IS MANUAL THERAPY A RATIONAL APPROACH TO IMPROVING HEALTH-RELATED QUALITY OF LIFE IN PEOPLE WITH ARTHRITIS?

Melanie Cameron  B.App.Sc.(Ost.), M.H.Sc. *

**Abstract:**

**Background:** People with arthritic disease are advised to participate in gentle exercise on a regular basis, and pursue long-term medication regimes. Alternative therapies are also used by people with arthritis, and may sometimes be recommended by rheumatologists and other medical personnel. Alternative therapies may be divided into two types: active therapies, in which the patient takes a driving role, and passive therapies, in which the therapy cannot proceed unless driven by a therapist.

**Objective:** To review the effectiveness of manual therapy in improving the health-related quality of life (HRQOL) of people with two common arthritis conditions: Osteoarthritis and rheumatoid arthritis.

**Discussion:** Massage, and other passive (practitioner-driven) manual therapies, have been anecdotally reported to improve health-related quality of life (HRQOL) in people with arthritis. Many manual therapists consult with patients who have arthritic diseases, receive referrals from rheumatologists, and consider the arthritic diseases to be within their field of practise. Although there is empirical evidence that manual therapy with some types of arthritis is beneficial, the level of effectiveness however is under-researched. Medical authorities are reluctant to endorse manual therapies for arthritis due to a lack of scientific evidence demonstrating efficacy, safety, and cost effectiveness.

**Keywords:** Health-related quality of life (HRQOL), osteoarthritis, rheumatoid arthritis, manual therapy.

**INTRODUCTION**

Arthritides (diseases which cause the symptom picture known as “arthritis”) are chronic illnesses that significantly influence the quality of life of both those with the disorder and people around them. There are over 100 forms of arthritis, and the clinical presentations of arthritides vary substantially both between and within forms. The pathogeneses of arthritic diseases are not well understood, and although there are disease modifying drug therapies that might slow or arrest disease progression, no cures have been discovered or developed to date. People with arthritides experience chronic, incurable, progressive illnesses, and must adapt their lives and daily activities accordingly.

Osteoarthritis (OA) and rheumatoid arthritis (RA) are the two most common forms of arthritic disease. Some OA may be considered a part of the normal aging process that affects all humans if they live long enough, but some people develop OA in middle age or earlier, or experience considerable pain and disability with OA. These people often seek the assistance of health care professionals to manage their OA, and in them OA may be viewed as a disease.

RA is a clearly identified disease process. The clinical presentation and symptom picture of this disease have been well documented, but its cause is not clear. RA is a multi-system disease that may cause dysfunction, destruction, and eventual failure in organs far removed from the skeletal system. People living with RA may experience loss of functional capacity and diminished quality of life, not only due to joint and bone damage, but also due to damage of the heart, lungs, kidneys, or intestines.

Typically, outpatient (non-hospitalised) medical care for people with arthritides comprise an array of medications, usually provided under the care of a rheumatologist. Medications for arthritis can be grouped into three classes, each with a different therapeutic purpose:

(a) Analgesics, to reduce or limit pain,
(b) Non-steroidal anti-inflammatory drugs (NSAIDs), to reduce inflammation in joints and surrounding tissues,
(c) Disease modifying anti-rheumatic drugs (DMARDs), to modify the course of the disease by preventing joint and tissue damage.

Several generations of each drug type are now available. Individuals with arthritis may trial different drug regimes before settling upon the combination that suits them best.

People with arthritis also use alternative and complementary therapies (e.g., dietary supplements, yoga, manual therapies, homoeopathy, acupuncture), and...
MANUAL THERAPY FOR ARTHRITIS?

CAMERON

sometimes these therapies are recommended by rheumatologists and other medical personnel. Alternative therapies may be divided into two types: active therapies, in which the individual takes a driving role, and passive therapies, in which the therapy cannot proceed unless driven by a therapist.

For the past several years, exercise and other active (client-driven) forms of therapy have been used to improve the health-related quality of life (HRQOL) of people with arthritis. Lorig’s doctoral work was vital to the widespread acceptance of exercise as a therapy for people with arthritis. The Arthritis Foundation of Victoria (AFV) presently offer to members a range of land and water-based exercise classes that stem from Lorig’s work.

Massage, and other passive (practitioner-driven) manual therapies, have been reported, anecdotally, to improve health-related quality of life in people with arthritis.

Many manual therapists consult with patients who have arthritic diseases, receive referrals from rheumatologists, and consider the arthritic diseases to be within their field of practice. Health-related quality of life, functional disability due to arthritis, and self-reported pain are key measures of therapy effectiveness in the arthritides, and tools for measuring these outcomes are readily available. Nevertheless, the efficacy and effectiveness of manual therapies for specific arthritic complaints is under-researched. The AFV and other authorities are reluctant to endorse manual therapies for arthritis due to a lack of scientific evidence demonstrating efficacy, safety, and cost effectiveness.

REVIEW OF LITERATURE

OA and RA are characterised by chronic pain and progressive physical impairment of joints and soft tissues (e.g., muscles, tendons). These diseases are costly to individuals and society in economic, social, and psychological terms.

SOCIAL AND ECONOMIC CONSEQUENCES OF ARTHRITIS

Broad-based estimates of the public health impact of arthritic diseases on the Australian population are not readily available. The Arthritis Foundation of the USA reported that OA is a universal problem of humans, directly affecting approximately 1% of the adult population. Peyron and Altman demonstrated, however, that the prevalence of OA varies between racial groups. Their epidemiological investigation revealed that in British Caucasians aged over 35 years, 70% of women and 69% of men displayed diagnostic features of OA. Among Alaskan Eskimos aged over 40 years, however, the same features were identified in only 24% of women and 22% of men.

RA has a worldwide distribution and involves people of all ethnic groups. Depending upon the stringency of the diagnostic criteria used in population-based studies, prevalence estimates vary between 0.3% and 1.5% of the North American adult population. Regardless of the precise figures, there is consensus that arthritides are a significant international health problem with considerable impact on the quality of human life.

Economic costs of arthritis are both direct (i.e., dollars spent on medical care) and indirect (e.g., wages lost through reduced capacity for paid work). Yelin and Callahan reported that the economic impact of all forms of arthritis on the USA economy during 1992 was $15.2 billion USD in direct medical costs and $49.6 billion USD in indirect costs. Arthritis seriously impairs work ability and leads to reduced individual and household incomes. Meenan, Yelin, Nevitt, and Epstein found that people with RA had a 50% decline in earnings over a 9-year period, accounting for an average 37% reduction in family income.

Furthermore, arthritis has considerable influence on other facets of life, to which it is much harder to ascribe monetary values. Pain in joints and muscles is associated with disuse and physical disability (e.g., inability to bend, lift, grasp objects). Physical disability may impair activities of daily living and produce social and psychological withdrawal. Physical and social disabilities are connected with impaired personal care activities, household tasks, hobbies, work, and civic activities.

Pain is a highly subjective phenomenon, and may produce emotional as well as physical responses. Pain is a feature of all types of arthritis disease, but is not a consistent marker of any physiological or pathological process. A person with RA may complain of joint pain with or without associated joint swelling, redness, and heat production that are the hallmarks of joint inflammation. Pain, however, is probably one of the central features of reduced quality of life for those with arthritis.

The sequelae of arthritis are complex, and probably interdependent. Pain may produce physical disability, which in turn produces social disability, which compromises health-related quality of life. Joint and muscle disuse resulting from physical disability produces muscle atrophy, bone density loss, and may lead to further pain. When investigating the effectiveness of any therapy for arthritis, a range of outcome measures may be used to record the overlapping phenomena of HRQOL, pain, and physical and social function.
THERAPIES FOR ARTHRITIS

The causes of arthritides are unknown. Although there are some drug treatments associated with reduced severity and duration of symptoms, no therapies clearly and consistently arrest the natural courses of these diseases. Some people experience spontaneous and complete arrest of arthritic symptoms, but this phenomenon cannot be directly attributed to drug treatment. Improvements in quality of life and functional ability are usually the main goals of treatment. Kavanaugh argued that improvement in quality of life is a key goal of therapy for patients with RA. Simon also argued the same case for patients with OA, and summarised the ethos of current care approaches.

