A SYSTEMATIC REVIEW AND META-ANALYSIS EXPLORING THE EFFECTS OF KINESIOLOGY TAPE ON PHYSICAL PERFORMANCE

Honors Thesis

Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Sport and Movement Science

In the College of Arts and Sciences at Salem State University

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Commonwealth Honors Program
Salem State University
2024

Table of Contents

1. Abstract……1
   1.1 Background……1
   1.2 Objectives……...1
   1.3 Search strategies……1
   1.4 Selection criteria……1
   1.5 Dalla collection & analysis……1
   1.6 Main results……2
   1.7 Authors conclusion……2
2. Summary of findings table……...2
3. Background ……3
   3.1 Description of condition ……..…….....3
   3.2 Description of intervention…….……...4
   3.3 How the intervention might work…….…….....4
   3.4 Why it's important to do this review ……..……5
   4. Objectives ……6
5. Methods ……..……..6
   5.1 Search strategy…….……...6
   5.2 Search criteria…….……6
   5.3 Data collection and analysis…….……...8
   5.4 Data processing and analysis…….……8
6. Results……..9
   6.1 Results of search…….……9
   6.2 Study descriptions…….……..9
   6.3 Risk of bias in included studies…….……...13
   6.4 Meta-analysis results……13
7. Discussion……..15
   7.1 Summary of main results…….……15
   7.2 Overall completeness and applicability of evidence……16
   7.3 Quality of the evidence…….……17
   7.4 Potential biases in the review process…….……..18
   7.5 Agreements and disagreements with other studies/reviews…….…18
8. Conclusion……19
   8.1 Implications for practice…….……..19
   8.2 Implications for research……..……20
9. References…….……20
10. Appendices……..……21

1. Abstract

1.1 Background

Kinesiology tape is one of the most widely used therapeutic, sports products currently on the market. Most people have either seen the tape worn during televised or live sporting events, or maybe they've even worn the product themselves. Athletic trainers apply it to their athletes, professionals endorse the product, drug stores even carry the tape, it's everywhere. KT tape is said to help prevent injuries, aid in a recovery period, and overall, just enhance performance, yet there is little clinical evidence that the product lives up to its claims. There is a need for more research so we can be sure of this product everyone is purchasing and using. More information needs to be available to the consumers and the professionals applying the tape.

1.2 Objectives

To determine the effectiveness of kinesiology tape on improving physical performance, specifically the measurement of power.

1.3 Search methods

Databases such as EBSCO, PubMed, and Cochrane were used to gather studies that fell into the PICOS criteria. First a basic search was employed, and studies were chosen based on their titles and abstracts. The studies were slowly filtered out based on their accuracy to the question.

1.4 Selection criteria

The selection criteria included RCT, crossover designs, and Quasi-randomized trials of kinesiology tape and lower limb power on all adults.

1.5 Data collection and analysis

One review author independently screened search results, selected studies, assessed risk of bias and extracted and cross-checked data. Investigators were contacted if there was missing information.

1.6 Main results

Our results showed that the overall risk of bias was moderate due to a few unknowns within the included studies. There was little to no heterogeneity, meaning all the studies were found to be similar. Using the results from our meta-analysis we concluded that there is little to no influence of kinesiology tape on power, as a variable of physical performance. The p-value
(0.1984) was greater than 0.05 indicating there's no relationship between the intervention and the outcome.

1.7 Authors' conclusions

While the review resulted in no relationship between kinesiology tape and power, there are no harms associated with an individual wearing the tape. If they believe it'll help them in various aspects of their play, then I don't see anything wrong with the application of the tape. It's also important to mention that this is purely a review on power, not other measures of performance or treatment.

2 Summary of findings table

Test Statistic	Result
Tau^2 (SE)	0 (SE: 0.0509)
Tau	0
I^2 (%)	0.0
Q test	3.3629 (P=0.6442)
Summary effect estimate	0.1515
P-value (pval)	0.1984

Lower bound of confidence interval (ci.lb)	-0.1984
Upper bound of confidence interval (ci.ub)	0.3823
Discussion	This data indicates that all included studies are similar (are not heterogenous), and that no evidence can be found of an effect of KT tap eon power.

3. BACKGROUND

Kinesiology tape was developed in the late 1970s by Japanese chiropractor Dr. Kenzo Kase and now in today's market there are more than 50 brands of tape available. If you've watched any sort of sports game or match it is likely you have seen athletes wear this colorful tape on various parts of their bodies. Dr. Kase developed this product as a replacement for stiff athletic tape that was meant to stabilize his patients' joints in the correct position. He saw it as a beneficial adjunct for when his patients left his clinic (*Our president and founder)*.

3.1 Description of the condition

Physical performance is highly dependent on health and skill-related aspects of fitness, along with an athlete's technique in their respected sport. Physical performance is not just one skill-related component of fitness, but rather a cluster of abilities. These abilities can range from agility, to endurance, to strength, and so on. Power is an example of a variable of physical performance. Power is a reflection of the body's energy production and is applied to generate a specific outcome. Some may say power is the result of strength plus speed, making it a very vital aspect of an athlete's overall performance. Athletes and nonathletes may seek to maximize power to improve their

sport, exercise specific domain, or just their daily lives. Optimal performance may be the desired outcome for those seeking improvements on and off playing fields.

3.2 Description of the intervention

Kinesiology tape, also called Kinesio tape or KT Tape, is a therapeutic and flexible tape that is applied to the body in specific ways to provide support, ease pain, reduce swelling, and improve physical performance. Kinesiology refers to the study of movement, so the product's name originates from its ability to aid muscle movement. The product is made with cotton and nylon. Nylon is a silk-like thermoplastic that is typically made from petroleum that can be converted into fibers. Similarly, cotton is a soft fiber that is both breathable and lightweight. These soft and light fibers are used in the KT tape design to mimic the skin's elasticity and allow the consumer to use their full range of motion. The consumer doesn't have to be an elite athlete to wear this flexible tape. There's no age or training status that the product is designed for. It may have the same benefits on a middle school athlete as a professional athlete. As long as there is some sort of physical performance being achieved, it is claimed that this tape can be utilized. Kinesio tape is different from the traditional white athletic tape that may be applied for splinting or used as a temporary brace. Compared to Kinesiology tape, sports tape is much thicker and decreases the range or motion at a joint more. Some injuries require this tape for support and stability. For injuries that benefit from mobility and full range of motion, KT tape is the more appropriate choice.

3.3 How the intervention might work

When the tape is applied to the body, it gently lifts the skin which is thought to then create a microscopic space between the skin and the tissues underneath. This is said to have effects such as more space in the joints, improving circulation of blood and other fluids, and even changing signals between pain receptors (Stanborough, R.J.). Those pain receptors contribute to proprioception – the brain's ability to perceive location, movement, and action of body parts. Kt tape creates a lift of the epidermis that relieves the tissue. Decompressing those underlying tissues can alter signals traveling to and from the brain. This lift may also alter the flow of blood and lymph in the microcirculation, in turn reducing swelling by aiding the lymphatic system. This is said to help accelerate rates of muscle and joint recovery post exercise. This intervention also claims to reduce the risk of injury when performing activities (Williams, S., Whatman, C.). It can be applied to overworked areas that may have under-utilized muscles, allowing for specific exercises to be worked on and creating more of a balance in body strength. Injury prevention is a vital part of staying active and maintaining physical performance. By supporting the muscles, taking stress off the joints, and preventing injury this product may be effective. That being said there has always been skepticism when it comes to this product's effectiveness. There may be indirect improvements in performance when a person is wearing KT tape, whether that be increased comfort during performance, or increased psychological confidence. Many researchers and clinicians think of KT tape as a placebo tape and view its claims as implausible. Is this product actually helping active individuals or is it a placebo tape influenced by commercial interest? This is why it's important to conduct this review.

3.4 Why it is important to do this review

While some athletes and trainers swear by this product, there isn't much research done proving its efficiency. So, the question is "Does Kinesiology tape improve physical performance of adults?" This is important because it's one of the most used therapeutic products on the sports market, yet it still lacks research, which is why I want to dive deeper into the effectiveness of the product. Athletes should be aware of the products they are using on their bodies and if they're effective or a hoax. Research and studies performed should be brought to the public's attention before they purchase the product.

4. OBJECTIVE

To determine the effectiveness of kinesiology tape on improving physical performance, specifically the measurement of power.

5. METHODS

5.1 Search Strategy

Relevant search terms related to the Population (P), Intervention (I), Comparison (C), Outcome (O) of interest, and relevant Study Design (S) were generated. Using advanced search strategies specific to each database, these terms were used to search Central, MEDLINE (EBSOC Host), and PubMed. We also searched the reference lists of articles and performed a 'similar articles' search to expand records. The searches were run in January through April of 2024.

5.2 Search Criteria

We used the following PICOS criteria to select studies: **Population (P)**: This review will include all adults. The participants do not have to be currently enrolled in a sport or of a particular age group or sex. **Intervention (I)**: Trials were included in which one

group in the trial received kinesiology tape as an intervention. There are dozens of generic forms of superficial, adhesive tapes on the market today that are used as therapeutic treatments. Some popular brands include KT Tape, OK Tape, Hampton Adams Kinesiology Tape, TheraBand Kinesiology Tape, Rock Tape, and Sparthos Kinesiology Tape, all of which may be included in this review. These tapes follow the same instructions for application; clean the skin, measure, cut to length, activate adhesive, and apply. These varying brands must have the same width of 2 inches wide. This intervention is popular due to its ability to be applied on multiple locations on the body. Popular placements include hamstrings, elbows, knees, ankles, calves, and rotator cuff. Trials may include varying placements, as long as a similar outcome is being measured. KT will be implemented after exercise-induced muscle soreness. **Comparison (C)**: Studies will be included that compare the experimental intervention (Kinesiology tape) with either a placebo tape, sham, or no tape. Each will be analyzed and considered individually. Two comparisons; placebo tape or no tape. **Outcome (O):** Trials that do not record an aspect of power as it relates to performance will not be considered for this review. There may be inclusion of trials that observed negative or unaltered outcomes as a result of KT application. **Study types (S)**: Randomized controlled trials (RCT). These trials are defined as a randomized control if the participants are randomly allocated to intervention and comparison groups. Crossover designs will also be included. These are designs where one or more treatments are provided to subjects at distinct time periods, and where the sequence is randomized as well. Quasi-randomized trials won't be excluded from this review either. These trials allocate participants to different arms of the trial using a method that isn't necessarily the most randomized.

5.3 Data Collection and Analysis

One review author independently screened search results, selected studies, assessed risk of bias and extracted and cross-checked data. Where appropriate, we pooled results of comparable trials. The random-effects model was used for pooling where there was substantial heterogeneity. We assessed the quality of the evidence using GRADE.

5.4 Data Processing and Analysis

Primary outcomes were organized in Excel, with R and packages 'Metafor', 'robumeta', 'dplyr', and 'weightr' utilized for meta-analysis, variance meta-regression, data manipulation, and publication bias testing, respectively. Effect sizes and variance were first calculated; heterogeneity was assessed using Forest Plots, Chi-squared tests, and I^2 statistics. Meta-analysis proceeded if suitable, estimating pooled effect size, 95% confidence intervals, and heterogeneity measures (Tau^2, I^2, Q). An influential study analysis was conducted, accompanied by a Forest plot. Publication bias was explored through visual assessments and statistical tests, including Egger's regression and rank correlation, to inspect funnel plot asymmetry and small study effects. The 'weightr' package adjusted study weights to address publication bias, comparing adjusted and unadjusted effect estimates via the likelihood ratio test. The GRADE approach categorized evidence certainty into high, moderate, low, and very low levels, assessing risks of bias, inconsistency, indirectness, imprecision, and publication bias. Evidence was rated up or down based on these factors following GRADE guidelines, with randomized trials beginning at high certainty and non-randomized at low. Overall certainty is determined by the lowest rating of critical outcomes, and sensitivity analyses are

performed if bias risk is high. Final GRADE ratings indicate the level of confidence in the true effect's proximity to the estimated effect.

6. RESULTS

6.1 Results of the search

Our initial search using PubMed, Cochrane, and EBSCO databases identified 1,571 articles. Out of those 1,571 articles, 120 were removed for being duplicates. After screening the titles and abstracts of these records, 116 articles remained. The next step was to look a little more in depth into these papers and screen the full-test. After completing this, only 11 articles were found to be eligible. After considering qualitative and quantitative analysis, we had our final study count which was a total of six study articles.

6.2 Study descriptions

The Majed study was published in 2021 and investigated the effect of Kinesio tape on the muscle power of elite weightlifters. They had a randomized controlled trial, single blind, of forty-two male weightlifters. Participants were randomly assigned the experimental KT tape group (21) and the sham KT tape group (21). All weightlifters were free of any musculoskeletal and neurological issues that might affect their performance. To assess explosive power of the lower limbs the participants were asked to complete a single leg vertical countermovement jump. Vertec measurement tool was used to measure the vertical jump. A baseline measurement for both groups was taken, then three attempts for each with a maximum effort. They were instructed to stand on their dominant leg then jump and touch (displace) the highest possible vane. Kinesio Tex Gold

was the KT tape used in this study and applied as Dr. Kenzo Kase demonstrated. The sham tape was applied in the same fashion, but with no resistance.

The Fernandes study was published in 2014 and analyzed the kinesio taping effect on quadricep strength and lower limb function over a 7-day period. This blind randomized clinical trial had sixty healthy participants. These individuals were randomly allocated into three groups: Control (without KT tape), Placebo (placebo KT application), and experimental (KT application). Each group had 20 people in it (10 women and 10 men). These participants were free of neurological abnormalities, history of anterior pain in the knee, or any muscle injuries in the lower limbs over the previous 12 months. The placebo group had tape applied bilateral to the quadricep femoris, while the experimental group had tape applied to the quadricep femoris in a contrasting way that was went to stimulate the muscle. Lower limb strength was assessed using a manual dynamometer and meant to resist the force generated by the individual's lower limb. Two attempts of voluntary maximal isometric contraction for 5 seconds, with a 30 second interval were measured.

In the 2011 Oscar study, there were thirty healthy participants who were examined to observe the difference in isokinetic knee performance with and without kinesio tape application. This cross-sectional experimental study measured both maximal concentric knee extension and flexion. The thirty participants were recruited from a local public hospital staff club and were free of any musculoskeletal and cardiopulmonary conditions, along with free of joint pain in the last 12 months. All participants partook in both isokinetic knee testing sessions. One session involved KT application onto the vastus medialis muscle and the other one without. KT tape was applied as written in the

guidelines by the original KT training manual. The two sessions were separated by a period of 7 days. Maximal concentric knee extension and flexion were measured using an isokinetic dynamometer on the dominant leg only. The individuals did five minutes of low resistance cycling as their warmup and then measurements were taken at three different velocities (60, 120, and 180 degrees) for ten repetitions.

The Chen study was published in 2011 and investigated the effect of elastic taping on the triceps surae during a maximal vertical jump. Thirty-one healthy adults partook in this study, all of which were completely inactive without habit of regular exercise, and had no history of spinal, hip, knee, or foot issues, or any neurological impairment. Two tapes were used during this study, Kinesio Tex KT tape (elastic) and Micropore tape (non-elastic). Subjects were blinded to their taping type. These were applied to the participants, respectively. All participants completed a warmup procedure to promote performance and prevent injury. The subjects performed five trials of maximal vertical jumps as a baseline, had their tape applied, rested for 30 minutes, and completed another five trials of maximal effort. The jump height was measured using a video-based motion analysis system that had eight cameras.

The Wilson study was conducted and published in 2016. The purpose of this study was to investigate the immediate and long-term effects of KT tape on dominant lower extremities. Seventeen healthy subjects participated in Wilson's study, all of which had no major musculoskeletal injuries over the past six months, health issues that would affect safety, auditory impairments, uncorrected vision problems, open wounds, or history of deep vein thrombosis. Subjects were assigned to either the sham group (Kt tape without tension) or the experimental group (KT with tension). The KT tape was applied

over the gastrocnemius of the participant's dominant leg, after they completed the baseline assessments. The tape was applied by a Certified KT Practitioner to maintain consistency. The participants completed four hop tests for testing functional performance. The one we chose to focus on was the single hop test for distance, since this corresponded to the other studies most accurately. The individuals stood behind a starting line on their dominant leg and were instructed to hop as far as possible, landing on that same leg. The distance from the starting line to the back of the heel was measured. Three trials were conducted, and the maximum distance was recorded.

The remaining article that was included in this SRM was the Zhen study, published in 2020. This study aimed to explore the effects of KT on healthy participants' knee proprioception and quadriceps performance within 1 hour. A total of thirty-five amateur runners participated. Participants were excluded if they had any lower limb musculoskeletal injuries or medical conditions within the last six months. Four taping sequences were allocated to four different weeks, no taping, placebo taping, KT with tension, and KT with no tension. KT was applied according to Dr. Kase onto the rectus femoris, vastus medialis oblique, and vastus lateralis. The CON_TREX isokinetic dynamometer was used to assess isokinetic knee strength. The muscle strength test after taping was conducted for 0, 0.5, and 1 hour. Participants performed four maximum concentric and eccentric knee joint contractions. There was a three-minute rest in between series to minimize quadricep fatigue.

There were several studies that were excluded from this review. This SRM focused primarily on lower limb power, so if the study just analyzed the upper body, then it was excluded. Another common reason why studies were excluded were because they

focused primarily on delayed onset muscle soreness, which we are not reviewing. There were two studies that would have been ineligible, but one was described as a pilot study and the other a deceptive controlled trial, both of which didn't seem reliable.

6.3 Risk of bias in included studies

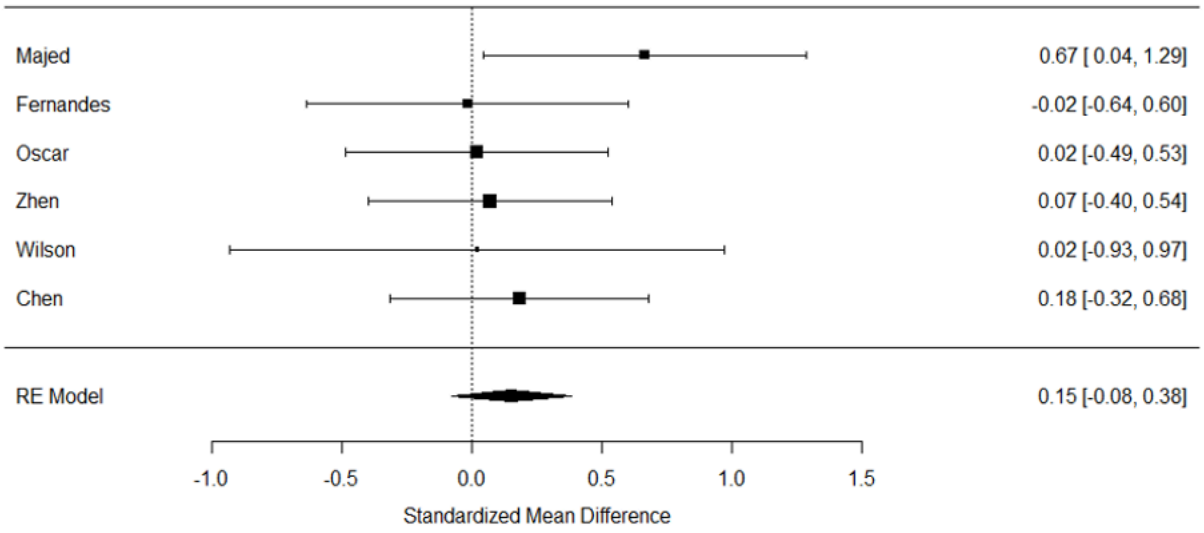
When it came to random sequence generation all studies were deemed low risk for bias, except Chen, 2011 because the researchers never mentioned directly that the sequence was randomized, it was lacking information. Therefore, it was marked as an unknown concern. For allocation concealment there were three studies, Oscar 2012, Chen 2022, and Zhen 2010 that were marked as unknown since they did not mention if the participants knew their group or not. It was unclear, therefore this might raise some concern. Those three studies were also unknown for blinding of participants and personnel, either they did not state that the participants were unaware of the condition, or they mentioned the participants being blinded, but not the individuals administering the intervention. Fernandes de Jesus 2015 was marked as high risk of bias for this category because it was mentioned directly in the study that the subjects knew of their conditions. When it came to blinding of outcome assessment, all studies were marked as low risk of bias, none of the outcomes were self-reported. For incomplete outcome data and selective reporting, all studies were determined to be low risk of bias, we believe all data was accounted for and all results reported.

6.4 Meta-analysis results:

Data was collected for the six studies and a meta-analysis was performed to get the following results. The Tau^2 (SE) was 0 (0.0509), and the Tau was 0. The I^2 as a percentage was 0%. After running the Q test, we got 3.3629, P = 0.6442. The summary

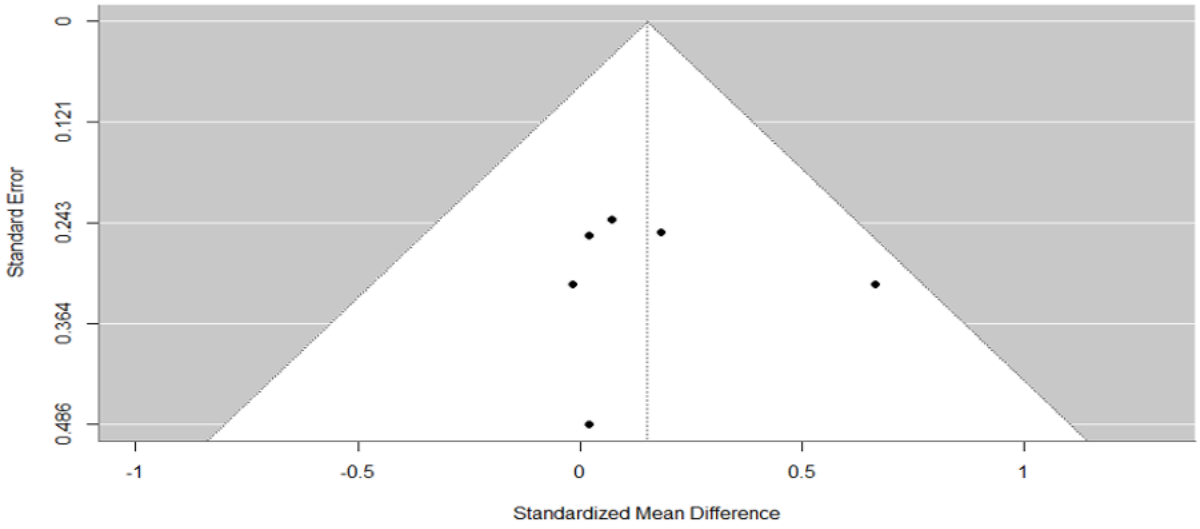
effect estimate came out to 0.1515. The p-value (pval) was 0.1984. The lower bound of the confidence interval (ci.lb) was -0.1984, while the upper bound of the confidence interval (ci.ub) was 0.3823.

Figure 1. Forest plot visualizing the standardized mean differences



The forest plot (figure 1) displays the standardized mean differences from a random-effects meta-analysis of six KT studies. The plot shows point estimates for SMD (as shown in the squares) and their corresponding 95% confidence intervals (Cls, represented by horizontal lines) for each study. The vertical dashed line represents no effect.

Figure 2. Funnel plot assessing publication bias in a meta-analysis



The funnel plot (figure 2) as seen above, assess publication bias in the meta-analysis, with the standardized mean difference on the horizontal axis and the standard error on the vertical axis. Each point on the graph represents a separate study's effect size and precision. Data gathered from the funnel plot was used to determine specific test statistics. The regression test for funnel plot asymmetry was 0.2906. The rank correlation test for tunnel plot asymmetry was 0.3988. The unadjusted model results intercept value for effect estimate was 0.09629. The adjusted model results intercept value for effect estimate was 0.09098. The likelihood ratio test was 0.92348.

7. Discussion

7.1 Summary of main results

Data gathered from our meta-analysis indicates that all included studies are similar (are not heterogenous), and that no evidence can be found of an effect on KT tape when it comes to power. Our P-value was greater than 0.05, suggesting that there is no relationship between the intervention and the outcome. When looking at the forest plot

Majed's study has the largest positive effect size (0.67), but it's CI crosses the line of no effect, indicating uncertainty. Fernandes and Oscar show negligible effect sizes, with CIs including zero, suggesting non-significant effects. Zhen and Wilson have small positive effects with CIs not crossing zero, indicating significant results. Chen shows a small positive effect size. The combined overall effect size is represented by the diamond at the bottom, with a pooled SMD of 0.15 and a 95% CI of [0.08, 0.38], suggesting no to small effect across the studies when pooled together. The data gathered from the meta-analysis suggests that KT tape has little to no effect on the power variable of performance. It should be noted that our level of certainty for evidence is rated low. This is due to some concerns related to risk of bias in the included studies, along with some concerns about imprecision airing from a small number of total participants. We can conclude based on our findings and our research that KT had little to no effect, but due to our small population studied, this isn't as reliable as larger study populations. While our research showed no directed effects on performance, that's not to say KT doesn't improve an athlete's performance from a psychological standpoint. There are no risks to a person wearing this product, so if they believe it'll make them perform better than it should be worn.

7.2 Overall completeness and applicability of evidence:

The studies and the data we gathered from this review were able to answer the question being asked; Does Kinesiology tape have any influence on physical performance, specifically power? Although we were able to answer the power aspect of the question, there are a lot of variables that can go into physical or athletic performance. There's balance, agility, strength, proprioception, speed, and many more. Our review

can’t make conclusions for those other variables; therefore, KT could still have an influence on physical performance in a different way. This product is also used for delayed muscle soreness and injury treatment and prevention a majority of the time, our conclusion does not account for those uses either. When it comes to just power all studies are in line with our PICOS elements and they directly influence kinesiology tape on our primary outcome (power). Also, our studies were all relatively new, the oldest being from 2011. The newest ones were from 2020 and 2021.

