

# Backed by Science: Complementary Therapies for Arthritis

April 26, 2017

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Saint Louis University School of  
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# UPCOMING EVENTS



# How to show you are #STRONGERthanarthritis

- Get involved in your local market
- Walk to Cure Arthritis & Jingle Bell Run
  - Join the planning committee
  - Form a team & recruit others
  - Share your story & fundraise



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WalkToCureArthritis.org

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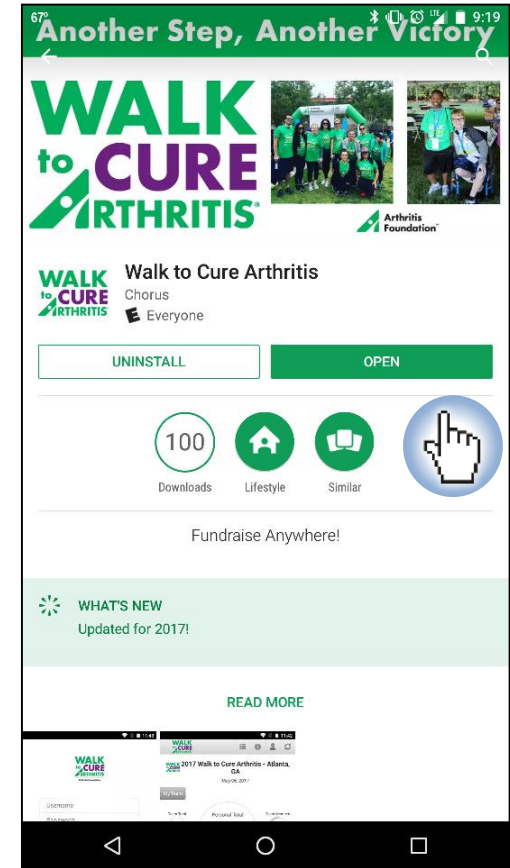
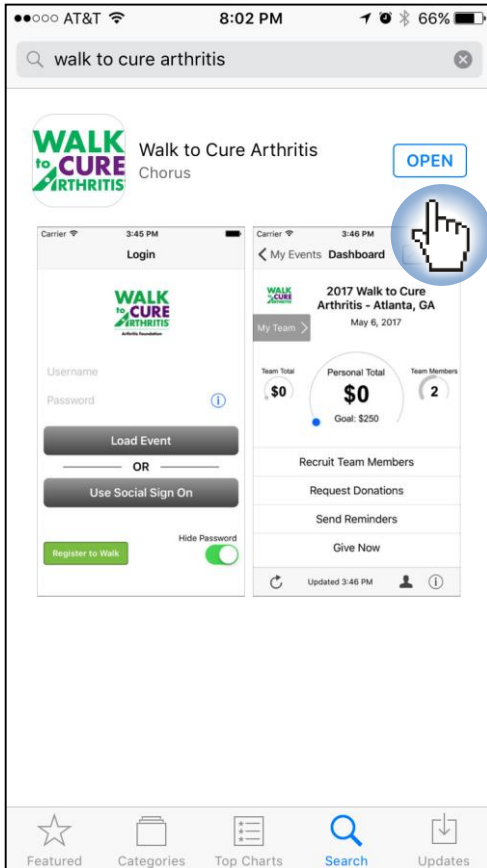
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**Find a Team**



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Google Play



# 4 Easy Steps to get people involved

- Share the need
- Explain why it's important to you
- Show what you're doing about it
- Ask your donor to take a specific action





Arthritis Foundation®

# Jingle Bell Run



Join us for Jingle Bell Run this holiday season! Get in the spirit on race day by wearing holiday themed costumes and tying jingle bells to your shoes.

**Registration opens in May!**





# JA Family Events



- Events provide encouragement and support to families of children with JA and other childhood rheumatic diseases
- Opportunities to connect with others
- Educational opportunities



# JA Camps



- Nearly 50 resident camps and family camping experiences
- Resident camps provide a safe and secure camping experience for children and teens

[arthritis.org/JACamps](https://arthritis.org/JACamps)

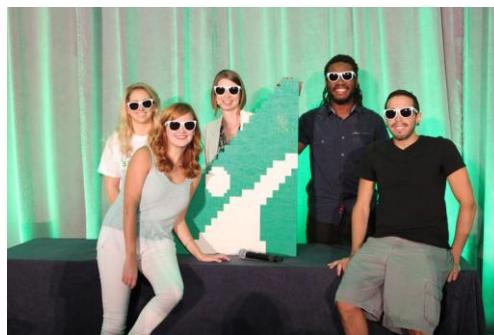
# 2017 JA Conferences

**July 13 – 16**

Houston, TX

**August 10-13**

Indianapolis, IN



Registration is still open – visit  
**[arthritis.org/JAConference](http://arthritis.org/JAConference)**  
to learn more!

