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ORIGINAL

LONG-TERM EFFECTS OF COMPETITIVE SPORTS ON MUSCULOSKELETAL HEALTH IN RETIRED ATHLETES

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ABSTRACT

The long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes have focused our attention on training methods and convinced us that there is a need for improved and technology-related training methods. Such technology-friendly training methods Will help to improve training and along with it, these methods Will help in reducing the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes. The important implication of the long-term effects of competitive sports is the aspect of Injury prevention in athletes. As we know athletes are at high risk of injuries as compared to laymen. During the professional life of athletes, athletes are mostly young and they do not feel any major Effects of injuries at that time. But when time passes and the process of aging starts in athletes, they may feel after Effects of Injuries in a bitter way. The research study based on primary data analysis for determine the research used smart PLS software and generate result included descriptive statistic, confidence interval also that smart PLS Algorithm model between them. Some injuries in competitive sports may result in Overuse Injuries which are fatal for retired athletes. So in this way, we can say that a proper understanding of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes may help us with Injury prevention in athletes. These implications of the long-term effects of competitive sports convince us to educate athletes about it. Overall research founded that direct and significant effects of competitive sports on musculoskeletal health.

KEYWORDS: Competitive Sports (CS), Musculoskeletal (MM), Retired Athletes (RA)

1. INTRODUCTION

The lifestyle and training of athletes affect the life of athletes not only during their career life but also in their retirement period of life. There are such exercises are performed during the career of athletes which change the body of athletes completely. Not only does this training have an impact on the physical body but also has a deep impact on the mindset of athletes. During the period of retirement, the effect of these trainings can also be seen in different ways. In this introduction, we are going to discuss how competitive sports have an impact on the skeletal muscles and health of athletes in their retirement period(Kujala et al., 2003). In this introduction, we will discuss both short-term effects and long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes. There are both types of positive and negative impacts of Competitive Sports on retired athletes. First, we will discuss the positive impacts then we will understand about negative impacts of Competitive Sports on retired athletes. One of the positive long-term Effects of Competitive Sports on retired athletes is the composition and density of bones. During various trainings of athletes, there are few weight-bearing activities which make Bones used to bearing stress in the form of weight(Sarna et al., 1997). By continuous lifting of these weights, bone density can be improved well. It has been seen that the diet of athletes is also according to the needs of their body and bones. In this way, such a diet is also helpful for maintaining bone density in the retirement period of athletes. The other positive long-term effect of competitive sports on Musculoskeletal Health in Retired Athletes can be described in terms of joint health. The health of joints is dependent upon the strength and power of muscles. By proper exercises during training for athletes, the muscles gain strength and power and these aspects make joints more strong and flexible(Maffulli, Longo, Spiezia, et al., 2010). Better joint health also helps retired athletes in this way that there is no or less risk of arthritis in old age. The other positive long-term effect of Competitive Sports on retired athletes can be enumerated in terms of better muscular strength. As we know skeletal muscles have such composition and structure that the more function performed by skeletal muscles will lead to better strength and power of muscles. It is because, when there is more activity in skeletal muscles, there is more respiration and energy production in the body which may lead to the growth of muscles in terms of size and strength(Hind et al., 2020). The benefit of muscle strength and power in retired athletes is that there is very little risk of sarcopenia in old age. As there is more muscle strength and power, there will be fewer effects of aging as well. But all of these positive long-term effects are not the same in all athletes rather these are dependent upon various and versatile factors. These factors include the type and Intensity of the sport the athlete is involved in, the type and duration of injury, the genetic factor, the true duration of participation in sports, the lifestyle after retirement, and others(Simon et al., 2021). The other positive impact of competitive sports in retired athletes is that the process of aging will be delayed in Athletes as compared to layman just because of extensive

training done during a young age. These trainings will help the athlete to balance hormonal changes in the body after retirement as well and these effective hormonal changes will reduce or delay the risk of early aging. The other positive effect of Competitive Sports can be described in aspect of better mental health of athletes after retirement. Advanced scientific studies prove that the condition of Mental Health is dependent upon lifestyle(Palmer et al., 2021). If there is more training, exercise, and yoga, these factors will result in such changes in mental health that the overall condition of mental health will be improved. To some extent, the mental health is related to motivation. Such type of motivation is given to athletes during training which will enable them to be motivated in career life and life after retirement also. All of these factors help in reducing the risk of mental health issues such as anxiety, stress, dementia, Alzheimer's disease, and others in retired athletes. There are also some negative Long-term effects related to competitive sports in retired athletes. The first negative effect is that if the injury to a joint occurs during the career life of athletes, it will increase the chances of osteoarthritis and other joint problems in retired athletes(Eser et al., 2009). If an Injury is not properly healed during the young age of athletes, there will be a risk of overuse Injuries in Old age as well. As we know the process of healing takes much time in old age so there will be less healing of injuries and more risk of overuse injuries. The other negative impact of competitive sports on retired athletes can be explained in terms of damage to tendons and ligaments. As we know there are stress-bearing activities in competitive sports, if such stress-bearing activities result in damage to tendons or ligaments, this injury or damage will be more prominent in retired age of athletes(Maffulli, Longo, Gougoulias, et al., 2010). The other negative Long-term effects of competitive sports on retired athletes can be understood in terms of damage to spinal discs. As we know there are some cushion-like structures present between vertebrae which give strength and flexibility to the vertebral column. This strength and flexibility help athletes to perform well during performance in sports. But if there is any damage to the vertebrae or spinal disc, it can affect not only the vertebral column but also the spinal cord and nerves arising from the spinal cord. This disc skip may become a major problem in old age for retired athletes(Karlsson, 2004). The other negative impact is that the inflammation and tension in muscles increase after retirement because of their extensive use in career life by athletes. But all of these positive and negative impacts are somehow dependent upon lifestyle after retirement. If there is a lifestyle of proper exercise and a balanced diet after retirement, the positive impacts of Competitive Sports will become prominent in retired athletes(Russell et al., 2018; Yasaman & Caitlin, 2023).

1.1 Research objective

The main objective of this research is to understand the long-term effects of competitive sports on retired athletes. This study has explained how competitive sports are beneficial and dangerous at the same time in athletes

after retirement.

2. Literature Review

Researchers reveal that albeit serious competitors surpass proposals for actual work whilst they're contending in athletic, this doesn't be guaranteed to convert toward standard actual work post-retirement from athletic. Study recommended the idea of cutthroat game support do not have to be helpful for long lasting active work. Scholars suggest the corporeal and mental impacts of wounds in athletics current exceptional extensive haul obstructions to actual work in previous serious competitors(Russell et al., 2018). Studies surveys momentum information in the area of extensive haul wellbeing results of young people athletics wounds to assess the proof with respect to kids exiting athletic because of wound, physicals wounds and development aggravation, investigations of wounds influencing the prickle and human Knee of youthful and previous competitors & careful result of foremost cruciform tendon recreation in youngsters. Radioactive discoveries ensnare the impacts of extreme actual stacking and wound in the advancement of Spine condition & sciatica within the development of young competitors; although, extensive haul impacts are muddled. Sequel investigations of youthful competitors and grown-ups demonstrate a greater chance of arthrosis post sickle or anterior cruciate ligament wound(Maffulli, Longo, Gougoulias, et al., 2010). Studies suggest that Osteoporosis prevention advantages post extensive-haul seclusion from world class acrobatic regarding ivory math and Volumetrically Bone Mineral Density were concentrated by contrasting resigned woman athletes with reasonably dynamic similar ages ladies. Former aerobatic preparing is related with more noteworthy skeletal density and skeletal magnitude in ladies six years' post-retirement. Bony advantages were place explicit, with more prominent mathematical variations (more noteworthy skeletal volume) in the higher contrasted & the diminish appendages(Eser et al., 2009). The purpose of this research was to cover aggregate wounds and their apparent extensive haul influence in resigned rugger cipher competitors contrasted with competitors from Nonphysical games. Scholars concluded that beyond numerous wound kinds, prior support in rugger association and rugger union, especially at first class degree, is related with an elevated total physical issue burden & a proceeded with effect of past wounds after-seclusion(Hind et al., 2020). Scholars summarize that due to the serious idea of athletic, the drawn out dangers of lessened health-related quality of life require to turn into a need for medical services suppliers and competitors over their sport professions. Also, actual work change schemes should be investigated to assist superior understudy competitors with progressing from exceptionally organized and serious university games to way of life actual work, as apparently people in the non-academic competitor accomplice participated in extra active work, lightweight, & had expanded health-related quality of life(Simon et al., 2021). Studies objective was to methodically survey the new logical writing to

