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KINESIOTAPING CASE STUDIES

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Occupational therapy.com

LEARNING OBJECTIVES

After this course, participants will be able to:
1. Identify the physiological benefits of therapeutic taping applications.
2. Identify five commonly used tape cuts and applications.
3. Identify key properties of kinesiotape.
POLL

• Experience with kinesiotape?
• CKTP?

INTRODUCTION

• Course description
• Course objective
• Agenda
THE HISTORY OF TAPING

• **Rigid tape**
  Mulligan tape
  McConnell taping
  Typically used for bracing or strapping. Highly adhesive tape with limited wear times.
  Used for acute and preventative injuries. Most often applied immediately prior to an activity and taken off immediately after.

• **Elastic tape**
  Kinesio Tape is a therapeutic taping technique, offering support without restriction of ROM.

MULLIGAN TAPE

• Brian Mulligan (New Zealand)
• Mobilization and Movement (MWM)
• 1985 The Mulligan Concept

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**MCCONNELL TAPE**

- Jenny McConnell, PT (Australia) 1984
- More rigid, less flexible, highly adhesive
- Worn for no more than 18 hours at a time
- Patellar tracking

**KINESIOTAPE**

- Dr. Kenzo Kase (Japan) Early 1970's
- Color therapy
- Only tape that allows full ROM
- Meant to facilitate
- Combined with other therapies
KINESIOTAPE PROPERTIES

• Stretch and recoil
• Fingerprint technology
• Water proof
• 100% cotton
• Latex free (Medical grade heat sensitive acrylic adhesive)
• Allows full ROM
THEORY

- Taping alleviates pain and facilitates lymphatic drainage by microscopically lifting the skin. The taped skin forms convolutions, which increases interstitial space. The result is that pressure and irritation are taken off the neural and sensory receptors, alleviating pain. Pressure is gradually taken off the lymphatic system, allowing it to drain more freely.
• By applying the tape from the insertion to origin with paper off to light, 15-25% of available tension, the recoil effect of the tape stimulates the muscle to elongate to a more normal length.
FACILITATION CONCEPT

• When a muscle is weak, the motor point is distant from the center of the muscle. By applying tape from origin to insertion with paper off to moderate tension, 15-35%, the recoil effect of the tape stimulates the muscle to shorten to a more normal length.

RELATING TO ADOLESCENTS

• Safe for children
• Painless
• Long wear time
• Easily adjusts as they grow
• Colorful
• Cue for babies
COMMONLY TREATED CONDITIONS

• Gross motor developmental delays
• Low muscle tone
• Decreased coordination
TERMS

• Anchor - Beginning of tape
• End - End of application
• Base - Middle
• Tails - Strips after cutting
• Tension - % Amount of stretch
• Origin - Attachment close to midline
• Insertion - Attachment furthest from midline
• Therapeutic zone - Area to treat between anchor and end.
• Inhibit - Relax and elongate
• Facilitate - Activate and shorten
• Rule of thirds - 3 equal sections of tape

IDENTIFY APPROPRIATE TECHNIQUE

• I Strip
• Y Cut
• X Cut
• Fan Cut
• Donut Cut
I STRIP

Acute muscle injuries
or an elongated muscle
35-50% tension

Y STRIP

Used through all phases of injury

Inhibition- 15-25% tension
Facilitation- 15-35% tension
X STRIP

For muscles that cross 2 joints

No tension

FAN CUT

Used for edema

0-20% tension
DONUT CUT

Used for pain
Decompresses tissue
15-25% tension

INSTRUCTIONAL VIDEO
IDENTIFY APPROPRIATE PATIENTS

- Evaluation Process specific to scope of practice
  - Examine skin integrity
  - Joint mobility/ ROM
  - Manual muscle testing
- Check precautions and contraindications
- Patient and caregiver education
- Parental consent
WHEN TO TAPE

• **Indications**
  • Improve fluid circulation
  • Neuromuscular re-education (proprioception)
  • Prevent injury or progression of injury
  • Improve ROM
  • Reduce pain and inflammation

WHEN NOT TO TAPE

• **Contraindications and precautions**
  - Cancer
  - Previous skin reaction
  - Cellulitis
  - Kidney disease
  - Open wounds
  - Diabetes
  - DVT
  - CHF

*Always consult physician if unsure*
ASSESSING ADOLESCENTS

Initial Assessment
Medical history
Previous therapy
Developmental milestones
Body alignment and movement patterns
ROM
Sensory processing
Concerns of parent, child and teachers.
Goals

CLINICAL IMPLICATIONS

• Level of evidence
• Increase in ROM
• Increase in function
• Decrease in edema
• Decrease in pain
<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a treatment</td>
<td>Small body of evidence</td>
</tr>
<tr>
<td>Multiple patient populations</td>
<td>Requires practice</td>
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<tr>
<td>Inexpensive</td>
<td>Room for error</td>
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<tr>
<td>Non medicated</td>
<td>Placebo effect</td>
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continued
CASE STUDIES

• Torticollis (Infant)
• Hairline Fracture of the Clavicle (9 Year Old)
• Low Back Pain from Scoliosis (20 Year old Female follow up)

TORTICOLLIS

Patient is a one year old boy who was diagnosed with Congenital Muscular Torticollis (CMT) at 6 months of age. The patient's mother reports first noticing symptoms at birth when the infant would only nurse from one side and would cry and not eat when attempting to nurse from the other. The mother began noticing more abnormalities as the infant started to crawl and was having difficulty weight bearing. The infant's mother sought help from her pediatrician who then recommended that the infant see a specialist.
ANATOMY

- Origin to insertion
- Facilitate weak muscle
- Light to moderate stretch

SYMPTOMS

- Infant would only nurse from one side.
- Head tilt toward left shoulder
- Difficulty tracking sound and visual cues
- Flattened head on one side
- Difficulty sitting up
- Difficulty with weight bearing when attempting to crawl.

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COMORBIDITY

- Plagiocephaly - Flat head syndrome
- Caused by poor positioning at rest
- Severe enough to require intervention

TREATMENT

- Helmet - dynamic orthotic cranioplasty (DOC)
- Physical therapy to instruct in stretching techniques
- Kinesiotaping
PATIENT PRESENTATION

- Patient presented with a tight and shortened sternocleidomastoid muscle. Head tilt toward the left shoulder and chin pointed toward the right shoulder.
- Patient would cry when attempting to engage in activity that required his head to tilt toward the right, such as breast feeding.

TAPING

Tape applied origin to insertion with moderate tension, the recoil effect stimulates the muscle to shorten.
PHOTOS

No intervention

With tape

With helmet no tape

OUTCOME

Pt's mother was taught to apply tape and utilized the modality in addition to therapy and the helmet.

Pt was treated at Shriners children's hospital. Over the course of 4 years with medical intervention and therapy the patient was able to reach milestones and is now a healthy 5, almost 6 year old. Pt continues to see physician annually.
CLAVICLE FRACTURE

- Hairline fracture of left clavicle

- Patient is a 9 year old boy who fell on the playground at school. Patient reports that another boy ran into him and he fell on his left shoulder. The school nurse sent the patient home with mother. Mother took the patient to an urgent care and was referred to an orthopedic surgeon.
ANATOMY

The clavicle is the bone that connects the trunk of the body to the arm.

The trapezius muscle began to engage and take on more responsibility.

SYMPTOMS

• Left shoulder pain
• Inflammation around the left clavicle
• Limited and painful ROM
• Difficulty sleeping
TREATMENT

- Limit play
- Utilize arm sling as needed
- Ibuprofen
- Ice
- Follow up in 6 weeks

PATIENT PRESENTATION

- Pt did not want to wear arm sling but continued to complain of pain without immobilization. Patient developed visible unnatural elevation of the left shoulder post one week of injury and a small nodule over the site of injury. Patient's mother became concerned about long term deformity and ROM restrictions if patient continued to heal in this position.
**TAPING**

Insertion to origin

**PHOTOS**

Acute injury

- I strip L upper trap
- Insertion to origin to inhibit muscle
OUTCOME

• Patient was taped this way every 4 days for 6 weeks in addition to wearing a sling for 2 weeks. Patient reported a decrease in pain and only requested pain medication occasionally at bedtime.
• Patient's follow up visit with orthopedic surgeon revealed a complete recovery with no surgical intervention required.
• Patient did still present with small nodule over the injury site, the physician stated that the nodule would decrease over time.
SCOLIOSIS BACK PAIN

- Patient is a 20 year old female diagnosed with mild scoliosis at the age of 18 after a school physical lead to a referral to an orthopedic physician. The patient is heavily involved in soft ball which aggravates her pain and overall condition. Patient has been seeing a chiropractor for adjustments 2x/month x2 years. Since the patient has only a mild case of scoliosis, surgical intervention is not an option. The patient understands that continuing to play the sport may worsen her condition, however she has been playing since she was 8 years old and does not want to stop.

ANATOMY

Imbalance in erector spine

- The left side was shortened and tight
- The right side was elongated and over stretched
SYMPTOMS

• Mid to low back pain during activity
• Difficulty sleeping
• Poor posture

TREATMENT

• A typical treatment course for a female with mild scoliosis would be to monitor for any changes in the curvature of the spine, treat the pain and recommend decreasing activity that worsens the condition.
PRESENTATION

• Patient first seen at 18 years old. Presented with mild low back pain. Patient reported a pain level of 4 out of 10 consistently without medication intervention. Patient reported that she had been utilizing ibuprofen, heat, ice and rest to manage pain in addition to chiropractic adjustments. Patient reports that her pain is aggravated when she swings the bat for softball and when she has to sit for too long in class.

TAPING

• 2 I- Strips were applied along the erectors from
  • Insertion to origin on the left to relax erectors and
  • Origin to insertion on the right to activate the erectors.

• 2 strips were applied in an X pattern along the oblique from
  • Insertion to origin to provide additional support during rotation.
PHOTOS

Neutral position

Neutral with tape

OUTCOME

• Patient and family were taught taping techniques. Patient reported that she did not utilize the modality daily but utilized it at least once weekly especially before intense activities such as sports.

• At 20 years old, the patient reports that she still experiences back pain but finds relief with taping and OTC pain relievers. The patient has stopped playing softball but now finds that working long hours and driving are her new pain triggers.
CONCLUSION

• Therapeutic taping is an effective modality in treating muscular imbalances, acute and chronic pain.
Billing codes used for kinesiotape will depend on your goal for treatment. Is your goal to reduce pain, swelling, inhibit or facilitate a muscle or to stabilize a muscle or group of muscles for a functional outcome?

BILLING AND REIMBURSEMENT

- Insurance and Medicare billing codes
- 97112 - Neuromuscular Rehabilitation
- 97140 - Manual therapy techniques
- 97110 - Therapeutic procedure/exercise
- Private pay $15-$45
DISCLAIMER

• Each case study was conducted by Krysta M. Rives
• Permission given to utilize patient pictures and case study information for educational purposes.
• Anatomy photos were either purchased for use or cited.
• These case studies simply outline 3 individual treatment courses and are not necessarily recommendations to be used in similar cases.
• Formal training or certification in kinesiotape applications is recommended prior to taping.

QUESTIONS

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