 8 consecutive weeks. After 8 weeks, compared with the control group, the exercise group showed improvements in joint mobility (cervical flexion, extension, shoulder flexion, abduction, hip abduction, and knee flexion), finger-floor distance, and functional capacity. Pain and depression scores were significantly lower after the exercise program in the exercise group than in the control group. These findings indicate that exercise therapy increases joint mobility and functional capacity, and decreases pain and depression in patients with AS. Home-based exercise, which is easily accessible to patients, might be an effective intervention for AS.

Source: MEDLINE

56. Exercise, pain, perceived family support, and quality of life in Korean patients with ankylosing spondylitis.

Author(s): Lim HJ, Lee MS, Lim HS

Citation: Psychological Reports, February 2005, vol./is. 96/1(3-8), 0033-2941;0033-2941 (2005 Feb)

Publication Date: February 2005

Abstract: Relations of habitual exercise and pain, perceived family support, and the quality of life in patients with functional class II for ankylosing spondylitis were explored. In a cross-sectional study perceived pain, family support, and quality of life were compared for 30 patients (23 women and 7 men whose mean age was 28.3 yr. +/- 8.6 yr.) practicing exercise regularly and for 38 sedentary patients (31 women and 7 men whose mean age was 27.2 +/- 6.7 yr.). Exercising patients reported significantly lower pain, greater perceived family support, and increased quality of life than their sedentary peers. Pain ratings were significantly negatively correlated with the quality of life in both groups (r = -.26 in exercisers and r = -.50 in sedentary patients) and control group’s perceived family support was significantly correlated .44 with quality of life. These results encourage further study of the associations of habitual exercise with perceived pain, family support, and quality of life.

Source: MEDLINE

57. Effects of home-based daily exercise therapy on joint mobility, daily activity, pain, and depression in patients with ankylosing spondylitis

Author(s): Lim H.-J., Moon Y.-I., Lee M.S.

Citation: Rheumatology International, 2005, vol./is. 25/3(225-229), 0172-8172 (2005)

Publication Date: 2005

Abstract: We investigated the effects of home-based daily exercise on joint mobility, functional capacity, pain, and depression in patients with ankylosing spondylitis (AS). The patients were randomly assigned to a wait-list control group or to an exercise-therapy group. The exercise-therapy group performed a 20-min exercise program once per day for 8 consecutive weeks. After 8 weeks, compared with the control group, the exercise group showed improvements in joint mobility (cervical flexion, extension, shoulder flexion, abduction, hip abduction, and knee flexion), finger-floor distance, and functional capacity. Pain and depression scores were significantly lower after the exercise program in the exercise group than in the control group. These findings indicate that exercise therapy increases joint mobility and functional capacity, and decreases pain and depression in patients with AS. Home-based exercise, which is easily accessible to patients, might be an effective intervention for AS. copyright Springer-Verlag 2005.

Source: EMBASE

58. Two exercise interventions for the management of patients with ankylosing spondylitis: a randomized controlled trial

Author(s): Fernandez-de-Las-Penas C, Alonso-Blanco C, Morales-Cabezas M, Miangolarra-Page JC

Citation: American Journal of Physical Medicine and Rehabilitation, 2005, vol./is.
OBJECTIVE: The purpose of this clinical trial was to evaluate the impact of a 4-month comprehensive protocol of strengthening and flexibility exercises developed by our research group versus conventional exercises for patients with Ankylosing Spondylitis (AS) on functional and mobility outcomes. DESIGN: Randomized controlled trial. Forty-five patients diagnosed with AS according to the modified criteria of New York were allocated to control or experimental groups using a random numbers table. The control group was treated with a conventional protocol of physical therapy in AS, whereas the experimental group was treated with the protocol suggested by our research group. The conventional intervention consisted of 20 exercises: motion and flexibility exercises of the cervical, thoracic, and lumbar spine; stretching of the shortened muscles; and chest expansion exercises. The experimental protocol is based on the postural affection of the AS and the treatment of the shortened muscle chains in these patients according to the Global Posture Reeducation (GPR) method. This intervention employs specific strengthening and flexibility exercises in which the shortened muscle chains are stretched and strengthened. The study lasted 4 mos. During this period, patients received a weekly group session managed by an experienced physiotherapist. Each session lasted an hour, and there were 15 total sessions. Changes in activity, mobility, and functional capacity were evaluated by an assessor blinded to the intervention, using the following previously validated scores from the Bath group: BASMI (tragus to wall distance, modified Schober test, cervical rotation, lumbar side flexion, and intermalleolar distance), BASDAI (The Bath Ankylosing Spondylitis Disease Activity Index), and BASFI (The Bath Ankylosing Spondylitis Functional Index).

RESULTS: Both groups showed an improvement (prepost scores) in all the outcome measures, mobility measures of the BASMI index, as well as in BASFI and BASDAI indexes. In the control group, the improvement in tragus to wall distance (P=0.009) and in lumbar side flexion (P=0.02) was statistically significant. Although the rest of the outcomes also improved, they did not reach a significant level (P>0.05). In the experimental group, the improvement in all the clinical measures of the BASMI index (P<0.01) and in the BASFI index (P=0.003) was statistically significant. The intergroup comparison between the improvement (prepost scores) in both groups showed that the experimental group obtained a greater improvement than the control group in all the clinical measures of the BASMI index, except in tragus to wall distance, as well as in the BASFI index. CONCLUSIONS: The experimental protocol developed by our research group, based on the GPR method and specific strengthening and flexibility exercises of the muscle chains, offers promising results in the management of patients suffering from AS. Further trials on this topic are required.

Source: AMED
with ankylosing spondylitis derive most benefit from an inpatient management program? ...
15. Santos H, Brophy S, Calin A. Exercise in ankylosing spondylitis: how much is optimum? ...

Rehabilitation in rheumatoid arthritis and ankylosing spondylitis: differences and similarities

TPMV Vlieland, LC Li - Clin Exp Rheumatol, 2009 - clinexp rheumatol.org
... while those that offered counselling or “information only” showed no additional benefit (52, 53 ... of early arthritis (14) of RA (15) for the management of ankylosing spondylitis (16, 17) ... interventions such as therapy, and hydrotherapy can be conservation techniques should be exercise. ...

Medical management of ankylosing spondylitis

... Medical Management of Ankylosing Spondylitis, ... 9 have reported that an individual therapeutic exercise program significantly improved functionality at four months (ES 1.14, 95% CI ... Supervised group therapy, however, did not confer a benefit beyond individual home regimens. ...

Evidence-based recommendations for the management of ankylosing spondylitis: systematic literature search of the 3 E Initiative in Rheumatology involving a broad ...

PI Sidiropoulos, G Hatemi, IH Song, J Avouac, ... - Br Soc Rheumatology
... 45 yrs, back pain at night, morning stiffness and improvement with exercise) should be ... Spondylitis Metrology Index (BASMI), measures of function such as Bath Ankylosing Spondylitis Functional Index ... and potentially toxic treatments for those patients who would benefit the most ...

Cost-effectiveness of interventions based on physical exercise in the treatment of various diseases: A systematic literature review

E Roine, RP Roine, P Räsänen, I ... - ... in health care, 2009 - Cambridge Univ Press
... A saving in water exercise group of £123–175 per patient per annum. Incremental cost-effectiveness ratios ranged from £3838 to £5951 per QALY. The water-exercise program produced a favorable cost-benefit outcome INTL. J. O F T ECHNOLOGY ASSESSMENT IN H ...

Assessment and treatment of ankylosing spondylitis: current status and future directions

J Zochling - Current opinion in rheumatology, 2008 - journals.lww.com
... Assessment of Spondyloarthritis International Society (previously Assessment in Ankylosing Spondylitis International Working ... The aim of the exercise was to compare the measurement properties ... Davis and colleagues [27••] have demonstrated sustained benefit from treatment ...