investigate the pervasiveness of arthrosis in previous first class competitors from group & person athletics. An efficient survey of experimental investigations was directed. This explore demonstrate that commonness of osteoarthritis, particularly in their down appendages, is by all accounts greater amid previous first class competitors from group and person games contrasted with everyone & different word related areas(Gouttebarge et al., 2015). Scholars suggest that support in athletic is related with various corporeal and mental medical advantages, yet in addition may have unfortunate results, for example, vocation finishing wounds, that might significantly affect psychological wellness. Researchers give a calculation to illuminate medical independent direction in regards to compulsory retreat, also suggestions for the advancement of help schemes and instructive assets for competitors battling with profession change(Esopenko et al., 2020). The basic aim of this study is to precise audit of conceivable extensive haul impacts of athletics-associated blackout in resigned competitors. Different blackouts have all the earmarks of being a gamble element for mental hindrance and emotional well-being issues in certain people. More examination is expected to all the more likely figure out the pervasiveness of persistent awful brain disorder and remaining neural circumstances and sicknesses, & the degree wherein they're connected with blackouts & additionally redundant cerebral trauma supported in athletics(Manley et al., 2017). Researchers audit proposes the commonness of mental misery amid resigned competitors is like that tracked down in everybody. Be that as it may, subdivisions revealing clinical associated disorders, huge torment, a more noteworthy several blackouts, lesser friendly help, & unfavorable psycho-social elements were at more serious gamble for mental trouble(Mannes et al., 2019). Scholars expected to depict outer muscle, psychological well-being, regenerative/harmonic & cardio qualities in resigned world class woman competitors and contrast with everybody & investigate competitors' impression of their tip top game cooperation and its effect on wellbeing. Researchers summarize that such original bits of knowledge may illuminate subsequent safeguard endeavors to advance definite tip top game associated results for latest, previous and subsequent woman competitors(Thornton et al., 2023). Researchers explore the connection among possess performed athletic whilst harmed and health-related quality of life, arthrosis, & steady mutual agony; & contrast discoveries in first class and sporting batsmen. Batsmen that had performed athletic harmed had disabled health-related quality of life, expanded chances of arthrosis and determined mutual agony, contrasted with the individuals who had not performed athletic harmed. Performing athletic harmed was simply connected with debilitated psychological-parts of health-related quality of life in tip top batsmen(Bullock et al., 2020). Studies elaborate that whilst athletics medication has customarily centered around recuperating from wound & reverting competitors to wear securely post wound, there's a developing concern in the drawn out strength of competitors. Concentrates on seldom assessed useful execution, didn't