# Backed by Science: Complementary Therapies for Arthritis

# Daniel Leong, Ph.D.



- **Chief of R&D, NyTmT**
- **Principal Investigator;** National Center for Complementary and Integrative Health
- **Education:**
  - Biomedical engineering, B.S. - *Columbia University*
  - Biomedical engineering, M.S. - *The City College of New York / Mount Sinai School of Medicine*
  - Biomedical engineering, Ph.D. - *The City College of New York / Albert Einstein College of Medicine*
- **Research interests:**
  - Treatment of musculoskeletal degenerative diseases, in particular arthritis and tendinopathy

# Austin Dalrymple, D.O.



- **Pediatric rheumatologist**, SSM Health Cardinal Glennon Children's Hospital & Saint Louis University School of Medicine
- **Asst. Professor**, Internal Medicine and Pediatrics Saint Louis University School of Medicine and Cardinal Glennon
- **Education:**
  - *Medical school:* Kansas City University of Medicine and Biosciences College of Osteopathic Medicine.
  - *Residency:* Saint Louis University & Cardinal Glennon
- **Research Interests**
  - Evaluation of new biomarkers in Juvenile Idiopathic Arthritis

# Commonly Used CAM Therapies for JIA



\*Presented by Dr. Leong

# Conventional Treatment for Juvenile Idiopathic Arthritis (JIA)

- Multidisciplinary care combining pharmacology, physical and psychosocial approaches
- Disease-modifying anti-rheumatic drugs and biologic therapy
- Nonsteroidal anti-inflammatory drugs (NSAIDs) and intra-articular corticosteroid injections





# Questions

- Are there nondrug ways to manage symptoms such as painful and tender joints, morning stiffness, fatigue, stress or anxiety?
- Can some therapies possibly lead to reduced need for over-the-counter pain medications?



# Presentation Outline

- Overview of studies of common complementary and alternative medicine (CAM) therapies – exercise, massage, yoga, cognitive behavior therapy, acupuncture, supplements
- Discover which ones have the strongest backing by science and how the research is done
- Learn how to search the scientific literature for more information
- Get tips from Dr. Austin Dalrymple, pediatric rheumatologist, on talking about CAM therapies with your child's doctor



# Disclaimers

- Before trying any of these CAM therapies, discuss with your child's doctor first.
- CAM are not clinically proven to alter course of rheumatic disease. Should be used only as a complement to comprehensive treatment program.
- Clinical studies of efficacy of CAM in JIA are limited. Most studies have evaluated CAM in adult osteoarthritis and rheumatoid arthritis patients.



# Commonly Used CAM Related to Joint Function

## **Body/mind manipulation**

- Exercise
- Massage
- Yoga
- Acupuncture
- Cognitive behavioral therapy (CBT)

## **Oral supplements**

- Blueberries
- Fish oil/omega 3
- Turmeric/Curcumin
- Glucosamine/Chondroitin sulfate



# Body/Mind Manipulation Therapies for JIA

# Effects of Exercise in JIA

Sandstedt et al. *Pediatric Rheumatology* 2013, 11:7  
<http://www.ped-rheum.com/content/11/1/7>



PEDIATRIC  
RHEUMATOLOGY

## RESEARCH

## Open Access

Muscle strength, physical fitness and well-being in children and adolescents with juvenile idiopathic arthritis and the effect of an exercise programme: a randomized controlled trial

Eva Sandstedt<sup>1\*</sup>, Anders Fasth<sup>1†</sup>, Meta Nyström Eek<sup>1†</sup> and Eva Beckung<sup>2†</sup>

### Aim of the study

Evaluate muscle strength, grip strength, physical fitness and well-being in children and adolescents with JIA participating in a home-based exercise program



# Results of Exercise Program

## Study findings:

- Muscle strength in lower limbs increased after the 12-week exercise program
- The exercise program was well tolerated, there was a compliance of 70% to the program and pain did not increase during the study