Given that most patients must learn to live with a disease that may significantly alter their earning potential, basic function, and lifestyle, it is important to develop a treatment system that views the patient as a whole. This is achieved by using methods enlisting the patient’s enthusiasm for therapy and allowing them to participate in their own care. Exercise programs and self-administered drug regimes fit comfortably into this client-driven model of care.

EXERCISE AS THERAPY

The relationship between exercise and health, in both clinical and non-clinical populations, has been widely researched and well documented. Physical activity is associated with improvement in key markers of psychological well-being and HRQOL, including mood, self-perception, anxiety, depression, and subjective well-being. The exact processes by which exercise promotes changes in psychological well-being and HRQOL are uncertain, but the value of exercise for enhancing mental and physical health is well supported by research.

Physical inactivity leads to substantial negative effects on health, including muscle weakness, atrophy, and fatigue. Leading a sedentary life may also compound the loss of quality of life associated with chronic illness. Inactivity is well correlated with depressed mood, reduced sociability, and a decline in well-being. A wealth of literature supports the use of structured exercise programmes for people with arthritides. Van den Ende, Vliet Vlieland, Munneke, and Hazes conducted a systematic review to determine the effectiveness of structured, aerobic exercise on functional outcomes in people with RA. They concluded, however, that structured aerobic exercise programmes were effective in increasing aerobic capacity and muscle strength in people with RA, and produced no detrimental effects on disease activity or pain, but had no conclusive effects on functional ability (activities of daily living) or radiological (x-ray) markers of disease progression. They further argued that these results meant that structured exercise programmes increased physical capacity in people with RA. There is room to question the value of increased physical capacity if the ability to undertake activities of daily living does not correspondingly increase. To be physically fitter, but no better able to conduct daily tasks, may be a frustrating paradox of outcomes for people living with RA.

Conclusions regarding efficacy may be misleading if drawn solely from tests of statistical significance. In studies with small sample sizes, differences between intervention and control groups may be small (i.e., not statistically significant) due to low statistical power. The reader is better able to make a judgement of the practical importance of an insignificant intervention if effect size is also reported. The Van den Ende et al. study was not meta-analytical and they did not report the effect size of structured exercise on any of the outcomes reviewed.

The arthritis self-management programme (ASMP) developed by Lorig and Fries has been widely adopted in Australia and internationally. Regular, gentle exercise, without altering typical drug therapy (i.e., analgesics, NSAIDs, DMARDs), is the mainstay of this programme. Exercise programmes recommended by the AFV for people with arthritis include exercise in water, tai chi, low-impact land-based aerobics, and seated aerobics (i.e., exercise in a chair).

CLIENT-DRIVEN THERAPIES

Treatments emphasising self-management have become commonly accepted alternative therapies for people with many types of chronic pain and disease, arthritis included. Kerns and Rosenberg, however, identified that client-driven therapies may fail to engage a portion of the targeted population, and are associated with high drop-out and relapse rates. They found that in a group with chronic pain, the Pain Stages of Change Questionnaire could be used to discriminate between those who would complete a course of client-driven treatment, and those who would not. Furthermore, Kerns and Rosenberg suggested that increased commitment to self-management for chronic pain might improve the probability of therapeutic success.

In a subsequent study, Keefe et al. cluster analysed a sample of people with RA (n = 103) and OA (n = 74) into one of five stages of change. Sizes of the subgroups were generally consistent with those expected based upon Prochaska and DiClemente’s trans-theoretical model of change. Of the 177 people with arthritides Keefe et al. studied, 55% identified themselves in the pre-contemplation and contemplation stages of change.
MANUAL THERAPY FOR ARTHRITIS?

People in these early stages of change are unlikely to participate in self-management therapies for arthritis, but may be responsive to psycho-educational interventions aimed at moving them toward contemplation and then active treatment.

PRACTITIONER-DRIVEN THERAPIES

Practitioner-driven manual therapies may not gain credibility and acceptance as therapies for people with arthritis unless they have been demonstrated to improve quality of life. These therapies are largely passive. Clients attend, and often pay, for treatment, but are not responsible for developing, planning, or conducting the therapy. The practitioner-driven manual therapies draw criticism that they may reinforce behaviour patterns of dependency and learned helplessness in clients20. Not all clients of manual therapists display dependent behaviours. Ideally, the client would report improvement over the course of therapy, and cease to receive manual therapy when the client and therapist agree that satisfactory gains have been made. It is reasonable to expect that a client who becomes dependant upon a therapist will report stable functional ability scores over the course of manual therapy provision because clients who improve function expect to be discharged from care. Worsening functional ability scores may be reported if for some reason the therapy is curtailed (e.g., therapist or patient moves).

Consistent with Simon’s push to view the person with arthritis as a whole2, proponents of many manual therapies argue strongly in favour of an holistic approach to care. Kuchera and Kuchera20, and McKone23 stated that osteopaths view the human body as a connected unit, and patients as whole people. Chengnan argued the same perspective for practitioners of traditional Chinese massage therapy22. Holism is not lacking in the manual therapies, but the practitioner-driven nature means that therapy may be “done to” a patient, rather than “engaged in” by a patient and practitioner. For people not ready to adopt self-management approaches, practitioner-driven manual therapies may offer reasonable, but largely un-tested, approaches to pain management.

MEASUREMENT ISSUES

In 1992, Kaplan, Coons, and Anderson argued that the costs of osteoarthritis might be underestimated by commonly used public health measures (e.g., mortality rate) because many people with OA live a normal life span24. Kaplan, as part of a general health policy model, proposed the Quality of Well-being Scale (QWB) as a generic HRQOL outcome measure that could be used to calculate the cost/utility ratio of interventions, and allow comparison between interventions of different types and for different diseases25. In the QWB scale, functionality and symptoms are given a weight, derived from community surveys regarding utility, ranging from 0 (dead) to 1.0 (optimum function). A score of .64 suggests that an individual was in an observable state 64% of the way between optimum functioning and death. A person remaining in that state for one year would have lost .36 (1 -.64) well-years (or quality adjusted life years : QALYs). Using the QWB scale it is possible to estimate the number of well-years an intervention produces. Dividing the cost of the intervention by the well-years produced by that intervention gives a cost/utility ratio that permits comparison between interventions and across diagnoses. Kaplan, Alcaraz, Anderson, and Weisman estimated the public health impact of OA (in the USA) via a survey people with self-reported arthritis25. They estimated the mean expected QALY’s lost because of arthritis to be 1.86. Measures of QALY’s lost to arthritis were greater among men than women.

Comparison of the cost/utility of interventions across the breadth of health care is of great interest and importance to health policy makers and legislators. Despite the obvious advantage of the QWB scale, it has not become widely adopted as a HRQOL outcome measure. The general health policy model, comprising the QWB scale, was trialed in the US State of Oregon between 1987 and 1990. The policy model failed in Oregon due to several methodological and analytical flaws associated with departure from the original design26. Other generic health outcome measures, including the Medical Outcomes Study Short Form 36 (SF-36) and the Sickness Impact Profile, are used more commonly than the QWB scale in HRQOL research. Kaplan, Ganiats, Sieber, and Anderson presented evidence supporting the validity of the QWB scale for population monitoring, descriptive studies, and clinical trials26. Although the QWB scale is a valid tool for HRQOL research, Kaplan et al. concluded that the more widely used SF-36 is a comparable, comprehensive, alternative tool26.

Many manual therapies have been inadequately researched, and because of the physical contact component, these therapies do not fit well into the double-blind clinical trial model of efficacy research27, making it difficult to determine the “effective ingredients” in the therapeutic encounter. Furthermore, the double-blind clinical trial, while a gold standard design in drug therapy research, is removed from the vagaries and complexities of dealing with human beings in clinical practice.

Manual therapies do offer a rational approach to arthritis management, and there are research designs suitable to test the manual therapies. Despite widespread use, manual therapies in rheumatology are under-researched. Conversely, exercise programmes for arthritis care have been well researched, and provide standards against which other therapies may be benchmarked. If we are bold enough to reconsider the way we conduct health care
research we may begin to ask clinically appropriate questions about manual therapies.

**MODELS OF RESEARCH FOR MANUAL THERAPY**

Effectiveness, rather than efficacy, is the catch word of this new type of research. ‘Efficacy’ is a measure of the capacity to produce effects. Conversely, ‘effectiveness’ is a measure of the production of effects\(^2\). The distinction is subtle, and important. Efficacy implies a knowledge of the mechanism of action of a therapy, and measures the potential of that therapeutic action to produce desired health outcomes. Effectiveness is a simpler measure, recording whether desired health outcomes are observed, how often, and in how many participants. For the most part in manual therapy, we do not know why patients might improve, but it is still important to document if and when they do.