manage for earlier wound or nutriment & rarely surveyed present actual work degrees. Subsequent examination ought to incorporate woman & assess coitus contrasts, manage for earlier games associated wound, evaluate active work, utilize normalized result estimates involving execution located useful appraisals and consolidate lengthwise plans(Street et al., 2023). Studies claim that the more noteworthy ivory thickness, fat-free body weight & intensity of resigned first class rugger performers might address a hereditary impact giving an intrinsic benefit to rugger cooperation or the consequence of past support in a corporeal, physical game like rugger. In any case, the shortfall of a connection among prior actual work and ivory thickness proposes that ongoing active work applies greater impact on latest outer muscle wellbeing state. This features the significance of proceeded with actual work in retreat to counterbalance the Age associated decrease in ivory thickness, fat-free body weight & energy(Entwistle, 2023). Scholars explain that athletics investment gives numerous medical advantages still extraordinarily increments wound danger. Extensive haul wellbeing results in previous competitors and progress to life post aggressive games are surrogated. Members proposed a program, tool stash, coaching or leave route to work with the progress. Whilst previous competitors aid from movable fundamental abilities and frequently proceed with athletics and workout, they confront novel difficulties, for example, overseeing agony and earlier wound, remaining dynamic, lessening force admission and evolving character(Capin et al., 2024). Studies show that retreat from athletic is a daily existence progress that has critical ramifications for competitors' corporeal & psychological well-being, also their societal and expert turn of events. Albeit broad task has been finished to survey the retreat encounters of competitors, generally little Work has been finished to review and ponder this extensive collection of writing with an even minded point of concluding whatever wants to end up bettering help resigning competitors(Voorheis et al., 2023). The reason for this survey was to investigate the connection among former specialty in the game of Lawn Tennis and wellbeing results post retreat from university/pro game. Resigned Tennis performers with miserable wound/disease seriousness stacks spent significant time in Tennis after ones with elevated wound/disease seriousness stacks, whilst no distinctions in the specialty mature were renowned when the example was isolated toward health-related quality of life gatherings(Vasenina et al., 2023). Studies summarize that specific games, like football, basketball, floorball, & rugger are bound to be related with untimely stifle & Hip osteoarthritis. On the other hand, sprinters and ballerinas don't prove huge expansion in osteoarthritis. Diminish and sporting openness to high-impact athletics doesn't speed up the improvement of osteoarthritis(Migliorini et al., 2022). Scholar studies reveal that athletic cultivation accounts instruct competitors that their personalities ought to base on sport execution and actual predominance, with torment as one of acknowledged piece of game associated achievement. A solid sport personality has been connected with more prominent measures of torment associated trouble. Whilst personalities in

dynamic and resigned competitors have been broadly considered, few is had some significant awareness of resigned competitors who encounter steady agony after-brandishing profession(Wekch, 2023). Studies explain that as a woman competitors mature, their chance of outer muscle wounds increments. Such wounds may adversely affect their wellbeing and sport capacities. Finally, keeping up with actual wellness and taking part in organized practice schemes are pivotal for maturing woman competitors to sluggish the decrease in outer muscle force and trustworthiness. Legitimate emergency treatment estimates, suitable drugs, & a far reaching practice routine might help with recuperation and recapture practice, capability, and portability, empowering a re-visitation of cutthroat games or different sport quests(Vuletić & Bøe, 2024). Researchers evaluate the job of earlier game wound in self revealed health-related quality of life, degrees of impairment, & physical activity ways of behaving of previous Public University Sport Affiliation Section I ladies' football performers. Majority members revealed supporting an earlier extreme football-associated wound, that might have significantly affected wellbeing results for previous ladies' football performers(Cross et al., 2022). Studies shows a theoretical system & assisting proof that connections impeded engine manage post athletic-associated blackout to expanded chance for outer muscle wound. The medical ramifications of this reasonable structure incorporate a want to purposefully tackle engine manage weaknesses post sport-related concussion to moderate outer muscle wound danger and to screen engine manage as the competitor advances across the re-visitation of game continuity(Chmielewski et al., 2021). This review investigates the effect of Outer Muscle Wounds on the personal satisfaction in young competitors, expecting to figure out the degree of such wounds' consequences for their tangible and psychological prosperity. The review highlights the huge commonness of outer muscle wounds amid young competitors and portrays their significant effect on the personal satisfaction, enveloping the two the tangible and psychological wellness domains. By focusing on the personal satisfaction as a vital result, this exploration counsels for a better delicate way to deal with wound handling and recuperation(Aldanyowi & AlOraini, 2024). Scholars reveal that upgrading previous physical game competitors' day to day usefulness might be accomplished beyond all encompassing Psycho-physiological intercessions tending to outer muscle wounds, osteoarthritis, & gloom. Subsequent exploration ought to distinguish components impacting raised directions of extensive haul pain interference after-athletic suspension(Hernandez et al., 2024). Researchers suggest that a rising everyday routine hope has influenced our experiences decidedly, in any case, simultaneously, it has turned into a test to longer life expectancy, truly and intellectually solid. The part plans to examine metabolically & physiologic alterations of maturing, possible warnings in older competitors, inclining wound danger in the old competitor, primary medical protests of old competitors, & dealing with the destructive impacts of maturing(Piedade et al., 2024; Yela et al., 2022).

Researchers determined that ligament wounds may introduce in a different context of architectural areas, with shifting seriousness, and may affect competitors of any maturity and rivalry degrees. Despite the fact that showing the right remedial routine might demonstrate testing, sympathetic the competitor explicit contemplations might be crucial for encounter the objectives of the competitor and different partners engaged with the competitor's profession(Meta et al., 2024).

2.1 Descriptive statistic

Table 1: Result of Descriptive statistic

NAME	NO.	MEAN	MEDIAN	SCALE MIN	SCALE MAX	STANDARD DEVIATION	EXCESS KURTOSIS	SKEWNESS	CRAMÉR-VON MISES P VALUE
CP1	1	1.531	1.000	1.000	3.000	0.610	-0.404	0.716	0.000
CP2	2	1.612	2.000	1.000	3.000	0.600	-0.615	0.426	0.000
CP3	3	1.673	2.000	1.000	4.000	0.739	0.577	0.935	0.000
CP4	4	1.571	2.000	1.000	3.000	0.606	-0.545	0.567	0.000
MH1	5	1.633	2.000	1.000	3.000	0.596	-0.623	0.358	0.000
MH2	6	1.469	1.000	1.000	3.000	0.575	-0.329	0.788	0.000
MH3	7	1.490	1.000	1.000	3.000	0.610	-0.184	0.874	0.000
MH4	8	1.653	2.000	1.000	4.000	0.716	0.946	0.986	0.000
MH5	9	1.653	2.000	1.000	3.000	0.624	-0.613	0.426	0.000
RA1	10	1.673	2.000	1.000	4.000	0.711	0.920	0.936	0.000
RA2	11	1.531	1.000	1.000	4.000	0.673	2.272	1.335	0.000
RA3	12	1.490	1.000	1.000	3.000	0.610	-0.184	0.874	0.000
RA4	13	1.673	2.000	1.000	3.000	0.651	-0.669	0.462	0.000

The above result of table 1 demonstrate that descriptive statistical analysis result presents the mean values, median rates, the standard deviation rate also that explain the skewness value of each variables included dependent and independent. The CP1,2,3 and 4 these are all factor consider as independent variables according to the result its mean values is 1.531, 1.612, 1.673, 1.571 its shows that positive average rate. The standard deviation rate is 61%, 60%, 73% deviate from mean

value. The overall significantly value is 0.000 shows that 100% significant rate between them. the overall minimum value is 1.000 the maximum value is 4.000 respectively. The MH1,2,3,4 and 5 these are plays as mediator variable result describe that mean values are 1.633, 1.469, 1.490 and 1.653 all of them are consider as positive average rate the standard deviation rate is 59%, 57%, 61% and 71% deviate from mean value. The RA1,2,3 and 4 these factor consider as dependent variable according to the result its mean value is 1.673, 1.531, 1.490 and 1.673 shows that positive average rate the standard deviation value is 67%, 61%, 65% deviate from mean value.