## Key takeaways

- Increase in muscle strength can improve joint function
- Talk to your child's doctor before beginning an exercise program
- Standardized exercise programs should be designed by pediatric rheumatology specialists (physiotherapist, kinesiologist, and pediatric rheumatologist) in collaboration with fitness instructors

*Hutzal et al. Physical & Occupational Therapy in Pediatrics, 2009*





# Effects of Massage in JIA

*Journal of Pediatric Psychology, Vol. 22, No. 5, 1997, pp. 607–617*

## **Juvenile Rheumatoid Arthritis: Benefits from Massage Therapy<sup>1</sup>**

**Tiffany Field,<sup>2</sup> Maria Hernandez-Reif, Susan Seligman, Josh Krasnegor, and William Sunshine**  
*University of Miami School of Medicine*

**Rafael Rivas-Chacon**  
*Miami Children's Hospital*

**Saul Schanberg and Cynthia Kuhn**  
*Duke University Medical School*

*Received October 2, 1996; accepted February 25, 1997*

### **Aim of the study**

Determine the efficacy of massage therapy in children with mild to moderate JIA

### **Massage therapy**

- Daily 15-minute massage by one of their parents for 30 days before bedtime (smooth continuous movements applied to face, stomach, legs, arms, and back)
- Parent was trained by massage therapist



# Results of Massage Therapy

**Table IV. First Day/Last Day Massage and Relaxation Groups  
Physician Assessment**

	First day		Last day	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Degree of pain				
Massage	30.0	19.2	14.1 <sup>a</sup>	10.8
Relaxation	29.2	16.4	20.8	12.3
Morning stiffness (min)				
Massage	5.7	2.7	1.2 <sup>a</sup>	0.8
Relaxation	1.7	0.9	4.2	2.1
No. of joints				
Massage	2.2	1.6	1.7	0.9
Relaxation	2.6	1.2	2.5	1.3

<sup>a</sup>*p* < .05.

Field et al. *Journal of Pediatric Psychology*, 1997

- ↓ Anxiety and stress hormone (cortisol)
- ↓ Pain based on patient and parent reports, and physician's assessment of pain



# Effects of Yoga in Rheumatoid Arthritis (RA)

ORIGINAL ARTICLE

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## Impact of Iyengar Yoga on Quality of Life in Young Women With Rheumatoid Arthritis

*Subhadra Evans, PhD,\* Mona Moieni, BA,\* Kirsten Lung, BS,\* Jennie Tsao, PhD,\*  
Beth Sternlieb, BFA,\* Mihaela Taylor, MD,† and Lonnie Zeltzer, MD\**

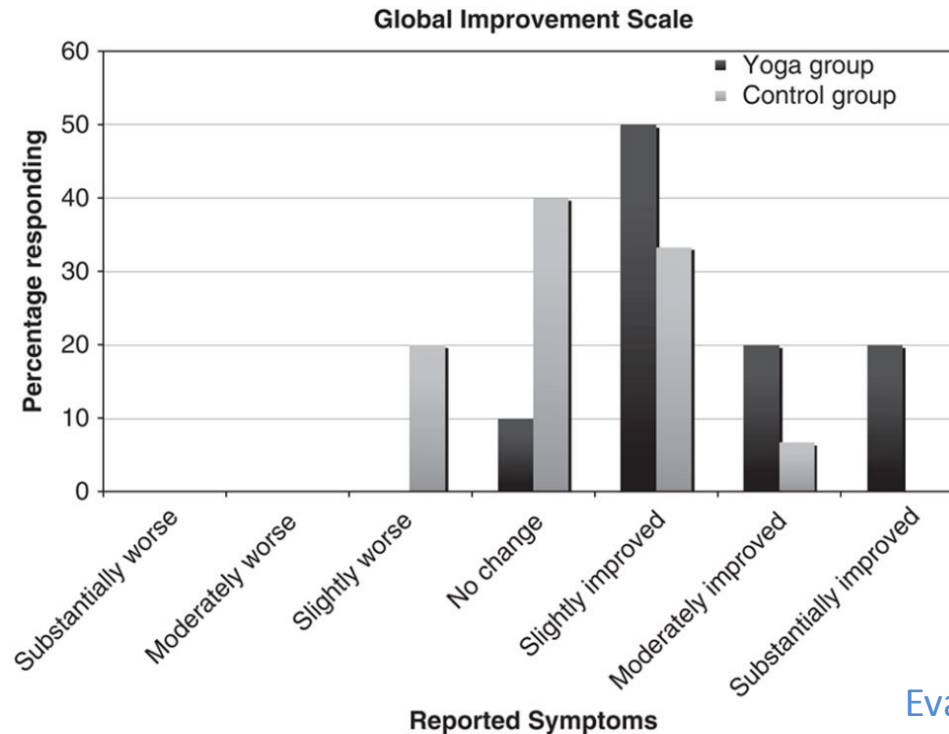
988 | [www.clinicalpain.com](http://www.clinicalpain.com)

*Clin J Pain* • Volume 29, Number 11, November 2013

- Yoga consists of several components such as stretching, strengthening, deep breathing and meditation, and has been shown to improve physical and psychosocial symptoms
- Greysen et al. *J Altern Complement Med*, 2017



# Results of Yoga Program in RA



Evans et al. *Clin J Pain*, 2013

- Yoga did not reduce measures of disease activity or pain, but participants receiving yoga did report feeling better (e.g. psychological outcomes including mood and fatigue)



# Acupuncture and Osteoarthritis (OA)

## Comparing the Effectiveness of Electroacupuncture with Different Grades of Knee Osteoarthritis: A Prospective Study

Li Qi Yonggang Tang Yong You Fengling Qin Lijuan Zhai Hongxia Peng  
Rongrong Nie

Department of Neurological Rehabilitation, 181st Central Hospital of The Chinese People's Liberation Army, Guilin, Guangxi, China

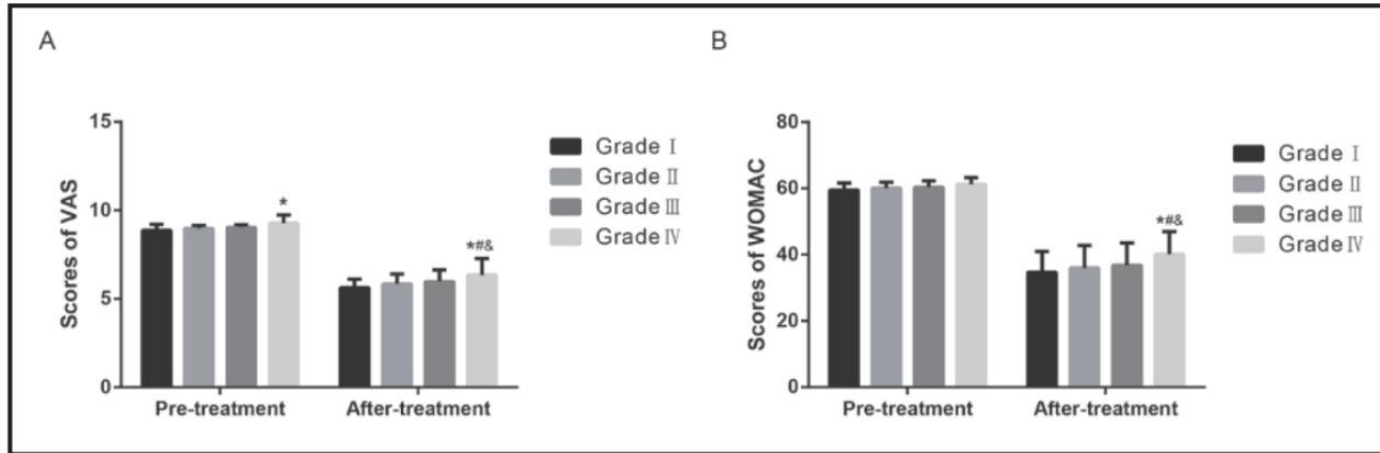
<http://www.dula.edu/>

Electroacupuncture (EA) for 30min/day, 2days/week, 5 weeks at 6, 4, or 2 points

Six points	Four points	Two points
ST34, SP10, SP9, ST36, ST35, EX-LE4	ST34, SP10, ST35, EX-LE5	ST35, EX-LE4



# Efficacy of Acupuncture in OA



**Fig. 4.** Pre-treatment and post-treatment VAS (A) and WOMAC (B) scores in different KOA grades. Values were shown as mean  $\pm$  SD. \* denotes significant differences.

- All EA treatments all had significant clinical effects on reducing pain-related scores.
- Treatment was less effective for patients with severe OA.



# Cognitive Behavioral Therapy (CBT) and JIA

Lomholt et al. *Pediatric Rheumatology* (2015) 13:35  
DOI 10.1186/s12969-015-0032-x



PEDIATRIC  
RHEUMATOLOGY

RESEARCH ARTICLE

Open Access

## Cognitive behavioral group intervention for pain and well-being in children with juvenile idiopathic arthritis: a study of feasibility and preliminary efficacy



Johanne Jeppesen Lomholt<sup>1\*</sup>, Mikael Thastum<sup>1</sup>, Anne Estmann Christensen<sup>2</sup>, Anne Leegaard<sup>3</sup> and Troels Herlin<sup>3</sup>

### Aim of study

CBT program focusing on psycho-educating children and parents on pain mechanisms, teaching children to restructure pain related negative automatic thinking and gradually confront pain related avoided situations.

### Results of CBT on JIA

- A reduction in pain after the intervention was not found.
- Increase in quality of life and improvements in adaptive pain cognitions (the beliefs in controlling pain and self-efficacy) were reported after treatment.





# Oral Supplements for JIA

# Blueberries and JIA

Tohoku J. Exp. Med., 2015, 237, 183-191

## Blueberry Improves the Therapeutic Effect of Etanercept on Patients with Juvenile Idiopathic Arthritis: Phase III Study

Yingjie Zhong,<sup>1</sup> Ye Wang,<sup>1</sup> Jun Guo,<sup>1</sup> Haifeng Chu,<sup>1</sup> Yong Gao<sup>2</sup> and Limin Pang<sup>1</sup>

<sup>1</sup>Department of Pediatrics, China-Japan Union Hospital of Jilin University, Changchun, China

<sup>2</sup>Department of Emergency Internal, China-Japan Union Hospital of Jilin University, Changchun, China

### Aim of the study:

Determine the efficacy of combination therapy of blueberries and Etanercept.

## Effects of blueberry and ETA treatment

- Improved joint-related symptoms
- Reduced side effects of ETA treatment
- Decreased levels of inflammatory factors in the serum, and increased level of an anti-inflammatory molecule

\*Blueberries have anti-inflammatory effects



# Fish Oil and OA

Clinical and epidemiological research

EXTENDED REPORT

## Fish oil in knee osteoarthritis: a randomised clinical trial of low dose versus high dose

Catherine L Hill,<sup>1,2</sup> Lynette M March,<sup>3</sup> Dawn Aitken,<sup>4</sup> Susan E Lester,<sup>1</sup>  
Ruth Battersby,<sup>1</sup> Kristen Hynes,<sup>4</sup> Tanya Fedorova,<sup>3</sup> Susanna M Proudman,<sup>5</sup>  
Michael James,<sup>5</sup> Leslie G Cleland,<sup>5</sup> Graeme Jones<sup>4</sup>

### Study design

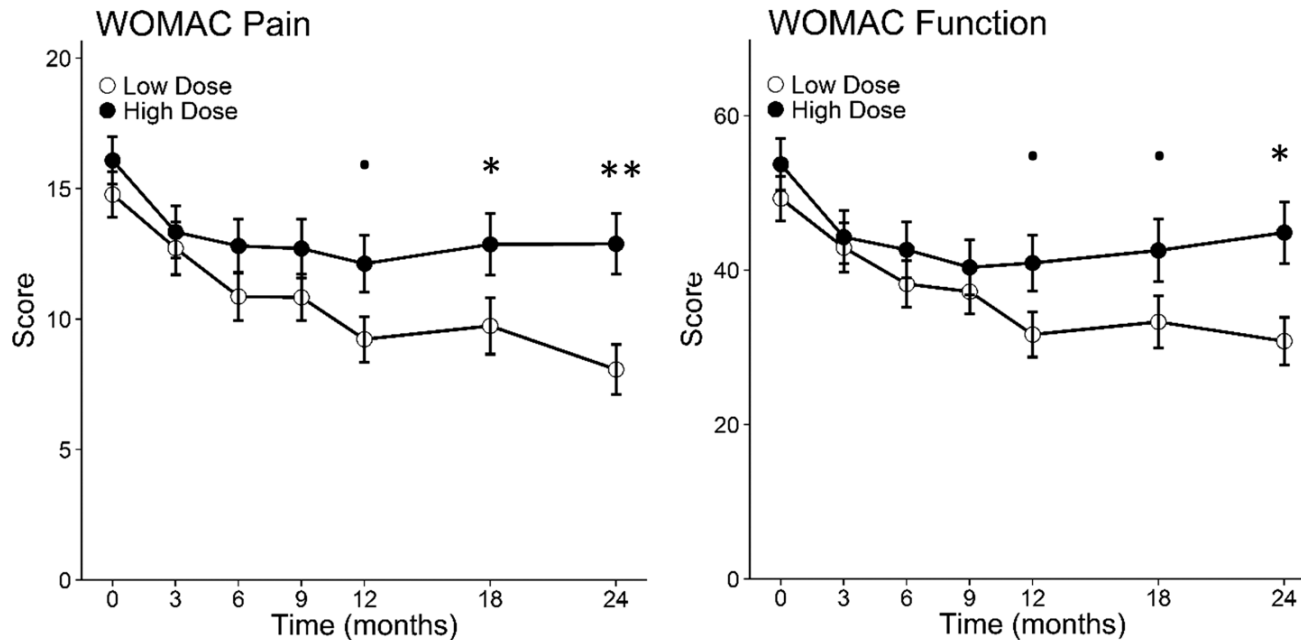
202 patients randomized into two groups:

1. Low-dose fish oil (0.45g EPA+DHA/day)
2. High-dose fish oil (4.5g EPA+DHA/day)

Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), the main omega-3 fatty acids in fish oil



# Effects of Fish Oil in OA



- There was improvement in both groups - the low-dose fish oil group had greater improvement in pain and function scores at 2 years compared with the high-dose group.



# Turmeric and Curcumin in Arthritis

JOURNAL OF MEDICINAL FOOD  
*J Med Food* 19 (8) 2016, 717–729  
Mary Ann Liebert, Inc., and Korean Society of Food Science and Nutrition  
DOI: 10.1089/jmf.2016.3705

REVIEW

## **Efficacy of Turmeric Extracts and Curcumin for Alleviating the Symptoms of Joint Arthritis: A Systematic Review and Meta-Analysis of Randomized Clinical Trials**

James W. Daily,<sup>1</sup> Mini Yang,<sup>2</sup> and Sunmin Park<sup>2</sup>

<sup>1</sup>*Department of R&D Daily Manufacturing, Inc., Rockwell, North Carolina, USA.*

<sup>2</sup>*Department of Food and Nutrition, Obesity/Diabetes Research Center, Hoseo University, Asan, South Korea.*

### **What is Turmeric?**

Turmeric is the main spice in curry and belongs to the ginger family. Curcumin, which has powerful antioxidant and anti-inflammatory properties, is the most active constituent of turmeric, making up between two to six percent of this spice.



# Effects of Turmeric/Curcumin in Arthritis

- Results suggest that curcumin supplements improved joint function measured by morning stiffness, movements, and other clinical assessments in comparison with the placebo group.



# Chondroitin Sulfate and Glucosamine Sulfate in OA

ARTHRITIS & RHEUMATOLOGY

Vol. 69, No. 1, January 2017, pp 77–85

DOI 10.1002/art.39819

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## Combined Treatment With Chondroitin Sulfate and Glucosamine Sulfate Shows No Superiority Over Placebo for Reduction of Joint Pain and Functional Impairment in Patients With Knee Osteoarthritis

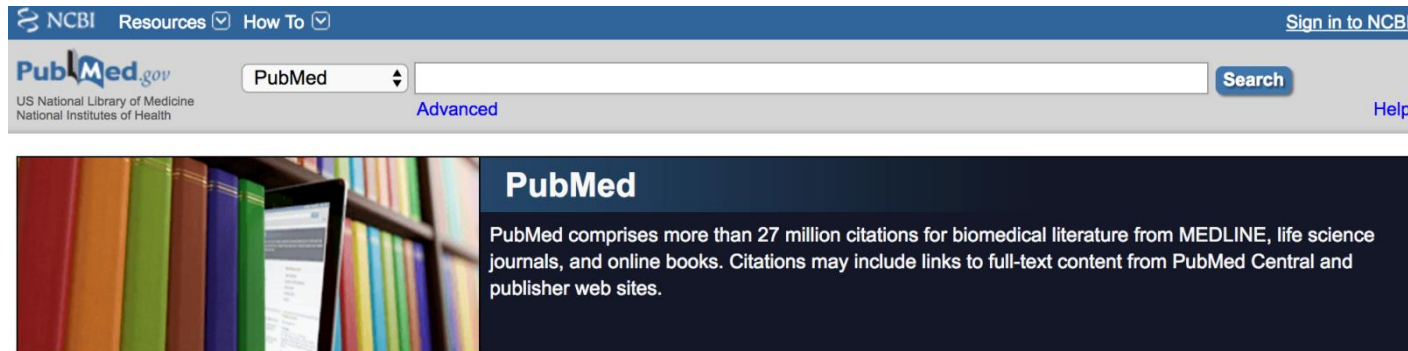
A Six-Month Multicenter, Randomized, Double-Blind,  
Placebo-Controlled Clinical Trial

Jorge A. Roman-Blas,<sup>1</sup> Santos Castañeda,<sup>2</sup> Olga Sánchez-Pernaute,<sup>1</sup> Raquel Largo,<sup>1</sup>  
Gabriel Herrero-Beaumont,<sup>1</sup> and the CS/GS Combined Therapy Study Group



# How to Search the Scientific Literature

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Search input field with a dropdown arrow and a search button.

Articles  include patents  Case law





# How to Search the Scientific Literature

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[Regular aerobic training combined with range of motion exercises in \*\*juvenile idiopathic arthritis\*\*.](#)

Doğru Apti M, Kasapçopur Ö, Mengi M, Öztürk G, Metin G.  
Biomed Res Int. 2014;2014:748972. doi: 10.1155/2014/748972.  
PMID: 24579086 **Free PMC Article**  
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[Safety and feasibility of a home-based six week resistance training program in \*\*juvenile idiopathic arthritis\*\*.](#)

Van Oort C, Tupper SM, Rosenberg AM, Farthing JP, Baxter-Jones AD.  
Pediatr Rheumatol Online J. 2013 Dec 20;11(1):46. doi: 10.1186/1546-0096-11-46.  
PMID: 24359015 **Free PMC Article**  
[Similar articles](#)

[Physical activity, physical fitness, and \*\*exercise\*\* therapy in children with \*\*juvenile idiopathic arthritis\*\*.](#)

Houghton K.  
Phys Sportsmed. 2012 Sep;40(3):77-82. doi: 10.3810/psm.2012.09.1979. **Review.**  
PMID: 23528624  
[Similar articles](#)



# How to Understand a Scientific Research Article

## Abstract

**Background:** Decreased muscle strength, fitness and well-being are common in children and adolescents with juvenile idiopathic arthritis (JIA) compared to healthy peers. Biological drugs have improved health in children with JIA, but despite this pain is still a major symptom and bone health is reported as decreased in the group. The improvement made by the biological drugs makes it possible to more demanding exercises. To jump is an exercise that can improve bone health, fitness and muscle strength. The aim of the study was to see if an exercise programme with jumps had an effect on muscle strength, physical fitness and well-being and how it was tolerated.

**Methods:** Muscle strength and well-being were studied before and after a 12-week exercise programme in 54 children and adolescents with JIA, 9–21 years old. The participants were randomized into an exercise and a control group. Muscle strength, fitness and well-being were documented before and after the training period and at follow-up after 6 months. Physical activity in leisure time was documented in diaries. The fitness/exercise programme was performed at home three times a week and included rope skipping and muscle strength training exercises.

Assessment included measurement of muscle strength with a handheld device, and with Grip-it, step-test for fitness with documentation of heart rate and pain perception and two questionnaires (CHAQ, CHQ) on well-being.

**Results:** There were no differences between exercise and control group regarding muscle strength, grip strength, fitness or well-being at base line. Muscle weakness was present in hip extensors, hip abductors and handgrip. For the exercise group muscle strength in hip and knee extensors increased after the 12-week exercise programme and was maintained in knee extensors at follow-up. There was no change in fitness tested with the individually adapted step-test. The CHQ questionnaire showed that pain was common in the exercise group and in the control group. There were only small changes in the CHAQ and CHQ after the training period. The fitness/exercise programme was well tolerated and pain did not increase during the study.

**Conclusions:** A weight bearing exercise programme, with muscle strength training with free weights and rope skipping was well tolerated without negative consequences on pain. It also improved muscle strength in the legs and can be recommended for children and adolescents with JIA.

**Keywords:** Muscle strength, Grip strength, Physical fitness, Well-being, JIA, Exercise programme



# Markers of a Strong Clinical Study

- **Sample size (n)** – the greater the number of patients, the more reliable the data may be
- **Multicenter research trial** – Clinical trial that is conducted at more than one research center; may possibly increase range of population groups
- **Double blind** – reduces risk of bias. The tester and subject are both blinded (aren't made aware) of the treatment they are receiving
- **Randomization** – Treatments were assigned by chance rather than choice
- **Control group** – characteristics of the control group should be similar to the treated group, but without treatment
- **Placebo** – “Fake” treatment which does not contain active ingredients



# Summary

- Before trying any of these CAM therapies, discuss with your child's doctor on how to best implement them for your child's special needs
- CAM are not clinically proven to alter course of rheumatic disease. Should be used as a complement to comprehensive treatment program.
- Exercise, massage, and blueberries demonstrated efficacy in reducing symptoms of JIA.
- Cognitive behavior therapy did not reduce pain but improved well-being.
- Acupuncture, fish oil, turmeric and curcumin mitigated pain in OA/RA – effects not yet reported in JIA.



# Additional Resources

## Arthritis Foundation

- <http://www.arthritis.org/living-with-arthritis/treatments/natural/>

## National Center for Complementary and Integrative Health

- <https://nccih.nih.gov/>

## Resources for Yoga and Arthritis

- “Yoga Intervention for Adolescent Females With Juvenile Idiopathic Arthritis” by Amanda Feinstein, PhD  
[http://scholarworks.gsu.edu/psych\\_diss/131/](http://scholarworks.gsu.edu/psych_diss/131/)
- Yoga benefits for patients with arthritis:  
<http://www.arthritis.org/living-with-arthritis/exercise/workouts/yoga/yoga-benefits.php>
- Yoga demonstration videos:  
<http://www.arthritis.org/living-with-arthritis/exercise/workouts/yoga/videos/>



# Talking to Your Doctor About CAM Therapies



\*Presented by Dr. Dalrymple

# Background

- Pediatric rheumatology
- Patient care > teaching > research
- Most parents ask about adjuncts to standard therapy at some point
- CAM should not be used in place of proven therapies



# Points for Discussion

- Current medical therapies for JA are backed by well-designed studies & strong data
- Many complimentary approaches lack such strong data and support (especially in JA)
- Rheumatologists may not be well-versed in CAM or its effectiveness or safety





# Common Questions

“Is there something more natural?”

“Is there a diet that can help?”

“Is there anything else I can be doing?”

“Should he/she continue sports?”



# Cautions for the Newly Diagnosed

- Beware of “miracles” and “cures”
- If it sounds too good to be true...
- Other practitioners may discredit conventional medicine and therapies
- Sites offering views opposing the medical community are often trying to sell something



# Additional Cautions

- Commercial testimonials are not evidence
- The FDA does not regulate any over-the-counter supplements, vitamins, herbals, etc
- 0.3% of 54,000 products on the market have documented safety tests\*
- “Serious diseases require serious medications”\*

*\*Do You Believe in Magic? by Paul Offit*



# When CAM Becomes Quackery

- (1) recommending against conventional therapies that are helpful
- (2) promoting potentially harmful therapies without adequate warning
- (3) draining patients' bank accounts
- (4) promoting magical thinking

# CAM in Moderation

- Exercise
- Yoga
- Massage
- Acupuncture
- Supplements



# My “Rules”

- Does it help?
  - Is it effective?
- Does it harm?
  - Is it safe?
  - Does it interact with prescribed medications?
- How much does it cost?



# So, How Do You Bring It Up?

- Bring the information/resources with you to the visit
- Share resources with your doctor ahead of time so he/she has time to review
- Ask how familiar your physician is with the therapy you wish to discuss



# Talking to Your Doctor: What NOT to Do

- **DO NOT** assume hours of internet searches will get you up to speed
- **DO NOT** assume that everything you read online is true
- **DO NOT** assume that your doctor is aware of all websites and materials
- **DO NOT** say "Well, I've done my research..."





# Take Home Points

- Parents want the best for their children
- Physicians want the best for their patients
- Even without strong data, common ground can often be found
- Moderation & balance are key



# Questions?



# Thank you!



Further questions?

**Liz Atchison**

Director, JA Family Engagement

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651.229.5371



**Arthritis  
Foundation**<sup>SM</sup>