7.3 Quality of the evidence

The risk of bias was rated ‘moderately certain’ since there is one study article with a high risk of bias (Fernandes de Jesus 2015). This study isn’t the most influential, Majed 2021 is considered the most influential based on our influential study analysis. Overall, there may be some concerns here, but due to the study’s small weighting we only rated the risk of bias ‘moderate’. The rating for inconsistency was ‘moderately certain’ due to all studies besides Majed 2021 overlapping zero. There may be some inconsistencies with this article. The Tau^2 (0.0509); Tau (0); Q-test (3.3629, p-value= 0.06442), all indicate there is little heterogeneity. Imprecision was rated ‘moderately certain’ as well. We had less than 400 people included in the review, meaning we don’t have the recommended sub-optimal rating size. The confidence intervals from the forest plot include 'no effect' and either upper or lower bounds of the confidence interval are considered a ' small effect' according to Cohen's rule. All study articles fell within the PICOS criteria and were directly related to our question. We are confident they were directly what we were looking for and can rate this as ‘low certainty’. Publication bias was rated as ‘low certainty’ as well since the funnel plot is reasonably symmetrical. The results of the

regression test (p=0.2906) and rank correlation for Funnel plot asymmetry (p=0.3988) indicate no evidence of small study effects. The adjusted model results intercept value (0.09098) and the likelihood ratio test (p=0.92348) indicate little evidence of publication bias. Our review's final rating for certainty of evidence was low certainty.

7.4 Potential biases in the review process:

A potential limitation in this review was the incorporation of lower body function only. We didn't include upper body power studies, which affected the results we got. There were a few studies that measured arm strength and hand grip that may have been included if we didn't change the protocol to lower body function only. Focusing on one portion of the body seemed to allow the results to be more comparative. Another limitation that we had throughout this proves has been the lack of time. Since there was a time constraint, we didn't get to analyze other outcome measures, we were limited to focusing on the one. If time had allowed it would have been interesting to see how different performance outcomes compared to one another, rather than just power.

7.5 Agreements and disagreements with other studies or reviews

I'm not familiar with any other systematic reviews and meta-analysis that were conducted on kinesiology tape and power. There were a few done that involve similar outcome measures though. One study focused on the functional performance of the ankle using various taping methods. This was similar to this review in that the comparison was either placebo taping or taping with no tension. Obviously, they focused primarily on the ankle while we included all lower limbs. This article concluded that KT tape is superior to other taping when it comes to ankle function. I found another review that studied the

same question as that one, does KT tape affect ankle functional performance. These researchers concluded the complete opposite and stated that evidence does not support or encourage the use of Kinesio taping applied to the ankle for improvements in performance. Again, showing how controversial this product can be. Most of the other SRM completed compared KT to some sort of injury or condition such as osteoarthritis, cerebral palsy, musculoskeletal injuries, stroke, back pain, and so on. This makes my results difficult to accurately compare to other studies on kinesiology tape.

8. Conclusion

8.1 Implications for practice

KT tape and other similar brands make a lot of claims about wearing the product to improve parts of their fitness routine. The video on the KT tape website states “active people of all kinds can better prepare for athletic activity, perform their best, and recover from minor soreness or injury” (*What is KT*). Below is an image taken from the website, on the right it has a picture of what the tape is meant to do on the skin. In small print in the bottom left corner, it reads “suggested by academic hypothesis, not clinically proven”.

Patients and athletes should be fully aware of the tape’s effectiveness. It’s one of the most widely used sports products, yet there isn’t much clinical research to support it. The lack of research is often ignored due to the fact it’s endorsed by several professional athletes, athletic trainers, coaches, and so on. This leads us to another possible effect of the product, the placebo effect. Athletes are either told this tape will help them in some way or they see elite level athletes performing with it on, this increases their confidence in the product. If the athlete wears a product they believe in, there’s a chance they may perform

better purely because of the placebo effect. There's no risk to the placebo effect in this scenario. Unless the individual is allergic to the adhesive backing to the tape, there is no way for them to be harmed while wearing it.

8.2 Implications for research

There is still much research that needs to be conducted to fill the gaps in knowledge when it comes to kinesiology tape. As I mentioned, we've only done a SRM on the power aspect of performance, there needs to be more reviews on the other outcomes that relate to performance. Some examples include agility, balance, strength, skill, proprioception, etc. There also needs to be more research done based on the claims that the company has made. While there is a little more research done on recovery and injury prevention, there still isn't concrete evidence it works. There needs to be an ethical way to observe if kinesiology tape lifts the skin and creates a microscopic space. In turn does this increase blood flow and reduce inflammation? There's only benefits to more studies being conducted. Also, humans' lose elasticity in their skin with age, so it would be interesting to see if KT tape has the same effects on varying age groups.

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10. Appendices

MEDLINE via EBSCOhost

Thursday, October 26, 2023 10:21:23 PM

#	Query	Limiters/Expanders	Last Run Via	Results

S24	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR waterproof kinesiology tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,670
S23	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) AND SU adults NOT animals	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,134
S22	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) AND SU athletes	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	860
S21	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	5,663,615

	SU adults OR SU athletes			
S20	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR SU adults	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	5,647,961
S19	TI athletic performance OR TI sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,670
S18	TX athletic performance OR TX sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR kt tape performance	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	20,052
S17	TX athletic performance OR TX sports performance AND TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	20,072

	kinesiology taping) OR kt tape			
S16	TX (athletic performance or sports performance) AND TX (pain management or pain relief or pain control or pain reduction) OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape OR TI kinesio tex tape OR TI ot tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,197
S15	TX (athletic performance or sports performance) AND TX pain relief OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape OR TI kinesio tex tape OR TI ot tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	918
S14	TX (athletic performance or sports performance) AND TX recovery time OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,460

	TI kt tape OR TI kinesio tex tape OR TI ot tape			
S13	TX (athletic performance or sports performance) AND TX delayed onset muscle soreness OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape OR TI kinesio tex tape OR TI ot tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,134
S12	TX (athletic performance or sports performance) AND TX anaerobic power OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,452
S11	TX (athletic performance or sports performance) AND TX vertical jump test OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,256

S10	TX (athletic performance or sports performance) AND TX vertical jump performance OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,599
S9	TX (athletic performance or sports performance) AND TX physical ability OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,145
S8	TX (athletic performance or sports performance) AND TX fitness level OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI body sports tape OR TI kt tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1,308

S7	TX (athletic performance or sports performance) AND TX recovery OR TI athletic tape OR TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	5,797
S6	TX (athletic performance or sports performance) AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping) OR TI athletic tape	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	60
S5	TX recovery AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	71
S4	TX muscle soreness recovery AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	3
S3	TX (delayed onset muscle soreness or doms) AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	14

	kinesiology tape or kinesiology taping)			
S2	TI athletic performance AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1
S1	TI physical performance AND TI (kinesiotape or kinesio-tape or kinesiotaping or kinesio-taping or kinesiology tape or kinesiology taping)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	1

COCHRANE SEARCH STRATEGIES

Date Run: 26/10/2023 20:13:05

Comment:

ID Search Hits

#1 MeSH descriptor: [Physical Functional Performance] explode all trees 511

#2 MeSH descriptor: [Athletic Performance] explode all trees 9179

#3 ("physical performance"):ti,ab,kw 6092

#4 (athletic performance):ti,ab,kw 4032

#5 MeSH descriptor: [Muscle Strength] explode all trees 8696

#6 (endurance):ti,ab,kw 13529

#7 ("delayed onset muscle soreness"):kw 119

#8 (vertical jump):kw 22

#9 (fitness level):ti,ab,kw 3276

#10 ("recovery"):ti,ab,kw 75965

#11 (athletic ability):ti,ab,kw 546

#12 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 105493

#13 MeSH descriptor: [Athletic Tape] explode all trees 412

#14 ("kinesiology tape"):ti,ab,kw 106

#15 ("Kinesio taping"):ti,ab,kw 913

#16 (KT tape):ti,ab,kw 396

#17 (body sport tape):ti,ab,kw 46

#18 (OT tape):ti,ab,kw 4

#19 (KT pro):ti,ab,kw 27

#20 #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 1315

#21 #12 AND #20 in Trials 272

PubMed SEARCH STRATEGIES

Search number	Query	Sort By	Filters	Search Details	Results	Time
9	(((((((athletic performance[MeSH Terms]) OR (PHYSICAL PERFORMANCE[MeSH Terms])) OR (MUSCLE SORENESS[MeSH Terms])) OR (ATHLETIC ABILITY[MeSH Terms])) OR (VERTICAL JUMP[MeSH Terms]))) AND (KINESIO TAPE[Title/Abstract])) OR (ATHLETIC TAPE[Title/Abstract])			(("athletic performance"[MeSH Terms] OR "physical functional performance"[MeSH Terms] OR "myalgia"[MeSH Terms] OR (("athletes"[All Fields] OR "athletes"[MeSH Terms] OR "athletes"[All Fields] OR "athlete"[All Fields] OR "athletically"[All Fields] OR "athlets"[All Fields] OR "sports"[MeSH Terms] OR "sports"[All Fields] OR "ATHLETIC"[All Fields] OR "athletics"[All Fields]) AND "aptitude"[MeSH Terms])) AND "kinesio tape"[Title/Abstract]) OR "athletic tape"[Title/Abstract]	89	18:52:14
8	(((((((KINESIO TAPE[Title]) OR (ATHLETIC TAPE[Title])) OR (KINESIOLOGY TAPE[Title])) OR (KT TAPE[Title])) AND (PERFORMANCE[Title/Abstract]))) OR (ATHLETIC PERFORMANCE[Title/Abstract])) OR (DELAYED ONSET MUSCLE SORENESS[Title/Abstract])) OR (RECOVERY[Title/Abstract])			(("kinesio tape"[Title] OR "athletic tape"[Title] OR "kinesiology tape"[Title] OR "kt tape"[Title]) AND "PERFORMANCE"[Title/Abstract]) OR "athletic performance"[Title/Abstract] OR "delayed onset muscle soreness"[Title/Abstract] OR "RECOVERY"[Title/Abstract]	562,907	18:49:12