2.2 Correlation coefficient

Table 2: Result of Correlation coefficient

	CP1	CP2	CP3	CP4	MH1	MH2	MH3	MH4	MH5	RA1	RA2	RA3	RA4
CP1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CP2	0.005	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CP3	-0.114	0.037	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CP4	0.008	-0.120	0.098	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MH1	-0.025	0.001	0.145	0.073	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MH2	-0.070	-0.182	0.024	-0.184	-0.271	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MH3	-0.370	-0.039	0.038	-0.371	0.102	0.159	1.000	0.000	0.000	0.000	0.000	0.000	0.000
MH4	0.095	0.305	-0.098	0.316	0.036	-0.150	-0.265	1.000	0.000	0.000	0.000	0.000	0.000
MH5	0.055	0.186	0.153	-0.285	0.371	-0.172	0.071	-0.178	1.000	0.000	0.000	0.000	0.000
RA1	-0.024	-0.297	-0.358	0.101	-0.235	0.075	-0.008	-0.022	-0.209	1.000	0.000	0.000	0.000
RA2	-0.040	0.105	0.143	0.207	0.537	-0.274	0.113	0.086	0.195	0.021	1.000	0.000	0.000
RA3	0.069	0.352	0.219	0.292	0.046	-0.306	-0.261	0.155	0.071	-0.290	-0.086	1.000	0.000
RA4	0.231	0.251	0.118	-0.251	0.112	-0.245	0.043	0.063	0.424	-0.054	-0.024	0.300	1.000

The above result of Table 2 describe that correlation coefficient analysis overall result describes negative and positive interrelation between dependent and independent variables.

2.3 Implications

The lifestyle of athletes during and after the profession has major Effects on Musculoskeletal Health in athletes. Those exercises that are performed during the training of athletes, those exercises affect muscle health after retirement as well. We know that during the profession of athletes, there is extensive work done by muscles, especially skeletal muscles so they get strength and endurance during the profession of athletes. But after retirement, when these trainings are almost Left by athletes, there are many types of effects on Musculoskeletal Health in Retired Athletes. The following are important implications of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes:

2.3.1 Enhanced education of athletes, better training methods, injury prevention in athletes

The basic professional education of athletes is essential for the selection of a profession. In other words, before choosing a profession, an athlete must be aware of the pros and cons of this profession. Sometimes athletes may opt for a profession in a hurry and often they perform well in sports as well but they are unaware of after Effects of this profession. Medical studies proved that extensive use of skeletal muscles during the profession in athletes may cause many muscle problems during the retirement period of athletes. At the same time, the issues related to bones have also been seen in Retired Athletes because of consistent and laborious training sessions. All of these aspects suggest that the athletes must be given proper and complete information related to the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes. This is the important implication of the long-term effects of competitive sports that they convince us to properly education of athletes before choosing a profession. The other important implication of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes is the aspect of improved training methods. As we know well training is mandatory for performing well in sports as it is said practice makes a man perfect. For competitive sports, there is a need for extensive and consistent training so that the body of the athlete becomes habitual of enduring pressure and stress. But there are some trainings which are highly energy demanding to such extent that they leave Long term effects on Musculoskeletal Health in Retired Athletes.

2.3.2 Development of rehabilitation programs for retired athletes, and development of protective equipment for athletes

As we know the rehabilitation period of an athlete is the decisive factor in the performance and physical health of the athlete. If injuries in athletes are quite dangerous and fatal, they can take more time to heal so the rehabilitation period will increase. These are the discussions of the rehabilitation period

during the profession of athletes. However, in the retirement period of athletes, they also need rehabilitation programs. It is because some injuries are not looked after in a better way during the profession of athletes but these injuries must be treated well in the retirement period of athletes. So it is the important implication of the study of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes that it helps to develop a system of rehabilitation programs for Retired Athletes as well. The other important implication of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes is the aspect of the development of better protective equipment for athletes.

2.3.3 Improved and advanced sports medicines, promoting healthy aging in athletes

As we know sports medicines are mostly used in case of sports Injuries but sometimes these medicines may not prove effective for treating and healing sports injuries. Most of these medicines treat Injuries for just time being but these injuries may result in Overuse Injuries in retired athletes. These aspects suggest that there is a need for advancements and improvements in sports medicine so that these medicines may treat all sports injuries in athletes. The other important implication of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes is the aspect of promoting healthy aging in athletes. It means that athletes must maintain their lifestyle in retirement period too. The athletes must develop the habit of continuous exercise in their retirement period so that muscles may not weaken after leaving the profession. The aspect of endurance and strength of skeletal muscles must be maintained in the retirement period too. All of these implications of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes are of great importance for maintaining the health of athletes in the retirement period as well.