Statistically efficacy and effectiveness differ considerably. In a clinical trial, efficacy of a therapy is claimed only if the difference in outcomes between the tested groups is statistically significant, typically at an alpha level of 0.05 or smaller. Effectiveness, on the other hand, is reported via the statistical measure of effect size. The statistical significance of difference between groups in a clinical trial may be grossly influenced by the number of participants in each group. Few participants means low statistical power in a trial, and thus, little chance of a statistically significant result. In short, trials with few participants are unlikely to demonstrate efficacy of therapy. Effect size, the statistical measure of effectiveness, is less influenced by a group size. Thus, the effectiveness of a therapy may be calculated even from pilot studies with only a handful of participants.

Andersen and Stoove argued that “the sanctity of \(p = 0.05\) obfuscates good stuff” when researchers disregard effect sizes associated with low risk therapies in clinical trials with low power resulting from few participants\(^2\). Statistically speaking, the power of a study is the probability of not making a type 2 error. In a clinical trial, a type 2 error is drawing the conclusion, based on the statistical calculations of the trial, that the therapy being tested is not efficacious, when in truth the therapy works. Clinical trials with few participants (i.e., low power) are likely to yield statistically insignificant results. Andersen and Stoove argued that the in the conventional wisdom of rejecting therapies found to have ‘no efficacy’ (i.e., tests of statistical significance calculate \(p\) as greater than 0.05) we run the risk of ‘throwing out the baby with the bathwater.’ They rationalise that when the effect sizes associated with such therapies are medium to large, and the risk of harm to participants is small, then even ‘non efficacious’ therapies warrant further investigation because they may be effective.

Furthermore, eminent statisticians maintain that effect sizes are the measures of true importance in clinical trials. To quote Cohen\(^3\), “the primary product of research is one or more measures of effect size, not \(p\) values. Effect size measures include mean differences (raw or standardized), correlations and squared correlations of all kinds, odds ratios, kappas - whatever conveys the magnitude of the phenomenon of interest appropriate to the research context”.

The efficacy of manual therapy may be difficult to test, but effectiveness is relatively easily measured. Quality of life measures are increasingly used as indicators of effectiveness in clinical trials. Although HRQOL outcome measures do not offer an explanation as to the mechanism of therapeutic action, they do provide broad-based measures of how a person feels in the physical, mental, and social aspects of life before, during, and after an intervention\(^1\).

The therapist-patient relationship may be one of the prime therapeutic aspects of treatment\(^9,32\). It is important, therefore, to measure the impact of the therapist-patient relationship, and to control or account for this variable when assessing the effectiveness of manual therapies. Because interactions with patients are physical, and social, and intellectual, and because we cannot separate those aspects and still conduct a realistic clinical encounter, manual therapists may be best served by research designs that gather broad based health data from real patients in real consultations. Furthermore, this type of research best serves patients. Patients say things like “I want to be able to read in bed,” or “I just want to be able to cuddle and carry my grandchildren”. HRQOL outcome tools ask questions about how well, how often, and with what degree of confidence, competence, and comfort, patients can engage in preferred activities and activities of daily living.

Perhaps, in keeping with the trend towards reality television, the research designs of the future will be ‘reality’ research. Possibly the greatest strength of reality research is that positive results are directly and immediately applicable to clinical practice.

**CONCLUSION**

Rheumatoid and osteoarthritis are common diseases of substantial morbidity for which there are no known cures. Arthritis symptoms are associated with poor health-related quality of life\(^33\). Because these diseases are common, chronic, and often severe, they are major international health problems\(^1,6\).

Pharmacological intervention and patient-driven exercise programmes are the mainstay of current therapy for people with arthritides. These therapeutic strategies do not meet
MANUAL THERAPY FOR ARTHRITIS?
CAMERON

the needs of all patients; some people develop tolerance to medications; others develop complications and experience unwanted side-effects, and over 50% of patients are not psychologically prepared to undertake and complete a self-driven exercise regime.

Costs of medical care for people with OA and RA may be underestimated. Regardless of the precise costs, arthritic diseases affect in excess of 1 person per 100, and have a substantial influence on national health budgets. There is room to investigate whether manual therapies and exercise offer viable alternatives, or adjunctive care, for people with arthritic diseases. Analysis should include financial measures as well as HRQOL outcomes.

Manual therapies are practitioner-driven, demanding less personal discipline from the patient than self-driven exercise. Manual therapies comprise procedures of relatively low risk, with high patient acceptance and satisfaction, and few side-effects. It is rational to trial manual therapies as therapeutic alternatives, or adjuncts, for people with OA and RA, and compare the HRQOL outcomes of manual therapies against know effective therapies (e.g., exercise as therapy). Furthermore, the most appropriate research designs for both people with arthritic disease, and the manual therapies under examination, are clinically realistic, outcome driven designs to measure effectiveness. These research models closely emulate clinical practice, and measure and report outcomes of interest to patients and practitioners alike.

ACKNOWLEDGMENT

Rarely is the production of a journal paper a solo flight. I wish to thank:
Dr Mark Andersen, PhD, of Victoria University, for exceptional editorial support and research supervision, regardless of where in the world he might be. Associate Professor Dr Stephen Hall, MBBS, of the Melbourne Rheumatology Group, for encouragement and support of my sojourn into arthritis research. Dr Harriet Speed, PhD, of Victoria University, for assistance and co-supervision of my research.

REFERENCES

1. Klippel JH (Ed.). Primer on the rheumatic diseases (11th ed.). Atlanta, GA: Arthritis Foundation, 1997.
2. Ferrari R, Cash J, Maddison P. Rheumatology guidebook: A step-by-step guide to diagnosis and treatment, Oxford, England: Bios Scientific. 1996.
3. Simon LS. Treatment strategies in osteoarthritis. Paper presented at the annual meeting of the American College of Rheumatology, Philadelphia, PA, 2000, Nov.
4. Kavanaugh A. Increasing aggressiveness in rheumatoid arthritis treatment. Paper presented at the annual meeting of the American College of Rheumatology, Boston, MA, 1999, Nov.
5. Simon LS. Osteoarthritis: A review. Clinical Cornerstone, 1999;2:26-34.
6. Lorig K, Fries JF. The arthritis help-book (5th ed.). Cambridge, MA: Perseus Books, 2000.
7. Kramer N. Why I would not recommend complementary or alternative therapies: A physician’s perspective. Rheumatoid Disease Clinics of North America, 1999;25:833-843, vii.
8. Peyron JG, Altman RD. The epidemiology of osteoarthritis. In Moskowitz RW, Howell DS, Goldberg VM, Mankin HJ (Eds.). Osteoarthritis: Diagnosis and medical / surgical management (2nd ed.). Philadelphia: WB Saunders, 1992:15-37.
9. Yellin E, Callahan LF. The economic cost and social and psychological impact of musculoskeletal conditions. Arthritis and Rheumatism, 1995;38:1351-1362.
10. Meenan RF, Yellin EH, Nevitt M, Epstein WV. The impact of chronic disease. Arthritis and Rheumatism, 1981;24:544-549.
11. Wells PE, Frampton V, Bowsher D. Pain management by physiotherapy (2nd ed.). Oxford, England: Butterworth Heinmann. 1996.
12. Paluska SA, Schwenk TL. Physical activity and mental health: Current concepts. Sports Medicine, 2000;29:167-180.
13. Morgan WP. Physical activity and mental health, Washington, DC: Taylor & Francis, 1997.
14. Van den Ende CH, Vliet Vlieland TP, Munneke M, Hazes JM. Dynamic exercise therapy in rheumatoid arthritis: A systematic review. British Journal of Rheumatology, 1998:37:677-687.
15. Cohen J. Statistical power analysis for the behavioural sciences (2nd ed.). Hillsdale NJ: Erlbaum, 1997.
16. Kerns RD, Rosenberg R. Predicting responses to self-management treatments for chronic pain: Application of the pain stages of change model. Pain, 2000;84:49-55.
17. Keefe FJ, Lefebvre JC, Kerns RD, et al. Understanding the adoption of arthritis self-management: Stages of change profiles among arthritis patients. Pain, 2000;87:303-313.
18. Prochaska JO, DiClemente CC. Towards a comprehensive, trans-theoretical model of change: States of change and addictive behaviours. In R.W. Miller & N. Heather (Eds.), Applied clinical psychology (2nd ed.). New York: Plenum Press, 1998:3-24.
19. Mitchell A, Cormack M. The therapeutic relationship in complementary healthcare. Edinburgh, Scotland: Churchill Livingstone, 1998.
20. Kuchera W, Kuchera M. Osteopathic principles and practice. Kirkville, MO: Kirkville College of Osteopathic Medicine, 1994.
21. McKone WL. Osteopathic medicine: Philosophy, principles and practice. London: Blackwell Science, 2001.
22. Chenguang S (Ed.). Chinese massage therapy (W. Qiliang, Trans.). Shandong, China: Shandong Science and Technology Press, 1990.
23. Kaplan RM, Coons SJ, Anderson JP. Quality of life and policy analysis in arthritis. Arthritis Care Research, 1992;5:173-183.
24. Kaplan RM. The Hippocratic predicament: Affordability, access, and accountability in American medicine. San Diego, CA: Academic Press, 1993.
25. Kaplan RM, Alcaraz JE, Anderson JP, Weisman M. Quality-adjusted life years lost to arthritis: Effects of gender, race, and social class. Arthritis Care Research, 1996;9:473-482.

ACO
Volume 10 • Number 1 • July 2002
26. Kaplan RM, Ganiats TG, Sieber WJ, Anderson JP. The Quality of Well-being Scale: Critical similarities and differences with SF-36. International Journal of Quality Health Care, 1998;10:509-520.

27. Chambless DL, Hollon SD. Defining empirically supported therapy. Journal of Consulting and Clinical Psychology, 1998;66:7-18.

28. Delbridge A, Bernard JRL. The Macquarie concise dictionary (3rd ed.). Sydney, Australia: The Macquarie Library, 1998.

29. Andersen MB, Stoove M. The sanctity of p = 0.05 obfuscates good stuff: A comment on Kerr and Goss. Journal of Applied Sport Psychology, 1998;10:168-173.

30. Cohen J. Things I have learned (so far). American Psychologist, 1990;45:1304-1312.

31. Goldfried MR, Wolfe BE. Toward a more clinically valid approach to therapy research. Journal of Consulting and Clinical Psychology, 1998;66:143-150.

32. Petitpas AJ, Danish SJ, Giges B. The sport-psychologist-athlete relationship: Implications for training. The Sport Psychologist, 1999;13:344-357.

33. Centres for disease control and prevention. Health-related quality of life among adults with arthritis: Behavioral risk factor surveillance system, 11 states, 1996-1998. Morbidity and Mortality Weekly, Report, 2000;49:366.

SUMMARY OF IMPORTANT POINTS

- Common arthritides (osteoarthritis and rheumatoid arthritis) are chronic, progressive diseases which can substantially degrade health-related quality of life (HRQOL), producing pain, reduced physical function, reduced social and work capacity, and negative mood.

- A wealth of literature supports the use of exercise in arthritis management. Regular physical exercise has well documented positive effects of HRQOL. Appropriate exercise for people with arthritides include exercise in water (i.e., water aerobics, swimming), walking, and chair aerobics.

- Despite a lack of research data to support and validate the use of manual therapy in arthritis management, many people with arthritis seek this type of care. Manual therapy may offer a rational approach to arthritis management for a) those people who are not psychologically ready to engage in exercise therapy, b) as an adjunct to exercise therapy, and c) for those people who are physically unable to engage in exercise therapy.

Warning: Because inflammatory arthritides have the potential to destroy ligaments and render joints unstable, particularly in advanced rheumatoid disease, manual therapists are advised to exercise due caution when treating patients with arthritis. Rational manual therapies for people with arthritis include massage and soft tissue therapies. In the absence of contrary research data, mobilisation and manipulation procedures should be reserved for use on stable joint structures only.

There are appropriate research designs to investigate the effectiveness of manual therapies in improving HRQOL. Such designs use HRQOL outcome measures which may fail to investigate the mechanism of action of a therapy, but do gather broad based data about how participants feel before, during, and after therapy. This type of data about the physical, mental, and social aspects of health is directly applicable in day to day clinical practice.