7	(((KINESIOLOGY TAPE) OR (ATHLETIC TAPE)) AND (PERFORMANCE)) OR (FITNESS LEVEL)		Randomized Controlled Trial, Systematic Review	(((((("kinesiology zagreb"[Journal] OR "kinesiology"[All Fields]) AND "TAPE"[All Fields]) OR ("athletic tape"[MeSH Terms] OR ("athletic"[All Fields] AND "TAPE"[All Fields]) OR "athletic tape"[All Fields])) AND ("perform"[All Fields] OR "performable"[All Fields] OR "performance"[All Fields] OR "performance s"[All Fields] OR "performances"[All Fields] OR "performative"[All Fields] OR "performatively"[All Fields] OR "performatives"[All Fields] OR "performativities"[All Fields] OR "performativity"[All Fields] OR "performed"[All Fields] OR "performer"[All Fields] OR "performers"[All Fields] OR "performing"[All Fields] OR "performs"[All Fields])) OR (("fitness"[All Fields] OR "fitnesses"[All Fields]) AND ("level"[All Fields] OR "levels"[All Fields]))) AND (randomizedcontrolledtrial[Filter] OR systematicreview[Filter])	2,731	18:38:59
6	((KINESIO TAPING) AND (PHYSICAL PERFORMANCE)) OR (ATHLETIC PERFORMANCE)		Randomized Controlled Trial, Systematic Review	(("KINESIO"[All Fields] AND ("tapes"[All Fields] OR "taped"[All Fields] OR "tapes"[All Fields] OR "taping"[All Fields] OR "tapings"[All Fields]) AND ("physical functional performance"[MeSH Terms] OR ("physical"[All Fields] AND "functional"[All Fields] AND "performance"[All Fields]) OR "physical functional performance"[All Fields] OR ("physical"[All Fields] AND "performance"[All Fields]) OR "physical performance"[All Fields])) OR ("athletic performance"[MeSH Terms] OR ("athletic"[All Fields] AND "performance"[All Fields]) OR "athletic performance"[All Fields])) AND (randomizedcontrolledtrial[Filter] OR systematicreview[Filter])	9,430	18:38:22
5	((KINESIO TAPING) AND (PHYSICAL PERFORMANCE)) OR (ATHLETIC PERFORMANCE)		Clinical Trial, Randomized Controlled Trial, Systematic Review	(("KINESIO"[All Fields] AND ("tapes"[All Fields] OR "taped"[All Fields] OR "tapes"[All Fields] OR "taping"[All Fields] OR "tapings"[All Fields]) AND ("physical functional performance"[MeSH Terms] OR ("physical"[All Fields] AND "functional"[All Fields] AND "performance"[All Fields]) OR "physical functional performance"[All Fields] OR ("physical"[All Fields] AND "performance"[All Fields]) OR "physical performance"[All Fields])) OR ("athletic performance"[MeSH Terms] OR ("athletic"[All Fields] AND "performance"[All Fields]) OR "athletic performance"[All Fields])) AND (clinicaltrial[Filter] OR	12,210	18:38:14

				randomizedcontrolledtrial[Filter] OR systematicreview[Filter])		
4	((KINESIO TAPING) AND (PHYSICAL PERFORMANCE)) OR (ATHLETIC PERFORMANCE)		Clinical Trial, Randomized Controlled Trial	(("KINESIO"[All Fields] AND ("tapes"[All Fields] OR "taped"[All Fields] OR "tapes"[All Fields] OR "taping"[All Fields] OR "tapings"[All Fields]) AND ("physical functional performance"[MeSH Terms] OR ("physical"[All Fields] AND "functional"[All Fields] AND "performance"[All Fields]) OR "physical functional performance"[All Fields] OR ("physical"[All Fields] AND "performance"[All Fields]) OR "physical performance"[All Fields])) OR ("athletic performance"[MeSH Terms] OR ("athletic"[All Fields] AND "performance"[All Fields]) OR "athletic performance"[All Fields])) AND (clinicaltrial[Filter] OR randomizedcontrolledtrial[Filter])	10,478	18:38:07
3	((KINESIO TAPING) AND (PHYSICAL PERFORMANCE)) OR (ATHLETIC PERFORMANCE)		Clinical Trial	(("KINESIO"[All Fields] AND ("tapes"[All Fields] OR "taped"[All Fields] OR "tapes"[All Fields] OR "taping"[All Fields] OR "tapings"[All Fields]) AND ("physical functional performance"[MeSH Terms] OR ("physical"[All Fields] AND "functional"[All Fields] AND "performance"[All Fields]) OR "physical functional performance"[All Fields] OR ("physical"[All Fields] AND "performance"[All Fields]) OR "physical performance"[All Fields])) OR ("athletic performance"[MeSH Terms] OR ("athletic"[All Fields] AND "performance"[All Fields]) OR "athletic performance"[All Fields])) AND (clinicaltrial[Filter])	10,478	18:37:53
2	(((((((KINESIOLOGY TAPE[Title]) OR (KINESIO TAPE[Title])) OR (KT TAPE[Title])) OR (BODY SPORTS TAPE[Title])) OR (OT TAPE[Title])) OR (KINESIO TAPING[Title])) AND (PHYSICAL PERFORMANCE[Title])) OR (ATHLETIC PERFORMANCE[Title])) OR (FITNESS LEVEL[Title])		Clinical Trial	(("kinesiology tape"[Title] OR "kinesio tape"[Title] OR "kt tape"[Title] OR (("human body"[MeSH Terms] OR ("human"[All Fields] AND "body"[All Fields]) OR "human body"[All Fields] OR "body"[All Fields]) AND "sports tape"[Title]) OR (("onco ther"[Journal] OR "ot"[All Fields]) AND "TAPE"[Title]) OR "kinesio taping"[Title]) AND "physical performance"[Title]) OR "athletic performance"[Title] OR "fitness level"[Title]) AND (clinicaltrial[Filter])	63	18:36:44
1	(((((physical performance[Title]) OR (ATHLETIC PERFORMANCE[Title]) OR ((athletic ability[Title])) OR (FITNESS LEVEL[Title])) AND (RECOVERY[Title/Abstract])OR (MUSCLE STRENGTH[Title/Abstract])		Clinical Trial	(("physical performance"[Title] OR "athletic performance"[Title] OR "athletic ability"[Title] OR "fitness level"[Title]) AND "RECOVERY"[Title/Abstract]) OR "muscle strength"[Title/Abstract]) AND (clinicaltrial[Filter])	5,408	18:34:31