2.4 Smart PLS Algorithm Model

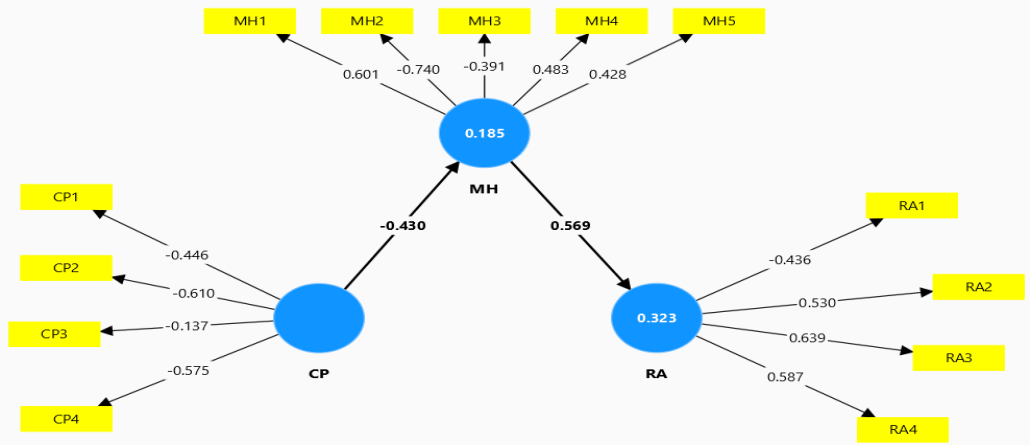

Figure 1: Smart PLS Algorithm Model

The above model of figure 1 describes that smart PLS Algorithm model in between CP, MH and RA result shows that CP present -0.446, -0.610, -0.137, -0.575 its shows that negative but significant link with CP. The MH shows that positive link with RA its rate value is 56% respectively. The RA shows -0.436, 0.530, 0.639 also that 0.587 positive and significant relation between them.

2.5 Confidence interval

Table 3: Results of Confidence Interval

MATRIX	ORIGINAL SAMPLE (O)	SAMPLE MEAN (M)	2.5%	97.5%
Cp<-CP	-0.446	0.141	-0.754	0.818
CP2<-CP	-0.610	0.106	-0.854	0.879
CP3<-CP	-0.137	0.051	-0.722	0.796
CP4<-CP	-0.575	0.226	-0.877	0.940
MH1<-MH	0.601	0.350	-0.778	0.880
MH2<-MH	-0.740	-0.164	-0.851	0.808
MH3<-MH	-0.391	0.197	-0.744	0.826
MH4<-MH	0.483	-0.052	-0.768	0.783
MH5<-MH	0.428	0.355	-0.737	0.864
RA1<-RA	-0.436	-0.177	-0.718	0.695
RA2<-RA	0.530	0.331	-0.818	0.904
RA3<-RA	0.639	0.185	-0.838	0.846
RA4<-RA	0.587	0.311	-0.767	0.853

The above result of table 3 demonstrates the confidence interval in between dependent and independent variable. the first matrix is CP<-CP its shows that original sample value is -0.446 the sample mean value is 0.141 its shows that 14% average rate the confidence interval value is -0.754 and 0.818 respectively. Similarly, the CP2<-CP shows 87%, and 85% confidence interval between them. overall result shows that positive average value of mean and original sample value between them.

3. Conclusion

During a performance in sports, athletes may wear different safety and protective equipment to reduce the risk of injuries to sensitive parts of the body. Despite wearing this protective equipment, sometimes injuries also occur to sensitive parts of the body which are highly dangerous for athletes. This aspect convinces us that there is a need for the development of improved safety and protective equipment for athletes so the risk of Minor injuries may also reduce. We can take help from technology and sports science to develop such improved protective equipment for athletes. The research study based on primary data analysis for determine the research used Smart PLS software and generate result included descriptive statistic, correlation coefficient also that smart PLS

Algorithm model between them. the result also shows that confidence interval between them. After an overview of the implications of the long-term effects of competitive sports on Musculoskeletal Health in Retired Athletes, we may conclude that a few aspects must be kept under consideration for better athlete health in the retirement period

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