“Evidence-based practice (EBP) is an approach to healthcare wherein health professionals use the best evidence possible, i.e. the most appropriate information available, to make clinical decisions for individual patients.”

**EBP FROM THE LAB TO THE CLINIC**
- Enhances and adds to clinical expertise
- Increases knowledge involving disease mechanisms
- Formulates a mechanism of injury pattern to clinical pathologies
- Builds on the understanding of the pathophysiology involved in recovery

**EBP APPLICATION**
- Formulate your question:
  - What needs to happen?
  - What do you want to happen?
  - How are you going to go about it?
  - How long do you anticipate it will be before the effects of the intervention make an impact?

- Make sure your question can be answered

**EBP APPLICATION**
- Obtain the necessary information:
  - Peer reviewed articles
    - More current
  - Textbooks
    - Lag time between time the articles used have been published vs the time the book comes out on the market
  - Experience
    - Gives you better understanding of what’s realistic
- Critically appraise the evidence
- Know what has been done before and what the outcomes were

**EBP APPLICATION**
- Carry out your decision:
  - Implement your intervention you have determined would be most beneficial to your patient based on presentation, problems, and goals
EBP APPLICATION

- Assess the outcomes of your intervention:
  + Did the patient achieve the desired goals
  + Was the intervention successful?
  + Were the optimal outcomes achieved?
    - Could they have been expedited
  + Was your intervention economical?
  + Was your intervention efficient?
- What were the weaknesses of your intervention?

STATISTICS REVIEW

- Hierarchy for ARTICLES (from highest to lowest)
  + Systematic review of RCT
  + RCT
  + Systematic review of Cohort study
  + Individual Cohort
  + Outcomes research
  + Systematic Review of Case-Control
  + Individual Case-control
  + Case or cohort study
  + Expert Opinion

IDEAL EVIDENCE

- Ideal Evidence:
  + Random
  + More than 1 group (for comparisons)
  + Control: subjects and interventions
  + Measurement: be able to identify if the patient is actually improving or is just getting better at the specific test you are using
  + Systematic data collection and analysis

BIAS CONTROL

- Low <----- --------------- -> High
  Case report  Non-experimental  Quasi-Experimental  Experimental (random)

PARAMETRIC
QUESTION:

Does Kinesiotape have a therapeutic effect on patients in the outpatient sports orthopedic setting?

KINESIOTAPE

- Developed by Japanese Chiropractor Kenso Kase
- Cotton tape that can be stretched up to 130-140% of its resting length
- Heat activated acrylic adhesive
- Waterproof and lasts up to 3 days
- It is applied to decrease pain and edema, increase joint stability, and improve muscle performance

EDEMA MANAGEMENT

- The edema control technique is thought to promote, lift the skin promoting better circulation and decreased skin tension.
- Therefore increasing tissue health and facilitating lymphatic drainage

PAIN RELIEF

- It is thought to relieve pain due directly via a gate control mechanism

NORMALIZE MUSCLE FUNCTION

- Thought to give proprioceptive feedback to receptors and correct joint mal-alignment
- Direction of the tape is thought to either promote lengthening or shortening of the muscle belly in which is applied over
- Therapeutic effect is in the recoil
THE EVIDENCE

**Keywords:** Kinesio tape, Kinesio taping low back, Kinesio taping knee, Kinesio taping ankle

CASTRO-SANCHEZ ET AL.

- At 1 week significantly greater improvement in the Oswestry
- Not significant 4 weeks later
- Trunk muscle endurance significantly greater at 1 week and 4 weeks
- Greater decrease in pain immediately after tx and maintained throughout 4 weeks

CONCLUSION

- KT reduced disability and pain in people with chronic non-specific LBP, these effects however may be too small to be clinically worthwhile

KINESIO TAPING REDUCES DISABILITY AND PAIN SLIGHTLY IN CHRONIC NON-SPECIFIC LOW BACK PAIN

- Abstract only (2012)
- Kinesiotape (KT) vs Sham Taping
- Randomized Trial
- Concealed allocation
- Sample Size: 60 adults with non-specific LBP

KINESIO TAPING APPLIED TO LUMBAR MUSCLES INFLUENCES CLINICAL AND ELECTROMYOGRAPHIC CHARACTERISTICS IN CHRONIC LOW BACK PAIN PATIENTS

- Abstract only (2011)
- Phase I: Intra-subject pre-test/post-test
- Phase II: Based on Randomized, single blinded controlled trial
- KT Alone, KT + Exercise, Exercise
- 39 CLBP patients

PAOLONI ET AL.

- Patients in all three groups displayed a significant reduction in pain after treatment
- Only the exercise alone group showed reduction in disability
CONCLUSION

KT facilitates pain relief and lumbar mm. function normalization shortly after its application. The effects remain over a short period. KT may be useful as an adjunct tx for the use of immediate and acute pain control.

THE EFFECT OF KINESIOTAPE APPLICATION ON FUNCTIONAL PERFORMANCE IN SURGEONS WHO HAVE MUSCULO-SKELETAL PAIN AFTER PERFORMING SURGERY

- Full text, 2012
- Non-parametric data
- Non-random, convenience, non-blinded
- 32 surgeons
- 4 day trial

KARATAS ET AL.

- Significant reduction in neck and LBP
- Improvement in both Oswestry and Neck Disability index
- Neck and low back ROM increased significantly

CONCLUSION

- Finding demonstrated that KT is an effective method for reducing neck and LBP as well as improving functional performance

THE EFFECTS OF ADDITIONAL KINESIO TAPING OVER EXERCISE IN THE TREATMENT OF PATELLOFEMORAL PAIN SYNDROME

- Full text, 2011
- Non-parametric data
- Random allocation, non-blinded
- 31 subjects
- Exercise, KT+Exercise

AKBAS ET AL

- Significant improvements were found in pain, soft tissue flexibility, and functional performance in both groups
- Patellar shift was unchanged in both groups
- ITB/TFL length increased significantly, in the control it occurred in the last 3 weeks of tx
- Flexibility of soft tissues around the knee increased earlier than in the control group
CONCLUSION

- The addition of KT does not improve the overall patient outcomes, it does however create faster improvement in soft tissue flexibility.

TREATMENT OF CHRONIC ACHILLES TENDON PAIN BY KINESIO TAPING IN AN AMATEUR BADMINTON PLAYER

- Case Report
- 22 y/o male
- 5 weeks of taping

LEE ET AL.

- Patient's ultrasonography showed that the tendon thickness was moderately reduced
- AROM increased without pain
- Pain scores dropped to zero

CONCLUSION

- The effects of KT were verified with an increase in AROM and the VISA-A questionnaire score
- The effects were achieved with repeated tape application over 5 weeks

KINESIO TAPING DOES NOT ALTER NEUROMUSCULAR PERFORMANCE OF FEMORAL QUADRICPS OR LOWER LIMB FUNCTION IN HEALTHY SUBJECTS: RANDOMIZED, BLIND, CONTROLLED, CLINICAL TRIAL

- Full text, 2012
- Randomized, blinded, controlled
- 60 subjects

ALMEIDA LINS ET AL.

- No significant differences in EMG activity of VL or concentric and eccentric knee peak torque were recorded
- No significant alteration in single and triple hop distance, and SL static balance
- Application did not significantly change lower limb function, or postural balance
CONCLUSION

KT is not capable of altering lower limb function, SL static balance, peak knee extensor torque, or activation amplitude of the VL muscle in healthy women.

EFFECT OF ATHLETIC TAPING AND KINESIOTAPING ON MEASUREMENTS OF FUNCTIONAL PERFORMANCE IN BASKETBALL PLAYERS WITH CHRONIC INVERSION ANKLE SPRAINS

- Full text, 2012
- Crossover study design
- 15 male basketball players with chronic inversion ankle sprains, convenience sample
- Placebo tape, without tape, athletic tape, KT

BICICI ET AL

- Avg performance for hopping test was fastest in athletic taping (AT), followed by KT, then placebo, and non-taped
  - Only significant difference found between AT and non-taped
- SL hurdle, KT was fastest, AT, placebo, non-taped
  - Significantly significant when compared amongst groups

BICICI ET AL.

- Standing heel raise and vertical jump, AT caused diminished results
  - Most in KT, then placebo, non-tape, AT
  - Performance decreases were significant
- No significance found in star excursion balance test in either of the 4 groups

CONCLUSION

- The results indicate that KT did not produce any decrease in performance on any of the functional tests performed
- Placebo taping gave sense of confidence/reassurance
- 50% reduction in function after 15 minutes of standard vigorous exercise including running, jumping, and pivoting
- KT can be worn 3 days without the effects diminishing

GENERAL GUIDELINES

- Inhibition: Tape distal to proximal or insertion to origin, 15%-25% tension
- Facilitate/Support: Tape proximal to distal or origin to insertion, 25-50% tension.
- Lymphatic: Proximal to distal, 25% tension
- Mechanical change: Stretch to limit before application to make mechanical change
  - Better to use McConnell Tape if possible
- Assess Function before tape application, reassess after application
TAKE HOME POINTS

- KT should not be the sole Tx intervention
- Due to the availability and quality of evidence if KT is used it would be better used at the beginning of the POC in the acute stages vs Sub-acute/Chronic
- Remember the placebo effect, if the patient thinks it is making them better don’t discredit that in your clinical decision making process
- On the same note don’t insist that a patient continue with KT, give them the option

TAKE HOME POINTS

- Repeatedly and consistently measure and record patient progress and outcomes when you have chosen to use KT in the plan of care
- Remember…

REFERENCES: